اتجاهات أساتذة العلوم الطبيعية نحو إدخال برامج تعليمية عن بعد
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اتجاهات أساتذة العلوم الطبيعية نحو إدخال برامج تعليمية عن بعد لفائدة تلاميذ السنة الثالثة (ثانوي (الباكالوريا)

Teachers' attitudes towards the implementation of distance learning programmes for the benefit of third year secondary school students (Baccalaureate)

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الملخص:

هدفت الدراسة الحالية إلى الكشف على اتجاهات أساتذة مادة العلوم الطبيعية نحو إدخال برامج تعليمية عن بعد لفائدة تلاميذ السنة الثالثة ثانوي، حيث تم التطرق في الإطار النظري إلى تعريف الاتجاهات، مكوناتها وأهم خصائصها وأنواعها وكذا إلى تعرف التعليم عن بعد، أنماطه، أهدافه ودور الأستاذ فيه، كما تم الإشارة إلى البرامج التعليمية عن بعد من تعريف لها ومميزاتها، وتعريف التصميم التعليمي، أهميته وأهم الإجراءات الواجب إتباعها لتصميم التعليم عبر الانترنت.

أما الإطار الميداني فقد تم الاعتماد على المنهج الوصفي نظرا لما تتطلبه طبيعة الموضوع، حيث أجريت الدراسة على عينة من أساتذة العلوم الطبيعية بالمستوى الثانوي وقد تم اختيارها بالطريقة القصدية واعتمد الباحثان على استبيان خاص باتجاهات الأساتذة نحو توظيف برامج التعليم عن بعد من إعداد الباحث محمد

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بن ناصر المعثم (2021) كأداة للدراسة، حيث توصلت نتائج الدراسة إلى أن اتجاهات أساتذة العلوم الطبيعية ايجابية نحو إدخال برامج التعليم عن بعد لفائدة تلاميذ السنة الثالثة ثانوي، كما تبين أنه توجد فروق في متوسطات إجابات الأساتذة حول اتجاهاتهم نحو إدخال برامج التعليم عن بعد في مادة العلوم الطبيعية لفائدة تلاميذ السنة الثالثة ثانوي تعزى لمتغير الخبرة المهنية، في حين لا توجد فروق في متوسطات إجاباتهم حسب متغير الرتبة الوظيفية.

الكلمات الدالة:

الاتجاهات، التعليم عن بعد، البرامج التعليمية عن بعد.

Abstract:

The aim of the current study was to investigate science teachers' attitudes towards implementing distance learning programmes for the benefit of third-year secondary school students. The theoretical framework discussed the definition of attitudes, their components, important characteristics and types. It also explored the concept of distance education, its patterns, objectives and the role of the teacher in it. In addition, the definition and advantages of distance learning programmes were highlighted, as well as the concept of instructional design, its importance and the necessary procedures for designing online education.

Regarding the field framework, a descriptive approach was adopted due to the nature of the subject. The study was conducted on a purposively selected sample of secondary science teachers. The researchers used a questionnaire on teachers' attitudes towards the use of distance learning programmes, prepared by the researcher Mohammed bin Nasser Al-Mu'them (2021), as a research tool. The results of the study showed that the attitudes of science teachers were positive towards the implementation of distance learning programmes for the benefit of third year secondary school students. Furthermore, it was found that there were differences in the mean scores of teachers' responses regarding their attitudes towards implementing distance learning programmes in the field of science for the benefit of third-year secondary school students, which were attributed to the variable of professional experience. However, there were no differences in the mean scores of their responses attributed to the variable of professional position.

Key Words:
Attitudes, distance learning, distance learning programmes.

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Introduction:

The advancement of modern technology has played a significant role in improving education through various advanced tools and techniques. Knowledge and information can now be disseminated

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rapidly, reaching individuals anywhere and at any time. One approach that has gained prominence is distance learning, which Basilaia and Kvavadze (2020) define as "an organised process aimed at achieving educational outcomes using technological means that provide audio, visual and video elements, facilitating interaction between learners, content and educational activities at a suitable time and place" (Basilaia&Kvavadze, 2020, 03).

Distance learning has emerged as an educational model that meets the requirements of both teachers and learners, as well as educational institutions. According to Al-Baqmi and Nahed (2017), many authors and thinkers in the field of distance learning agree that it is a logical concept based on a number of philosophical and psychological foundations. These foundations have contributed to the growing interest in distance learning programmes, which are designed and transformed into electronic programmes based on the Internet, various applications, educational platforms or social networks. The aim is to promote interaction between teachers and learners and ensure continuous communication. In this regard, Al-Rantisi (2022) states: "Distance learning aims to serve learners and teachers and to enhance the educational process by providing programmes and curricula in electronic form" (Al-Rantisi, 2022, 71).

Given the importance of using distance learning programmes, especially for secondary school students preparing for their baccalaureate exams, it becomes essential to facilitate continuous communication and interaction, especially in light of their absence from physical educational institutions. The use of distance learning programmes can help learners to prepare for and pass their exams. In addition, it helps teachers to deal with various problems and difficulties they encounter in the classroom, especially considering the advantages offered by distance learning programmes, such as capturing learners' attention and facilitating communication and interaction among them.

Therefore, the adoption of such programmes has become a necessary requirement in the field of education in all subjects. They cannot be ignored or abandoned, either in normal circumstances or in

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times of crises that may hinder face-to-face teaching in educational institutions.

1- Problem Statement:

The current era has witnessed a rapid explosion and development of knowledge and information in various fields, especially with the widespread use of modern and advanced technological tools. These tools have facilitated access to information with minimal time and effort, making their use an inevitable necessity, especially in the field of education. This need became even more apparent after the spread of the COVID-19 virus, which led the education system to rely heavily on technology in the teaching process. Educational institutions adopted various distance learning programmes using different technologies and platforms such as television, YouTube, educational platforms, email and modern applications. These programmes gained significant popularity during the pandemic, prompting teachers to adopt distance learning as a means to help learners continue their studies without interruption.

The shift to distance learning has become a common practice, with teachers increasingly adopting this approach. A study by Qushmar and Abdelhafiz (2021) highlighted that teachers find e-learning to be a flexible and easy teaching method that suits their skills and circumstances. This is particularly beneficial given the geographical diversity, academic qualifications and working patterns of teachers. In addition, some educators have turned to hybrid learning, which combines both face-to-face and online teaching. This approach offers advantages and benefits in terms of constant communication and interaction between teachers and students. A study by Haddi (2021) supports this, indicating that despite the challenges faced in implementing hybrid learning and using the Blackboard learning platform, there is a high level of satisfaction among faculty members and students at Cairo University.

Following the experience of distance learning during the pandemic, the continuing need for distance learning programmes in educational institutions has become apparent, even after the crisis has been overcome. This need stems from the concern to face future crises and to deal with problems and difficulties in the classroom at all levels

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of education, especially with high school students in their third year, who have shown a widespread phenomenon of absenteeism and disengagement throughout the academic year, especially in the third semester, in preparation for the baccalaureate exams. It has therefore become essential for educational leaders to draw the attention of teachers to the adoption and use of technological means in all their forms, in order to keep up with modern developments and take education to a higher level.

This was highlighted in a study by Hamed, Althawaini and Al-Ayar (2020) on the importance of using digital technology in education, as it provides new opportunities for both teachers and learners to participate in the innovation, development, dissemination and communication of knowledge. The study highlighted the importance of technology in facilitating the educational process, with teachers of different ranks acknowledging its importance Consequently, the use of technology contributes to overcoming difficulties and obstacles, especially for baccalaureate students, by relying on distance learning programmes that aim to maintain constant communication with students, encourage participation and interaction, and motivate them to research, investigate and learn in preparation for baccalaureate exams in all subjects. This is particularly relevant for science, which requires the study of phenomena through live observation and representation, such as images, animations, videos, and more. Therefore, it is necessary to facilitate the educational process by designing advanced electronic programmes and presenting them to students through modern applications or digital platforms. The current study aims to investigate the attitudes of science teachers in the province of Saïda towards the use of distance learning programmes. The aim is to draw their attention to the importance of adopting such programmes in order to improve the educational process and help students to continue their studies at a distance, thus contributing to their success and academic performance. The research question is formulated as follows:

- The attitudes of science teachers towards the introduction of distance learning programmes for the benefit of third year secondary school students?

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2-Questions:

- Are there differences in the mean responses of teachers regarding their attitudes towards the introduction of distance learning programmes in science subjects for the benefit of third-year secondary school students that can be attributed to the variable of professional experience?
- Are there differences in the mean responses of teachers regarding their attitudes towards the introduction of distance learning programmes in science subjects for the benefit of third-year secondary school students, attributed to the variable of professional position?

3- Hypotheses:

- The attitudes of science teachers are positive towards the introduction of distance learning programmes for the benefit of third year secondary school students.
- There are differences in the mean responses of teachers regarding their attitudes towards the introduction of distance learning programmes in science subjects for the benefit of third year secondary school students, attributed to the variable of professional experience.
- There are differences in the mean responses of teachers regarding their attitudes towards the introduction of distance learning programmes in science subjects for the benefit of third-year secondary school students, attributed to the variable of professional position.

4- Aims of the study:

- To determine the attitudes of science teachers towards the introduction of distance learning programmes for the benefit of third year secondary school students.
- To examine the differences in the attitudes of science teachers towards the introduction of distance learning programmes for the benefit of third year secondary school students according to the variables of gender, professional experience and job position.
- To draw the attention of teachers and educational stakeholders to the need to adopt new teaching methods and to keep up with current technological advances.4.To propose suggestions for improving the effectiveness of educational programmes by using modern technological tools and incorporating them into the educational process for a richer learning experience.

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5- The importance of the study:

The importance of the study lies in understanding the attitudes of science teachers in secondary schools towards the use of distance learning programmes. This knowledge is crucial for officials to take the necessary measures and provide appropriate resources to enable teachers to effectively use online and distance learning in science education in secondary schools.

- The study aims to assist science teachers in facilitating the teaching process through the use of Internet-based electronic programmes, especially in view of the lack of face-to-face teaching for third year secondary school students preparing for the Baccalaureate examination.
- Furthermore, the study contributes to the support and development of the science curriculum by incorporating it into distance learning programmes.
- It also benefits teachers by helping them to understand their role in the feasibility of using and implementing distance learning in the science curriculum.
- In addition, the study highlights the importance of measuring the satisfaction of natural science faculty members with the transition from traditional to distance learning.

6- Key Terms:

-Attitudes: It refers to the readiness of an individual who needs a stimulus to move them towards a particular behaviour, with their response being either acceptance or rejection based on social values and personal experience.

- Teachers: They are the teaching staff who impart knowledge and information to learners using various methods, strategies and techniques to facilitate the educational process.

- Distance learning programmes: It is a proposed plan that includes a series of experiences designed for the purpose of education and training in an interrelated manner. It relies on modern communication technology, the Internet, computers and their accessories to deliver educational content.

 The theoretical framework:

1- Attitudes:

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1-1-Definition of attitudes:

- Mansy (2003) defined attitudes as general mental and psychological responses of individuals to specific stimuli related to a particular issue in the environment in which they live. These attitudes are influenced by their previous experiences, which ensure their evaluation and generalization to their overall behaviour in similar situations and circumstances related to the subject. This makes attitudes either negative or positive. (Mansy, 2003, 16)
- Shafik (2007) defined attitudes as "the accumulated result of experiences, opinions and beliefs acquired by individuals through interaction with the physical and social environment. It is a state of mental and neural readiness that arises from the experiences that individuals go through and influences their responses of acceptance or rejection towards certain issues". (Shafik, 2007, 11)

1-2- Components of attitudes:

1-2-1- Cognitive component: It includes all the cognitive processes, beliefs and ideas that individuals have about the attitude object. It also includes the arguments behind their acceptance of the attitude object.

1-2-2- Affective component: It can be derived from a person's feelings, desires, inclinations or aversions towards the object. It is reflected in their attraction, repulsion, love or hatred towards it. (Al-Muhaisen, 2003, 65)

1-2-3-Behavioural component: It includes behavioural predispositions associated with the attitude. If an individual has a positive attitude towards a particular issue, he will make every effort to support this attitude. However, if they have a negative attitude towards a subject, they will reject it and everything associated with it. (Kheirallah, 1990, 63)

1-3- Characteristics of attitudes:

Attitudes have several characteristics, including:

- Direction: The direction of an attitude refers to an individual's feelings about a set of issues. The direction can be positive or negative.
- Intensity: Attitudes vary in intensity. A particular person may have a weak attitude towards one issue, but a strong attitude towards another.

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- Extensiveness: Extensiveness refers to the range of attitudes. For example, one student may strongly dislike or hate one or two aspects of school, while another student may dislike everything related to private or public education.
- Stability: It is observed that some people respond consistently to an attitude scale, while others may give both favorable and unfavorable responses to the same issue. For example, someone may claim to believe that all judges are neutral, while at the same time arguing that a particular judge is not impartial.
- Salience: Salience refers to the degree of automaticity or readiness to express the attitude. (Shahri, 2022, 143-144).

1-4- Types of attitudes:

1-4-1- General or specific attitudes: General attitudes are those that are generalized to several topics and tend to be more stable and consistent. On the other hand, specific attitudes are limited to a particular qualitative subject.

1-4-2- Collective or individual attitudes: Collective attitudes are shared by a group of people, such as admiration for a political leader or religious figure. Individual attitudes, on the other hand, are unique to the individual and distinguish one person from another, such as an individual's preference for a particular personality or group of people.

1-4-3- Public or private attitudes: Public attitudes are those that individuals openly express to others, while private attitudes are those that an individual is reluctant to show openly. They may try to hide them and keep them to themselves, sometimes even denying them when asked.

1-4-4- Strong or weak attitudes: Strong attitudes dominate a significant part of a person's life and lead them to adopt serious behaviours in certain situations, such as religious beliefs. On the other hand, weak attitudes are those that individuals cannot resist or tolerate, and they may engage in them because they do not feel strongly about them.

1-4-5- Positive and negative attitudes: Positive attitudes lead individuals towards a certain thing, such as enthusiasm for a particular hobby. Negative attitudes, on the other hand, push individuals away from something, such as an addiction. (Lounis, 2004, 34)

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2- Distance learning

2-1- Definition of Distance Learning:

There are several definitions of distance learning that vary and differ in their perspectives. Some of these definitions include:

- Al-Tif (2019) defines it as: "The delivery of educational content through smart devices, applications and networks that enable learners to actively interact with this content, as well as with teachers and peers, whether synchronously or asynchronously" (Al-Tif, 2019, p. 287).
- Koumi (2006) defines distance learning as: "The provision of education through the Internet using modern electronic technologies to access all educational materials beyond the boundaries of traditional classrooms" (Koumi, 2006, p. 22).

2-2- Types of distance education:

2-2-1- Live Distance Education: This refers to teaching methods and techniques that use the World Wide Web to deliver educational content to learners in real time for instructional or training purposes.

2-2-2-Indirect distance learning: It involves learning through a series of structured courses and sessions. This type of learning is used when there are several circumstances that do not allow learners to be physically present.

2-2-3- Blended distance learning: This type combines the previous two types, where everyone can be present at the same time in front of the network and computer and actively participate. If one of the learners is absent, they can return to the material or the course at any time.

2-3- Aims of distance learning:

The modern educational system has relied on distance education because of its positive effects in achieving educational objectives. Some of its objectives are:

- To meet the cognitive and scientific needs and desires of learners.
- Improve the process of retaining acquired knowledge and accessing it at the appropriate time.- To update information and knowledge quickly and to organize it according to its importance and the life situation.

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- Improving the interaction and communication between the parties involved in the educational process (teacher and learner) (Bedarna, 2020).

2-4-The role of the teacher in distance education:

The role of the teacher has evolved from a transmitter of knowledge to an assistant, advisor, problem solver and guide. In the era of e-learning, teachers play new roles that focus on planning, designing, preparing, researching, supporting, guiding and simplifying content and processes.

Teachers aim to help learners in their learning process by applying modern learner-centred theories to achieve self-directed learning. The teacher's role can be summarised in four areas:

- Designing education.
- Using technology.
- Encouraging student interaction.
- Developing students' self-directed learning (Shaker, 2012).

3-1-The electronic educational programmes

3-1-Educational programmes are as follows:

-According to Rabiei (2017), electronic educational programs are "computer-designed instructional units that are interconnected and organized according to sound pedagogical principles, encompassing a set of knowledge, experiences, activities, and diverse assessment methods, relying on the principles of responsiveness and reinforcement, and aimed at achieving specific educational objectives" (Rabiei, 2017, 22).

-According to Mahdi (2006), electronic educational programmes are "educational materials designed and programmed by computers that allow learners to interact with them at their own pace and learning ability. These software programs provide various multimedia alternatives, including images, audio, text and motion, to support the educational content" (Mahdi, 2006,6).

3-2-Characteristics of electronic educational programmes:

Ibrahim Al-Far (2000) points out that the main purpose of the teaching process is to facilitate learning in general. In order for

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electronic educational software to contribute to this purpose, it should have the following characteristics:

- Attract attention.
- Communicate learning objectives to the learner.
- Stimulate and help recall prior learning.
- Provide engaging learning materials.
- Guide the learner.
- Lead to success.
- Provide immediate feedback to correct performance.
- Encourage performance.
- Aid in the retention and transfer of learning (Al-Far, 2000, 310).

It is not necessary for every educational software programme to have all these characteristics. In educational contexts, the specific characteristics of learners and the determinants of an optimal learning environment, such as lighting conditions, allocated time for learning, etc., should be taken into account, as they vary from one individual to another (Nasr, 2007, 233).

3-3-Advantages of using electronic educational programmes in education:

Computers have many important features that can be used in teaching and learning. Some of these advantages are:

- Computers give learners ample opportunity to work at their own pace, which improves understanding.
- Computers provide immediate and appropriate feedback to the learner's responses in the educational context.
- Flexibility, as learners can use computers at appropriate places and times.
- Computers can store learners' responses, monitor their progress and identify areas of difficulty, thus facilitating personalised learning.
- Computers allow self-assessment.
- Computers enable teachers to respond effectively to the diverse cognitive backgrounds of learners, taking into account individual differences.
- The technical capabilities of computers, such as diagrams, charts, graphs, animations, shapes, etc., enable teachers to create an

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educational environment that closely resembles real teaching situations, especially in impractical, dangerous or costly teaching situations, such as planetary motion and nuclear interactions.

- Computers save time and effort for both teachers and students and redirect them towards interactive learning.
- Computers help to increase learners' self-confidence and promote a positive self-concept.
- Therefore, it is clear that the use of computers in education benefits both teachers and learners by enabling them to interact and communicate within and beyond the actual educational environment, which has a significant impact on learners' academic performance (Obaid, 2001, 376-377).

3-4- Definition of Instructional Design for e-learning:

Pinto (2023) defines instructional design as the systematic process of creating and delivering educational materials and experiences to learners. The essence of instructional design is the educational goal itself, where the goal should be aligned with the intended outcome to be achieved by the learner. The task of an instructional designer is to create and deliver educational materials and experiences that effectively assist the learner in achieving the predetermined learning goal (Pinto, 2023).

3-5- Importance of Instructional Design in e-learning:

The process of Instructional Design allows e-learning course designers to accurately identify knowledge or skill gaps and then present new information to learners in a logical manner. This means that e-learning courses have become more efficient, resulting in less wasted time. Therefore, good instructional design ultimately has a positive impact on real-world outcomes. The benefits of instructional design, particularly in the development of online curricula, include:

- Instructional design supports learner understanding.
- Instructional design makes e-learning more engaging.
- Instructional design helps learners retain knowledge.
- Instructional design encourages learners to take necessary action (Pinto, 2023).

3-6- Procedures for designing and developing online learning:

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Before conducting an online course, teachers need to focus on the following points:

1. Understanding the nature of the students, whether they are distance learners, their goals for taking an online course, their level of comfort with the necessary equipment, and their ability to access appropriate materials and resources.
2. Providing guidance to students on the requirements of online learning, their preferred learning style, the course content, the availability of materials online, how to use search tools, and providing options for easy printing or publishing so that distance learners can download the materials they need.

In summary, for online learning to be effective, it requires technology, time, availability of resources, monitoring, technical knowledge and research procedures (Bouazid, 2015, 6-7).

 The field framework

1- Methodological procedures:

1-1- The study population:

The current study community represents secondary school science teachers in secondary schools in the province of Saïda, with a total of 120 male and female teachers.

1-2- Study sample:

The study sample was purposively selected, consisting of secondary science teachers from the sample population. After distributing the questionnaire to all members of the community, 90 questionnaires were retrieved. Therefore, the study sample was determined to be 90 secondary science teachers. The following are the specifications of the study sample:

Table 01: Illustrates the specifications of the study sample.

	Gender		Professional Experience:		Rank	
	Male	Female	Lessthan 10 years	More than 10 years	Professor	Instructor
Number	35	55	42	48	52	38
Percentage	38.89%	61.11%	46.67%	53.33%	57.78%	42.22 %

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Total	90	90	90

Comment: Table 01 shows that the sample size was set at 90 male and female teachers. The percentage of males was estimated to be 38.89%, while the percentage of females was estimated to be 61.11%, indicating that there are more females than males. The percentage of teachers with more than 10 years of experience was estimated at 53.33%, while the percentage of teachers with less than 10 years of experience was estimated at 46.67%, indicating a close relationship between teachers in terms of professional experience. However, there was a difference in the percentage of teachers based on their professional rank, with 42.22% being professors of educational components and 57.78% being regular professors.

1-3 Research method:

Since the aim of the current study is to explore the attitudes of secondary school science teachers towards the use of distance learning programmes, a descriptive approach was adopted as it is appropriate to the objectives of the study and the nature of the research in gathering information and data on the study topic for understanding and analysis.

1-4- Study instrument:

The study relied on a questionnaire developed by the researcher Mohammed bin Nasser Al-Muatham (2021) to measure the attitudes of teachers towards the use of distance learning programmes. The questionnaire consisted of 13 items with five alternatives (strongly disagree, disagree, neutral, agree, strongly agree). The scale showed high validity and reliability, with the use of expert validity and internal consistency reliability. All items were found to be significant at the 0.01 level, indicating high validity. In terms of reliability, the Cronbach's alpha coefficient was calculated to be 0.94 (Al-Muatham, 2021, 239-240).

1-5- Validity and reliability of the scale:

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1-5-1- Validity: The internal consistency of the questionnaire items was examined and all values were above 0.75, indicating acceptable statistical significance and consistency among the items of the scale.
1-5-2- Reliability: The Cronbach's alpha coefficient was calculated to be 0.85, which is statistically acceptable.
1-6- Implementation of the study:

After establishing the validity and reliability of the scale, the questionnaire was distributed to secondary science teachers by visiting all secondary schools in the province of Saïda. After explaining the purpose and objectives of the instrument, the questionnaire was distributed and teachers were asked to complete it.

The questionnaires were then collected, resulting in a total of 90 completed questionnaires.

The responses of the sample participants were then entered into the SPSS statistical package in order to transform their responses into analysable statistical data, with the aim of achieving the objectives set.
1-7- Statistical methods used:

The study used statistical methods appropriate to the study variables and research questions. Data were entered and analysed using the Statistical Package for the Social Sciences (SPSS) software, and various statistical measures such as means, standard deviations, t-tests, and percentages were used for analysis and comparison, as well as for decision making and determining the results of statements.

To determine the ranges for positive and negative attitudes, the following formula was used
(Number of items × weight of the highest alternative) - (number of items × weight of the lowest alternative) ÷ Number of ranges
For example :((13 × 5) - (13 × 1)) ÷2 = 65 - 13) ÷2 = 26

So the range or category length is 26 and the categories have been divided as follows:
[13-38] for negative attitudes and [39-65] for positive attitudes.
2- The results were presented and discussed, focusing on the general hypothesis:
2-1-Presentation of the results of the hypothesis: “Science teachers have positive attitudes towards the implementation of distance

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learning programmes for the benefit of third year secondary school students".

Table 02: Illustrates the averages of teachers' responses on the scale.

	Mean	Standard Deviation	Percentage
Sample Individuals	62.29	1.54	92.43%

Comment: Table 02 shows that the mean score of the sample respondents on the scale was 62.29. According to the classification of the scale domains, it falls within the positive domain, which indicates that teachers have positive attitudes towards the implementation of distance learning programmes in the subject of science for the benefit of third year secondary school students. This result shows that teachers are aware of the importance of keeping up with the technological advances that are taking place in today's world and the need to integrate technology into education through the implementation and use of distance learning programmes. These programmes facilitate the educational process and reduce the burden on teachers, transforming them from information providers to guides and mentors. The nature of the subject matter, science, requires a vivid embodiment of its content and the information conveyed to students, which can be achieved through the use of videos, animated images and more. This helps students to easily understand and comprehend the lessons and facilitates the explanation of the material presented, especially in the context of limited laboratories, equipment and tools available in educational institutions. Distance learning programmes eliminate the need for teachers to rely on traditional teaching methods and techniques that may not be accessible or observable by all learners. They also save time compared to traditional methods by using new and advanced techniques such as static and animated images and videos that illustrate processes such as plant growth or human body organs, etc.

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The positive trend in the use of distance learning programmes by teachers can be interpreted in terms of their suitability for students, especially given the prevalence of absenteeism and interruptions in physical attendance for the purpose of preparing for the baccalaureate exam. Therefore, the use of distance learning programmes helps teachers to maintain constant communication with their students and encourages continuous interaction through various technologies and applications. This helps students to understand and comprehend the educational material, improve their academic performance and raise their overall level of achievement.

In addition, the introduction and use of distance learning programmes provides an opportunity for teachers and students who may not be proficient in using technological tools and techniques for learning to improve their skills and make proper use of these resources. This was confirmed by researcher Al-Moatham (2021) in his study, where he highlighted several points, including that distance learning increases the level of competition among teachers and motivates them to use modern technologies in the educational process, thereby increasing their expertise and efficiency in this field (Al-Moatham, 2021, 245). The results of his study were consistent with the current study in terms of teachers' positive attitudes towards the use of distance learning programmes. This clearly demonstrates the effective role of these programmes in advancing and improving educational levels. As a result, teachers have adopted the positive approach of using distance learning programmes in the field of science.

2-2Presentation of the results of the hypothesis: “There are differences in the mean responses of teachers regarding their attitudes towards the implementation of distance educational programmes in the subject of Science for the benefit of third year secondary school students, attributed to the variable of professional experience”.

Table 03: Illustrates the differences in the means of teachers' responses according to professional experience.

Professional Experience	Mean	Standard deviation	T-test	Significance level

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Lessthan 10 years	58.76	1.13	1.54	0.004
More than 10 years	46.34	2.65		

Comment: It can be seen from Table 03 that the p-value (Sig) corresponding to the "independent samples t-test" is lower than the 0.05 significance level. Therefore, we can conclude that there are differences in the means of the teachers' responses that can be attributed to the variable of professional experience. The results of Table 03 show that teachers with less than 10 years of experience have a higher level of positive attitudes compared to teachers with more than 10 years of experience. This result can be interpreted by the fact that the majority of teachers with less than 10 years of experience belong to the younger generation, having recently graduated from universities, institutes and colleges. Therefore, most of them have been exposed to modern technological tools such as distance learning platforms or online teaching. They are also familiar with the use of smartphones, the Internet, social media platforms and modern applications, which are among the technologies used for distance learning. Their positive attitude towards the use of distance learning programmes indicates their willingness to undergo training and development through distance learning courses. In this regard, studies conducted by Ataizi and Durak (2016) have confirmed learners' positive inclination towards distance education courses due to their importance in improving learners' skills. In addition, distance education provides flexibility, contains motivational elements, facilitates communication with trainers and allows easy access to course materials.

Based on the results presented in Table 03 and the previous analysis, all these reasons lead this group of teachers to want to use and apply distance learning programmes in the educational process. This is in order to keep up with modern technological advances. Moreover, this is not an obstacle for them to use and implement these programmes with their students, especially since they are proficient in the use of technological tools and techniques. On the other hand, the

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group of teachers with more than 10 years of experience, which includes older teachers who are used to traditional teaching methods, received their training in the educational process with pen and paper.

As a result, they have become accustomed to such methods and have gained experience in using classical techniques. As a result, they are reluctant to innovate and change for fear of losing their experience and status. They believe that relying on technological means in the educational process would not lead to the best results, especially considering that many of them are not skilled in using these modern technologies. In addition, they may not have been trained in the use of these technologies or have control over Internet networks. This was highlighted in a study by Hadi (2021), which indicated that one of the challenges some teachers face when using a distance learning platform is the lack of training and development of their various electronic communication skills. Continuous training of teachers in educational technology, technological literacy and other related skills contributes to the development of modern teaching methods (Hadi, 2021, 370). Furthermore, the use of smartphones and social media networks by this group of teachers is limited and inadequate. It is worth mentioning that some of them may not even be able to use these modern tools. For all these reasons, this group of teachers tends to be apprehensive about using distance learning programmes. This explains the difference in results between teachers with less than 10 years of experience and those with more than 10 years of experience.

2-3Presentation of the results of the hypothesis: «There are differences in the means of teachers' responses regarding their attitudes towards the implementation of distance learning programmes in the subject of science for the benefit of third year secondary school students, which can be attributed to the variable of professional rank".

Table 04: Illustrates the differences in the means of teachers'

Rank	Mean	Standard deviation	T-test	Significance level
Professor	51.27	2.66	2.4	0.70

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Instructor	52.34	3.15		

Comment: From Table 03 it can be seen that the p-value (Sig) corresponding to the't-test for independent samples' is greater than the significance level of 0.05. Therefore, we can conclude that there are no differences in the mean responses of teachers with different professional ranks, namely regular teachers and teacher educators. This indicates that the attitudes of both groups towards the use of distance learning programmes are positive. Since both regular teachers and teacher trainers teach the same curriculum and subjects, their perspectives on the use and benefits of distance learning programmes are aligned. Given the technological advances in the world, teachers, regardless of their professional rank, have shown a positive inclination towards the adoption of distance learning programmes as a new technology in line with global developments. Their attitudes have been openly expressed, indicating their desire to incorporate distance learning programmes into the teaching process.

Therefore, professional rank does not influence teachers' attitudes towards the use of distance education programmes, especially since they share the same teaching profession and aim to facilitate the educational process for both teachers and learners. Distance learning programmes offer advantages such as reducing teachers' workload and changing their role from lecturer to facilitator and guide. This finding is consistent with the study conducted by Qashmar and Abdulhafiz (2021), which confirmed the absence of differences in teachers' attitudes towards e-learning based on the variable of job type (academic teacher and academic teacher with administrative duties). Their results are consistent with the current study, as both groups of teachers, regardless of their professional rank, are engaged in teaching and other assigned tasks. The use of distance learning programmes contributes to the promotion of self-learning, research and exploration among learners.Therefore, the role of teacher trainers is equivalent to that of regular teachers in the educational process. Consequently, the absence of differences in their attitudes towards the use of distance

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learning programmes can be attributed to the fact that they perform the same teaching task and have a common understanding of the advantages and disadvantages of both traditional and modern technological educational processes.

Conclusion:

Based on the theoretical and field framework of the current study, the role and importance of distance education programmes in strengthening the relationship between teachers and learners has been demonstrated. These programmes contribute to increasing the effectiveness of educational communication, which is of paramount importance in promoting collaboration and encouraging learners to work in groups, engage in discussions and maintain constant communication with teachers. This facilitates the use of skills to achieve set goals.

In addition, distance learning programmes help third year secondary school students to follow their lessons anytime and from anywhere, especially in view of the frequent absences and lack of regular attendance due to their preparation for the baccalaureate. This requires the design of distance learning programmes by teachers, especially those who are skilled in the use of modern technological tools, which motivates them to adopt these programmes positively.

It is also important to consider the sample of teachers who are not proficient in the use of modern technological tools. This can be addressed by conducting training and development courses to help them use these tools, thereby improving the educational process and keeping pace with modern global developments. It is essential to promote the effective use of digital technology methods and strategies to raise the level of education and keep pace with contemporary global developments.

The recommendations and proposals are as follows:

- The use of modern technologies required by teachers and learners in the implementation of distance education programmes.
- Guide teachers to use all distance learning systems and resources and emphasise their importance in the educational process.

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- To implement training programmes for educators on distance learning systems and their innovations, and how to integrate them effectively into educational programmes and curricula.
- Activate distance learning technologies in programmes and educational courses to improve communication between teachers and learners and to maximise the benefits of these technologies.
- To train teachers in the development and design of distance learning programmes and to provide continuous professional development to keep pace with advances and developments.
- Train learners to access digital systems and use modern technological applications to encourage self-learning.
- Taking into account teachers' positive attitudes towards distance learning in the design and development of distance learning programmes that support both teachers and learners, especially for third year secondary school students, to continue their studies at a distance and to maintain continuous communication and interaction between them.

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