Digital learning for students with disabilities

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Abstract

This study explored the teachers' attitudes towards digital learning for students with disabilities. The study used the descriptive approach, and a questionnaire was designed to achieve the objectives of the study. The study sample consisted of (200) male and female teachers from public schools. The findings showed that teachers' attitudes towards digital learning for people with disabilities came to a high degree. The results also revealed that there are statistically significant differences between the sample responses due to the gender variable in favour of females and age in favour of those aged less than 55 years.

Keywords: digital learning, students with disabilities, teachers' attitudes.

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Introduction

The current age is characterized by the rapid changes that have affected the scientific and technological aspects, where the phenomenon of communication over the network has become clear and society depends on it. The applications of Internet programs have spread, which has contributed to increasing their spread in all aspects of life. These developments have been reflected in educational institutions, where digital learning has become effective. Digital learning provides a better context and feel to activities and is more engaging than traditional learning methods, allowing students to communicate better with educational materials (Guillen & Fernandez, 2020).

The application of modern technologies in the school is a complex process that requires the establishment of a systematic, technological, educational and administrative change in the culture of the school, a process that does not meet the high expectations and brings about systematic change. The place through which the learner can access and evaluate information rather than the teacher being the source of the information (Kleiman, 2020).

The problem of the study

The change towards digital education is one of the options and methods applicable in various educational institutions, where education has witnessed transformations in the educational process from traditional methods to distance education. The Internet has brought about radical developments in virtual learning environments and in methods that allow teachers and learners to create and find knowledge and interact with each other.

The application of successful digital learning is based on the attitudes of teachers towards digital learning. The success of digital learning does not depend only on the amount of technological progress or its capabilities, as implementing digital learning depends on the extent of positive attitudes of users towards this learning, where the attitudes of teachers play a great influence on how to use digital learning.

Objectives

1. Identifying teachers' attitudes towards digital learning for students with disabilities.

2. Detection of statistically significant differences in teachers' attitudes towards digital learning for students with disabilities, according to the gender variable.

3. Detecting statistically significant differences in the attitudes of room teachers towards digital learning for students with disabilities, according to the age variable.

Questions of the study

1. What are the teachers' attitudes towards digital learning for students with disabilities?

2. Are there statistically significant differences in teachers' attitudes towards digital learning for students with disabilities according to the gender variable?

3. Are there statistically significant differences in teachers' attitudes towards digital learning for students with disabilities, according to the age variable?

Significance of the study

- The current study deals with teachers, and this helps to know the extent of teachers' readiness for digital learning, and their attitudes towards digital learning with students with disabilities, because they have a large and important role in the success of the new digital system in education.

- The results of the study contribute to drawing the attention of specialists and concerned parties about the educational process of holding training courses for teachers who deal with

> people with disabilities, to improve and develop teachers' abilities in applying different technological methods for all students with disabilities of different types.

- Digital learning is very important at this time, as digital transformations have become a must in all aspects of life, especially in the field of teaching students with disabilities.

Limitations of the study

- Human limits: the study was limited to teachers of resource rooms in public schools in Irbid.

- Spatial limits: the current study was limited to public schools in the city of Irbid.

- Time limits: This study was applied during the first semester of the academic year 2021/2022.

Definitions of terms

1. Digital learning describes several educational tools and platforms made possible by digital technologies (Blundell et al, 2020).

   Digital learning is defined as students learning through various electronic media, including modern technologies such as the Internet, local networks, and CDs or floppy disks, and relying on the principle of self-learning or with the help of the teacher (Khasawneh, 2022).

2. Students with disabilities: Darmahkasih et al (2020) defined all those who suffer from long-term physical or mental impairments, which may prevent them when dealing various barriers from participating fully and effectively in society on an equal basis to others.

Digital learning resources

Digital learning methods are considered one of the most widespread and widely used means in the educational process at present. Digital learning methods have become the dominant method of teaching and learning all over the world, and have also become a daily routine, whether inside or outside the school (Fullan, 2019).

Digital learning means representing all forms of educational vessels that are designed with multimedia technology, whereas digital learning means based on computers and the Internet in seeing content, information and educational experiences. Digital learning resources are characterized by displaying information in a way that makes it alive by integrating text, image and movement. This makes the learner gain complex and abstract learning experiences easily, in addition, it makes the learner fit into the learning environment and generates the desire and motivation to learn, research and explore (Liu & Yang, 2019). Digital learning methods are strong and sufficient educational methods that are capable of transforming to the required quality to reach the required level of learning appropriate to contemporary developments (Muñoz et al., 2019).

The digital learning resources have been identified in the following points:

1- Educational blogs: They are used for publishing and managing course content through the web. They also enable male and female learners to interact with the content among students.

2- Video presentations: one of its advantages is that the academic content is displayed in conjunction with the teacher's voice and image, which displays, explains and clarifies the content of the lessons.

3- E-books: They are sources that contain texts, images, videos, interactive activities, and links to educational websites that are related to the subject of education that is being presented. E-books are viewed through computers or smartphones, and books can be published on the web (Hashem and Hussein, 2018).

Advantages of digital learning

Murphrey et al (2018) have mentioned the advantages of digital learning in the following points:

1- Technology is used optimally in the educational process.

2- Allows access to educational content from anywhere and anytime.

3- Continuous updates by users easily.

4- Develop electronic courses easily.

5- It increases the effectiveness of learning by providing opportunities for students to be exposed to experiences that are closer to reality.

6- Ease of access for the learner to data and information and searching in them easily.

7- It encourages students and teachers to use, produce, share and exchange digital learning units.

8- Existence of a database for teachers to benefit from.

9- It helps to improve and develop the educational outputs of the sciences, through the multiplicity of teaching aids and materials in educational repositories.

Previous studies

Abdel Latif (2020) explored the relationship between digital learning and artificial intelligence applications when used with for students with visual impairment. The research sample consisted of (50) socialists, experts, and teachers. The study used a scale to measure the use of digital learning based on artificial intelligence. The findings revealed that the behavioral emotional component of digital learning came first, and then followed by the skill component of digital learning. The results also showed that the cognitive for digital learning component came third.

Mutawa (2021) investigated the relationship between the concepts of social support and academic achievement while using digital learning among students with mental disabilities. The study was applied to 97 students with mental disabilities from grade seven to grade nine. The study used the executive functions and the social support scales. The findings revealed a negative correlation between in the several functions, such as planning, social support, regulation and academic achievement. The findings showed differences in the performance of school grades between seventh and ninth grades.

Bates et al (2021) explored a project on digital learning with a sample using several guides on digital learning. The researchers developed three guides to experiment with the users. The guides were distributed online. The materials of the guides were either written or recorded or through video recording. The findings revealed that these guides were helpful in developing and improving the skills of the users in digital learning.

Vue et al (2016) explored focus group data gathered to address whether data from focus groups confirm the way we understand the process of writing of students from middle. Samples were chosen from sixth graders. The results showed that format, editing, and timelines are very important in writing. The findings also revealed that students' performance in writing was improved in relation to behavioral changes.

Method

Sampling

The study population consisted of (200) male and female teachers working in public and private schools in the city of Irbid. The samples was selected in a random method. Table (1) shows the data of the sample.

Table (1): Characteristics of the demographic sample

Male	100
Female	100

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Age	
under 30 years old	50
30-40 years old	100
40-50 years old	38
More than 50	12

Instrument

The study used a questionnaire based on the study (Abdul Aziz, 2021) as an instrument, to identify teachers' attitudes towards digital learning for people with disabilities. The items of questionnaire consisted of 9 items. The questionnaire was built on the Likert-5 points scale from 1 "Strongly disagree" to 5 "strongly agree", the questionnaire was administered electronically to teachers working in public schools in Irbid city.

Validity of the instrument

The study instrument was presented to a group of arbitrators specialized in education and psychology, numbering (40) to verify the validity of the tool.

Data analysis

The researcher used the Statistical Package for Social Sciences (SPSS) to analyze the data and extract the results, and the researcher used several statistical tests, including arithmetic means, standard deviations, T-test, and one-way analysis of variance (ANOVA).

Results

First: The results of the first question

Table (2): Mean scores and standard deviations of teachers' attitudes towards digital learning for people with disabilities

	N	Mean	Std. Deviation
The use of digital learning allows quick and easy communication with all students with disabilities	200	4.25	1.267
Digital learning increases the motivation of students with disabilities in the learning process	200	4.15	1.368
The use of digital learning helps in evaluating and providing appropriate assistance to people with disabilities	200	4.08	1.290
Digital learning enables the transfer of information to students wherever they live	200	4.08	1.370
Digital learning helps students with disabilities to participate efficiently in the learning process	200	3.88	1.380
Using digital learning saves time for students with disabilities	200	3.86	1.379
Employing digital learning contributes to breaking barriers and overcoming the difficulties of the spatial dimension with students with disabilities	200	3.80	1.432
Digital learning is not suitable for all categories of people with disabilities in digital learning	200	3.70	1.423
Using digital learning with people with disabilities saves money and effort	200	3.30	1.200
Total mean score	200	4.15	.890

Table (2) shows teachers' attitudes towards digital learning for people with disabilities. The mean score for the dimension as a whole was (3.90), which is a high degree. The table also showed that the item "The use of digital learning allows quick and easy communication with all students with disabilities" came first, at a very high degree, and with an arithmetic average (4.15).), then came the paragraph "Using digital learning allows quick and easy communication with all students with disabilities" with an arithmetic average (4.25) and a high degree, then came the paragraph "Using digital learning with people with disabilities saves money and effort" with an arithmetic average (3.30), which is a medium degree.

Second: the results of the second question

Table (3): The results of the T-test to find the differences between the responses of the research sample due to the gender variable

	Gender	N	Mean	Std. Deviation	T value	sig
Attitudes	Male	100	3.80	.907	2.390	.018
	Female	100	4.10	.734		

Table (3) shows that there are significant differences between the responses of the study sample about teachers' attitudes towards digital learning for people with disabilities due to the gender variable and in favour of females.

Third: the results of the third question

Table (4): The results of the (ANOVA) test to find the differences between the responses of the research sample due to years of experience

		Sum of Squares	df	Variable	Mean score	St. Dev	F	Sig.
Attitudes	Between Groups	4.409	3	under 30 years old	3.75	.975	3.194	.040
	Within Groups	80.357	100	30-40 years old	4.11	.835		
	Total	84.766	38	40-50 years old	3.68	.758		
				More than 50	3.99	.579		

Table (4) shows the presence of significant differences between the responses of the study sample about teachers' attitudes towards digital learning for people with disabilities according to the age variable and in favour of the participants aged 30-40 years.

Conclusion

The study aimed at identifying the attitudes of teachers towards digital learning for people with disabilities in government schools in Irbid. The results of the study revealed that teachers tend to digital learning to a high degree, and this indicates that teachers use digital learning in teaching students with disabilities, but there are still aspects that do not keep pace with the digital learning that teachers aspire to in teaching people with 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. The researcher attributes the reason that teachers do not use digital learning techniques easily and conveniently, because they did not take training and introductory courses that introduced them to digital learning and ways to use it.

Recommendations

Accordingly, 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 male and female teachers, which will reflect positively on the teachers' attitudes towards digital learning.

2- Providing the necessary technical infrastructure to use digital learning, by making available a high-speed Internet that helps in using digital learning easily.

3-Holding courses, seminars and workshops on the importance of digital learning and benefiting from previous experiences in the field of digital learning.

Acknowledgments

References

Abdel Aziz, A. (2021). Attitudes of special education teachers during and before service towards digital learning for people with special needs. The Scientific Journal of Special Education, 3(1), 19-44.

Abdel Latif, I. A. (2020). Mechanisms for achieving digital learning using artificial intelligence applications for students with visual disabilities. The Arab Journal of Disability and Gifted Sciences, p. 14, 487-542. http://search.mandumah.com/Record/1086290

Bates, K., Morgan, H., Crosby, E., Nurse, K., Flynn, A., Stern, D., ... & Kennedy, E. K. (2021). Developing digital approaches for adolescents and young adults with autism and learning disabilities: Tools to facilitate access and shared decision-making. *Educational & Child Psychology*, *38*(3), 124-139.

Blundell, C., Lee, K. T., & Nykvist, S. (2020). Digital learning in schools: Conceptualizing the challenges and influences on teacher practice. *Journal of Information Technology Education: Research*, *15*, 535-560.

Castaño-Muñoz, J., Duart, J. M., & Sancho-Vinuesa, T. (2019). The I nternet in face-to-face higher education: Can interactive learning improve academic achievement?. *British Journal of Educational Technology*, *45*(1), 149-159.

Darmahkasih, A. J., Rybalsky, I., Tian, C., Shellenbarger, K. C., Horn, P. S., Lambert, J. T., & Wong, B. L. (2020). Neurodevelopmental, behavioral, and emotional symptoms common in Duchenne muscular dystrophy. *Muscle & nerve*, *61*(4), 466-474.

Fullan, M. (2019). *Stratosphere: Integrating technology, pedagogy, and change knowledge*. Pearson Canada.

Guillén-Gámez, F. D., & Mayorga-Fernández, M. J. (2020). Identification of variables that predict teachers' attitudes toward ICT in higher education for teaching and research: A study with regression. *Sustainability*, *12*(4), 1312.

Hashem, Z., and Hussein, R. (2018). The effect of using the flipped learning environment on the skills of producing digital learning resources, academic self-efficacy and achievement motivation among female students of the Kindergarten Department at Al-Jouf University in Saudi Arabia. Journal of Research in Specific Education, p. 17, 183-225.

Ayasrah, M. N., Al-Masa'deh, M. M., Al-Rousan, A. H., & Khasawneh, M. A. S. (2023). Digital learning for students with disabilities. *World Journal on Educational Technology: Current Issues*. *15*(1), 44-50 https://doi.org/10.18844/wjet.v15i1.8203

Kleiman, S. (2020). Digital Learning: Education and Skills in the Digital Age. RAND Corporation.

Liu, Y., & Yang, L. (2019). The digital learning resource design art and its evaluation. In *2010 International Conference on Networking and Digital Society* (Vol. 2, pp. 331-334). IEEE.

Murphrey, T. P., Sandlin, M. R. R., Lindner, J. R., & Dooley, K. E. (2018). Using reusable learning objects (rlos) to share international experiences: Faculty Perceptions and Best Practices in a College of Agriculture. *NACTA Journal*, *57*(1), 47-54.

Mutawa, M. A. (2021). The mediating role of executive functions in the relationship between perceived social support and academic integration in e-learning environments for learnable students with intellectual disabilities. Journal of Scientific Research in Education, Volume 22, Volume 6, 373 - 417. http://search.mandumah.com/Record/1168316

Vue, G., Hall, T. E., Robinson, K., Ganley, P., Elizalde, E., & Graham, S. (2016). Informing understanding of young students' writing challenges and opportunities: Insights from the development of a digital writing tool that supports students with learning disabilities. *Learning Disability Quarterly*, *39*(2), 83-94.