



Article

Teacher Assistive Teachers' Application of Assistive Technology in the Education of Students with Learning Disabilities

Faisal Al-Nawasreh

Department of Special Education, College of Educational Sciences, Ajloun National University

Correspondence: fisal.nawasrah@anu.edu.jo

Abstract

The study aimed to identify the degree of application of assistive technology by teachers in teaching students with learning disabilities, and to detect the differences in their use according to variables: gender, educational qualification, and years of experience. The study used the descriptive survey method, and its sample consisted of (102) supporting teachers, who were selected by comprehensive inventory method from public schools in the governorates of Jerash, Ajloun, and the Kasbah district of Irbid. To achieve the objectives of the study, the questionnaire was used as a data collection tool, which was prepared by the researchers after confirming its validity and consistency. The results showed that the arithmetic averages of the responses of the sample members to the degree of application of assistive technology by the supporting teachers in the education of students with learning disabilities came to a moderate degree, and the results showed that there were statistically significant differences attributed to the variable of educational qualification, in favor of the postgraduate category, while the results did not show any statistically significant differences attributed to the variables of gender and years of experience. The study recommended the need to provide continuous training programs for supporting teachers, especially those with bachelor's degrees, to enhance their efficiency in employing assistive technology, provide schools with adequate assistive technology, promote the culture of its use within the school environment, integrate it into educational policies, and support research on its effectiveness in educating students with learning disabilities.

Keywords Supporting Teachers, Assistive Technology, Students with Learning Disabilities.

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Introduction

Technology in the modern era has become an integral part of all areas of life, as it began with the spread of computers and smartphones that facilitate communication, innovation, and production in all aspects, and it has also helped in the development of health, commerce, education, and daily life in general. In the field of education, technology has become an essential part of the modern education process. The education methods have changed radically, and we have become accustomed to using tablets, computers, smart boards, educational applications, and interactive platforms that enable the student to access and know without having to be with the teacher in the same place and time. It has also become possible to assess the student, provide immediate feedback to him, and solve the problems he faces through special programs.

The employment of assistive technology has become a necessity in the field of education for students with disabilities, due to the interest of many international and local legislations in ensuring the rights of people with disabilities using assistive technology to obtain the appropriate education for them, and to ensure their effective integration in educational environments. Laws and legislation have also emphasized the promotion of research and the development of specialized technology to meet the needs of this category. In contrast, at the Arab level, many regulations and laws have been included that oblige educational institutions to provide technology Support in education to ensure justice and equality among all students (Al-Roussan, 2013).

Assistive technology has become necessary in designing educational and training programs for this group because of its positive effects on improving the educational process. It is an attractive and effective factor in educating students with disabilities. Studies have proven that the use of assistive technology in the education of students with disabilities contributes to the progress and development of their academic level more effectively than traditional methods used in the past decades (Zureikat, 2016).

The field of special education has witnessed an increasing interest in the use of technology in the education of people with disabilities, especially students with learning disabilities, as assistive technology is an essential part of special education programs and multidisciplinary resource rooms, due to its role in facilitating the implementation of individual educational plans and providing innovative educational means that suit the characteristics of each student. Integrating technology with effective learning strategies contributes to helping students learn basic academic skills faster and with less effort, which improves their academic performance and self-confidence (Al-Jadaan & Al-Mahya, 2023).

Assistive technology enhances the education of students with learning disabilities by engaging them in small group learning activities without requiring repeated instruction. The technology also provides an opportunity to relearn skills, provide feedback on their performance, and allow the teacher to track their progress. In addition, assistive technology enables people with learning disabilities to receive an education like their regular peers, ensuring equal learning opportunities. The devices, technologies, and software associated with this technology effectively support these students' educational process (Al-Sawat and Hanafi, 2022).

Despite the importance of assistive technology, its application in the field of teaching students with learning disabilities in multidisciplinary resource rooms faces many challenges, the most prominent of which is the lack of training of supporting teachers, as support teachers face challenges in using assistive technology in the educational process effectively, in addition to the lack of awareness of its importance and the difficulty of choosing what is appropriate for the needs and characteristics of each case of students with learning disabilities, and the lack of material and human resources available in multidisciplinary resource rooms to apply technology right. In addition, students with learning disabilities need intensive training in using this technology to get the most out of it (Al-Brahim, 2017).

Teaching Assistant's Competencies in the Field of Assistive Technology

The profession of teaching students with learning disabilities requires that the supporting teacher possess some competencies in the field of assistive technology, as he must possess a comprehensive understanding of the relevant philosophical, historical, and legal foundations, while adopting a clear philosophy to define the goals of using technology. The support teacher must also understand the characteristics of students with learning disabilities and identify their academic and developmental needs to ensure that technology aligns with their potential. The work also requires the ability to evaluate student performance, analyze outcomes, and identify appropriate technological tools to achieve goals Learning. Technology-enabled learning activities must be designed and implemented, and a classroom environment must be developed to encourage effective use. He is also responsible for regulating student behavior and enhancing social interaction skills using technology. Furthermore, it requires collaboration with staff, using technologies in classroom activities, and effective communication with parents and teachers. The teacher must adhere to ethical practices and continue to develop their professional skills to keep pace with technological advancements, while respecting the laws related to the protection of intellectual property (Al-Brahim, 2017).

Assistive technology tools are of great importance in supporting students with learning disabilities, as they help them interact with their surroundings and allow them to develop and grow comprehensively. Moreover, the following is a review of some of these tools, as mentioned by Abdul Rahim (2023):

First: Assistive Technology for Reading Difficulties

Text-to-speech software (TTS) is a common program in which a computer or tablet reads the words displayed on the screen aloud, making it especially useful for students with learning difficulties, such as reading difficulties. This software converts written text into spoken words that resemble the human voice, with the ability to adjust the volume of the audio text. This method significantly makes written texts easier for students with reading difficulties.

Audiobooks: Audiobooks for students with reading difficulties are an important learning tool that enhances their reading and comprehension skills. They provide a way to access written texts by listening rather than traditional reading. They often come with engaging audio performances, encouraging students to listen to stories interestingly and enjoyably.

Optical Character Recognition (OCR) is a tool that helps students with reading difficulties to distinguish characters visually. Using a scanner, this software transfers printed text from the pages to the computer. After entering the printed material, the machine reading system adapts the text according to the needs of students with reading difficulties, as the appearance of the text can be controlled in terms of font size and color.

Graphics organizer: It is an effective program for organizing ideas and information for students with learning disabilities. This software helps students simplify complex information, making it easier to understand and digest.

Reader Pens: These pens are designed to resemble a large pen and contain optical text recognition technology. This tool works by swiping the pen over the printed text to display the words in magnification, while providing automatic reading of the text. Some types also include an electronic dictionary feature to enable students to search for the meanings of words (Zureikat, 2016).

Second: Assistive Technology for Writing Difficulties

Speech Recognition Software is a technology support program for students with writing difficulties. In some cases, students have difficulty writing by hand and may be unable to produce much text if they must write with their hands. Using voice recognition techniques reduces this pressure, allowing them to produce high-quality

text in larger quantities. This software is one of the latest assistive technology tools in teaching students with writing-related learning disabilities, as it transforms audio into written text that can be read effectively.

Word prediction software: A tool that helps students with spelling and grammar difficulties write texts quickly and accurately. When a student starts typing a word's first letter or initials, the program predicts the word the student is trying to type and allows them to choose the proposed word instead of continuing to type on the keyboard. The student can choose the word from the predicted word list or listen to the voice suggestions for the words.

Recording Devices: Provides an opportunity for students with writing difficulties to focus on listening rather than trying to reconcile comprehension, summarizing, and writing simultaneously, especially for those with auditory perception problems. These devices retain an electronic copy of the audio, allowing the student to store, organize, and retrieve recordings directly on the computer more easily. This feature may be available on a standalone device, integrated with a dictionary, or in other digital aids.

Spell Checkers: It is an assistive technology tool designed to help students with dysgraphia, and this software works by identifying words that contain spelling or grammatical errors, then highlighting them and displaying them to students, while providing instant adjustments and suggestions to improve the text.

Pen Scanner: This scanner allows students to convert handwriting into electronic text, enabling them to copy information easily. Some devices also offer text reading aloud, but it depends on the type of device. After scanning the text, the student can copy it to the program to take notes or modify it as needed. It can be connected to a computer or iPad and is characterized by a low cost (Al-Batayneh et al., 2018).

Third: Assistive Technology for Calculation Difficulties: Talking Calculators:

These are calculators equipped with text-to-speech technology. When a number, symbol, or process is pressed, the voice transducer pronounces the input aloud, providing the student with auditory feedback that helps them review the accuracy of their calculations. When data entry or calculations are completed, the machine speaks the output. It displays it on the screen, allowing the student to double-check the answers before transferring them to the paper.

Mind Maps: A tool that aids in learning, planning, and thinking, as it is used to organize and write down information using images and drawings that express ideas. Students begin by reading the idea in the written material, then turn it into short words decorated with shapes and colors, enabling them to condense an entire chapter into a

single paper. Mind mapping software promotes creative thinking in students with learning disabilities by adding colors and symbols that make it easier to understand and organize information.

Dyscalculia Game is a modern technological application that aims to develop the arithmetic skills of students with learning disabilities, using animations to explain basic arithmetic operations such as addition and subtraction in a fun and engaging way. The app also provides tools that help students understand geometric concepts related to size, shape, and color, making learning more interactive and exciting.

Number Shark is an app designed for students with reading and numeracy difficulties, and it aims to help those with short-term memory, attention, and skill sequence impairments. The program helps teach arithmetic and improve basic arithmetic skills and mathematical understanding through multi-sensory techniques. The app addresses many of the difficulties students face in mathematics and includes more than 45 carefully designed skills, such as addition, subtraction, multiplication, and division, as well as new topics such as fractions, decimals, and percentages. The program allows teachers to train students and monitor their progress in learning these skills.

Electronic Worksheets: This is a valuable tool for students with learning disabilities such as dyslexia, as they can use them to complete their homework. These worksheets are sent to a computer, replacing traditional paper, and the font size can be adjusted to suit the needs of students with visual difficulties. These papers help students organize words, equations, and numbers in their assignments. Some software also offers a built-in audio text conversion feature for easier understanding.

Fourth: Assistive Technology Tools that Help Students with Learning Disabilities Learn Various Basic Academic Skills

Smart Board Digital: It is a sensitive white electronic screen that allows students to write on it using special erasable pens or by hand, with the ability to erase writing with a dedicated eraser. This whiteboard is an effective learning tool for students with learning disabilities, as it can present educational content visually and interactively, making the lessons more engaging and understandable. A smart board helps develop multiple skills such as reading, writing, and arithmetic, while reducing the effort and time for teachers. It also provides opportunities for social interaction and collaborative learning, enriching the learning experience for students with learning disabilities.

Visual Schedules: It is an effective tool used in teaching students with learning disabilities, as it contributes to simplifying and organizing learning processes. These schedules provide a visual guide to various activities and tasks, helping students

better understand schedules and organize their time. It also promotes skills for transitioning between activities, social interaction, and independence. Visual tables are also helpful in developing various skills, including academic skills, making them a comprehensive tool to support the learning of students with learning disabilities.

Data Show Projector: It is a prominent device based on digital photo processing technology used to support the education of students with learning disabilities. This device helps present educational content visually and attractively while displaying movies and animations on a large screen, making it easier for students to see and understand the content. The Authority also enhances students' interaction with educational materials, improving their understanding of concepts and developing their academic skills.

Digital Interactive Stories: A collection of stories designed by computer programs that combine sound, image, and animation. These stories are prepared with the participation of specialists. Their media diversity characterizes them, as they are presented in an interactive electronic narrative that aims to capture the students' attention and make them an interactive part of the story. These stories are used in educational programs to improve the auditory comprehension skills of students with learning disabilities. It also actively contributes to the development of text and numeracy reading skills, and enhances students' participation in the learning process, helping them to delve deeper into the content and become more engaged.

Due to the many assistive technology options available for people with learning disabilities today, it has become necessary to evaluate the degree of application of assistive technology in multidisciplinary resource rooms to understand its effectiveness in improving the educational process for students with learning disabilities. Hence, this study emerged to reveal the degree to which assistive teachers apply assistive technology in the education of students with learning disabilities (Zureikat, 2016).

Previous Studies

In this part, the most prominent studies related to the subject of the current study were presented and commented on, and they were presented from the latest to the oldest as follows:

A study (Almalla & Almalla, 2024) aimed to identify the skills of primary school teachers in employing high-tech assistive technology for students with learning disabilities in the Kingdom of Saudi Arabia. The study relied on the quantitative method, and 264 teachers participated through an online survey. The results showed that teachers' skills in using high-tech assistive technology came with high indicators.

The study of Abdul Rahim (2023) aimed to identify the extent to which assistive technology is used in the education of children with learning disabilities from the point of view of their teachers, and this study used the descriptive survey method. The study sample consisted of 210 special education teachers who serve children with learning disabilities in resource rooms working in public and private schools in the governorates of the capital and Zarqa for the first three basic grades, where they were selected by the intentional sampling method. The study's results indicated that the degree of use of assistive technology with children with learning disabilities from their teachers' point of view was moderate, with an arithmetic average of 3.22. The results also indicated that there were no statistically significant differences among the study sample members in the use of assistive technology for this group according to the study variables, educational level, number of years of experience, gender of the teacher, receiving training in the field of using assistive technology, and the existence of statistically significant differences among the study sample members attributed to the school sector variable.

Al-Jadaan and Al-Mahya (2023) conducted a study to identify the reality of employing assistive technologies in resource rooms from the point of view of teachers of students with learning disabilities. The study used the descriptive-analytical method and included a sample of 104 teachers in the Makkah region who were randomly selected. The results showed that assistive technology employment in resource rooms was generally average, with statistically significant differences in favor of females in the axis of assistive technology employment. It was also found that no statistically significant differences were attributed to the educational qualification variable between teachers with bachelor's and postgraduate degrees. The results showed statistically significant differences in the resource room's preparation level with assistive technologies in favor of teachers with less than five years of experience and more than ten years, while no significant differences were shown in the rest of the axes or the overall grade.

The study of Shehab and Hamidan (2022) aimed to identify the degree to which resource room teachers employ assistive technology in teaching students with learning disabilities, and its relationship with the level of their academic problems, relying on gender variables and years of experience. The sample consisted of 100 male and female teachers in Amman, and the descriptive curriculum and measurement tools were used, including a scale for employing technology (24 items) and a scale for academic problems (70 items). The results showed that technology employment was generally average with an average of (2.96), with statistically significant differences in favor of females in employing technology, and no differences according to years of experience.

Furthermore, it showed that the level of academic problems was moderate (3.61) and that the use of assistive technology, while moderate, contributed to the reduction of academic problems in students through an inverse correlational relationship.

The study of Humaidan et al. (2022) aimed to identify the academic problems of students with specific learning disorders and their relationship with teachers' attitudes towards using assistive technologies in Amman. The study used the descriptive-relational approach and included a simple random sample of 110 male and female teachers from the learning resource rooms in public and private schools for the academic year (2020-2021). The results showed that teachers' attitudes towards using assistive technologies came at an average level (3.30), and students' academic problems in reading, writing, and arithmetic were average (3.61). The results also revealed a correlation between teachers' attitudes towards using assistive technologies and reducing academic problems among students with specific learning disorders.

The study of Al-Swat and Hanafi (2022) also aimed to identify the level of importance of using assistive technology in developing self-learning skills and their disabilities among female students with learning disabilities from the point of view of female teachers in the city of Jeddah, in addition to studying the differences based on the variables of educational qualification and years of experience. The researchers used the descriptive method and the questionnaire tool, which were applied to 60 participants. The results showed that the importance of using assistive technology in developing self-learning skills among female students with learning disabilities was high. In contrast, the barriers to the use of technology were highly appreciated. The results also revealed no statistically significant differences in the importance of using assistive technology due to the variables of educational qualification and years of experience.

Svenson et al. (2021), a study that aimed to uncover the impact of assistive technology in children with severe reading and writing difficulties, which may affect their ability to comprehend and read texts fluently. The study used the experimental method and was applied to a sample of 149 children, where the experimental group received 24 training sessions on the use of assistive technology tools, such as iPads and text-to-speech applications. Teachers conducted reading tests over a period of four weeks. The results indicated a significant improvement in reading performance in the experimental and control groups. However, the improvement did not show any statistically significant differences between the two groups after the end of the intervention. The study also indicated that using assistive technology can improve reading skills and increase motivation in students with difficulties, especially those with severe difficulties.

Atanga et al. (2020) also conducted a study that aimed to identify the extent of knowledge of teachers by learning disabilities about assistive technology, their interest in using it, and the barriers to integrating it into education. The researchers used a descriptive method, and the data were collected through a questionnaire distributed to 102 teachers from Northeast Texas who have experience teaching students with learning disabilities in the elementary and middle stages. The results showed that teachers who had previously taken university courses specialized in assistive technology and had a high level of self-efficacy in using reading apps through iPad showed higher knowledge of assistive technology. The results also showed that teachers showed great interest in using assistive technology in education. However, they pointed out that university preparation did not qualify them in this field. The lack of funding was one of the most prominent obstacles they faced in practical application.

The study (Nordstrom, 2019) aimed to explore the impact of assistive literacy applications (e.g., TTS text-to-speech and speech-to-text STT) on improving the comprehension of students with learning disabilities in reading and writing. The study included 54 teachers and 59 students from fourth grade to high school, and applied the applications for 6 weeks. The results showed individual differences in teachers' perception of the impact of apps on students' motivation and independence, with 82% of younger students and 47% of older students continuing to use technology after the intervention. The results also indicated that assistive technology could enhance literacy skills and student participation in education. However, intensive support and training are required to achieve greater effectiveness, as some students have been found to have difficulty accessing and producing texts using this technology.

The study of Al-Balous and Al-Maghrabi (2018) aimed to reveal the reality of the availability of assistive technologies for people with literacy learning difficulties in the resource rooms of public primary schools in Jeddah. The study used the descriptive survey method and a questionnaire to measure the degree of availability of assistive technologies distributed over three dimensions: reading and writing in general, reading, and writing. The study sample included all female teachers of learning disabilities in public primary schools in Jeddah using a comprehensive inventory method. The results showed that the availability of assistive technologies for reading and writing in general was 65%, for writing 51%, and for reading 47%, which indicates a disparity in the availability of these technologies according to the measured dimension.

The study of Abu Yahya and Al-Harmeh (2018) aimed to identify the degree of teachers' use of assistive technology in the education of students with learning disabilities and its relationship with their attitudes towards its use in Jordan. The study

used the descriptive-relational approach and developed two tools: the Assistive Technology Use Degree Scale and the Teachers' Attitudes Towards its Use Scale. It was applied to 100 male and female teachers in the learning resource rooms in public and private schools during the academic year (2017/2018). The results showed that the degree of teachers' use of assistive technology and their attitudes towards it came at a moderate level. The results also revealed a correlation between the degree of use and teachers' attitudes towards assistive technology.

It is worth noting that the current study was like the previous studies in the tool and differed from them in objective, temporal, and spatial limits. It also differs in the subject of the study in terms of the degree to which teachers support the application of assistive technology in the education of students with learning disabilities.

The current study benefited from the previous studies in several matters, including choosing the appropriate method, which is the descriptive survey method, building the study tool (questionnaire), and developing it to suit the objectives and subject of the study, and supporting the interpretation and discussion of the results, considering the findings of previous relevant studies. The first study examined the degree of application of assistive technology by teachers in the education of students with learning disabilities in the governorates of Jerash, Ajloun, and the Kasbah district of Irbid in Jordan.

The problem of the study and its questions

The use of technology in the education of students with learning disabilities is a critical issue, given the rapid development and increasing diversity of assistive technology tools. However, this field faces many challenges, most notably poor knowledge of how to use these tools correctly and effectively, in addition to the lack of training programs that prepare support teachers to use them effectively in the classroom. There is also an urgent need for the participation of educators and specialists in the design of educational software and applications for this category, as technical experts often lack a deep understanding of the needs of students and teachers, leading to a gap between the design of technological tools and the requirements of the educational process for this category.

Studies in this field, such as a study (Shehab and Humaidan, 2022), a study (Al-Swat and Hanafi, 2022), and a study (Abu Yahya and Al-Harama, 2018), indicate the need to qualify and train support teachers by holding specialized workshops and training programs in order to increase their efficiency in the use of assistive technology, in addition to the importance of providing assistive technology tools in multidisciplinary resource rooms. The results of other studies, such as the Nordstrom

study, indicate (Almalla & Almalla, 2024) that assistive technology enables students with learning disabilities to overcome the educational challenges they face, highlighting that some teachers have experience in using it, while many still need specialized training that equips them with the necessary skills to employ this technology to serve their students effectively.

Considering the challenges presented related to the use of assistive technology in the education of students with learning disabilities, and the accompanying obstacles related to teacher readiness and the availability of appropriate tools within the classroom, there was a need to verify the extent to which this technology is being applied by supporting teachers in resource rooms. Hence, the present study began to answer the following two questions:

1. To what extent do Assistive Teachers apply assistive technology in educating students with learning disabilities?
2. Are there any statistically significant differences ($\alpha \leq 0.05$) in the averages of the study sample's responses to the degree of application of assistive technology by teachers in the education of students with learning disabilities attributed to variables (gender, educational qualification, and years of experience)?

Objectives of the Study

The current study aims to:

1. To identify the degree to which supporting teachers apply assistive technology in educating students with learning disabilities.
2. Revealing the existence of statistically significant differences in the averages of the responses of the study sample to the degree of application of assistive technology by teachers in teaching students with learning disabilities, according to the study variables (gender, educational qualification, and years of experience).

The importance of studying

The importance of the study comes from two main aspects:

First: Theoretical Importance

The theoretical importance is represented by shedding light on teachers' use of assistive technology in teaching students with learning disabilities. It also contributes to enriching the theoretical literature and Arabic libraries with new information about the use of assistive technology in the education of students with learning disabilities.

It provides a knowledge base that can serve as a starting point for other researchers through the theoretical literature it provides, and a tool to measure the degree of application of assistive technology by teachers in the education of students with learning disabilities.

Second: Practical Importance

The applied importance of this study is evident in that it helps supporting teachers to improve and develop their methods of using assistive technology in the education of students with learning disabilities. It may also benefit decision-makers in developing assistive technology tools in multidisciplinary resource rooms to meet the needs of students with learning disabilities. The study's results may support proposals to develop training programs aimed at developing competence. This study worked to build a tool to measure the degree of application of assistive technology in the education of students with learning disabilities and enable other researchers and decision-makers to benefit from it and apply it in the field.

Limitations of the Study

The dissemination of the results of this study is determined in the light of the following limitations:

Objective Limits: The objective is to identify the degree to which assistive teachers apply assistive technology to educate students with learning disabilities.

Human Limits: Conducted on supporting teachers in the governorates of Jerash, Ajloun, and the Kasbah Irbid district in Jordan.

Spatial limits: The study was conducted in schools affiliated with the Directorates of Education in the governorates of Jerash, Ajloun and the Kasbah district of Irbid, including multidisciplinary resource rooms.

Time limits: The study was applied during the second semester of the academic year (2024/2025).

Study Terminology

The study adopted a set of terms, and they were defined terminally and procedurally, as follows:

Supporting Teachers:

In other words, Teachers with a Bachelor of Special Education and a Bachelor of Learning Disabilities work in multidisciplinary resource rooms and have been granted this job title by Decision No. (8/1/1440) dated (14/8/2024) issued by the

Jordanian Ministry of Education as per the recommendation of the Planning Committee No. (15/2023) (Ministry of Education, 2024).

Procedurally: Teachers working with students with learning disabilities in public schools in the governorates of Jerash, Ajloun, and the Kasbah district of Irbid, during the second semester of the academic year (2024/2025).

Supporting Technology:

In other words: “Any material, piece of device, or system produced, whether sourced directly from the market, modified, or custom-designed, which is used to increase, maintain, or improve the functional abilities of a child with learning disabilities” (Al-Sawat and Hanafi, 2022, p. 111).

Procedurally: These are the tools and devices found in the multidisciplinary resource rooms, for which the degree of application of the supporting teachers was measured through the study tool prepared for this.

Students with learning disabilities:

In other words: “Those who suffer from deficiencies in one or more of the basic psychological processes (attention, memory, perception, thinking) that are involved in the understanding or use of written and spoken language. Disorders of listening, thinking, speaking, reading, writing, spelling, or arithmetic operations may appear, but children with learning problems caused by visual, hearing, motor, or mental disabilities or caused by an emotional disorder or environmental deprivation are excluded from this concept” (Batayneh et al., 2018, pp. 31-32).

Procedurally: Students diagnosed with learning disabilities, who are enrolled in public schools in the governorates of Jerash, Ajloun, and the Kasbah district of Irbid, and who receive their education in multidisciplinary resource rooms during the second semester of the academic year 2024/2025, and who benefit from the services of supporting teachers using assistive technology.

Method and Procedures

This chapter presents the methodology that was followed in implementing the study. It also includes the procedures for determining the study sample, its tool, and the preparation method. It also confirms its validity and consistency, in addition to the statistical treatments used to analyze the data and draw the results.

Study Methodology

To achieve the study's objectives and answer its two questions, I use the descriptive survey method, as it is the most suitable for the application of this study, as it describes the phenomenon to be studied as it is, and analyzes its data.

Study population

The study population consisted of all 120 supporting teachers in public schools in the Directorate of Education in the governorates of Jerash, Ajloun, and the Kasbah district of Irbid for the academic year (2024-2025). Table 1 shows the distribution of the study population in the education directorates.

Table 1. Distribution of the study population in the directorates of education

Directorate of Education	Number of teachers
jarash	43
Ajloun	42
Irbid Kasbah Brigade	39

Study Sample

The study tool was applied to all members of the study community, including supporting teachers in schools affiliated to the Ministry of Education in the governorates of Jerash, Ajloun, and the Kasbah district of Irbid in the second semester of the academic year (2024-2025), where the number of community members reached 120, male and female teachers.

The comprehensive inventory method was used, but the number of questionnaires retrieved and valid for analysis amounted to 102, with a response rate of 85%. Table 2 shows the distribution of the study sample according to the independent variables.

Table 2: Frequencies and percentages by study variables

	Categories	Iteration	Percentage
Sex	male	42	41.2
	female	60	58.8
Educational Qualification	Bachelor	80	78.4
	Graduate	22	21.6
Years of Experience	Less than 5 years	48	47.1
	years 10-6	24	23.5
	More than 10 years	30	29.4

	Total	102	100.0
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Study Tool

To achieve the objectives of the study and answer its questions, the researchers built a tool to measure the degree of application of assistive technology by teachers in the education of students with learning disabilities, based on the theoretical literature and reviewing previous studies in this field, such as the study of Abdel Rahim (2023), the study of Shehab and Hamidan (2022), and the study of Abu Yahya and Al-Harama (2018). The study tool in its initial form consisted of (30) paragraphs, distributed over (6) dimensions, where the first dimension (knowledge and familiarity with assistive technology for students with learning disabilities) consists of (1-8) paragraphs, while the second dimension is (the use of assistive technology in teaching reading to students with learning disabilities) of (9-12) paragraphs, and the third dimension (the use of assistive technology in teaching writing to students with learning disabilities) consists of (13-16) paragraphs, while the fourth dimension is (The use of assistive technology in teaching arithmetic to students with learning disabilities (17-19) paragraphs, the fifth dimension (the use of general assistive technology) will be (20-25) paragraphs, and the sixth dimension (challenges facing the use of assistive technology) will be (26-30) paragraphs.

The Validity of the Study Tool

To verify the authenticity of the study's performance, use two types of truthfulness:

Authenticity of the content

The authenticity of the content of the study performance was confirmed by presenting it to (11) arbitrators with experience and specialization in educational and psychological sciences in several Jordanian universities. Their observations and amendments were considered: knowing the validity of the linguistic formulation, the affiliation of the paragraph to the study tool, and the suitability of the paragraphs and their compatibility with the field of study.

Based on the consensus of a group of arbitrators, the study tool was adopted in its final form. Some paragraphs were deleted, amended, and replaced, and several were added to make the final (23) paragraphs; thus, the study tool was taken out in its final form.

Honesty of construction

In order to extract the significance of the construct validity of the scale, the correlation coefficients of each item and the total score, and between each item and its relation to the field to which it belongs, and between the domains and the total score, were extracted in a survey sample from outside the study sample consisting of (20) male and female teachers from the supporting teachers in the Northern Mazar Brigade, and the correlation coefficients of the paragraphs with the tool as a whole ranged between (0.52-0.88), and with the range (0.60-0.87), and the following table shows this.

Table 3: Correlation coefficients between the domains and the total degree

	Using Assistive Technology in Teaching Reading to Students with Learning Disabilities	Using Assistive Technology in Teaching Writing to Students with Learning Disabilities	Using Assistive Technology in Teaching Numeracy to Students with Learning Disabilities	Use of general support technology that helps to learn various academic skills	Total Grade
Using Assistive Technology in Teaching Reading to Students with Learning Disabilities	1				
Using Assistive Technology in Teaching Writing to Students with Learning Disabilities	0.800**	1			
Using Assistive Technology in Teaching Numeracy to Students with Learning Disabilities	0.722**	0.717**	1		
Use of general support technology that helps to learn various academic skills	0.828**	0.827**	0.874**	1	
Total Grade	0.913**	0.902**	0.897**	0.965**	1

* Statistically Functional at the Level of Significance (0.05)

** Statistically significant at the significance level (0.01)

Table 4 shows that all correlation coefficients were statistically acceptable and significant, indicating appropriate construct validity.

Stability of the test instrument

To ensure the stability of the study tool, the test-retest method was verified by applying the scale, and it was reapplied after two weeks on a group of (20) teachers from the support teachers from the northern Mazar district. Then, the Pearson correlation coefficient between their estimates was calculated at both times.

The internal consistency method calculates the stability coefficient according to Cronbach's alpha equation. Table 5 shows the internal consistency coefficient according to Cronbach's alpha equation, the domains' reliability and stability, and the total score. These values were considered appropriate for this study.

Table 5: Cronbach's Alpha Internal Consistency Coefficient and Domain Replay Stability and Total Score

Domain	Replay stability	Internal consistency
Using Assistive Technology in Teaching Reading to Students with Learning Disabilities	0.89	0.78
Using Assistive Technology in Teaching Writing to Students with Learning Disabilities	0.89	0.84
Using Assistive Technology in Teaching Numeracy to Students with Learning Disabilities	0.80	0.80
Use of general support technology that helps to learn various academic skills	0.90	0.86
Total Grade	0.90	0.89

It is clear from the table that the stability coefficients of the retest and internal consistency (Cronbach's alpha) methods were high for all areas of the tool, where the internal consistency coefficients ranged between (0.78) and (0.86), while the retest coefficients ranged between (0.80) and (0.90), which indicates that the tool has a high degree of stability and can be relied on to measure the variables under study accurately and reliably.

Study Variables

This study included the following variables:

The primary variable: the degree of application of assistive technology by teachers of assistive technology.

Taxonomic variables:

- Gender: It has two categories (male and female).

- Educational Qualification: It has two levels, (Bachelor's, Postgraduate Studies).
- Years of Experience: It has three levels (less than 5 years, 5-10 years, more than 10 years).

Statistical processing

The following statistical methods were used:

- To answer the first question: The arithmetic averages and standard deviations of the degree of application of assistive technology by supporting teachers in the education of students with learning disabilities were extracted.
- To answer the second question: The arithmetic averages and standard deviations of the degree of application of assistive technology by teachers in teaching students with learning disabilities were extracted according to the variables of gender, educational qualification, and years of experience, and to show the statistical differences between the arithmetic averages, the "T" test was used for the effect of gender and educational qualification, while univariate analysis was used for the effect of years of experience.

Study Procedures

To achieve the objectives of the study, the following steps were followed:

- The study tool (questionnaire) was developed in its initial form.
- The authenticity of the content of the study tool in its initial form was verified by presenting it to a group of referees specialized in educational and psychological sciences.
- The study population was identified, and the appropriate sample was selected.
- I have prepared the tool in its final form while verifying its authenticity and consistency.
- Written approval was obtained from the Directorates of Education in the governorates of Jerash, Ajloun, and the Kasbah District of Irbid after the facilitation letter from Ajloun National University was received.
- The study tool was converted into an electronic version using Google Drive forms and then distributed to the target sample via WhatsApp. Application for teachers, in cooperation with supervisors in the directorates of education, with the task of facilitating books, explaining

the instructions, explaining how to answer, and obtaining the participants' approval.

- The data was collected in an Excel file and then sent to the statistical analyst for processing using SPSS software. The results were extracted, displayed in custom tables, then analyzed and discussed, and appropriate recommendations were made based on the results.

Results and Discussion

This study aimed to reveal the degree of application of assistive technology by teachers in the education of students with learning disabilities, and to achieve this, their questions were answered according to their sequence.

The results related to the first question, and its discussion:

Question 1: To what extent are assistive teachers applying assistive technology in teaching students with learning disabilities?

To answer this question, the arithmetic averages and standard deviations of the degree of application of assistive technology by teachers in the education of students with learning disabilities were extracted, and the table below shows this.

Table 6: Mathematical Averages and Standard Deviations of the Degree of Teacher Supportive Teachers' Application of Assistive Technology in the Education of Students with Learning Disabilities in Descending Order According to the Arithmetic Averages

Rank	figure	Domain	Arithmetic Average	Standard deviation	Grade
1	4	Use of general support technology that helps to learn various academic skills	3.05	0.83	Medium
2	1	Using Assistive Technology in Teaching Reading to Students with Learning Disabilities	2.73	0.84	Medium
3	3	Using Assistive Technology in Teaching Numeracy to Students with Learning Disabilities	2.65	0.90	Medium
4	2	Using Assistive Technology in Teaching Writing to Students with Learning Disabilities	2.61	0.84	Medium
		Total Grade	2.78	0.76	Medium

Table 6 shows that the estimates of the study sample on the degree of application of assistive technology by teachers in the education of students with learning disabilities were average, with an arithmetic average of 2.78 and a standard deviation of 0.76.

As for the fields, the arithmetic averages ranged between (2.61-3.05), where the field of using general assistive technology that helps to learn various academic skills came in first place with the highest arithmetic average of (3.05) and a standard deviation of (0.83) and a medium grade of appreciation, while the field of using assistive technology in teaching writing to students with learning difficulties came in the last place with an arithmetic average of (2.61) and a standard deviation of (0.84) and a medium grade of appreciation.

The results of this study are consistent with the results of the study of Abdul Rahim (2023), the study of Al-Jadaan and Al-Mahya (2023), the study of Shehab and Hamaidan (2022), the study of Humaidan et al. (2022), and the study of Abu Yahya and Al-Harmeh (2018), which indicated that the degree of employment of assistive technology teachers in the education of students with learning disabilities was moderate.

This finding can be explained by the fact that supporting teachers use assistive technology to a moderate degree due to several factors, including the availability of some tools that contribute to facilitating the learning process, as well as challenges that may limit its widespread use, such as a lack of training or lack of resources. This use may also be limited to specific teaching situations aimed at enhancing understanding and supporting students when needed, rather than being integrated into teaching strategies daily. In addition, teachers seek to employ assistive technology in proportion to the available capabilities, which contributes to improving students' academic performance, but within the limits of moderate use, which aligns with the current study's findings. This intermediate level can also be attributed to the disparity in technical proficiency among the supporting teachers, with some having the skills to employ technology effectively. In contrast, others lack adequate training or confidence to use it in the classroom. The lack of technical and administrative support in some schools may reduce teachers' motivation to use these tools, along with poor follow-up or lack of incentives associated with the use of technology. It is also possible that some schools lack an environment that integrates technology, making it a choice by the teacher, rather than an overarching institutional orientation, and thus reflected in the overall employment level.

The results related to the second question and its discussion:

Question 2: “Are there any statistically significant differences ($\alpha \leq 0.05$) in the averages of the study sample’s responses to the degree of application of assistive technology by teachers in the education of students with learning disabilities attributed to variables (gender, educational qualification, and years of experience)?

To answer this question, the arithmetic averages and standard deviations of the degree of application of assistive technology by teachers in teaching students with learning disabilities were extracted according to the variables of gender, educational qualification, and years of experience, and to show the statistical differences between the arithmetic averages, the “T” test was used for the effect of gender, and scientific qualification. In contrast, univariate analysis was used to determine the effect of years of experience, and the tables below show this.

Gender

Table 7: Mathematical Averages, Standard Deviations, and the “T” test of the effect of gender on the degree of application of assistive technology by teachers in the education of students with learning disabilities

Domain	Sex	Number	Arithmetic Average	Standard deviation	value “T.”	Degrees of Freedom	Statistical significance
Using Assistive Technology in Teaching Reading to Students with Learning Disabilities	male	42	2.73	0.882	-.009	100	0.993
	female	60	2.73	0.825			
Using Assistive Technology in Teaching Writing to Students with Learning Disabilities	male	42	2.74	0.897	1.363	100	0.176
	female	60	2.51	0.793			
Using Assistive Technology in Teaching Numeracy to Students with Learning Disabilities	male	42	2.76	0.941	1.043	100	0.299
	female	60	2.57	0.867			
	male	42	3.15	0.879	1.048	100	0.297

Use of general support technology that helps to learn various academic skills	female	60	2.97	0.801			
Total Grade	male	42	2.87	0.808	.939	100	0.350
	female	60	2.72	0.729			

Table 7 shows that there are no statistically significant differences at the level of significance ($\alpha = 0.05$) in the levels of the study sample's responses to the degree of application of assistive technology by teachers in the education of students with learning disabilities attributed to the effect of the gender variable in all fields and in the overall score, where all the values of statistical significance were higher than (0.05).

The lack of statistically significant differences attributed to the impact of the gender variable in all fields and at the overall level can be explained by the fact that the teachers and supporting teachers are subject to similar training and qualification conditions, and work within the same educational and administrative policies, which is reflected in the similarity of their levels of employment of assistive technology. The nature of work in the multidisciplinary resource rooms depends mainly on professional competence and educational experience, rather than on the gender variable. It explains the convergence of levels of Responses of male and female sample members in this aspect.

Academic Qualification

Table 8: Mathematical Averages, Standard Deviations, and the "T" Test of the Effect of Scientific Qualification on the Degree of Application of Assistive Technology by Teachers in the Education of Students with Learning Disabilities

	Educational Qualification	Number	Arithmetic Average	Standard deviation	value "T."	Degrees of Freedom	Statistical significance
Using Assistive Technology in Teaching Reading to	Bachelor	80	2.66	.864	-1.532	100	.129
	Graduate	22	2.97	.736			

Students with Learning Disabilities							
Using Assistive Technology in Teaching Writing to Students with Learning Disabilities	Bachelor	80	2.55	.839	-1.448	100	.151
	Graduate	22	2.84	.825			
Using Assistive Technology in Teaching Numeracy to Students with Learning Disabilities	Bachelor	80	2.58	.882	-1.642	100	.104
	Graduate	22	2.93	.925			
Use of general support technology that helps to learn various academic skills	Bachelor	80	2.90	.791	-3.614	100	.000
	Graduate	22	3.58	.780			
Total Grade	Bachelor	80	2.69	.754	-2.396	100	.018
	Graduate	22	3.12	.710			

Table 8 shows that there are statistically significant differences at the level of significance ($\alpha = 0.05$) in the levels of the study sample's responses to the degree of application of assistive technology by teachers in the education of students with learning disabilities attributed to the effect of the academic qualification variable on the overall grade, and in the field of using general assistive technology that helps to learn various academic skills. These differences favored the postgraduate category, while no statistically significant differences appeared in other areas.

This finding can be explained by the fact that postgraduate teachers may be more aware of the importance of employing assistive technology in educating students

with learning disabilities, given the deeper scientific content they have received during their studies and the advanced analytical and applied skills they have acquired. Undergraduate programs at the graduate level often focus on educational developments and new technologies, which increases their exposure to assistive technology tools and methods of employing them in education. They are also likely to be more self-motivated to develop their professional performance and seek to use more diverse and effective learning strategies, which reflects positively on the degree to which they apply technology in the field.

Years of Experience

Table 9: Mathematical Averages and Standard Deviations of the Degree of Application of Assistive Technology by Supporting Teachers in the Education of Students with Learning Disabilities by Years of Experience Variable

	Categories	Number	Arithmetic Average	Standard deviation
Using Assistive Technology in Teaching Reading to Students with Learning Disabilities	Less than 5 years	48	2.88	.857
	years 10-6	24	2.61	.873
	More than 10 years	30	2.58	.786
	Total	102	2.73	.844
Using Assistive Technology in Teaching Writing to Students with Learning Disabilities	Less than 5 years	48	2.82	.855
	years 10-6	24	2.36	.773
	More than 10 years	30	2.47	.811
	Total	102	2.61	.841
Using Assistive Technology in Teaching Numeracy to Students with Learning Disabilities	Less than 5 years	48	2.76	.900
	years 10-6	24	2.53	.965
	More than 10 years	30	2.57	.851
	Total	102	2.65	.899
Use of general support technology that helps to learn	Less than 5 years	48	3.05	.901
	years 10-6	24	2.88	.680
	More than 10 years	30	3.17	.838

various academic skills	Total	102	3.05	.834
Total Grade	Less than 5 years	48	2.89	.803
	years 10-6	24	2.62	.718
	More than 10 years	30	2.74	.725
	Total	102	2.78	.762

Table 9 shows an apparent variation in the arithmetic averages and standard deviations of the degree of application of assistive technology by teachers in the education of students with learning disabilities due to the different categories of the years of experience variable, and to show the significance of the statistical differences between the arithmetic averages, univariate analysis was used according to Table 10.

Table 10: Univariate Analysis of the Effect of Years of Experience on the Degree of Teacher Supportive Teachers' Application of Assistive Technology in the Education of Students with Learning Disabilities

	source	Total Squares	Degrees of Freedom	Average Squares	P Value	Statistical significance
Using Assistive Technology in Teaching Reading to Students with Learning Disabilities	Between groups	1.993	2	.996	1.409	.249
	Within Groups	69.995	99	.707		
	Total	71.988	101			
Using Assistive Technology in Teaching Writing to Students with Learning Disabilities	Between groups	4.130	2	2.065	3.041	.052
	Within Groups	67.224	99	.679		
	Total	71.354	101			
Using Assistive Technology in Teaching Numeracy to Students with	Between groups	1.066	2	.533	.656	.521
	Within Groups	80.509	99	.813		
	Total	81.575	101			

Learning Disabilities						
Use of general support technology that helps to learn various academic skills	Between groups	1.177	2	.588	.842	.434
	Within Groups	69.157	99	.699		
	Total	70.333	101			
Total Grade	Between groups	1.270	2	.635	1.096	.338
	Within Groups	57.358	99	.579		
	Total	58.628	101			

Table 10 shows that there are no statistically significant differences at the level of significance ($\alpha = 0.05$) in the levels of the study sample's responses to the degree of application of assistive technology by teachers in the education of students with learning disabilities attributed to the effect of the variable of years of experience in all fields and in the tool as a whole, where all the statistical significance values were higher than (0.05).

This result indicates that years of experience did not make a significant difference in the degree of application of assistive technology by teachers, as no statistically significant differences were recorded between teachers with different experiences. It can be explained by the fact that the use of assistive technology is no longer limited to teachers with long experience but has become part of the work requirements for all teachers, especially with the Ministry of Education's move towards integrating technology in education, and providing relatively uniform training opportunities for all educational cadres. The similarity of the average level of use among all groups may be attributed to limited resources available or limited opportunities for specialized training, making experience alone insufficient to scale up the application without additional support.

By reviewing the results of the study related to the classification variables (gender, educational qualification, and years of experience), it is found that the educational qualification variable was the only one that showed statistically significant differences in the degree of application of assistive technology by supporting teachers, as these differences came in favor of the postgraduate category. In contrast, no statistically significant differences appeared attributable to gender and years of experience, which indicates that these two variables do not fundamentally affect the

application level of assistive technology by supporting teachers. These results can be explained by the fact that higher educational qualification is often associated with a higher level of educational and technical knowledge and awareness, which reflects positively on teachers' ability to employ technology in the classroom, while the absence of differences according to gender and years of experience may be due to the similarity of work environments and available training opportunities, which reduces the impact of these variables on teachers' actual practices. These findings underscore the importance of academic qualification in raising the efficiency of assistive technology and highlight the need to provide equal training opportunities for all teachers, without relying solely on experience or personal attributes.

The results of the current study are consistent with the study of Abdel Rahim (2023), which indicated that there are no statistically significant differences in the variables of gender and experience. However, they differ from them in the variable of educational qualification, as the study showed no statistically significant differences in the variable of educational qualification. This result is also consistent with the findings of the study of Shehab and Hamidan (2022) in terms of no differences in the variable of years of experience. However, it differs from it in the gender variable, as their results indicated statistically significant differences in favor of females. While it differed with the result of the study of Al-Jadaan and Al-Mahya (2023), which indicated that there are statistically significant differences in the degree of employment of teachers who support assistive technology in the education of students with learning disabilities due to the gender variable in favor of females. The years of experience are variable in favor of those with less than 5 years of experience and more than 10 years. At the same time, no statistically significant differences were shown in the educational qualification variable.

This difference between the results of the current study and some previous studies can be explained by the different educational environments in which these studies were conducted, the different policies followed in the training and qualification of supporting teachers, in addition to the differences in the study sample in terms of its size or characteristics.

References

- [1] Abdel Rahim, A. (2023). The Use of Assistive Technology with Children with Learning Disabilities from the Perspective of Their Teachers (Unpublished Master's Thesis). Faculty of Graduate Studies, The Hashemite University.
- [2] Abdul-Fatah, B. N., & Yahya, B. T. (2025). Evaluation of the prevalence of phenylketonuria among screened and unscreened children in Baghdad. *Ibn*

- Sina Journal of Medical Science, Health & Pharmacy, 3(6), 1–8.
<https://doi.org/10.64440/IBNSINA/SINA001>
- [3] Abouyounes, M. W. (2025). The legal underpinnings of Jordanian and Iraqi law's administrative penalty systems. *Al-Biruni Journal of Humanities and Social Sciences*, 3(9). <https://doi.org/10.64440/BIRUNI/BIR003>
- [4] Abu Yahya, F., & Al-Harmeh, L. (2018). Teachers' use of assistive technology in the education of students with learning difficulties and its relationship with their attitudes in Jordan. *Journal of Amman Arab University - Educational and Psychological Research Series*, 3(1), 181-203.
- [5] Al-Balous, R., & Al-Maghrabi, R. (2018). The reality of assistive technologies for literacy learning difficulties in public primary school resource rooms in Jeddah. *Arab Journal of Specific Education*, (3), 23-47.
- [6] Al-Brahim, H. B. H. (2017). Using assistive techniques for students with learning disabilities in resource rooms: A guideline for teachers of students with learning disabilities. *Journal of Scientific Research in Education*, 1(18), 535-585.
- [7] Al-Jadaan, M., & Al-Mahya, B. (2023). The reality of employing assistive technologies in the resource room from the perspective of learning disabilities teachers in the Makkah Region. *Journal of Tikrit University for Humanities*, 30(1), 374-405.
- [8] Al-Khattaba, A., Batayneh, O., & Al-Rashdan, M. (2018). *Learning Disabilities: Theory and Practice* (8th ed.). Amman: Dar Al-Masirah.
- [9] Almulla, M. O., & Almulla, A. A. (2024). The perspectives of elementary school educators in Saudi Arabia regarding using advanced assistive technology for students with learning disabilities. *Cairo University - Faculty of Graduate Studies for Education*, 32(1), 1-22.
- [10] Al-Roussan, F. (2013). *Issues and Problems in Special Education* (3rd ed.). Amman: Dar Al-Fikr.
- [11] Al-Swat, H., & Hanafi, A. (2022). The importance of using assistive technology in developing self-learning skills and addressing their disabilities among female students with learning disabilities from the perspective of their teachers in Jeddah. *Journal of Educational and Qualitative Research*, (15), 102-137.
- [12] Al-Zuraykat, I. (2016). *Assistive Technology in Special Education: Principles and Practices*. Amman: Dar Wael.
- [13] Atanga, C., Jones, B. A., Krueger, L. E., & Lu, S. (2020). Teachers of students with learning disabilities: Assistive technology knowledge, perceptions, interests, and barriers. *Journal of Special Education Technology*, 35(4), 236-248.

- [14] Humaidan, N., & Noura, H. (2022). Academic problems among students with specific learning disorders and their relationship with teachers' attitudes towards using assistive technologies. *Gaza National Research Center*, 6(7), 146-163.
- [15] Marhoon, A. A., & Hussein, S. A. (2025). Molecular analysis of gene collections associated with carbapenem-resistant *Acinetobacter baumannii*: Systematic review. *Ibn Sina Journal of Medical Science, Health & Pharmacy*, 3(8), 1-8. <https://doi.org/10.64440/IBNSINA/SINA003>
- [16] Ministry of Education. (2024). Regulations of Work in the Rooms of the Barrier to Learning Disabilities. Retrieved December 14, 2024, from <https://moe.gov.jo/ar/node/66618>
- [17] Nordstrom, T., Nilsson, S., Gustafson, S., & Svensson, I. (2019). Assistive technology applications for students with reading difficulties: Special education teachers' experiences and perceptions. *Disability and Rehabilitation: Assistive Technology*, 14(8), 798-808.
- [18] Shehab, S., & Hamidan, N. (2022). The degree of resource room teachers' employment of assistive technology in teaching students with learning disabilities and its relationship with the level of their academic problems. *Journal of Amman Arab University*, 7(1), 112-135.
- [19] Svensson, I., Nordström, T., Lindeblad, E., Gustafson, S., Björn, M., Sand, C., ... & Nilsson, S. (2021). Effects of assistive technology for students with reading and writing disabilities. *Disability and Rehabilitation: Assistive Technology*, 16(2), 196-208.
- [20] Tawfiq, S. (2025). A theoretical examination of collective identity formation in contemporary societies via ideology and social dynamics. *Al-Biruni Journal of Humanities and Social Sciences*, 3(7). <https://doi.org/10.64440/BIRUNI/BIR001>
- [21] Tawfiq, S. (2025). The role of the Great Arab Revolt in shaping Jordanian national identity. *Al-Biruni Journal of Humanities and Social Sciences*, 3(6). <https://doi.org/10.64440/BIRUNI/BIR002>