

## The usage of modern educational technology among resource room teachers in Jordan

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### Abstract

This study aimed to identify the degree to which resource room teachers use modern educational technological means in teaching students with learning disabilities in Al-Salt city and to identify the obstacles facing the application of EdTech in schools. The study sample consisted of (48) resource room teachers who were chosen purposefully. The findings indicated that there were no statistically significant differences in the degree of using modern technological means attributed to the scientific qualification variable, and there were statistically significant differences attributed to the variable practical experience and in favour of the variable "experience category" (10 years and more). The results showed that the obstacles to using modern technology in all fields were of a (moderate) degree. The study recommends enhancing the use of technological means in teaching students with learning disabilities in resource rooms and finding effective solutions for the obstacles that hinder the use of these methods.

*Keywords:* modern educational technology, resources rooms' teachers, students with learning disabilities.

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## Introduction

The spread of the modern technological revolution has provoked educational researchers to advocate employing these recent developments by school teachers to teach their students effectively, especially the teachers of resource rooms who teach students with Learning Disabilities (LD). This group of students needs to use modern means for its prominent role in increasing their motivation and achievement. Modern educational technology (EdTech) has successfully contributed to improving all aspects of the educational process and developing students' academic qualities (Al-Swelmyeen et al, 2020; Rahahleh et al, 2021). Many educationalists and technologists have given more attention to the instruction of students with LD and they have sought to develop appropriate and effective learning strategies that accommodate their needs (Bryant et al, 2007; Sakarneh & Al-Swelmyeen, 2020). The effectiveness of using EdTech as an early intervention in the educational process is dependent on teachers' experiences and the support they receive from behavioral and speech therapists. The effective use of assistive technology enables students to overcome their weaknesses and achieve the desired outcomes (Sakarneh, 2014). However, the good choice of the appropriate technology reduces the possibility of frustration or withdrawal of students with LD (Robitaille, 2010).

Undoubtedly, the resource room's teacher is responsible for the optimal use of the resource room, diagnosing and teaching students with LD. Therefore, resource room teachers should possess high technical skills that include effective methods for teaching this category of students. The resource room teacher is an important component of the educational process especially if he/she possesses the necessary competence and experience to improve students' learning and achieve the desired academic goals (Sakarneh, 2011). Several studies have confirmed the positive impact of EdTech on student learning, as they facilitate learning, clarify terms and concepts, and increase students' attention and motivation (Raskind, 2000). The term assistive technology implies any technological product or service that enables students with LD to acquire the required instruction. They are used with students with LD to overcome the specific deficits they have and to help them to reach the maximum capabilities that enable them to succeed and overcome all obstacles they face. So that it is considered a part of a comprehensive program that a teacher creates to help students with LD. The Individuals with Disabilities Education Act (I.D.E.A.) defines educational technology as any item, piece of equipment, or product system that is used to increase, maintain, or improve the functional capabilities of individuals with disabilities (Robitaille, 2010). While Hallahan and Kauffman (2003) defined assistive technology in education as all the types of equipment, devices, and modern programs that can improve the performance of individuals with learning disabilities, whether in education, work, or other life activities. These technological devices are classified according to their uses such as mobility, communication, recreation, motivation and education (Bryant et al, 2007; Cook & Hussey, 2002).

What signifies the importance of assistive technology in education is that education and technology have become two main topics in the information age that we are witnessing nowadays. Recent technological developments have brought decisive and effective changes to the educational system and it has also helped in developing various teaching techniques. Assistive technology significant is manifested in helping students with solving mathematical problems, providing access to multiple learning means and learning resources, improving students' understanding, and acquiring solving-problem skills that are associated with specific tasks (Onivehu et al, 2017; UNICEF, 2015). The Individuals with Disabilities Education Act 2004 and its amendments (I.D.E.A.) also asserted the

necessity of employing technology in teaching students with learning disabilities. It also specified the teacher's responsibility to assist children and their families in selecting appropriate assistive technology tools as well as directing them on how to properly use them (Mandlawitz, 2006). Indeed, teachers of students with learning disabilities should employ modern technology in their instructions, especially in light of the widespread of modern technological devices such as computers, computer programs, programmed curricula, internet networks, YouTube, and interactive video (Gustafson, 2006) which are widely used by students.

Al-Osaybi (2015) stated that teachers moderately use technological techniques in resource rooms and that training and experience in the field of technological techniques is one of the most important obstacles facing teachers in resource rooms. The findings of the study conducted by Al-Duwaida (2014) indicated that the importance of obtaining all professional competencies for teachers came to a high degree while the degree of having professional competencies was moderate. MacArthur et al. (2011) claimed that student teachers' use of educational technologies in teaching students was moderate and that teachers used computers more often and they also had a positive and affective attitude toward using technologies in teaching students. Bigelow (2008) conducted a study in Ohio which results revealed that teachers' use of technology with students came to a moderate degree and that they lack knowledge and technological skills due to lack of training. Abu Hawash (2008) conducted a study to reveal the extent to which teachers who work with individuals with LD implement the means of technology in teaching, it also aimed to identify the obstacles that hinder its use. The results showed that the degree of teachers' use of technology in teaching students with LD was between moderate and low levels.

Therefore, utilizing EdTech means for teaching students with LD contributes to solving the problem of individual differences between students and helps in forming positive attitudes among them such as obeying orders and cooperation. This eventually leads to assisting students with LD in socializing and contributing to the formation and building of sound concepts. EdTech also offers immediate feedback, particularly when using computer software that enables them to directly display the wrong and correct answers after submitting their responses, which increases their ability to learn more, assess their learning, and can repeat their experiences (Robitaille, 2010). This fact was confirmed by Onivehu et al (2017) who suggested that the degree of technology use in education was at a moderate level with the categories of learning difficulties, speech disorders, visual, auditory, motor, and behavioral impairments. The findings of their study revealed that gender and teaching experience do not affect teachers' attitudes or competence in using assistive technology in special education schools. In Turkey, Erdem (2017) conducted a study that revealed that teachers use EdTech at an average level and the most challenge they face while teaching students with LDs is the difficulty of identifying the needs of their students. Teachers in Erdem's study reported their need for support and training in using EdTech with students with LD.

In such kinds of studies, it is essential to define some terminologies that are used. *Students with learning disabilities*; are the students who are suffering from a disorder in one or more of the basic psychological processes represented in comprehending or using language, and problems appear in thinking, speech, writing, spelling, or in performing mathematical operations. The term includes cases of cognitive disabilities, brain injuries, mild cerebral dysfunction, dyslexia, and developmental aphasia (Bryant et al, 2007). *Operationally*, they are students officially diagnosed with learning disabilities and enrolled in resource rooms in the Directorate of Education in the Al Balqa Governate. *Resource room*

*teachers*; are teachers who have academic qualifications, Bachelor of Special Education, or a higher diploma in learning difficulties and work in resource rooms (Waqfi, 2011). *Operationally*, they are defined as the teachers working in resource rooms in the Ministry of Education and those specializing in learning difficulties. *Technological learning resources*; are the means and modern technological devices that contribute effectively to the provision of academic information, experiences, audio-visual, and other specialized informatics that are widely presented in the teaching and learning process (Hussam, 2009). *Operationally*, they are any tool, device, or equipment that is used by teachers of resource rooms in the process of teaching students, and it is measured by the study tool prepared for this purpose.

When reviewing the literature, we note that all the results of the studies demonstrated the importance of using modern technology in teaching students with LD in resource rooms. Several studies have confirmed that teachers encounter several challenges in using technology in teaching students with learning disabilities. The significance of the current study stems from the fact that it will add new knowledge about the reality of using EdTech to teach students with LD by resource room teachers in Al-Salt, especially since this topic has not been discussed previously to the best of the researchers' knowledge. The results of the current study may assist stakeholders in finding appropriate solutions to overcome the challenges facing teachers in resource rooms when employing technology in teaching students with LDs and may constitute a base for creating the best training courses for teachers in this field.

Thus, the problem of the current study lies in identifying the degree to which resource room teachers utilize EdTech in teaching students with LD and revealing the obstacles they face and the relationship of some variables to that. The study problem is clarified by answering the following questions:

- What is the degree of resource room teachers' use of modern EdTech resources in teaching students with learning disabilities in Al-Salt?
- What are the obstacles that hinder resource room teachers' use of modern EdTech in teaching students with learning disabilities in Al-Salt?
- Are there statistically significant differences regarding the resource room teachers' use of modern EdTech in teaching students with learning disabilities in Al-Salt due to the educational qualification variable, years of experience, and gender?

## **Methods**

The researchers adopted the descriptive survey method because it was compatible with the nature of the objectives of this study.

## **Participants**

The study population comprised all the male and female resource room teachers (n=50) in public schools in Al-Salt for the Second Semester of the academic year 2019-2020, as reported by the statistics of the Ministry of Education, 2019. The study sample consisted of the entire population of the study. The questionnaires were distributed to all (50) participants, 48 questionnaires were retrieved, and 2 questionnaires were excluded due to their invalidity for statistical analysis. The distribution of the study sample is shown in Table 1.

**Table 1**  
*Distribution of the Study Sample According to the Study Variables*

Variables	Categories	Frequency	Percentage
Gender	Male	26	54.5
	Female	22	45.5
Years of Experience	1 - 5 years	16	33.3
	6-10 years	22	45.8
	> 10 years	10	20.8
Educational Qualification	Bachelor & below	30	65.5
	MA and Higher	18	37.5

### Data Collection and Analysis

The researchers have built a measure consisting of two sections. The first section includes the primary data for the study sample. The second section also consists of two fields: The first field includes (29) items that measure the extent to which teachers working in the resource rooms utilize modern technological means in teaching students with learning disabilities. The second field: includes (20 items that measure the obstacles that hinder teachers in resource rooms from using modern technology in teaching students. To achieve the objectives of the study, the 3-point Likert Scale (Always, Sometimes, and Never) was used to gauge the extent to which resource room teachers employ technological means. The following criteria were adopted for measuring the response on the Scale: (1-2, Low); (2-3, moderate) and (3-4, high).

The content validity was checked by reviewing the educational literature and consulting 10 referees specialized in the field of learning disabilities. The reliability coefficients were determined for the first part to identify the extent to which the resource room teachers utilize technological means in the resource rooms. The reliability coefficient was calculated using the internal consistency method and the value of the reliability coefficient was (0.931) between the items of the questionnaire. Cronbach Alpha correlation coefficient was also used as shown in Table 2.

**Table 2**  
*The Cronbach Alpha Correlation Coefficient for the Reliability Coefficients*

Field	Cronbach Alpha
The extent to which resource rooms teachers use modern educational methods in teaching students	0.804
The obstacles that hinder teachers from using technology	0.931

The reliability coefficient was checked using the internal consistency method of the extent to which resource room teachers utilize modern educational methods in teaching students, and it was (0.804). Where the internal consistency of obstacles that hinders teachers from implementing EdTech was (0.931) which are considered appropriate values that indicate the reliability of the scale.

## Procedure

After checking the indications of validity and reliability of the study tool, the researchers applied the following procedures:

1. A Letter on facilitating the researcher's mission was obtained and addressed to the Al-Salt District.
2. Obtaining a letter of approval from the Directorate of Al-Salt to schools for facilitating the implementation of the study tool.
3. School principals were interviewed to obtain their support to implement the study tools.
4. After obtaining the approval in the schools, the data was collected by applying the study tools to the sample that was represented by teachers of the resource rooms.
5. Computer data entry was implemented to analyze it statistically and obtain the results.

## Results

This section describes the findings of the study according to the study questions.

### Results of the First Question

“What is the degree of resource room teachers' use of modern EdTech resources in teaching students with learning disabilities in Al-Salt?” To answer this question, a descriptive analysis was conducted (Means, Standard deviations, and the degree to which resource room teachers use modern EdTech resources in teaching students with learning disabilities in Al-Salt were extracted) as shown in Table 3.

**Table 3**

*Descriptive Analysis of Edtech Means Use by Resource Room Teachers*

No.	Rank	Items	Mean	SD	Degree
15	1	Using educational games instruction	2.95	1.008	Moderate
1	2	Use the smart board in the teaching process	2.91	.928	Moderate
29	3	Use computer programs in teaching.	2.89	.875	Moderate
28	4	Use magnetic boards in teaching	2.85	.756	Moderate
22	5	Use multimedia in teaching	2.84	.996	Moderate
2	6	Use the computer in teaching	2.80	.989	Moderate
13	7	Use traditional teaching boards and chalk	2.80	.989	Moderate
25	8	Use a documentary camera for teaching	2.76	.981	Moderate
27	9	Use a fixed overhead film projector	2.76	.981	Moderate
14	10	Use teaching aids (pocket flipcharts, flipcharts) in teaching	2.75	.775	Moderate
4	11	Use audio recording software in teaching	2.69	.960	Moderate

No.	Rank	Items	Mean	SD	Degree
24	12	Use educational slides in teaching	2.65	.947	Moderate
21	13	The use of iPad in the teaching process	2.58	.917	Moderate
7	14	Use programs from YouTube in teaching	2.55	.899	Moderate
9	15	Use educational slides in teaching	2.51	.879	Moderate
10	16	Use the Internet in the teaching process	2.51	.879	Moderate
12	17	I employ scientific trips to teach	2.51	.879	Moderate
3	18	Use educational videos to teach	2.47	.858	Moderate
6	19	Using smart device (phone) programs	2.44	.834	Moderate
16	20	Use picture-sharing programs for teaching	2.40	.807	Moderate
23	21	Use interactive videos to teach	2.40	.807	Moderate
18	22	Use graphics in teaching.	2.36	.778	Moderate
17	23	Use the figures in teaching	2.33	.747	Moderate
20	24	Use educational toys that require disassembly and assembly in teaching	2.33	.747	Moderate
26	25	Use lanugo panels in teaching	2.33	.747	Moderate
5	26	Use the TV set for teaching	2.29	.712	Moderate
8	27	The use of arithmetic machines in teaching	2.29	.712	Moderate
19	28	Use erased mind maps in teaching	2.25	.673	Moderate
11	29	Use educational visits to exhibitions and museums for teaching purposes	2.18	.580	Moderate
		Total	2.56	.187	Moderate

Table 3 shows that the overall mean of the scale = 2.56 and to a moderate degree. The means and standard deviations of the scale items ranged between (2.18 and 2.95). Item (15) which states that “Using educational games in teaching students” ranks first with the highest mean = 2.95 and a moderate degree, while item (11) which indicates “Use educational visits to galleries and museums for teaching purpose” ranks last with the lowest mean =2.18 and with a moderate degree.

### Results of the Second Question

“What are the obstacles that hinder resource rooms’ teachers’ use of modern EdTech means in teaching students with learning disabilities in Al-Salt?” To answer this question, means, standard deviations, and the degree of difficulties that hurdles the resource room teachers’ use of modern educational technology in teaching students with learning difficulties in Al-Salt were extracted as shown in Table 4.

**Table 4**

*Descriptive Analysis (Mean, Standard Deviation, Degree) for the Obstacles*

NO.	Rank	Items	Mean	SD	Degree
18	1	School infrastructure is not prepared for the use of modern technological equipment in teaching.	2.98	1.009	moderate
5	2	Resource rooms are not well prepared to facilitate using technological devices.	2.96	.881	moderate
11	15	Lack of places to keep modern technological devices	2.95	.931	moderate
6	4	There are no equipped computer labs	2.93	.997	moderate
4	5	I am having difficulty moving tech devices into the resource room	2.91	.986	moderate
7	6	There is no guidance by the administration considering the use and employment of teaching technology	2.91	1.005	moderate
2	7	I am having difficulty controlling students when using EdTech means in the teaching process	2.91	.908	moderate
9	8	Teachers need more time and class time is not enough	2.89	.936	moderate
17	9	I do not see a need to use technology in teaching students with learning disabilities	2.80	.989	moderate
20	10	There are no material or moral incentives from the administration or supervisors.	2.80	.803	moderate
19	11	It needs a lot of time and effort from me as a teacher	2.76	.981	moderate
1	12	I am having difficulty using modern technological tools in teaching	2.65	.947	moderate
16	13	Lack of experience in employing educational technology	2.65	.947	moderate
8	14	There is no guidance from the supervisors in teaching students with learning difficulties through technological tools	2.58	.917	moderate
15	3	There are no specialized courses in employing technology tools in teaching	2.55	.899	moderate
10	16	The small number of programmers specializing in modern tools	2.51	.879	moderate
3	17	High cost of devices maintenance	2.44	.834	moderate
14	18	The high cost of such tools	2.36	.778	moderate

NO.	Rank	Items	Mean	SD	Degree
12	19	The lack of financial resources makes it difficult to provide modern technological tools.	2.33	.747	moderate
13	20	Lack of raw materials for the production and operation of these tools	2.33	.747	moderate
		Overall average of difficulties	2.71	.194	moderate

Table 4 illustrates the overall mean of the scale of challenges that hinders the resource room teachers' use of modern educational technology in teaching students with learning disabilities in Al-Salt, the mean =2.71, and with a moderate degree. The arithmetic means for the item "the lack of financial resources makes it difficult to provide modern technological means" ranged between (2.33 and 2.98), while the item which stated that "The School infrastructure is not prepared for the use and operation of modern technological equipment in teaching" has the highest mean and ranks first with a mean = 2.98 and a moderate degree. The item "lack of raw materials for the production and operation of these tools" came in the last rank with the lowest mean = 2.33 and a moderate degree.

### Discussion

The results of the first question showed that the overall average of the scale that measured the degree to which the resource room teachers employ the modern EdTech means in teaching students with learning disabilities in Al-Salt was (2.56) with a moderate degree. And that the means and standard deviations of the scale ranged between (2.18 and 2.95). The item (The use of educational games in teaching students) came with the highest mean and in the first rank =2.95 with a moderate degree. This result is consistent with the previous studies by Abu Hawash (2008), Al-Duwaida (2014), Al-Osaybi (2015), Bigelow (2008) and MacArthur et al. (2011). Where the item (Use educational visits to exhibitions and museums in teaching) came in the last rank with the lowest mean of 2.18 and a moderate degree. This indicates a variation in the use of technological means in teaching students and the researcher attributes this result to teachers' belief in the importance of these competencies in employing these techniques in teaching students with learning disabilities. This indicates that these professional competencies that are concerned with the use of technology in teaching students in resource rooms should be included in programs for preparing and training students teachers who are going to teach students with learning disabilities before and during the service. Universities should also increase the hours of university courses that are included in the specialization studying plan to concentrate on the applied training. These results are consistent with what Patterson & Chappell (2007) concluded.

The results of the second question showed that the overall mean of the scale was 2.71 with a moderate degree. The means for the item 'the lack of financial resources makes it difficult to provide modern technological devices' ranges between (2.33 and 2.98), The item states that" the school infrastructure is not prepared for the use and the operation of modern technological devices in teaching" ranked first with the highest mean = 2.98 and with a moderate degree, while the item "lack of raw materials for the production and operation of these means" came in the last rank with the lowest mean = 2.33 and a moderate degree. The researcher attributes this result to the fact that lacking financial resources is one of the most critical hindrances that make it difficult for the Ministry of Education to provide all the required modern technological devices and means to be utilized in teaching, and because some of

these technological devices require a building code that allows the operation of such equipment. Critically, some schools in the governorate are old and do not have the simplest infrastructure standards for operating such devices and employing them, and this result is consistent with the study (Al-Duwaida, 2014).

### **Conclusion**

The current study aimed to identify the degree to which resource room teachers use modern educational technological means in teaching students with learning disabilities and the obstacles facing them in Jordan. In general, the results indicated that the use came at a moderate level. Also showed that there were no statistically significant differences in the degree of using modern technological means attributed to the scientific qualification variable, and there were statistically significant differences attributed to the variable practical experience and in favor of the variable "experience category". The results showed that the obstacles to using modern technology in all fields were of a (moderate) degree. In the light of these results, the educational stakeholders need to enhance the use of technological means in teaching students with learning disabilities in resource rooms and find effective solutions for the obstacles that hinder the use of these methods. Furthermore, it is important to encourage the resource room teachers to effectively and broadly use the EdTech means in teaching students with learning disabilities in the resource rooms and to develop solutions to the obstacles that hinder the effective use of these methods.

### **Limitations**

The applications of the study tool were limited to the teachers of the resource rooms in the public schools of Al-Salt city. The application of the study was limited during the second semester of the academic year (2019-2020).

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