

E-learning for Students with Intellectual Disability in Inclusion Classrooms: Opportunities and Challenges

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ABSTRACT The objective of this study is to investigate the opportunities and challenges of e-learning for students with intellectual disability in inclusion classrooms from the perspectives of their parents. Quantitative research is carried out with the aim to investigate the opportunities and challenges of e-learning for students with ID in inclusion classrooms from the perspectives of their parents. It uses a survey-based methodology to obtain data from the respondents. Parents of students with intellectual disabilities (ID) in inclusion classrooms in middle and secondary schools in Makkah were targeted. The authors received a total of 84 questionnaire responses. They were 56 mothers (66.6%) and 28 fathers (33.4%). Results indicate that a very large percentage of respondents agree that e-learning is appropriate for teaching students with ID and there are some difficulties faced by teachers when using e-learning. There are no statistically significant differences in the reality of e-learning for teaching students with ID from the point of view of their parents, according to sex and educational level.

INTRODUCTION

Intellectual disability (ID) as a disorder (American Psychiatric Association or APA 2013) includes intellectual and adaptive functioning deficits in conceptual, social, and practical domains (Eissa and Huseini 2013; Khalik 2014; Soliman 2015; Eissa and ElAdl 2019). The person is eligible to receive services for people with ID if he/she is characterised by deficits in intellectual functions, such as reasoning, problem solving, planning, abstract thinking, judgement, academic learning (Baczala 2016; Cwirynkalo et al. 2016a), deficits in adaptive functioning that result in failure to meet developmental and sociocultural standards for personal independence and social responsibility (Cwirynkalo et al. 2016b; Eissa and Borowska-Beszta 2019).

There were many educational programs offered to groups of people with special needs in an effort to achieve a better educational level for them (Tatli et al. 2022). In light of the interest in developing these programs, interest came in introducing the e-learning system and modern technologies, which proved effective when used with normal children (Taner et al. 2021). The emergence of the Internet and its use in the educational process has led to the use of new and more effective forms of education, such as e-learning, distance education, and electronic means of education and electronic as-

essment is one of the most common methods that teachers use to assess the educational process and the level of education (Kayaalp et al. 2021).

The past three decades have witnessed a significant increase in the use of computers in education, especially in schools and universities. This use led to a change in the amount of learning from the textbook, in addition to a change in the increase in the importance of some skills that people need (Demir and Ilhan 2022). Many educational programs have also appeared that deal with various educational topics and are available in the market so that they are easy to obtain and this use was built on the assumption that computer education is better than education in the normal way due to the abundance of information and the need to store, reuse and understand it and acquire the skill of how to learn and search for information (Kurt dede and Yildirim 2022).

Since the evaluation of e-learning depends on evaluating the outcomes of the educational process for the student, researchers have a lot of interest in applying and integrating e-learning with people with special needs and evaluating its effectiveness compared to traditional methods (Kayaalp et al. 2021). Other than a few teachers and educators who are actively seeking to develop the educational process based on the outcomes of electronic development (Tahoon 2021).

The Kingdom's Vision 2030 came to emphasise the importance of the role of information technology and its employment in the educational process, as society is an essential element in development, so one cannot lose sight of the positive and negative effects that digital information and communication technology has had on all individuals and groups of society, as it has become a major and important tool that helps people and societies. To achieve self-sufficiency in meeting their basic needs, whether by facilitating their daily lives or by using this progress to increase their scientific and cognitive output (Fadil 2016).

Literature Review

E-Learning: Definitions

E-Learning is the process of separating the learner, teacher and writers in the educational environment, and transferring the traditional environment of education from a university or school and others to a multiple and geographically separated environment, which is a modern phenomenon of education that has developed with the rapid technological development in the world. Its aim is to give the opportunity to students who cannot obtain it in traditional circumstances and on an almost daily basis (Konca and Hakyemez-Paul 2021).

The increase in the efficiency of e-learning forms and methods came as a result of the great development in information technology and modern means of communication, which led to the popularity of its educational uses and the emergence of new forms and methods that are more effective than them. For formal learning, as enrolling in e-learning curricula entails completing an educational stage or obtaining a qualification and e-learning is a supplement to regular learning in the context of multi-channel learning in which forms or methods of distance learning are built around education in formal educational institutions (Tut et al. 2021).

Importance of E-Learning

E-learning has clearly and significantly helped raise the level of individuals and scientific societies (Uysal and Gündogdu 2019). It provides alternatives for people who are unable to go to educational institutions due to a circumstance that pre-

vents them from doing so. This method employs people's capabilities, and even develops them instead of wasting them (Mallik and Mallik 2017). It helps to fill the gaps that may result from the lack of teachers in an institution, and in addition to that, this method of the learning process helps greatly to increase the student's self-reliance, which leads to an increase in their access to the information they study and see during their educational journey (Alpaslan et al. 2021).

Aims of E-learning

Relying on technology techniques to develop an interactive environment for teachers and students in a way that contributes to achieving the goals of diversifying learning resources, relying on modern technological means in developing a system for communication between teacher and students (Taner et al. 2021), and helping develop purposeful discussions through electronic communication channels, achieving the goals of developing teachers and students' skills in dealing with modern technology in the development of the learning system (Kayaalp et al. 2021), there is no need for the physical presence of teachers and students in one place for the learning process to take place, and this is one of the main goals of the system (Kurtdele and Yildirim 2022).

Also, e-learning gives students basic skills to develop their learning process by relying on obtaining information through technological technologies. One of the most important objectives of the new learning system is to develop the role of both the teacher and student in the learning process by keeping pace with modern technology (Demir and Ilhan 2022). The system expands the horizons of students' thinking to not be satisfied with the teacher as the only source of information, and the possibility of providing information in proportion to the age group and taking into account the individual differences of students, and creating the appropriate educational conditions appropriate to the needs of learners in order to continue the learning process. It helps in providing cultural curricula for all learners and providing them with knowledge, doubling education opportunities for women and housewives, keeping pace with continuous knowledge and technical developments, contributing to literacy and adult education, meeting the community's need for qualified people in vari-

ous disciplines and supporting stability in society, providing study and continuous learning opportunities for those whose abilities or capabilities do not allow them to continue learning, providing opportunities higher education and training in various fields of knowledge, science and culture.

Problem Statement

The World Health Organisation confirmed that the services provided by schools for people with special needs meet only one to three percent of the needs of people with disabilities in developing countries. Meaning that more than ninety-five percent of the disabled are deprived of the necessary care for them in a good way (Al-Qassas 2004).

Hence the interest in developing educational programs offered to people with special needs to achieve a better educational level and on top of these concerns is the introduction of e-learning and modern technologies to teach groups of people with special needs (Cagiltay et al. 2019).

The Arab world is not isolated from e-learning and the era of knowledge despite some real challenges facing these Arab countries. Therefore, they must define their future vision regarding the educational process and that e-learning is one of the elements of this vision, but rather one of the policies that it can be benefited from and that it should choose what suits it from the various means of e-learning, and study the experiences of other developing countries that are similar to their same circumstances and to seek the assistance of experts, and to cooperate with each other to exchange broadcast programs, which reduce the cost of using e-learning.

The core question is: *What are the opportunities and challenges of e-learning for students with intellectual disability in inclusion classrooms from the perspectives of their parents?*

Sub-questions

1. What is the degree of appropriateness of e-learning in teaching students with ID?
2. What are the difficulties that students with ID face in e-learning?
3. Are there statistically significant differences in the reality of e-learning for teaching students with ID from the point of view of their parents, according to:

- a. Sex
- b. Educational level

Objectives

The objective of this study is to investigate the opportunities and challenges of e-learning for students with intellectual disability in inclusion classrooms from the perspectives of their parents.

METHODOLOGY

Quantitative research is carried out with the aim to investigate the opportunities and challenges of e-learning for students with ID in inclusion classrooms from the perspectives of their parents. It uses a survey-based methodology to obtain data from the respondents.

Sample

Parents of students with ID in inclusion classrooms in middle and secondary schools in Makkah were targeted. Criteria for inclusion were that they must be the father or mother of a student with mild ID in inclusion classrooms in middle and secondary schools, must be an educated person, that is, they have a bachelor/diploma/master/PhD degree and they must be willing to participate. All were from Makkah. A structured self-administered questionnaire was used to collect data. The authors received a total of 84 questionnaire responses. They were 56 mothers (66.6%) and 28 fathers (33.4%).

Instrument

A 30-item survey instrument was developed particularly for this research study. The first part concerns with the demographic information, while the second parts concerns with scale items for the three subscales of students with ID benefit from e-learning (10 items), difficulties facing students with ID in e-learning (10 items) and the fitness of e-learning in teaching students with ID (10 items). Each item was rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Instrument Reliability and Validity

The coefficients of internal consistency of the three subscales were 0.85 for students with ID ben-

efit from e-learning, 0.87 for difficulties facing students with ID in e-learning, 0.84 for the fitness of e-learning in teaching students with ID and 0.89 for the whole scale.

Discriminant validity test using Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity was strongly significant ($P < 0.001$), indicating the great suitability of this instrument for validity estimate.

Data Analysis

Invalid questionnaires, including those that were incomplete or provided the same response for all items or with many missing values, were eliminated. Frequencies, percentages, means, standard deviations and ANOVA were used to analyse data.

Ethical Procedures

Parents of students with ID in inclusion classrooms in middle and secondary schools in Makah were informed about their role in the study, the purpose of the study and the data collection methods. The authors wish they could continue with them till the end of the study. However, they were free to discontinue at any time.

RESULTS

The first question was, what is the degree of appropriateness of e-learning in teaching students with ID? To answer this question, percentages, means and standard deviations were used (see Table 1). As shown in Table 1, a very large percentage of respondents agree that e-learning works to establish a new culture for parents, enables the acquisition of skills, especially skills for using the Internet, provides an opportunity to inform parents about new studies and activities in the field of education, helps in developing the spirit of participation and work inside the home, and allows evaluation of education processes after its completion, with means of 3.96, 3.73, 3.69, 3.64 and 3.56, respectively. A very large percentage of respondents are neutral that e-learning provides educational content in an interesting manner, provides a better opportunity to learn, helps to spread the spirit of competition among students, meets the educational needs of students, and contributes to increasing motivation and desire of the student to

learn, with mean scores of 3.39, 3.26, 3.19, 3.17 and 3.13, respectively.

The second question was, what are the difficulties that students with ID face in e-learning? To answer this question, percentages, means and standard deviations were used (see Table 2). As shown in Table 2, a very large percentage of respondents agreed that the students' need for prior training before dealing with e-learning programs, and sitting for a long time in front of electronic device screens causes boredom, with means of 3.62 and 3.54, respectively. Also, a very large percentage of respondents are neutral on the social isolation caused by e-learning among students, the difficulty of evaluating the achievement of educational goals, the high cost of providing electronic devices, the lack of various ways to deliver information, the difficulty of providing some services such as (internet connection), and the difficulty of dealing with modern educational technologies, the material does not fit the needs of the student, and the lack of experience of teachers in using e-learning programs, with means of 3.37, 3.17, 3.17, 3.15, 3.10, 3.02, 3.01 and 2.82, respectively.

The third question was, are there statistically significant differences in the reality of e-learning for teaching students with ID from the point of view of their parents, according to sex?

In order to answer this question, an Independent Samples Test was used to identify the extent of the difference in evaluating the reality of e-learning for teaching students with ID from the point of view of their parents, according to gender (see Table 3). As shown in Table 3, there is no difference in evaluating the reality of e-learning for teaching students with ID from the point of view of their parents, according to gender.

Table 3: T-test results according to gender

Gender	No.	M	SD	df	T	P
Females	56	3.3421	0.54694	82	0.54062	not sig.
Males	28	3.2772	0.55121			

Source: The authors

Are there statistically significant differences in the reality of e-learning for teaching students with ID from the point of view of their parents, according to educational level? In order to answer this question, ANOVA was used (see Table 4). As shown in Table 4, there are statistically significant

Table 1: Percentages, means, and standard deviations for appropriateness of e-learning

S. No.	Item	Frequencies		Responses				Means	SD	Rank
		Percentages	Strongly disagree	disagree	Neutral	Agree	Strongly agree			
1	E-learning meets the educational needs of students	12	20	9	28	15	12	3.17	1.36	9
2	E-learning helps spread the spirit of competition among students	14.3	23.8	10.7	33.3	17.9	14.3	3.19	1.38	8
3	E-learning contributes to increasing students' motivation and desire for education	12	20	9	28	15	12	3.13	1.43	10
4	E-learning enables the acquisition of skills, especially the skills of using the Internet.	14.3	23.8	10.7	33.3	17.9	14.3	3.13	1.43	10
5	E-learning provides an opportunity to inform parents about new studies and activities in the field of education.	13	23	6	24	18	13	3.13	1.43	10
6	E-learning helps in developing the spirit of participation and work at home.	15.5	27.4	7.1	28.6	21.4	15.5	3.73	1.12	2
7	E-learning works to establish a new culture for parents.	5	9	10	40	20	5	3.73	1.12	2
8	E-learning provides educational content in an interesting manner.	6	10.7	11.9	47.6	23.8	6	3.69	1.09	3
9	E-learning provides a better opportunity to learn	4	9	15	37	19	4	3.69	1.09	3
10	E-learning allows evaluation of education processes after its completion.	4.8	10.7	17.9	44	22.6	4	3.64	1.17	4
		3	16	11	32	22	3	3.64	1.17	4
		3.6	19.0	13.1	38.1	26.2	3.6	3.96	0.91	1
		2	4	12	43	23	2	3.96	0.91	1
		2.4	4.8	14.3	51.2	27.4	2.4	3.39	1.21	6
		6	16	18	27	17	6	3.39	1.21	6
		7.1	19	21.4	32.1	20.2	7.1	3.26	1.29	7
		10	17	12	31	14	10	3.26	1.29	7
		11.9	20.2	14.3	36.9	16.7	11.9	3.56	1.21	5
		6	12	15	31	20	6	3.56	1.21	5
		7.1	14.3	17.9	36.9	23.8	7.1	3.56	1.21	5

Source: The authors

Table 2: Percentages, means, and standard deviations for difficulties that students with ID face in e-learning

S. No.	Item	Frequencies		Responses				Means	SD	Rank
		Percentages	Strongly disagree	disagree	Neutral	Agree	Strongly agree			
1	Difficulty dealing with modern educational technologies.	8	27	16	21	12	8	3.02	1.24	8
2	The high cost of providing electronic devices.	9.5	32.1	19.0	25.0	14.3	9.5	3.17	1.25	5
3	Sitting for a long time in front of electronic device screens causes boredom	7	24	15	24	16.7	8.3	3.54	1.38	2
4	Material does not fit the student's needs.	8.3	28.6	17.9	28.6	16.7	8.3	3.01	1.30	9
5	Difficulty in providing some services such as (internet connection)	10	14	5	31	24	10	3.69	1.09	7
6	The student's need for prior training before dealing with distance education programs.	11.9	16.7	6.0	36.9	28.6	11.9	3.62	1.31	1
7	Lack of availability of a variety of ways to communicate information.	11	24	15	21	13	11	3.15	1.28	6
8	Social isolation caused by distance education among students.	13.1	28.6	17.9	25.0	15.5	13.1	3.37	1.36	3
9	The lack of experience of teachers in using distance education programs.	11	19	20	19	15	11	2.82	1.34	10
10	Difficulty in evaluating achievement of educational goals.	13.1	22.6	23.8	22.6	17.9	13.1	3.17	1.28	4

Source: The authors

Table 4: ANOVA results according to educational level

	<i>Sum of squares</i>	<i>df</i>	<i>Mean square</i>	<i>F.</i>	<i>Sig.</i>
Between groups	0.897	4	0.224	0.745	0.564
Within groups	23.779	79	0.301		not sig.
Total	24.676	83			

Source: The authors

differences in the reality of e-learning for teaching students with ID from the point of view of their parents, according to educational level.

DISCUSSION

A large percentage of respondents agree that e-learning works to establish a new culture for parents, and distance education enables them to acquire skills, especially skills for using the Internet, and distance education provides an opportunity to inform parents about new studies and activities in the field of education, and education helps e-learning in developing the spirit of participation and work inside the home, and e-learning allows evaluation of education processes after its completion (Çelik et al. 2021).

While others believe that e-learning is concerned with other non-educational aspects, it takes into account the individual differences between students, the teaching methods used in e-learning meet the needs of the student, distance education corresponds to the capabilities of the student (Pecker 2022), e-learning solves educational problems that the student faces and e-learning is an alternative parallel to in-person education.

While others believe that the social isolation caused by e-learning among students, the difficulty of evaluating the achievement of educational goals, the high material cost of providing electronic devices, the lack of various ways to deliver information, the difficulty of providing some services (such as Internet connection), and the difficulty of dealing with technologies modern education, the scientific material does not fit the student's needs, and the teachers' lack of experience in using distance education programs.

In an attendance education environment, there is a certain amount of social pressure and organization, and set times when students must attend

and do their homework, and this means that the student is accountable to their teacher and peers to be a productive member of the class. On the other hand, e-learning does not provide the same sense of accountability. Students work through class material and learn independently. Some students are self-disciplined and have no problem with the independence of distance learning, while others may become disoriented and lost. One can avoid this problem by creating a structure and a routine for completing the assignment. In developing countries teachers, and learners are having a hard time when it comes to accessing the internet (Factor 2022). Aboagye et al. (2021) shows that students are not prepared with the new normal set up which is online learning.

It can be noted that there are no statistically significant differences according to age, sex, educational level and social status, which means that age, sex, educational level and social status are not factors in the reality of e-learning for teaching students with ID from the point of view of their parents. This goes in the same line as the results obtained by Factor (2022).

This indicates that in light of rapid technological changes and shifts in market conditions, the educational system is facing a challenge regarding the need to provide additional educational opportunities without the need to increase additional budgets (Kolan et al. 2021). Therefore, many educational institutions have begun to face this challenge by developing e-learning programs. E-learning is initially carried out when the natural distance between the teacher and students is separated, during the educational process (Mallik and Mallik 2017).

The goal of establishing the distance education system is to facilitate and enhance the traditional education process in an attempt to develop it and achieve its objectives. Achieving these goals, and the goals of the new education system revolve around developing the educational process and keeping pace with methods that will develop communication between teachers and students (Taner et al. 2021).

CONCLUSION

E-learning for persons with ID requires concerted governmental and personal efforts represented by teachers and parents. Educational plat-

forms within classroom environments, ensuring the use of technology to facilitate the participation and inclusion of parents when designing the individual learning plan to achieve the principle of family participation, and to ensure that parents follow up on the progress of the educational process and watch the progress of their children. One of the most important factors for the success of e-learning is the use of information received from feedback that can be obtained through direct methods from learners or through performance indicators recorded on the system.

RECOMMENDATIONS

E-learning has achieved wide success and has proven a clear positive in the learning and teaching process. It has become necessary to continuously activate the role of e-learning and support technologies in the educational process and within the classroom environment, in line with the development of technology and the era of the information revolution, taking into account individual differences. From this standpoint, governments and institutions were keen to provide distance learning and education in order to promote the idea that prevention is better than treatment and worked to provide educational websites and design the best appropriate electronic platforms for the children of this category. In order for these efforts not to be in vain after the COVID-19 pandemic stage, these achievements can be benefited from and activated within the classroom environment, linking the e-learning process and supportive technologies to the traditional educational process, which contributes to increasing the motivation of students with ID and achieving success in the process of self-learning and the discovery process and raising the level of academic achievement, in addition to contributing to self-satisfaction and a sense of accomplishment.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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