

Effectiveness of distance teaching for autism spectrum disorder students during the COVID-19 pandemic

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ABSTRACT

This study examined the effectiveness and level of distance-teaching services provided to students with autism spectrum disorder in the United Arab Emirates, Emirate of Abu Dhabi (from a viewpoint of the teachers and parents). To achieve the study goals, the distance education services assessment tool was built in two forms. The data collection for this study was done by distributing online questionnaires to all participants. The results of the study indicated an assessment of distance-teaching services in a high level from the teachers' viewpoint with a total average (4.16 of 5), and the parent's viewpoint indicated their assessment of these services in a high level with a total average (4.18 of 5). The study suggested for future researchers to conduct more studies targeting the challenges and difficulties during the distance-teaching for parents and teachers of students, include or limit other programs to assess the distance-teaching among parents and teachers of autism spectrum disorder students of severe degree.

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1. INTRODUCTION

The COVID-19 Pandemic has found the most important difficulty of teaching systems in history, affecting 1.6 billion newcomers in over one hundred ninety international locations and all continents [1]. It directed faculty closures as a part of public health efforts to include the resolve of COVID-19 from February 2020 in maximum international locations [2]. Education structures around the sector are going through a remarkable challenge [3]. Governmental businesses are running with worldwide organizations, non-public region partners, and civil society to supply schooling through a mixture of technology to make sure continuity of curriculum-primarily based and mastering for all [4].

The COVID-19 Pandemic has obstructed the activities of students in various situations, resting not simply on their degree and course of study, but also on the position they have made in their programs [5]. For persons with autism spectrum disorder (ASD), the center can handle a range of functions, from the delivery of academic teaching to the improvement of communication and social skills. The center may be the only accessible source of access to trained and manifest-based programming in rural contexts [6].

In the context of not realizing what COVID-19 and its effects on people, and the possibility of endangering the lives of students to danger or injury more acutely and considering the need for students with autism spectrum disorder to therapeutic or physical intervention in educational or treatment emergencies [7]. It was the recommendation of the UAE Ministry of Health to all schools and centers included Zayed Higher Organization that direct education be suspended for this time [8]. Those students with autism spectrum disorder, are more likely to have diseases than normal students or those with other special needs, as this

report talks about several diseases that may affect students with autism, such as eczema and other skin diseases, food allergies, asthma, seizures, sleep disorders, feeding disorders [9].

The school or center for students with autism spectrum disorder is not only a place to receive educational and academic materials, which can be compensated at home through electronic platforms, those students need different direct therapeutic interventions including special education services, physical therapy, speech and language therapy, changing behavioral problems, and other supportive treatments [10]. These needs formed a kind of pressure and challenges on students and parents, and the most important of these challenges is difficulty accepting the students to a change in routine, where the change was sudden and rapid by stopping going to the center or school, and the only challenge was not going to study, but also not allowing them to leave the house at first [11].

Parents also face another important challenge, which is how to deal with the needs of their children, and parents' lack of training skills and the ability to withstand pressure and balance between home and teaching responsibilities [12]. In addition, the behavioral problems of people with autism spectrum disorder are considered one of the most challenges and difficulties faced by parents, and it is an issue that has troubled parents throughout the past times and has increased in severity during the children's stay at home [13].

In a wide understanding distance learning is compatible with online learning, e-learning, remote studies, flexible learning [14]. The common elements of distance learning are spatial and/or physical partition, and the use of media and technology to facilitate communication and transfer during the learning process [15]. Distance learning is known as an educational process in which all or most of the teaching occurs from a person far away in space and time from the learner [16]. With an emphasis on communication between teachers and learners occurs through a specific medium, whether electronic or printed, or all definitions agree that distance learning is based on two basic principles: means of communication, and the existence of spatial boundaries separating the teacher from the learner [4].

However, the researcher has called (distance-teaching) on his study because students with spectrum disorder are a unique case, that they are in normal situations take training, teaching, instructions, guidance, and help from the teacher or any training supplier, to do their goals [17]. In the distance-teaching process, they are most likely will not be able to do the learning process on their own at home, as they need the presence of the parents or someone accompanying them while teaching them by the teacher remotely [18].

Because of these previous risks, all governmental educational institutions in the UAE have taken all preventive precautions for the disease, the first of these procedures was the suspension of active study in schools and centers until further notice, depending on the situation [19]. But with related to Zayed Higher Organization, the matter was completely different, as the complete transformation to distance-teaching were issued since the beginning of March 2020, and it has continued the date of conducting this study in April 2021, more than a year, with the decision to continue studying at a distance until the end of the current academic year in July 2021 [20].

2. LITERATURE REVIEW

Recently, distance learning topic has been written extensively, but most of the studies have been about students in public schools or students with special needs in general. What this study aims at, and differs from other studies, is to talk about the category of students with autism spectrum disorder, as well as limiting it to the UAE as one of the Arab countries and the Middle East, which has not been addressed to a large extent. The researchers have reviewed the theoretical literature and presented some studies related to the study.

A study by West, Jones, and Semon [21] assessed the level of satisfaction teachers with using distance education among students with disabilities. The number of participants in the study reached 19 teachers who have graduated with a master of special education, and the study used the questionnaire to collect data, as the questionnaire focused on the contents of distance-teaching, and on the factors that contribute to increasing the level of satisfaction of students with disabilities on the use of distance learning, in addition to the factors that contribute to the spread of distance education among the community (communication, a safe environment, a supportive teacher). The results of the study indicated that the level of teachers' satisfaction with the use of distance education for students with disabilities was at a good level. They also felt an appropriate level of comfort at working remotely with students with disabilities.

Alamri and Tyler [22] researched the factors associated among students with disabilities who learn from a distance. The sample consists of 40 male and female students with disabilities who are profiting from distance learning services. The sample was sent an electronic questionnaire consisting of 20 questions. The results indicated that the factors of social interaction were related to academic achievement. The study also showed the availability of facilities and continuous technical support for students with disabilities who have benefited from distance learning services, which affected the advance of the level of achievement for them.

Bahasoan *et al.* [23] scrutinized the effectiveness of online learning during the COVID-19 pandemic. This is a quantitative descriptive study using online survey methods. The sample collection process uses simple random, and the sample of this study is an active student in the management study program, Faculty of Economics, University of West Sulawesi; data collection in the study was got by distributing questionnaires online to 115 respondents. The results of data analysis received from filling student questionnaires can be confirmed that the online learning process performed during the COVID-19 is effective and inefficient. Effectively completed because of the conditions that require online study and inefficient because the costs incurred more when compared with offline lectures.

A study by Saeed *et al.* [24] aimed to understand the effect of COVID-19 on parents of children with Special Needs. The researcher used a questionnaire with a 5-point Likert scale was established by a team of psychologists at Kids heart Medical Center, UAE. The questionnaire was circulated using social media platforms, and 44 individuals responded. Most of the respondents were residents of the UAE. The findings indicated that regardless of the diagnoses, child gender, age of diagnosis, type of school the child attends, parents' gender, age of parents, child age, marital status, number of special kids in the family, parents of children with determination invariably experienced significant levels of stress during COVID-19. Among various types of procedures to reduce the level of stress encountered by the parents, they found being involved in activities with their children as the most efficient.

A study of The United Arab Emirates Ministry of Education [25] evaluated the distance education services provided for students with special needs enrolled in comprehensive education services inside The Emirate of Dubai and the Northern Emirates in the United Arab Emirates. It was considering the number of variables, cities, and efforts Each teacher of special education on the one hand, and the families of students with disabilities who receive services, cities, effort. The study tool consisted of two questionnaires that were distributed to the target sample through an electronic link. The study consisted of 356 teachers who were special education teachers, and 4870 parents of students with disabilities. The results of the study indicated that the evaluation of distance education services is from the viewpoint of both teachers and parents, came at a medium level.

The direct and whole transfer to distance teaching for the students of special needs, mainly autism spectrum disorder, has created high-quality troubles for the parent, instructors, and administration. The maximum affected facet is the parents, mainly the parent of intense cases. Applying the distance teaching gadget has brought about the emergence of many troubles from parents refusing to sign up their children in the center or leaving after a short duration of usage. As Al Ain Autism Center records show that 36 families have withdrawn from distance teaching services from the start of the pandemic until April 2021. The researcher sets these two questions: i) What is the level of assessing the distance teaching services provided to students of autism spectrum disorder from the teacher's viewpoint?; ii) What is the level of assessing the distance teaching services provided to students of autism spectrum disorder from the parent's viewpoint? The researchers hypothesize that: i) The teacher's assessment of distance teaching services for ASD students does not exceed the low level; and ii) The parent's assessment of distance teaching services for ASD students does not exceed the low level.

3. RESEARCH METHOD

This study employed design method, where a survey was conducted online. The sample of the study was intentionally selected, in which all active parents and teachers in Al Ain Autism Center took part. The data collection for this study was performed by distributing online questionnaires to all participants. The study sample consisted of Al Ain Autism Center that affiliated to the Zayed Higher Organization for People of Determination, represented by students' parents and teachers. The sample was 80 parents, with 66 responses for the questionnaire, and 43 active teachers for students of ASD with 43 responses for the questionnaire. Considering that the parents' responses expressed the condition of their child and his disorder's degree. Therefore, since the number of parents is the same as the number of students, and for the study, the sample was calculated based on the student's gender variable, not the parents. Table 1 describes the detail of the sample.

Table 1. Frequencies and percentages of participants

Variable	Category	Frequency	Percentage	Variable	Category	Frequency	Percentage
Gender of teacher	Male	12	26.2%	Students' gender	Male	54	81.8%
	Female	31	73.8%		Female	12	18.2%
	Total	43	100.0%		Total	66	100.0%

3.1. Instrument

There were two electronic questionnaires conducted online by researchers, where quantitative data analysis has done. The first tool is the teacher's questionnaire includes in total (N=42 items). They are classified into four categories: i) Part 1: technical system and arrangements; ii) Part 2: communication and collaboration with parents; iii) Part 3: student performance progress; and iv) Part 4: administration performance. The second is the parent's questionnaire in total (N=24 items). They were classified into three categories as i) Part 1: technical system and arrangements; ii) Part 2: communication and collaboration from the teachers and center administration; and iii) Part 3: student performance progress. The five-point Likert scale was adopted to correct the study tools, by giving each of its paragraphs one score out of five degrees (strongly agree, agree, neutral, disagree, strongly disagree) and are represented numerically (5, 4, 3, 2, 1) on ranking. The following scale has been adopted to analyze the results: 1.00-2.33 being low while 2.34-3.67 being medium, and 3.68-5.00 being high.

3.2. Procedures

Four weeks of instructions and implementation for the study, from the last of March till the last of April 2021, before the beginning the researcher took Zayed Higher Organization's consent and ensures the validity and reliability of the study tools. Both the groups, the parents and teachers went through an apply-reapply, and the reliability factor was also calculated using the internal consistency method according to the Cronbach alpha equation. To measure the validity, the questionnaires were presented to five judges, including professors at the university, experts in special education, in addition to calculating the validity of the internal construction.

3.3. Validity and reliability of the study tools

3.3.1. Teacher's tool

To ensure the validity, the tool was presented to five experts in special education, autism spectrum disorder, and education in general, to know their views on items (of their comprehensiveness and its relevance to the purpose of the study). The arbitrators showed their agreement to paragraphs with an agreement of 100%. However, their request to amend the wording of some paragraphs to appear easier and more appropriate. In addition to extracting the indications of construct validity for the scale, the correlation coefficients of each paragraph and the total score, and between each paragraph and its correlation with the field to which it belongs, between the domains and the total score, in an exploratory sample from outside the study sample consisted of 20 with the tool between (0.45-0.82), and with the range (0.45-0.96). Table 2 shows that detail. The table reveals that all correlation coefficients were of acceptable scores and statistically significant, and therefore none of these paragraphs was omitted.

To ensure the reliability of the study tool, the test-retest method was verified. It is done by applying the scale and re-applying it after two weeks to a group from outside the study, a sample consisting of 20 people. Then, the Pearson correlation coefficient was calculated between their estimates on both times. Table 3 shows the Cronbach's internal consistency coefficient, Alpha, and repetition constant for fields and scores.

Table 2. Correlation coefficients between the paragraph, the overall score, and the domain

Paragraph's no	Correlation coefficient		Paragraph's no	Correlation coefficient		Paragraph's no	Correlation coefficient	
	With domain	With tool		With domain	With tool		With domain	With tool
1	.91(**)	.73(**)	15	.84(**)	.82(**)	29	.48(*)	.70(**)
2	.71(**)	.60(**)	16	.82(**)	.47(*)	30	.92(**)	.80(**)
3	.90(**)	.69(**)	17	.45(*)	.63(**)	31	.96(**)	.81(**)
4	.52(*)	.47(*)	18	.63(**)	.45(*)	32	.45(*)	.63(**)
5	.88(**)	.78(**)	19	.89(**)	.73(**)	33	.52(*)	.60(**)
6	.82(**)	.67(**)	20	.81(**)	.64(**)	34	.90(**)	.71(**)
7	.53(*)	.46(*)	21	.69(**)	.48(*)	35	.92(**)	.75(**)
8	.80(**)	.80(**)	22	.80(**)	.80(**)	36	.96(**)	.82(**)
9	.81(**)	.81(**)	23	.51(*)	.48(*)	37	.57(**)	.53(*)
10	.54(*)	.80(**)	24	.92(**)	.53(*)	38	.95(**)	.80(**)
11	.61(**)	.81(**)	25	.96(**)	.49(*)	39	.95(**)	.81(**)
12	.68(**)	.46(*)	26	.57(**)	.61(**)	40	.70(**)	.77(**)
13	.87(**)	.61(**)	27	.45(*)	.48(*)	41	.93(**)	.80(**)
14	.77(**)	.56(*)	28	.53(*)	.70(**)	42	.90(**)	.81(**)

*Statistical function at the significance level 0.05; **Statistically significant at the level of significance 0.01

Table 3. Cronbach's internal consistency coefficient, alpha, and repetition constant for fields and scores

Field	Reliability of repetition	Internal consistency
Communication and cooperation with parents	0.79	0.90
Administration performance	0.76	0.86
System and technical arrangements	0.81	0.89
Student performance progress	0.77	0.88
Total	0.87	0.89

3.3.2. Parents tool

To ensure the validity, the tool was presented to five experts in special education, autism spectrum disorder, and education in general, to know their views on items (of their comprehensiveness and its relevance to the purpose of the study). The arbitrators showed their agreement with most of the paragraphs. They asked to amend the wording of some paragraphs to appear easier and more appropriate. In addition to extracting the indications of construct validity for the scale, the correlation coefficients of each paragraph and the total score in an exploratory sample from outside the study sample consisted of 20 with the tool between (0.53-0.88). Table 4 shows that detail. This table shows that all correlation coefficients were of acceptable scores and statistically significant, and therefore none of these paragraphs was omitted.

Furthermore, to ensure the reliability of the study tool, the test-retest method was verified. It was conducted by applying the questionnaire and re-applying it after two weeks to a group from outside the study sample consisting of 20 persons. Then, the Pearson correlation coefficient was calculated between their estimates on both times, it was 0.88. The reliability coefficient was also calculated using the internal consistency method according to the Cronbach alpha equation if it reached 0.81. These values were appropriate for the purposes of this study.

Table 4. Correlation coefficients between the paragraph and the overall score of the scale

Paragraph's number	Correlation coefficient	Paragraph's number	Correlation coefficient	Paragraph's number	Correlation coefficient
1	.55(*)	9	.62(**)	17	.83(**)
2	.76(**)	10	.81(**)	18	.78(**)
3	.69(**)	11	.83(**)	19	.82(**)
4	.83(**)	12	.82(**)	20	.53(*)
5	.84(**)	13	.68(**)	21	.53(*)
6	.86(**)	14	.60(**)	22	.63(**)
7	.58(**)	15	.73(**)	23	.88(**)
8	.66(**)	16	.86(**)	24	.72(**)

*Statistical function at the significance level 0.05;

**Statistically significant at the level of significance 0.01

4. RESULTS

To answer the first question, which states, "what is the level of assessing the distance-teaching services provided to students of ASD from the teacher's viewpoint?" the means and standard deviations were extracted. Table 5 illustrates the means and standard deviations of the teachers' responses. The table shows that the Means ranged between (3.79-4.31), where both communication and cooperation with parents (the student's companions) and administration came first with the highest average of (4.31), while the student's performance development came in the rank the last, with a mean of (3.79), and the mean of the whole tool (4.16), with "High-Level."

Based on the results, the hypothesis stating that the teacher's assessment of distance-teaching services for students with ASD does not exceed the low level is rejected. Therefore, the alternative hypothesis is accepted because the teacher's assessing of distance-teaching services is exceeded the low level and reached "High-Level." To answer the second question, which is stated, what is the level of assessing the distance-teaching services provided to students of ASD from the parent's viewpoint? The means and standard deviations were extracted, and Table 6 illustrates this.

Table 5. The means and standard deviations of the teachers' responses

Rank	Field No.	Field	Means	Standard deviation	Level
1	2	Communication and cooperation with parents	4.31	.474	High
2	4	Administration performance	4.31	.674	High
3	1	System and technical arrangements	4.30	.392	High
4	3	Student performance progress	3.79	.372	High
		Total	4.16	.337	High

Table 6. The means and standard deviations of parent's responses

Rank	No	Paragraph	Mean	Standard deviation	Level
1	4	The teacher was keen to communicate with me and answer all my questions.	4.73	.449	High
2	5	The flexibility of the teachers and administration showed in scheduling the sessions as appropriate for the parent and student	4.71	.456	High
3	16	I am provided periodically with the educational plan for the goals of my son/daughter.	4.65	.480	High
4	17	The educational plan and the way to implement it with my son/daughter is explained appropriately and periodically	4.62	.489	High
5	13	I see the cooperation of all concerned parties for the success of the distance learning process for my son/daughter.	4.61	.579	High
6	19	I am provided with a periodic report on the development of my son/daughter and the extent to which he has achieved the goals.	4.55	.502	High
7	15	I am provided with a schedule of the teaching and remedial sessions by specialists.	4.52	.728	High
8	12	The concerned parties are keen to activate direct communication channels to follow the progress of the distance-teaching process for our children.	4.50	.588	High
9	11	Responsible response to complaints and suggestions is prompt and effective.	4.48	.504	High
10	18	I provide all the needs and tools necessary to implement the teaching session effectively.	4.38	.449	High
11	12	I have provided all the necessary technologies and equipment to ensure that my son/daughter's teaching process can be monitored remotely.	4.30	.456	High
12	23	The behavior modification plans are designed appropriately for my son/daughter during the distance-teaching period.	4.21	.795	High
13	10	The distance-teaching system provides the possibility of using educational aids in serving the educational goal and is commensurate with the capabilities of my son/daughter.	4.15	.881	High
14	14	My son/daughter receives support services sessions (speech, occupational therapy, physical therapy) according to his/her treatment plan.	4.12	1.013	High
15	3	Technical support services are available in the center when needed by specialized technicians and in a quick time.	4.11	.806	High
16	1	Students accompany has the knowledge necessary to use distance-teaching techniques.	4.09	.854	High
16	8	The continuous communication with my son/daughter's teachers reflected positively on the level of achieving their educational goals.	4.09	.799	High
18	6	The distance-teaching system achieves the objectives stated in the individual educational program as it should.	4.06	1.036	High
24	19	I am satisfied with the distance-teaching services provided to my son/daughter.	4.05	.983	High
9	20	The educational technologies used in distance education are compatible with the characteristics of my son/daughter.	4.03	1.022	High
7	21	The distance-teaching system creates greater opportunities for direct and continuous communication with my son/daughter's teachers.	3.94	.975	High
20	22	I faced many problems in training my son/daughter during the teaching session and dealing with him properly.	3.67	1.181	Medium
22	23	The behavior of my son/daughter is negatively affected by the distance-teaching period through the increase in behavioral problems inside and outside the home.	3.00	1.289	Medium
21	24	My son/daughter's performance is going down compared to previous direct teaching periods	2.77	1.322	Medium

Table 6 shows that the averages ranged between (2.77-4.73). Paragraph No. (4) which states, "The teacher is keen to communicate with me and answer all my questions," in the first place, with an average of (4.73), Paragraph No. (5), which states that "The flexibility of the teachers and administration showed in scheduling the sessions as appropriate for the parent and student," came in second place with an arithmetic average of (4.71), and Paragraph No. (16) came to which states: "I shall be provided periodically. The teaching plan for the goals of my son/daughter "ranked third, with an average of (4.65), while paragraph No. (21), which reads, " My son/daughter's performance is going down compared to previous direct teaching periods, "ranked last, with an average of (2.77). The mean of the overall whole score was (4.18), with "High-Level."

Based on the results, the hypothesis stating that the parent's assessment of distance-teaching services for students with ASD does not exceed the low level is rejected. Therefore, the alternative hypothesis is accepted. The parent's assessment of distance-teaching services is exceeded the low level and reached "High-Level."

5. DISCUSSION

The present study aimed to investigate the effectiveness and level of distance-teaching services used among students with autism spectrum disorder inside the United Arab Emirates during COVID-19. While there are many possible supporting causes to individual suffering about learning, it is probable that during emergencies, the move from standard student teaching in the classroom to an online learning program requires further evaluation [26]. At the beginning of the researchers' interest in the topic, they expected and assumed that the distance educational services provided to students with autism spectrum disorder would not be of excellent quality and that both teachers and parents would not be satisfied with these services, and of course, they would rate them low. Due to lack of accommodations, equipment, and facility building to accomplish the distance tasks inappropriate level [27]. In addition, academic institutions need exercise for educators and parents on how to develop online learning, produce suitable materials, and prepare more interactive learning media [28].

In the past two decades, many students with autism have joined traditional school environments. However, depending on their needs and the severity of the problems, students with ASD usually require specialized education or specific, rigorous adjustments and accommodations [29]. On the other hand, education the cases of students with autism spectrum disorder, is done directly and using various physical aids from the teacher [30]. However, the results of the study came to the contrary.

The results of the study related to the first question, which states, "What is the level of assessment the distance-teaching services provided to students of ASD from the teacher's viewpoint? Where indicated that the teachers 'assessment of distance education services has reached a high level. This assessment is logical, practical, and professional by the teachers. The assessment of all four parts of the teacher's questionnaire came at a high level, as the items related to communication and cooperation with parents and the administration's performance were at a higher rank, and to a lesser extent the student's progress.

As related to subparagraphs came in the first rank, the paragraph that states, "Teachers assumed more tasks and responsibilities during the distance-teaching period compared to face-to-face teaching. And the last rank paragraph was that states "Student achievement of the goals in the IEP was negatively affected during the distance-teaching period. The all mentioned means that the teachers made a great and double effort and responsibilities during the distance-teaching period by working in a balanced way with students and their parents and communicating with them to improve the process of achieving the goals, and that he received support in a balanced manner from the administration, and that the various training facilities were appropriate and helpful effectively and did not clearly affect the student's level and enabled him to receive the service in an appropriate degree as before COVID-19.

This high estimation may be appeared because of over one reason, as providing teachers with an intensive training program on the use of distance education technologies such as Microsoft Teams and Word Wall website. It also highlights the level and quality of internet services in the UAE. The question study result agrees with [21], [23], [24]. With related to the second question, which states "What is the level of assessing the distance-teaching services provided to students of ASD from the parent's viewpoint? In the same context as the assumption of teachers' assessment of distance education services, a researcher assumed and expected that the assessment would be low and unsatisfactory for the parents because of the current situation of most parents that they do not have sufficient training to deal with their children inside the home, training them and the ability to control their behavioral problems.

Contrastingly, the results were indicated that the parent's assessment of distance education services has reached a high level. When looking in the paragraphs assessment, we find that paragraph NO.4, which is "The teacher was keen to communicate with me and answer all my questions. Came in the first rank. And in the last rank, paragraph No.21, which is "My son/daughter's performance is going down compared to previous direct teaching periods. This means that the effective communication by the teacher had a positive impact on the student, and parents' assessment of distance-teaching was excellent. Also, the justification for this assessment may be shown by the answers to the three questions of the optional questionnaire, i) Is the parent an employee?; ii) Are there other children within the distance education system?; and iii) Who is the student's companion in the teaching session?

As it appeared that there are a good number of parents who are not employed and do not have other children in distance education. So, they do not have great responsibilities that prevent them from cooperating and training their children. It also highlights that a large percentage of the parents, as a natural situation in the Emirati society, have workers and nannies inside the house, and they are the ones who perform the process of teaching and training the students during the distance learning sessions. The question study result agrees with previous studies [24], [25].

6. CONCLUSION

The findings revealed that the effectiveness of the programs, services, and strategies provided during the distance-teaching period was highly effective. This appeared in assessing parents and teachers. The tasks of special education teachers and activities were affected during the distance learning period and the training burden increased on them, as it came to the first rank. Student achievement and progress during the distance-teaching period were not negatively affected, and far from the effectiveness of strategies and effective communication. This may be because most of those currently enrolled in distance-teaching are with mild and moderate disorders. According to what was reached by the respondents' answers to some of the opening questions of the questionnaire, as well as obtaining some data from the center official records, most of which are related to the gender of students, the severity of the disorder, the number of enrolled students, the number of those who withdraw from distance learning. Distance teaching may not be the best way to teach students with ASD with a severe degree. This appears through the withdrawal of 36 parents from distance-teaching, and the presence of only nine students with a severe degree.

Considering these conclusions, we recommend conducting more studies targeting the challenges and difficulties during the distance-teaching phase for parents and teachers of students with autism spectrum disorder. It should include or limit other programs to evaluate the effectiveness of distance-teaching among parents and teachers of students with autism of severe and very severe degrees. It is important to take more precautionary measures within the center to give students with a severe disorder at least a return to direct teaching programs instead of their condition deteriorating over a period. Not to rely on a single technical application or program to provide a remote teaching system to relieve pressure on the network and its problems. Continuous high communication and its strategies between the administration, teachers, and parents with equal strength even at the end of the distance-teaching period.




REFERENCES

- [1] United Nations (UN), "Policy Brief: Education during COVID-19 and beyond," 2020. [Online]. Available: <https://unsdg.un.org/resources/policy-brief-education-during-COVID-19-and-beyond>.
- [2] A. Schleicher, "The impact of COVID-19 on education insights from education at a glance," OECD, 2020. [Online]. Available: <https://www.oecd.org/education/the-impact-of-COVID-19-on-education-insights-education-at-a-glance-2020.pdf>.
- [3] C. Li and F. Lalani, "The COVID-19 pandemic has changed education forever. This is How," World Economic Forum, 2020. [Online]. Available: <https://www.weforum.org/agenda/2020/04/coronavirus-education-global-covid19-online-digital-learning>.
- [4] F. Miao, R. Huang, D. Liu, and R. Zhuang, *Ensuring effective distance learning during COVID-19 disruption Guidance for teachers*. United Nations, 2020.
- [5] S. J. Daniel, "Education and the COVID-19 pandemic," *PROSPECTS*, vol. 49, no. 1–2, pp. 91–96, Apr. 2020, doi: 10.1007/s11125-020-09464-3.
- [6] D. M. Stenhoff, R. C. Pennington, and M. C. Tapp, "Distance Education Support for Students with Autism Spectrum Disorder and Complex Needs During COVID-19 and School Closures," *Rural Special Education Quarterly*, vol. 39, no. 4, pp. 211–219, Oct. 2020, doi: 10.1177/8756870520959658.
- [7] A. A. Eshraghi *et al.*, "COVID-19: overcoming the challenges faced by individuals with autism and their families," *The Lancet Psychiatry*, vol. 7, no. 6, pp. 481–483, Jun. 2020, doi: 10.1016/s2215-0366(20)30197-8.
- [8] The United Arab Emirates' Government Portal (UAEG), "Information and Services learning in-times-of-COVID-19," *The United Arab Emirates' Government Portal (UAEG)*, 2020. [Online]. Available: <https://u.ae/en/information-and-services/education/distance-learning-in-times-of-COVID-19>.
- [9] V. Trajkovski, "Health Condition in Persons with Autism Spectrum Disorders," *Journal for ReAttach Therapy and Developmental Diversities*, vol. 2, p. 1, Dec. 2018, doi: 10.26407/2018jrtdd.1.12.
- [10] M. Omar, "Distance education for Children with autism in Light of the Emerging COVID-19virus: Certain Challenges and Suggested Solutions," *Journal of Educational and Quality Research*, vol. 4, no. 4, pp. 1–14, Jan. 2021, doi: 10.21608/jeor.2021.147315.
- [11] A. A. Latif, "Autism under the Corona pandemic," *Journal of Childhood and Development, Arab Council Childhood, and Development*, vol. 38, pp. 157–161, 2021.
- [12] V. M. Vogan, R. C. Leung, K. Safar, R. Martinussen, M. Lou Smith, and M. J. Taylor, "Longitudinal Examination of Everyday Executive Functioning in Children With ASD: Relations with Social, Emotional, and Behavioral Functioning Over Time," *Frontiers in Psychology*, vol. 9, Oct. 2018, doi: 10.3389/fpsyg.2018.01774.
- [13] J. L. Matson, M. L. Gonzalez, and T. T. Rivet, "Reliability of the Autism Spectrum Disorder-Behavior Problems for Children (ASD-BPC)," *Research in Autism Spectrum Disorders*, vol. 2, no. 4, pp. 696–706, Oct. 2008, doi: 10.1016/j.rasd.2008.02.003.
- [14] S. Dhawan, "Online Learning: A Panacea in the Time of COVID-19 Crisis," *Journal of Educational Technology Systems*, vol. 49, no. 1, pp. 5–22, Sep. 2020, doi: 10.1177/0047239520934018.
- [15] G. A. Berg and M. Simonson, "Distance learning," *Encyclopedia Britannica*, 2016. [Online]. Available: <https://www.britannica.com/topic/distance-learning>.
- [16] M. Burns, *Distance education for teacher training: modes, models, and methods*. Washington, DC: Education Development Center, 2011.
- [17] J. Randi, T. Newman, and E. L. Grigorenko, "Teaching Children with Autism to Read for Meaning: Challenges and Possibilities," *Journal of Autism and Developmental Disorders*, vol. 40, no. 7, pp. 890–902, Jan. 2010, doi: 10.1007/s10803-010-0938-6.
- [18] J. McDonald and E. Lopes, "How parents home educate their children with an autism spectrum disorder with the support of the Schools of Isolated and Distance Education," *International Journal of Inclusive Education*, vol. 18, no. 1, pp. 1–17, Dec. 2012, doi: 10.1080/13603116.2012.751634.




- [19] The United Arab Emirates' Government Portal (UAEG), "Primary governmental efforts to contain COVID-19," United Arab Emirates Government, 2020. [Online]. Available: <https://u.ae/en/information-and-services/justice-safety-and-the-law/handling-the-COVID-19-outbreak/government-efforts-to-contain-COVID-19>.
- [20] Zayed Higher Organization for People of Determination, "Distance work updates during the COVID 19 pandemic period," Abu Dhabi, 2020.
- [21] E. West, P. Jones, and S. Semon, "Promoting Community for Online Learners in Special Education," *Journal of Digital Learning in Teacher Education*, vol. 28, no. 3, pp. 108–116, Mar. 2012, doi: 10.1080/21532974.2012.10784688.
- [22] A. Alamri and T. Tyler-Wood, "Factors Affecting Learners with Disabilities-Instructor Interaction in Online Learning," *Journal of Special Education Technology*, vol. 32, no. 2, pp. 59–69, Dec. 2016, doi: 10.1177/0162643416681497.
- [23] A. N. Bahasoan, W. Ayuandiani, M. Mukhram, and A. Rahmat, "Effectiveness of Online Learning In Pandemic COVID-19," *International Journal of Science, Technology & Management*, vol. 1, no. 2, pp. 100–106, Jul. 2020, doi: 10.46729/ijstm.v1i2.30.
- [24] T. Saeed *et al.*, "The Impact of COVID-19 on Parents of Children with Special Needs," *Journal of Anxiety & Depression*, vol. 3, no. 2, Dec. 2020, doi: 10.46527/2582-3264.129.
- [25] O. Atiyat and A. Abu-hamur, "Evaluation of Distance EDUCATION Services for Students of Special Education Centers in Jordan during the (COVID-19) pandemic," *University of Sharjah Journal of Humanities and Social Sciences*, vol. 7, pp. 1–35, 2020.
- [26] O. Lawanto, H. Santoso, K. Lawanto, and W. Goodridge, "Self-Regulated Learning Skills and Online Activities Between Higher and Lower Performers on a Web Intensive Undergraduate Engineering Course," *The Journal of Educators Online*, vol. 11, no. 3, Jul. 2014, doi: 10.9743/jeo.2014.3.2.
- [27] A. A. Lapada, F. F. Miguel, D. A. R. Robledo, and Z. F. Alam, "Teachers' COVID-19 Awareness, Distance Learning Education Experiences and Perceptions towards Institutional Readiness and Challenges," *International Journal of Learning, Teaching and Educational Research*, vol. 19, no. 6, pp. 127–144, Jun. 2020, doi: 10.26803/ijlter.19.6.8.
- [28] K. Syauqi, S. Munadi, and M. B. Triyono, "Students' perceptions toward vocational education on online learning during the COVID-19 pandemic," *International Journal of Evaluation and Research in Education (IJERE)*, vol. 9, no. 4, p. 881, Dec. 2020, doi: 10.11591/ijere.v9i4.20766.
- [29] S. Van der Steen, C. H. Geveke, A. T. Steenackers, and H. W. Steenbeek, "Teaching students with autism spectrum disorders," *Teaching and Teacher Education*, vol. 90, 2020.
- [30] F. Tynan and K. Davy, "An Exploration of Teachers' Perceptions of how the Classroom Environment Can Support Pupils with Autism Spectrum Disorder (ASD) in the Mainstream Primary School," *Journal of Inclusive Education in Ireland*, vol. 34, no. 1, 2021. [Online]. Available: <https://reachjournal.ie/index.php/reach/article/view/314>.

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