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# The Digital Learning of Disabled Students: Perceptions of Teachers in Public Schools

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**Abstract:** The purpose of this study was to determine the perceptions of public-school teachers about digital learning for disabled students. The study employed a descriptive-analytical approach, using a questionnaire tailored to accomplish the study's objectives, which was developed by the researchers. A total of 124 male (55) and female (69) public-school teachers in Irbid's public schools were included in the study. The outcomes of the survey revealed that public school teachers had a positive attitude toward digital learning. They also discovered statistically significant variations in the sample's answers due to the variables of gender (in favor of females) and age (in favor of the age range 40-less than 50).

**Keywords:** Digital Learning, Perception of teachers, students with Learning Disabilities, Public schools.

## 1. Introduction

Technology has enhanced learning for disabled students [1]. Jordan has spent a lot of time and money in the last 20 years trying to adopt technology in the schools as part of a goal to increase the human resource complement in education institutions. In response, the Ministry of Education has worked to enhance pedagogical techniques, stressing the use of computers to aid efficient learning. E-learning has the potential to improve the learning outcomes of disabled students, while providing instructors with the tools they need to pique and maintain students' enthusiasm [2]. Despite these advantages, researchers have discovered that instructors are hesitant to use technology in the classroom. Weak technical skills, inadequate educational content, decreased control, and a lack of time have all been cited as reasons [3]. Educators have responded by implementing interventions such as peer support and requesting technical and financial aid [4]. To investigate instructors' attitudes on technology use in the classroom, [5] suggested using a cognitive-behavioural method.

Alternatively, Darmahkasih et al [6] found that in the age of the Covid-19 epidemic, disabled students were identified as having various challenges as a result of e-learning. It has been discovered that disabled students experience unique challenges when it comes to e-learning because they lacked the resources needed to access the educational materials, they also didn't have enough mentorship to receive an adequate degree of education from their various educational institutions [7]. However, it was shown that disabled students lacked a large skill set that could be used for online learning. Furthermore, handicapped students had difficulty gaining a sufficient degree of knowledge from the lessons planned for them since teachers had difficulty producing lessons that could be utilized to teach disabled students [8]. In addition, teachers lacked enough training to educate disabled students, resulting in a variety of challenges to achieve the appropriate level of teaching. Another difficulty that disabled students had to deal with was instructions to stay at home, which had a negative impact on their mental and psychological health. This has a detrimental impact since e-learning concerns were already prevalent, and psychological and mental issues cause various challenges, such as impaired pupils losing their ability to cope with the uncertainties [7].

Furthermore, concerns related to the shift from a physical to an online setting present many problems for students with impairments. The amenities supplied in their individual educational establishments were not available at their houses, resulting in many difficulties and the learning process not proceeding as planned [9]. In addition, disabled students were unable to deal with these ambiguities, and these factors have an influence on e-learning (Gundersen et al., 2020). Aside from that, there were several financial concerns because impaired students had to purchase new gear in order to achieve a satisfactory degree of education via internet methods. All of these factors create various difficulties for impaired students, as well as various challenges for teachers in providing an adequate level of education for impaired students [10].

In conclusion, despite the importance of e-learning in the advancement of education, we don't know much about the requirements of students with learning disabilities and their caregivers or parents when it comes to online learning. We

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don't have any evidence of the benefits of online learning for students with learning disabilities, and we don't have any outcomes that compare online and direct learning for this population [11].

However, the present study discovered that there is a vacuum in relevant research, a lack of research, and a small body of literature that has been explored in regards to online learning for students with learning disabilities. Previous research has looked into the efficacy of online courses or blended learning, which are not the same as the current study's total shift to online learning, in which all educational services are provided online. However, the majority of current research on online learning suggested and proposed apps and platforms without any empirical proof to back up their efficacy. Without presenting any federal trial or experimental outcomes, they gave recommended reports and techniques for online learning designs acceptable for children with learning disabilities. This is due to the fact that learning impairments are divided into several groups, each with its own set of learning requirements.

In Jordan, The Ministry of Education has chosen to transition to distant learning in September 2020, owing to a rise in the number of coronavirus-infected patients in accordance with the Ministry of Health's guidelines; to safeguard pupils from the emerging pathogenic virus's danger of infection. Jordanian pupils were not unfamiliar with the concept of online learning. Due to the spread of the pathogenic virus in the second semester of 2018/2019, students were forced to convert to online learning. Darsak, a platform for all students in grades one to twelve, has been introduced by the Ministry of Education on both television and online. Darsak, a platform for all students in grades one to twelve, has been introduced by the Ministry of Education on both television and online. However, this unforeseen move confronts a number of obstacles, including insufficient infrastructure, personnel, and students.

In guiding and supervising the educational process for regular students and their outstanding classmates, the teacher is the primary driver [12]. His function cannot be neglected, as it is the cornerstone, and he is centered on creating lessons for all his pupils, whether he is a typical student or a student with learning challenges [11]. The premise that controls the connection between the teacher and the student is the instructors' understanding of their pupils. A teacher with the necessary knowledge background and experience with students with learning disabilities will undoubtedly assist them in fulfilling their role in the educational process [13]. If the teacher understands the nature, characteristics, and patterns of these students, he will inevitably be a capable teacher who is able to work in the educational field efficiently and with a scientific methodology through which he will be able to overcome the majority of the obstacles he encounters while working with them [14].

### **1.1. Research Questions:**

The following questions will be addressed in the research:

- What are the attitudes of public schools teachers toward digital learning for disabled students?
- Are there statistically significant differences in the attitudes of public schools teachers towards digital learning for disabled students attributed to the variable of gender and age?

### **1.2. Research Objectives:**

The following key objectives were pursued in this study:

- Determining the attitudes of public schools teachers towards digital learning for disabled students
- Identifying statistically significant variations in public school teachers' attitudes toward digital learning for disabled students due to gender and age.

### **1.3. Importance of the Study**

The importance of this study is evident in that sheds light on public school teachers to determine the extent to which teachers are prepared for digital learning and their attitudes toward digital learning, as they play a large and important role in the success of the modern era of the digital system in education. The results of the study also contribute to attracting specialists and responsible authorities in relation to the educational process in preparing training courses for teachers who deal with students teaching disabled to improve and develop teachers' abilities in applying different technological methods for students learning disabled with different disabilities. Since digital learning is very important nowadays, digital transformations are inevitable in all aspects of life, especially in the field of learning disabilities.

### **1.4. Definitions of Operational Terms**

1. Digital learning: is a term used to refer to a wide range of educational opportunities that became available due to digital technologies [11]. Digital learning is defined as student's learning by different technological means including modern technologies like the internet, local networks, and floppy or compact discs, and it depends on the concept of self-learning with the assistance of a teacher [12].

2. Students with learning disabilities: Khasawneh [15] defined learning disabilities as characterized with instances of incapacity in any educational topic, including reading, writing, capabilities, thinking, learning, remembering, and math. Another definition that had widespread acceptance in this field is the definition of the National American Advisory Committee which combined the educational and medical aspects, as it defined learning disabilities as “disorder in one or more than one of psychological processes related comprehension or the use of spoken or written language manifested by a weak ability to listen, think, speak, read, write or do the math. This term entitles cases like cognitive disabilities, brain injuries, slight shortcomings in the functionality of the brain, aphasia, and developmental conversational turn-taking. It does include children who have educational problems resulting from sight, hearing, or emotional disabilities, mental retardation, emotional disorder, or environmental, cultural, or economic deprivation. According to the current study, disabled students are defined as the students who were classified as the ones suffering from learning disabilities in normal schools according to the followed classification criteria at such schools. Using tests prepared by princess Tharwat college related to the classification of students as learning disabled is an example of these criteria that were employed by public schools teachers. Furthermore, we have teachers’ observation and case studies which are standards accredited by the ministry of education.
3. Özdamlı [16] defined attitude as a person's favorable or negative assessment of a certain topic. This demonstrates that teachers' attitudes about e-learning may be represented as learners' positive or negative predispositions or perceptions.

### 1.5. Study Delimitations

1. Human delimitations: The study was confined to male and female public schools teachers in Irbid.
2. Spatial delimitations: The current research was restricted to Irbid public schools.
3. Time delimitations: This research was carried out in the first semester of the academic year 2022/2023.

## 2. Literature Review

Many scientists and practitioners in the field of special education believe that special education is primarily concerned with developing educational programs and procedures for pupils who require extra attention. As a result, we may come to the conclusion that impaired students require special education programs. Given that we do not disagree with current mainstream special education principles that place a major emphasis on learning challenges, this issue must be addressed and examined using scientific techniques in order to develop an appropriate approach and create remedies or minimize the severity of the problem [7].

The significance of treating learning disabilities cases at early school levels has to be illustrated. And their aspects and symptoms have to be investigated, and proper programs and teaching for these groups at different levels to enhance their academic achievement have to be found. The diversity in learning disabilities streams is reflected in the adoption of various theoretical definitions and premises that emphasize particular dimensions, aspects, and characteristics by governmental and non-governmental organizations, psychologists, and educationalists. It was noticed that most disabled students are hyperactive and constantly moving compared to their peers in the same class. They were also noticed to be distracted and unable to focus due to their short weak attention span which affects the process of learning and teaching. As it is known, attention and concentration are important elements in the learning process. Excessive and unusual activity, in turn, leads to a decrease in the level of attention and thus hinders their learning process. It is noted that many students who suffer from learning disabilities appear to have poor motor balance, therefore, some resort to examining these students using walking on a wooden board that is slightly raised from the ground and asking them to maintain balance while walking on the wooden board and to avoid falling on the ground. It has been observed that most students who have learning disabilities find it difficult to walk on the board and maintain balance compared to their ordinary peers, and despite the importance of this method to reveal the characteristics of students learning disabled, it is not considered a sufficient test to judge the student, but rather it is an initial tool for rapid detection, and then it is transferred to specialists to conduct further necessary educational, psychological and achievement tests [17] describes the features of students who suffer learning disabilities as follows:

- The presence of large variation between school achievement and intelligence level in one or more than one of the learning fields such as reading, writing, expression, or arithmetic. This phenomenon can be observed in students who suffer from learning disabilities. As for the characteristics that will be mentioned later, they may appear in some students, and not all of them necessarily appear in students who suffer from learning disabilities, for example:
- Delayed or slow language development and lack of vocabulary, shortage in the lexicon and terminology, or frequent and obvious grammatical errors or in-current ideas.

- Difficulty with spatial awareness; it is very easy to confuse directions and places, even though they are easily recognized by those of their age.
- Difficulty recognizing time; it is difficult for them to estimate the time taken or required for a clear and known task.
- Difficulty in comprehending relationships, such as similarities, differences, or others. Weakness in motor coordination, which is evident through his poor balance in movement and walking. It is also noted that they often stumble while moving and fall to the ground during running and walking repeatedly.
- Difficulty in handling simple mechanical matters, as they may find it difficult to put the key in the door hole, or face other difficulties in the process of running a particular game that requires few mechanical movements.
- Delayed in social maturity, it was noticed that he is not able to interpret the movements or expressions that appear on the faces of their colleagues sometimes as an indication of his acceptance or rejection, so they cannot distinguish that well.
- Lack of attention and concentration for a sufficient period to someone who is causing it or to someone who is doing something that attracts attention.
- Hyperactivity, causes exhaustion, although they do not stop moving on their own.
- Weakness in listening to instructions and commands, even if they are simple and easy.
- Lack of participation in the class discussion due to their inability to listen and understand the ideas presented by his classmates.
- Hearing and vision problems that are not due to physical defects, but are related to the difficulty of perception itself.
- Difficulty with the ability to remember, such as remembering vocabulary and remembering visual objects and pictures if they are removed from their sight field.

### 2.1. Digital learning resources

The methods of digital learning are considered one of the most common in the educational process nowadays. Digital learning methods became dominant over other means of learning and teaching worldwide. They also became a daily routine either at school or outside school [18]. Digital learning media present all types of educational vessels designed by multimedia technology, as the methods of digital learning rely on computer devices and the internet in accessing educational content, information and experiences. Digital learning resources are characterized by illustrating information in a way that makes it vivid by blending text, motion, and picture which provides the learner with complex and abstract educational expertise easily. Furthermore, they engage the learner in the educational environment and generate the desire and motivation to learn, research, and explore [19]. Digital learning methods are considered competent and effective educational methods that can achieve the required quality to achieve the required level of education that is appropriate for contemporary developments. To illustrate, digital learning methods improve the quality of the capacities of the educational outcomes which enable them to embody the educational expertise and work on the theoretical and applied aspects [8]. The resources of digital learning are illustrated in the following points:

- Educational blogs: used to post and manage the content of an educational curriculum. They also enable learners to interact with content.
- Video presentations: they can show the educational content timeously with the voice and picture of the teacher who presents and explains the investigated content.
- E-books: they are resources that contain texts, pictures, videos, interactive activities, and relevant website links. They can be accessed through computer devices or smartphones and published on the web [20].

Murphery et al [21] listed the merits of digital learning in the following points:

- They use technology ideally in the educational process.
- It allows access to educational content anywhere at any time.
- Convenient constant updates by users.
- Convenient development of electronic curriculum.
- 5-They increase the effectiveness of education by offering more realistic experiences to students.
- Convenient access to data and information and the ability to search for them easily.

- They encourage students as well as learners to use, exchange, and produce the units of digital learning.
- The availability of a database that can be used by teachers.
- They help improve and develop the outcomes of the educational process through the diversity of means and educational resources in educational stores.

## 2.2. Previous Studies

McLaren et al [22] identified the impact of digital learning tools on students' participation, self-efficacy and ownership of learning. The researcher used the mixed approach by developing the study instrument represented by the questionnaire and open questions through interviews on the intentional sample of students and teachers in British Columbia School. The results of the study and the sample responses concluded that learner participation and self-efficacy are positively affected by the use of digital learning tools. The results also showed that learning ownership is not directly affected by the use of technology in the classroom.

Saffanah [23] investigated the views of special education teacher candidates on the use of digital learning resources in special education, as well as their preferred platforms and reasons for the choice. 49 freshmen pre-service special education instructors at a prominent university in Turkey took part in the study. The study lasted a total of 14 weeks: The first six weeks were spent learning about digital learning materials (DLM), the second six-week period on augmented reality tools for learning, a week on material development, and spent a week conducting interviews with potential special education teachers. Private school teacher applicants have shown a desire to enhance and apply DLM. In terms of improving academic, social, self-care, and communication abilities, DLM is critical. DLMs also help instructors with cheaper costs and time, student involvement, ease of preparation, entertaining and beneficial outcomes, and expanding the range and sources of resources, according to teacher candidates. Participants stated that creating and using DLMs will be impossible until the necessary technical equipment is given.

Sayaf et al [24] investigated the experience of transitioning from face-to-face instruction in schools to distant education online during the spread of the Coronavirus outbreak in Georgia, where the study was applied in a private school, where the statistics of the first week of the teaching process in that school were used, and its experience in moving from face-to-face education to digital distance education during the Corona pandemic, where educational platforms were used for online education and based on the statistics of the first week of the distance teaching process, the study showed that the process of transition from traditional education to digital distance education during the Corona pandemic, where educational platforms were used for online education.

Sousa [25] attempted to uncover different types of assistive technology used by students with learning disabilities (LD) in many publications chosen through a screening procedure between 2015 -2020. ScienceDirect, Sage Journal, and Proquest were used to perform the review. From a total of 32 papers that were screened for inclusion and exclusion criteria, 7 were chosen to be evaluated. According to the findings of multiple research projects, utilizing digital intervention such as a Smart-pen, PC, or Smartphone with proper application has aided and improved the learning capabilities of students learning disabled.

Wasserman and Migdal [26] examined faculty attitudes about e-learning of disabled students during COVID-19. 70 questionnaires were distributed to members of the faculty who specialized in teaching disabled students in UAE. According to the findings, faculty members had a good attitude toward using e-learning technology for disabled students, and they believed it would allow for cognitive, social, and educational engagement throughout the epidemic. Although teachers agreed that the approach took no longer than traditional classroom sessions, many were hesitant to devote the time to training.

## 3. Methods

Here, a description of the research methodology and procedures is provided in terms of the research community, sample, and instrument, verification of the psychometric properties of the instrument, research procedures, and statistical treatment used in analyzing the results. This research adopted the descriptive method because it is appropriate for current research and can be used in "description, interpretation, and analysis in the human sciences, and it is concerned with comparing different or homogeneous things".

### 3.1. Population and Sample

The sample was made up of (124) teachers who worked in public schools in Irbid and were chosen at random. The distribution of the sample according to demographic characteristics is shown in the table below.



**Table 1:** the demographic properties of the sample.

Variables	Category	N	%
Gender	Male	55	44.4
	Female	69	56.6
Age	Less than 30	27	21.8
	30- less than 40	42	33.9
	40 -less than 50	40	32.3
	50 years and older	15	12.1

Table 1 shows that females made up the majority of participants, with 69 compared to 55 males. Regarding the variable of age, most participants fall in the age group (30 - less than 40), as they were 42 participants. 40 participants were (40 - less than 50) years old. 27 of them were younger than 30 while the remaining 15 were 50 years old or older.

### 3.2. Research Instrument

To achieve the objectives of this study, the researcher designed a questionnaire consisting of (9) items, and it was directed to public school teachers toward digital learning for students learning disabled. The questionnaire consisted of 9 clauses that were answered by participants using the “Liker” scale that consists of 5 degrees varying between 1 “Highly disagree” to 5 “Highly agree”. The questionnaire was distributed online. The five-level grading classes were also converted to three-tiered grading as follows: 5-1/3=1.33. This value is used to determine the length of the staging period as follows: 1.00-2.33 low, 2.34 – 3.67 Medium and 3.68 - 5.00 high

### 3.3. Validity and Reliability of the Instrument

The research instrument was presented to a group of arbitrators specialized in education and psychology, numbering (13) to verify its validity of the instrument.

### 3.4. Data analysis

The researcher utilized the Statistical Package for Social Sciences (SPSS) version 24.0 to analyze the data and extract the results, as well as numerous statistical tests, including arithmetic means and standard deviations to answer question one. Question two was answered using the T-test and one-way analysis of variance (ANOVA).

## 4. Findings and discussion

The results of the current study are presented in this section. These results are given in light of the research topics that guided the current study.

**Firstly: the results of the first question:** what are the attitudes of teachers toward digital learning for disabled students?

**Table 2:** means and deviations for teachers towards digital learning for disabled students

N	Item	Mean	St.dev
1	Digital learning allows swift and convenience in contacting all students with learning disabilities	4.20	1.246
2	Digital learning increases the motivation of disabled students in the educational process	4.10	1.360
3	The use of digital learning helps the assessment and assistance of disabled students.	4.02	1.258
4	Digital learning can transfer information to students wherever they are	4.02	1.328
5	Digital learning helps students with learning disabilities participate effectively in the educational process	3.85	1.365
6	Digital learning saves time with learning disabilities for students	3.83	1.333
7	The implementation of digital learning helps to overcome obstacles and to overcome distances	3.76	1.431
8	Digital learning is not appropriate for all types of learning disabilities students	3.68	1.422
9	Digital learning saves money and effort	3.29	1.201
	Total	3.86	0.830

Table (2) illustrates the attitudes of teachers toward students learning disabled. The overall mean was (3.86) which is high. It is shown that the attitude that “digital learning allows swift and convenience in communication with all students with learning disabilities” was very high with a mean of (4.20). The article “Digital learning increases the motivation of disabled students in the educational process” had a mean of (4.10) which is high. The articles “The use of digital learning helps the assessment and assistance of disabled students” and “Digital learning can transfer information to students

wherever they are” came with a high mean of (4.02). Then came the article “Digital learning helps students with learning disabilities participate effectively in the educational process” with a mean of (3.85) which is high. Some participants stated that digital learning can save with disabled a student (3.83) which is high. Others believe that the employment of digital learning contributes to overcoming obstacles and overcoming distances with a mean of (3.76) which is high. Some participants stated that digital learning is not appropriate for all types of learning disabilities students with a mean of (3.68) which is high. Other participants believe that Digital learning saves money and effort with a mean of (3.29) which is moderate. This study agrees with other studies [23, 24, 25]. Previous studies indicated the variation of attitudes and perception toward using digital learning. Teachers of students with LDs need to acquire good knowledge of the use of digital learning tools as they support their teaching techniques, and therefore, help students to increase their academic level.

**Second question:** are there statistically significant differences in the attitudes of public schools’ teachers attributed to the variable of gender and age?

**Table 3: (T-test) Findings**

The Variables	N	Mean	St.dev	df	t	Sig
Male	55	3.67	.906	123	2.389	.018
Female	69	4.02	.733			

Table (3): There are significant differences between the responses of the study sample about the attitudes of public schools teachers towards digital learning for people with learning disabilities attributed to the gender variable and in favor of females.

**Table 4: ANOVA Test**

Variable	Groups	Sum of Squares	df	Mean Square	F	Sig
attitudes of public schools teachers	Between groups	4.408	3	3.75	3.194	.040
	Within groups	80.356	120	3.67		
	Total	84.765	123	4.10		
				3.97		

Table (4) shows that there are substantial disparities in the replies of the study sample regarding public school instructors' views toward digital learning for persons with learning impairments based on age, with the participants aged 40 to less than 50 years benefiting the most.

These results showed that age plays a very important role in determining the perceptions of teachers. Teachers with higher experience tend to understand the importance of using new methods and techniques in teaching students with learning disabilities.

## 5. Conclusion

The current study aimed at setting the attitudes of teachers towards digital learning for disabled students in the city of Irbid. The results of the study revealed that teachers tend to use digital learning to a high degree, and this indicates that public schools teachers use digital learning in teaching students learning disabled, but there are still aspects that do not keep pace with digital learning that teachers aspire to in teaching people with learning disabilities. This is due to the presence of some obstacles that prevent teachers from using digital learning, and there are teachers’ attitudes that digital learning does not save money and effort, and the researcher attributes the reason that teachers cannot use digital learning techniques easily, because they did not take courses Training and familiarization with digital learning and ways to use it.

**According to the above, the study recommends the following:**

- 1-Improving the level of male and female teachers to use digital learning, and this is done through holding training courses by the concerned authorities for teachers, which will reflect positively on the teachers’ attitudes towards digital learning.
- 2- Providing the necessary technical infrastructure to use digital learning, by making a high-speed Internet available would help in using digital learning easily.
- 3- Holding courses, seminars, and workshops on the importance of digital learning and benefiting from previous expertise in the field of digital learning.

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## Limitations and Future Directions

This study was limited to the sample and instrument used to investigate the topic of the research. Future research should be directed to discuss different samples and different instruments.

## Conflict of interest

The authors declare that there is no conflict regarding the publication of this paper.

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