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**Female teachers' satisfaction with e-learning: A field study at the Higher School
for Teachers in Constantine**

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Abstract:

This study sought to reveal the degree of satisfaction of female students with e-learning and to determine the extent to which academic variables affect this satisfaction. Specifically, the study aimed to show the differences in female students' satisfaction levels according to their academic major (science/arts) in order to provide a clear picture of the effectiveness of the digital learning experience from the perspective of the target group. A descriptive approach was used due to its suitability for the nature of the study, and a questionnaire was adopted as the main tool for data collection. The tool was distributed to a simple random sample of (262) female professors. To achieve statistical accuracy, the data was processed using SPSS software through descriptive statistics (arithmetic mean, standard deviation, and relative weight), in addition to using the T-test for independent samples to detect statistical differences between variables. The results of the study showed that female students have a high degree of satisfaction with e-learning in general. Statistical analyses also showed no statistically significant differences in satisfaction levels attributable to the variable of academic discipline (science/arts), indicating that female students' views and experiences of e-learning were consistent regardless of the nature of their scientific or literary courses.

The study concludes that the e-learning experience has achieved wide acceptance and approval among female students, reflecting the success of the technical or methodological structure in meeting their expectations. The study recommends the need to reinforce this satisfaction by continuing to support and develop e-learning platforms in line with the needs of all disciplines and maintaining this positive level of digital interaction.

Keywords: Satisfaction Level; E-learning, Student Teacher; Higher Normal School; Academic Performance.

1. Introduction

For thousands of years, humans have gathered to learn and share knowledge. Until now, we had to be in the same place at the same time. Today, internet technologies have eliminated this requirement. Thanks to a new development called e-learning, anyone will soon be able to learn anything, anywhere, anytime with the growing presence of massive open online courses (MOOCs).

Traditional means cannot deliver lifelong learning. People need to learn more efficiently, at their own pace, and at a time and place of their choosing. E-learning can provide this type of education, but only if it is designed to do so. Over the past decade, e-learning has evolved from an experimental method used to teach technical subjects within computer companies to a mainstream approach for teaching a wide range of subjects, from life-saving medical procedures to traditional classroom settings at all grade levels. If you're interested in teaching others today, you can't afford to ignore e-learning.

It is one of the new trends in the university education system and the most widely used term. It refers to learning through internet technology where content is published online. This method allows you to create links with resources outside the classroom.

The Higher School of Professors "Assia Djebbar" in Constantine, Algeria, is one of the educational institutions that seeks to keep pace with efforts to develop and raise the efficiency of universities quantitatively and qualitatively. The school does this by adopting both in-person and distance education. Education today requires searching for new methods and strategies, as well as the human and material resources needed to implement and manage them, in order to achieve the desired goals.

The current study addresses the following two questions: What is the degree of satisfaction of female students toward e-learning at the Higher School of Professors "Assia Djebbar" in Constantine? Are there statistically significant differences in the degree of satisfaction?

2. Study hypotheses

- The degree of satisfaction among female students regarding e-learning at the Higher School of Professors "Assia Jabbar" in Constantine is high.

There are no statistically significant differences in satisfaction levels among female students - - based on their scientific specialization (literary or scientific).

3. Objectives of the Study

- To identify the degree to which female students are satisfied with e-learning at the Higher School of Professors "Assia Jabbar" in Constantine.

- Ensure that there are no statistically significant differences in satisfaction levels due to scientific specialization (literary/ scientific).

4. Importance of the Study

The importance of the current study is evident.

- It sheds light on female students' satisfaction with e-learning. E-learning is considered one of the modern technological methods that are indispensable in our time because it contributes to the effectiveness of the teaching-learning process, enhances learners' participation in the educational process, and makes learning more memorable.
- It improves and increases learners' understanding and comprehension, abandoning traditional methods that rely on memorization at the expense of understanding. These methods make learners mere receptacles for collecting and retrieving information on the day of the exam.
- It makes learners capable of lifelong learning, enabling them to meet the challenges of the age and adapt to the rapid changes brought about by modern technologies.

5. Previous Studies

- **Hossamo (2011):** The study aimed to identify the reality of e-learning at Tishreen University from the perspectives of students and faculty. The researcher used a descriptive method and collected data using a questionnaire. One questionnaire was given to a sample of (774) male and female students and another was given to (113) professors selected by simple random sampling.

The study found the following results: There were no differences in faculty members' averages according to scientific rank and experience. The results indicated differences in students' average scores according to scientific specialization, favoring scientific specialization (Al-Maghraby & Boukneisha, 2021, p. 32).

- **Cole's study. Shelley and Swartz (2013):** The researchers aimed to identify the level of satisfaction of graduate and undergraduate students with online education at Robert Morris University in the United States. They used a descriptive method and a questionnaire to collect data. The researchers conducted a series of surveys over eight semesters. Five hundred and fifty-three students participated in the study. Responses were consistent throughout, though notable differences in satisfaction levels were observed among students.

The results indicated that there were no statistically significant differences in satisfaction based on gender, age, or area of study. Overall, students rated their

online education as moderately satisfying. Hybrid or partially online courses were rated somewhat more satisfying than fully online courses. "Convenience" was the most frequently cited reason for satisfaction. "Lack of interaction" was the most frequently cited reason for dissatisfaction.

- **Zaheer et al. (2016):** The study aimed to measure student satisfaction with e-learning in Pakistan. The researchers used a structured questionnaire to assess satisfaction in eight areas: assessment; course content and organization; teacher; learning environment and teaching methods; learning resources; quality of delivery; student contribution; and educational programs. A total of (21,608) student participated in the study, (65%) of who were male and (35%) of whom were female. The study showed that distance learning has gained wider acceptance and is a viable alternative to traditional classroom teaching. Distance learning offers advantages such as low cost, wider accessibility, and shared resources. However, students face some issues, such as not having regular classrooms where they can discuss different topics and lacking social and emotional contact.

The results of the study indicated that the majority of students are satisfied with their e-learning education, showing that e-learning has the potential to increase higher education in Pakistan, where higher education institutes have limited capacity.

- **Yusuf's study (2020):** This study aimed to identify university students' attitudes and opinions toward the e-learning process during the Coronavirus pandemic. Total of (151) students from the College of Communication and Media at King Abdul-Aziz University participated in the study. A questionnaire was used to collect data, which was divided into several categories.

The results indicated that students were satisfied with the e-learning system and that the majority preferred e-learning to traditional learning.

- **The Study of Judges (2020):** This study aimed to analyze and evaluate the quality of e-learning and its impact on the satisfaction of Taibah University students. The study relied on a descriptive-analytic approach. Primary data were collected through a (18) paragraph questionnaire distributed to a simple random sample of (300) male and female students. The results were analyzed using the structural equation modeling (SEM) method with Amos version (24) to determine the relationship between the study's independent and dependent variables.

The study found that the general attitude toward the quality of e-learning and its dimensions at Taibah University in Saudi Arabia was positive, with an average score of (3.897). The average scores of the e-learning quality dimensions ranged from (4.172) to (3.651). The study recommends that Taibah University continue to adopt e-learning as a strategic choice. The study also found that the general

satisfaction trend among Taibah University students was high, with an overall mean of (4.128). The mean for the e-learning quality dimensions ranged from (4.070) to (4.187). This study recommends that Taibah University continue to adopt e-learning as a strategic choice.

- **Assad's study (2021):** The study aimed to reveal Egyptian university students' attitudes toward using e-learning applications in light of the Corona pandemic. The study sample consisted of (200) male and female students from Egyptian universities and a questionnaire were used to collect data.

The results showed positive attitudes toward e-learning applications among Egyptian university students in the context of the pandemic. There were also statistically significant differences in attitudes due to the variable of specialization, favoring natural sciences.

As is evident from the above, all studies adopted the correct scientific methodology, from the choice of method and sample to the approved data collection tools. Whether these tools were prepared by researchers or approved, it is clear that e-learning is important for learners' academic performance at the university. It is also noted that all previous approved studies focused on university students, except for Hossamo's (2011) study, which included students and faculty, as well as the current study.

Previous studies relied on questionnaires as data collection tools and used descriptive methods because they suited the studies' nature and objectives. The results of previous studies were mixed. Some studies agreed with the results of the current study, such as Hossamo's (2011) study and Cole, Shelley, and others'. Shelley and Swartz (2013) and Zaheer and al. (2016). Swartz (2013) and Zaheer and al. (2016). However, one study, Asaad (2021), concluded that science students were more satisfied with e-learning.

Despite their differences, all previous studies contributed to supporting the current study by helping the researcher define the objectives, select the data collection tool, and interpret the results.

6. Theoretical Framework of the Study

6.1. Definition of E-Learning

- Distance education is a method of education that uses modern communication mechanisms, such as computers, networks, multimedia, and internet portals, to deliver information to learners quickly and cost-effectively. It enables the management and control of the educational process and the measurement and evaluation of learners' performance (Mullah, 2010, p. 11).

- Belabbas and Bouhila (2021) also define it as an interactive system linked to the teaching-learning process. This system relies on a digital environment that

presents courses and activities to students via electronic networks and smart devices (p. 361).

6.2. The Importance of E-Learning

E-learning is currently a boon to contemporary education, as teaching has become learner-centered and teachers now act as mentors. Through e-learning technology, learners can now learn many activities, increase their knowledge, improve their skills, and organize and direct their own learning. Chitra and Raj (2018) emphasize that e-learning motivates learners to work independently and take charge of the teaching process. Furthermore, e-learning enhances teachers' technological skills and encourages them to conduct extensive research on learning materials instead of relying solely on textbook content. Additionally, technology is being integrated into classrooms as teachers abandon traditional teaching methods and deliver lectures in different locations.

Furthermore, e-learning does not require teachers and learners to be in the same place. It encourages learners to think creatively, collaborate, communicate, and express themselves clearly (Yucel, 2006). Through e-learning, teachers can evaluate learners and facilitate forums for exchanging opinions and ideas (Arafat & All, 2023). Yulia (2020) also mentions the importance of e-learning in reducing costs to create new classes. E-learning is available to all individuals and age groups and makes education more organized, flexible, and objective (Yucel, 2006).

E-learning at the university level represents a radical shift in the philosophy of higher education, as it is no longer just an alternative technical tool, but has become an integrated learning environment that promotes student independence and the ability to manage their own learning. Its importance is evident in breaking down temporal and spatial barriers and providing unlimited knowledge resources that contribute to improving educational outcomes. In this context, a study (Arab Journal of Scientific Publishing, 2025) confirmed that the integration of e-learning systems has effectively contributed to improving the quality of education and ensuring its continuity with high efficiency, which has raised the level of academic understanding among students thanks to the diversity of interactive media.

The importance was not limited to the academic aspect, but extended to include the development of digital competencies. A study by Sunny & Ramasamy (2025) revealed a close positive correlation between digital culture and learning outcomes, with students engaged in digital environments demonstrating high levels of self-efficacy and critical thinking. This is consistent with the findings of a study (University of Chlef, 2024) that highlighted students' high psychological

and technical readiness for this type of education, considering it a vital means of acquiring technological skills that increase their chances in the future job market. In general, recent global research reports for 2025 indicate that approximately 85% of university students find digital learning to be a motivator for increasing their drive to achieve and crafting a personalized educational experience that matches their individual abilities.

6.3. Types of E-Learning

E-learning is usually categorized into two main types:

- **Asynchronous e-learning**

In asynchronous learning, the learner plays a central role in the learning process. He carries out the learning process by studying, following up, and searching for scientific material from various sources. This approach allows learners greater freedom to choose when to study, as well as the option to study from home, work, or any other place. Asynchronous learning does not require direct interaction with a teacher. Instead, learners use CDs or educational programs on computers. The internet and web are also considered means by which this type of learning is provided.

- **Synchronous e-learning**

Synchronous learning uses web and internet technologies to provide training and education at an appropriate time for learners despite great geographical distances. Learners interact with a lecturer who provides electronic lectures and lessons using multimedia (Saad, 2015; Al-Karimin, 2017).

6.4. Top E-Learning Platforms

- **Moodle**

This system operates in over (75) languages worldwide, including Arabic. It is used by over (85,000) organizations in (196) countries, serving over (70) million learners and (1.2) million teachers with over 8 million educational resources.

Moodle transforms educational organizations' work from traditional to electronic and is similar to the Blackboard e-learning system used by many universities worldwide. Moodle can significantly accelerate and improve the quality of the educational process. It is easy to use for administrators, educational staff, and learners. Educational organizations can easily install it on their websites and customize the design to match their identity. Its most important characteristics are:

Moodle provides all distance education services, such as tests, assignments, and educational evaluations.

The system must be installed on a website and redesigned to suit the educational organization.

- It has thousands of free and paid add-ons, such as remote lectures and test administration.
- Moodle has mobile applications that enable teachers and learners to perform their tasks on them.

Moodle is an open-source system; many other systems have been built on it.

- Google Classroom

Google launched its own educational system, adding a distinctive option to the e-learning process. This system is part of the Google software package.

It is characterized by its ease of use, localization, and many advantages of e-learning platforms. The system is available free of charge and in many international languages, including Arabic. The system has many features, the most important of which are:

- It is generally free and easy to use.
- It is based on facilitating the educational process and provides many related services.
- It provides all learners and teachers with a free email address.
- It does not require programming or other modifications because it is ready to work directly on its own website.

Registration is required to access the service (Al-Atrebi, 2019).

6.5. Advantages and Disadvantages of E-Learning

- Advantages of E-Learning: E-learning has several advantages

- Online learning requires the use of a device to communicate. Studies show that learners tend to be more active online than in traditional learning environments and therefore have more time to think about the discussion topic. It helps learners overcome the fear of answering direct questions and allows shy learners to engage in the conversation.

It motivates learners to interact with others and respect their perspectives, even when they are different. E-learning makes it easier for learners to communicate with each other.

E-learning allows learners to understand the lesson at their own pace and to review the material as much as they want. For group work, learners can collaborate through Google Meet.

E-learning focuses on the needs of learners rather than teachers or organizations (Arafat and All, 2023).

- Disadvantages of e-learning: Despite the many advantages of e-learning, there are some disadvantages. For example

- Online learning completely lacks personal interaction, not only between the teacher and the learners but between the learners themselves. Mayers et al. (2002) state that an e-learning system, in which community members do not actively communicate, will make learners more shy in expressing themselves freely and revealing their point of view.
- E-learning lacks interaction or communication, which affects the effectiveness of the learning objectives. Therefore, learners need to gain strong motivation and time management ability to minimize these effects.
- The learning process is much easier when done the traditional way, face-to-face with a teacher. Online learning is prone to plagiarism, deception, and poor motivation to learn.
- Not all subjects can use e-learning as a method of instruction. For example, some scientific fields that require hands-on experience are difficult to study through online interactions. Researchers have claimed that e-learning is more suitable for social sciences and humanities than for medical and engineering sciences, where practical skills need to be developed.
- Poor internet connectivity can disrupt learning sessions, leading to poor quality information and interactions. This issue is more pronounced for learners from rural areas with poor or non-existent internet infrastructure or those who cannot afford it.
- The obvious disadvantage of e-learning is the lack of active interaction between the teacher and the learner. The learner does not receive immediate clarification when an issue is encountered or when a concept is unknown. In addition, because of the minimal interaction, learners may be less motivated to study on their own (Cole, Shelley, and Swartz, 2013).

7. Field Study Procedures

7.1. Methodology

In our research, we relied on the descriptive method, which involves the researcher's description of the phenomenon to be studied or the collection of accurate descriptions and information about it. The descriptive method relies on careful study and deals with psychological phenomena such as anxiety, fear, bullying, introversion, and aggression.), social (customs, traditions, and values), and cultural phenomena. The aim is to collect quantitative and qualitative scientific descriptions of the phenomenon as it occurs naturally, without

researcher intervention, in order to clarify the factors causing it and its consequences. The required data is collected through several tools and methods.

7.2. Study population and sample

The study population consisted of all female students in the Natural Sciences and Arabic Language departments at the Higher School of Professors - Asia Djebbar - Constantine for the first semester of the (2024-2025) academic year. There were about (1,300) students in the sample.

The study sample consisted of (262) female students from the Natural Sciences and Arabic Language departments at the Higher School of Professors - Asia Djebbar - Constantine for the (2024-2025) academic year. They were randomly selected and distributed based on the study variables, as shown in Table (1).

Table 1. The frequencies and percentages of the study variables

Variants	Categories	Repetition	Ratio
Scientific specialization	Scientific	131	% 50
	Literary	131	% 50
	Total	262	100 %

7.3. Study Tool

The researcher used the e-learning satisfaction questionnaire developed by Al-Harahsha (2021). The instrument contains 36 paragraphs to be answered using a five-point scale: strongly agree (five points), agree (four points), neutral (three points), disagree (two points), and strongly disagree (one point). This applies to paragraphs with positive content. For paragraphs with negative content, one point is given for "strongly agree," two points for "agree," four points for "disagree," and five points for "strongly disagree."

The response scores for "neutral" remain the same in both cases. The instrument consists of two parts. The first part includes instructions and the method for answering, as well as data about the examinees' scientific specialization. The second part includes female students' degree of satisfaction with e-learning.

We chose this questionnaire for the following reasons:

- * It was originally developed for field studies to test hypotheses related to the topic of this study.
- * The availability of all necessary instructions for conducting, correcting, and interpreting the scores so that the results are as objective and correct as possible.

- Psychometric Properties of the Instrument in the Current Study

- **Reliability Calculation:** The instrument's reliability was checked using two methods.

- **Internal consistency:** This is the correlation between the paragraph score and the total score of the instrument. Most of the correlation coefficient values ranged from (0.32) to (0.61) and were statistically significant at the (0.01) level.
- **Discriminant validity:** means the peripheral comparison between the upper and lower thirds of the exploratory sample regarding satisfaction with e-learning. The results are as follows:

Table 2. Results of the t-test to confirm the instrument's discriminant validity

Variable	G	M	D	T	Sig level
Satisfaction with e-learning	Top 30 %	96,883	6,194	8,178	0,00**
	Lowest 30%	79,883	5,926		

As shown in Table (2), the t-value for the final comparison of high and low scores was (8.178), with a standard deviation of (6.194) and a probability value of (0.000), which is smaller than the significance level of (0.01).

Thus, the tool's ability to distinguish between high and low scores (discriminant validity) in satisfaction with e-learning is evident, indicating the tool's validity for its intended purpose.

- **Stability calculation:** The stability of the instrument in this study was determined using the split-half method on the survey sample. The results are shown in Table (3).

Table 3. Stability Coefficient Values for Degree of Satisfaction of Female Student Professors toward E-Learning

Stability by semi-division	Groups	Stability coefficient	Contrast	Spearman's coefficient	Gateman's coefficient
	First group	0,763	35,523	0,822	0,819
	Second group	0.771	28,654		

As shown in Table (3), the stability coefficient values for the two groups are not equal. The values were (0.763) and (0.771) for the first and second groups, respectively, with a difference of one degree. The coefficient of variance values also showed clear differences, with values of (35.523) and 28.654 for the first and second groups, respectively. Therefore, we decided to adopt the Gitman coefficient, which is (0.819). The researchers believe these values are sufficient for scientific research purposes.

7.4. Procedures for Carrying Out the Study

To achieve the study's objectives, the researcher followed these procedures:
Reviewed the paragraphs of the instrument to ensure linguistic soundness and that female students could understand and answer it.

- The researcher distributed the study tool to female students to complete.
- The researcher analyzed the obtained data and used appropriate statistical analyses to present and discuss the results.

8. Presentation, Discussion, and Interpretation of Results

8.1. Presentation and discussion of the first hypothesis: "Student teachers are highly satisfied with e-learning." To verify this hypothesis, the researcher calculated the mean and standard deviation of student satisfaction with e-learning at the Higher School for Teachers. The results are shown in Table (4).

Table 4. The arithmetic means and standard deviations

N	R	Items	M	SD	D
1	17	E-learning gives me feedback	2,91	1,285	High
2	18	Increases my self-confidence and self-reliance	2,90	1,127	High
3	28	This method helped me understand the material clearly	2,50	1,221	High
4	21	Gives me feedback to learn	2,79	1,121	High
5	1	It gives me access to previous lectures	3,88	0,937	High
6	22	Increases my motivation to read and follow	2,74	1,166	High
7	10	It teaches me values such as patience and observation.	3,11	1,181	High
8	6	Saves me time and effort to get the job done	3,27	1,237	High
9	11	Increases my desire to share and use information with students	3,09	1,160	High
10	15	It gives me the opportunity to showcase my abilities and potential	3,00	1,197	High
11	23	I feel like I benefit from the feedback given on the Moodle app	2,72	1,199	High
12	36	E-learning brings me closer to the teacher	2,08	1,206	Medium
13	29	I feel like I'm always ready for lectures and discussions	2,40	1,143	High
14	5	I have sufficient ability to use the course website	3,32	1,143	High
15	20	I feel comfortable doing electronic correspondence for assignments	2,84	1,281	High
16	27	I feel easy to communicate with the professor	2,52	1,246	High
17	3	I have the ability to receive and send messages via email	3,38	1,197	High
18	25	I feel that e-learning improves my education and learning	2,65	1,236	High
19	4	I have the ability to use e-learning applications (MOODLE)	3,37	1,019	High
20	7	I have the ability to use e-learning applications (ZOOM)	3,26	1,122	High
21	32	I feel that technical assistance is not available when needed	2,25	1,041	Medium
22	16	I don't have typing and formatting skills	2,96	1,163	High
23	26	I get bored sitting in front of my computer screen	2,59	1,192	High
24	33	I feel the lack of social interaction in the e-learning process	2,20	1,070	Medium
25	24	Lack of e-learning culture among family members	2,69	1,205	High
26	19	I feel like e-learning is an extra burden	2,85	1,176	High
27	8	I'm having trouble accessing the digital lessons website	3,24	1,208	High
28	30	I'm experiencing sudden network or device failures	2,37	1,179	Medium
29	13	I find it difficult to use e-learning applications (MOODLE)	3,04	1,152	High
30	14	I find it difficult to use e-learning apps (ZOOM)	3,00	1,212	High
31	35	Inadequate off-campus internet connection speeds	2,12	1,169	Medium
32	2	I have family issues as a result of using e-learning	3,67	1,110	High
33	9	I have poor computer skills	3,16	1,210	High
34	34	Lack of availability of courses related to e-learning applications	2,14	1,015	Medium

35	12	I don't own a personal computer	3,06	1,318	High
36	31	I feel anxious when dealing with online tests	2,35	1,210	High

As shown in Table (4), the degree of satisfaction among student professors regarding e-learning was high, with an overall mean of (2.849) and a standard deviation of 0.519. Most paragraphs fell within the high range, except for six that fell within the medium range: paragraphs (12, 21, 24, 28, 31, and 34).

- The paragraph "E-learning gives me the opportunity to obtain previous lectures" received the highest ratings from female professors, with an arithmetic mean of (3.88) and a standard deviation of (0.937). This paragraph reflects that students are highly satisfied with e-learning because it benefits them in many ways, especially with regard to lectures and downloading lessons from the Moodle platform. This result also indicates that members of the research sample believe in modern teaching methods that make learners active participants in the learning process rather than passive recipients.

- The paragraph "E-learning brings me closer to my professors" received the lowest mean score (2.08) from female students and fell within the average range. This indicates the study sample's dissatisfaction with e-learning's ability to bring them closer to their professors. This may be explained by the novelty of this teaching method and the inadequate capabilities necessary for its proper functioning, such as poor internet connectivity and technical issues, which both professors and students complain about.

However, modern and effective teaching methods have enabled students to access, understand, and apply information more quickly by simulating social and economic realities virtually using modern technology. This approach evokes the reality of the society to which students belong and prepares them to face all situations, including new and emerging ones. It empowers learners with various means to face, develop, and improve real-world realities. This is the goal of the teaching-learning process, which seeks to create educational institutions that are open to their surroundings by placing the community at the heart of the institution and creating a vibrant educational environment that moves from passive teaching to active teaching and from receiving to self-learning and cooperative learning.

- The results of the current research are consistent with the theoretical tradition that calls for innovation and the adoption of modern teaching methods that develop learners' ability to think scientifically, work cooperatively in teams, use modern technologies, and innovate and create.

- The results of the current research agree with those of Zaheer et al. (2016), who found that most students are satisfied with their e-learning education. This suggests that e-learning has the potential to improve higher education in countries like Pakistan, where higher education institutes have limited capacity.

These results are consistent with those of Cole, Shelley, and Swartz (2013), in which students generally rated their online education as moderately satisfactory.

The results of the current study also partially agree with Youssef's (2020) study, which found that students are satisfied with the e-learning system and that the majority of them prefer e-learning to traditional education.

- The results of the current research agreed with the findings of Al-Qudah's (2020) study, which concluded that university students at Taibah University in the Kingdom of Saudi Arabia were generally satisfied with the institution, with an overall mean score of (4.128). The mean scores for the e-learning quality dimensions ranged from (4.070) to (4.187). This study recommends that Taibah University continue to adopt e-learning as a strategic choice.

8.2. Presentation and Discussion of the Second Hypothesis

"There are no statistically significant differences in the degree to which female student professors are satisfied with e-learning due to the scientific specialization variable (scientific versus literary)." To test this hypothesis, the researcher used a t-test to calculate differences between two independent samples.

Table 5. The results of the t-test

The degree of satisfaction of female students towards e-learning	Sp	N	M	D	Df	T-test	Sig
	Science	131	103.12	20.616	260	0.458	0.647
	Littéraire	131	102.06	16.676			

As shown in Table 5, the mean score for science students was estimated at (103.12), with a standard deviation of (20.616). This is slightly higher than the mean score for Arabic language students, which was estimated at (102.06), with a standard deviation of (16.676). To determine if this difference is statistically significant, we examined the results of the t-test.

The t-value (0.485) is greater than the significance level (0.647), confirming that there are no statistically significant differences in the degree of satisfaction towards e-learning among female students according to their scientific specialization (scientific or literary).

Therefore, we reject the alternative hypothesis that there are statistically significant differences in the degree of satisfaction of female students toward e-learning due to their scientific specialization and accept the null hypothesis that there are no such differences.

- This result, i.e., the lack of statistically significant differences in satisfaction with e-learning according to scientific specialization, can be explained by e-learning's strong impact on teaching and learning. This impact prompted university institutions, such as the Higher School for Professors Asia Jabbar Constantine, to adopt e-learning, increase faculty and learner access to information, and provide a rich environment for cooperation, thereby improving academic standards and enabling learners to study anytime, anywhere. E-learning involves presenting knowledge, motivating learners to interact with each other, and sharing and respecting different points of view. It also facilitates communication and improves

- The results of the current study conflicted with those of Hossamo (2011) and Assaad (2021), who found statistically significant differences in students' attitudes attributed to the scientific division variable in favor of the science major. The results also disagreed with those of Cole, Shelley, and Swartz (2013).

Conclusion

This study is a scientific step toward revealing the reality of digital transformation in academic institutions, as its results clearly show the maturity of the digital experience among female students and professors. The “high satisfaction” rating is not just a statistical figure, but an indicator of the transition from technological shock to full adaptation to modern tools, reflecting an awareness of the usefulness of e-learning in saving effort and time and achieving educational flexibility.

In light of the results showing no statistically significant differences attributable to the variable of specialization (science/arts), this confirms that digital competencies and psychological acceptance of technology have become a “common language” that transcends the nature of the academic content. This indicates that educational platforms have succeeded in providing a neutral and effective environment that meets the needs of science students in their experiments and arts students in their research and analysis, reinforcing the idea of “digital education democracy.”

This tangible satisfaction places educational institutions before the responsibility of investing in this positive spirit, as preparing the “student teacher” technically today is the real guarantee of the quality of education in the future. Teachers who are satisfied with their educational tools are more capable of creativity and innovation and of passing on this positive attitude to their future students, which contributes to building a generation capable of dealing with the requirements of the Fourth Industrial Revolution.

Based on the above, it can be said that e-learning is no longer just an “emergency alternative,” but has become a widely accepted strategic option, which requires a transition from measuring satisfaction to measuring impact and effectiveness in final educational outcomes.

Based on the findings, recommendations can be formulated along the following lines:

First: At the policy and institutional level

- **Institutionalization of e-learning:** The need to move from individual initiatives to comprehensive institutional frameworks by updating university regulations to adopt e-learning as a basic educational model alongside face-to-face education.

- **Continuity of technical support:** Maintaining a high level of satisfaction requires regular maintenance of platforms and continuous updating of internet speeds and user interfaces to ensure a smooth learning experience.

Second: At the training and professional level

- **Precise specialized training:** Although satisfaction levels are equal across disciplines, it is recommended that training courses be designed that take into account the “specificity” of each discipline (such as virtual science laboratories and platforms for literary criticism and analysis) to increase employment efficiency, not just satisfaction.

- **Development of digital assessment skills:** Training female students in alternative assessment methods and electronic testing to ensure the integrity and quality of measurement in digital environments.

Third: At the research level (proposals for future research)

- Conduct a comparative study between “satisfaction level” and “actual academic performance” among female students to determine the extent to which satisfaction is reflected in achievement.

- Study the obstacles that female students may face in applying e-learning during their “field training” period in schools.

- Research the impact of “virtual social interaction” on educational platforms on the overall satisfaction level of students.

Bibliography List

- Al-Mallah, M. A. (2010). *Pedagogical Foundations of E-Learning Technologies*. Amman: Culture House for Publishing and Distribution.
- Abeer. M. S. (2015). *Principles and Applications of E-Learning*. Jordan: Dar Al-Bidaya Publishers and Distributors.
- William, H. (2006). *E-Learning by Design*. United States: Pfeiffer Publishing House.
- Yucel, S. (2006). "E-Learning Approach in Teacher Training." *Turkish Online Journal of Distance Education (TOJDE)*, 7(4), 123–131.

- Istitia, D. M., & Sarhan, O. M. (2007). *Educational Technology and E-Learning*. Jordan: Dar Wael for Publishing.
- Yulia, H. (2020). "Online E-Learning to Prevent the Spread of Pandemic Coronavirus in Indonesia". *English Teaching Journal*, 1(1), 11–27.
- Belabbas, A., & Radwan, B. (2021). "The Effectiveness of E-Learning in Light of the Spread of the Coronavirus from the Point of View of Teachers at the Faculty of Humanities and Social Sciences at Mohamed Boudiaf University of Messaâd." *Journal of Media and Society*, 5(2), 357-379.
- Michele T. C., Daniel J. S, & Louis B. S. (2013). Online Instruction, E-Learning, and Student Satisfaction: A Three-Year Study." *The International Review of Research in Open and Distance Learning*, 15(6), 111–131.
- Arab Journal for Scientific Publishing. (2025). The impact of e-learning systems on improving the quality of higher education: a forward-looking vision. 42(1), 115-130.
- Coursera. (2025). Global Skills and Digital Learning Report: Academic Student Trends for 2025. *Research report published online*. <https://www.coursera.org/resources/global-skills-report>.
- Sunny, A., & Ramasamy, K. (2025). Digital Literacy and Learning Outcomes: The Mediating Role of Self-Efficacy in Virtual Learning Environments. *Frontiers in Education*, 10, 1024-1038.
- University of Chlef. (2024). *University students' attitudes towards distance learning platforms: A field study on competencies and skills*. *Journal of Humanities and Social Sciences*, University of Hassiba Bouali, Algeria.
- Al-Atarbi, S. (2019). *Learning by Visualization: E-Learning Strategy and Learning Tools*. Cairo: Al-Arabi for Publishing and Distribution, 1st edition.
- Al-Karimin, R. A. (2017). *Effective Teaching Strategies: Between Educational Competencies and Learning Theories*. Jordan: Academic House for Publishing and Distribution.
- Al-Maghraby, O., Abdelhamid, M., & Abdelsalam, M. M. B. (2021). "The Role of Libyan Universities in Employing E-Learning (Distance Learning)." *International Journal of Educational and Psychological Studies*, 9(1) 25–43.
<https://doi.org/10.31559/EPS2021.9.1.3>
- Arafat, A. R., & All. (2023). "E-Learning from University Students' Perspectives." *Journal of Asian Multicultural Research for Educational Study*, 4(3), 1–9.