

Polish Teachers' Opinions on the Distance Learning of Students with Autism Spectrum Disorder

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ABSTRACT:

The pandemic COVID -19 necessitated the introduction of distance learning in many countries, including Poland. For teachers and students, this meant a major change and several challenges (both technical and psychological) that they had to face. Students with autism spectrum disorder (ASD) and their teachers are concerned. The aim of the present study was to find out the opinions of teachers about teaching children with ASD during the COVID-19 pandemic. The study was conducted at a time when the situation in Poland was very bad due to the epidemic and distance education was introduced. The survey involved 276 teachers, 144 of whom worked daily with a student with autism spectrum disorder (ASD) and 132 of whom worked with students with other than ASD special educational needs and disabilities (SEND). The results showed that teachers working with students with autism spectrum disorder were more likely to feel annoyed during the pandemic, less engaged in their work, and less likely to help others. Although teachers saw the benefits of distance learning, most felt that students with autism spectrum disorder did better in traditional schools.

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INTRODUCTION

The emergence of SARS-CoV-2 in Wuhan, China, in December 2019 led to the WHO declaring COVID-19 an international health threat a month later (Singhal, 2020). This sudden pandemic forced the world to adapt swiftly. Initially, the focus was on hospitals, but it soon became clear that the pandemic was also taking a toll on society's psychological well-being. Quarantine and the fear of the epidemic exacerbated stress for many (Dymeccka, 2021; Sokół-Szawłowska, 2021). Healthcare workers dealing with COVID-19 faced depression, anxiety, and insomnia (Gawrych, 2021).

The pandemic disrupted various aspects of social life, from healthcare to work to education. Remote work became commonplace, with both advantages (flexibility and work-life balance) and disadvantages (isolation and blurring of boundaries) (Dolot, 2020). Parents faced the challenge of combining work and childcare during lockdowns.

Moreover, the education sector underwent a major transformation with the introduction of distance learning, raising concerns about its effectiveness and impact on inequality among students (Pyżalski, 2020a; Buchner et al., 2020). Teachers' views on distance education were largely negative, with many facing well-being issues, including limited family time, less physical activity, and increased work-related stress (Pyżalski, 2020c; Zaród, 2020).

Students, too, experienced deteriorating mental health, reporting sleep problems, headaches, and reduced energy levels (Bigaj & Dębski, 2020). Loneliness, sadness, and depression were common among young people during distance learning (Pyżalski, 2021). Their lifestyles also worsened, as they engaged in less physical activity and stayed up late (Pyżalski, 2020b).

While distance learning had its downsides, some students found benefits in digital communication and social relationships, including increased flexibility and access to information (Pauluk, 2021; Pyżalski, 2021).

However, students with special educational needs, including those with autism spectrum disorder (ASD), faced particular challenges (Lewandowska, 2020; Kułaga, 2020; Kosir et al., 2020; Buchnat & Wojciechowska, 2020). ASD is characterized by social relationship difficulties, communication deficits, and stereotyped behaviors. ASD students exhibit a wide range of intellectual abilities, but cognitive processes are influenced by the disorder's specific characteristics.

Cognitive processes in ASD students are affected by deficits in attention, memory, and Theory of Mind (ToM) (Białecka-Pikul et al., 2018). Attentional processes are marked by over-selectivity, making it challenging to focus on important information. Memory in ASD individuals is still a topic of debate, with some studies suggesting working memory deficits (Keehn et al., 2013) and others indicating otherwise (Lopez et al., 2005; Wojcik et al., 2011).

Distance education has been particularly challenging for ASD students, exacerbating their academic difficulties and communication problems (Baweja et al., 2021; Buchnat & Wojciechowska, 2021; Colizzi et al., 2020). However, interactions with teachers can positively impact their experience, emphasizing the importance of fostering strong teacher-student relationships (Shin, 2003).

In conclusion, the COVID-19 pandemic brought significant challenges to various aspects of society, including healthcare, work, and education. While distance learning had both advantages and disadvantages, it posed unique challenges for students with special needs, particularly those with autism spectrum disorder, affecting their cognitive processes and well-being. Strong teacher-student relationships emerged as a key factor in mitigating these challenges and supporting students during the pandemic (Topol, 2020a; Topol, 2020b).

Methodology of the own research

The study was conducted in accordance with quantitative research methodology. The data was analyzed using IBM SPSS Statistics 27.

Research problems

The main aim of the study was to learn about teachers' experiences and opinions about working with students on the autism spectrum during the pandemic caused by SARS-CoV-2. The study described below sought to find answers to the following research questions:

- How would teachers determine their individual levels of fatigue/anxiety/sadness/stress/work engagement/behavior/positive attitude/well-being/work engagement/burn-out before and during a pandemic, and are there significant differences between teachers on the autism spectrum and teachers working with other groups of students with special educational needs and disabilities (SEND)?
- How did teachers evaluate distance learning in the context of working with a student on the autism spectrum?

RESEARCH METHOD

Persons investigated

The study involved 276 teachers, of whom 144 (52%) worked daily with at least one child on the autism spectrum and 132 (48%) worked with other children with special educational needs that did not include a child diagnosed with autism (this group was dominated by students with specific learning disabilities, intellectual disabilities and school failure). Of the teachers involved in the study, the vast majority (85%) were female. Details can be found in Table 1.

The gender distribution in the sample corresponds to the distribution within the population. In Poland, as in the rest of Europe, the majority of teachers are female (Eurostat, 2020). Teachers from different disciplines participated in the study. In each group, there were teachers with experience working with a student on the autism spectrum. The detailed distribution of students by position in the school is shown in Table 2.

It is worth noting that the sum of responses to the question about the occupied position differs from the number of survey participants. This is due to the fact that teachers in Poland often combine several positions, e.g. they are teachers of the subject and at the same time work in pedagogical therapy. From a research perspective, the most important thing seems to be the fact that each group of teachers in the study worked with a student from the autism spectrum every day. The study also included teachers from all types of schools. Details are given in Table 3.

Of the teachers working daily with a student on the autism spectrum, most (N=67) were working in a special school at the time of the study, and the fewest (N=32) were in a special school with integration units.

Research tool

The study used an authorship research instrument consisting of 2 parts. In the first part, subjects were asked to answer on the Likert scale (0 – never; 5 – very often) how often they felt before the outbreak of the pandemic and during

Table 1. Distribution by gender

Gender	Working with a Student in the Autism Spectrum				Total	
	Yes		No		N	%
	N	%	N	%		
Women	126	46	107	39	233	85
Men	14	5	25	9	39	14
Other	4	1	0	0	4	1
Total	144	52	132	48	276	100

Source: Own research

Table 2. Distribution according to job position

Position	Working with a Student in the Autism Spectrum				Total	
	Yes		No		N	%
	N	%	N	%		
Early childhood teacher	53	16	80	23	133	39
Subject teacher	45	13	36	10	81	23
Teacher co-organizing education	39	11	16	5	55	16
Pedagogical therapist	10	3	9	3	19	6
School counsellor	5	1	6	2	11	3
School psychologist	2	1	2	1	4	2
Revalidation classes teacher	14	4	6	2	20	6
Others	13	4	4	1	17	5
Total	181	53	159	47	340	100

Table 3. Distribution by type of school

School type	Working with a Student in the Autism Spectrum				Total	
	Yes		No		N	%
	N	%	N	%		
Public school	45	17	70	25	115	42
Integration school	32	12	26	9	58	21
Special school	67	24	36	13	103	37
Total	144	53	132	47	276	100

its duration (at the time of the study): tired, nervous, sad, stressed, engaged in work, in control, positive about the future, sick (headache, stomach), engaged in helping others, burnt out at work. The second part concerned the strict distance education of students with special educational needs. Respondents answered on a five-point scale ranging from 'I totally disagree' to 'I definitely agree'.

Research procedure

The survey was conducted around the turn of 2020/2021. The survey was completed by teachers using the Google Forms platform. The link to the survey was provided by the headmasters of the schools that chose to participate in the survey. The teachers of the schools that were still open at the time of data collection were asked to fill in a paper questionnaire.

Results of own research

The main research question posed in the studies presented was whether there are significant differences in opin-

ions about education during a pandemic between teachers working with students on the autism spectrum and those working with other groups of students with special educational needs.

THE PSYCHOLOGICAL CONDITION OF TEACHERS BEFORE AND DURING THE PANDEMIC

The literature on this topic shows that different types of critical events that affect an individual directly or indirectly alter their psycho-emotional functioning (Baltes et al., 1984; Bee, 1994). The pandemic caused by the virus SARS-COV -2 affected everyone both indirectly and, unfortunately, very often directly. For this reason, an answer was sought to the question of how teachers who work daily with students on the autism spectrum rate their performance in selected aspects of mental health. The results are shown in the table below (Table 4).

The results of the study showed that teachers working with students on the autism spectrum performed better

Table 4. Psycho-emotional functioning of teachers working with students on the autism spectrum before and during the COVID -19 pandemic

	Before COVID-19		During COVID-19		Statistic	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>d Cohen</i>
fatigue	3.15	1.13	3.27	1.29	1.14	1.17
nervousness	2.58	1.08	3.31	1.25	6.99**	1.27
sadness	4.61	1.51	4.51	1.17	0.91	1.19
stress	4.44	1.38	2.77	1.38	8.93**	2.22
work engagement	5.09	0.98	2.92	1.67	15.39**	1.68
composure	4.48	1.22	3.98	1.39	5.64**	1.06
a positive look at the future	4.00	1.51	4.01	1.46	0.00	1.21
bad mood (headache)	3.99	1.68	3.85	1.31	1.18	1.42
engaging in helping other people	3.92	1.40	3.57	1.59	2.08*	2.05
professional burnout	3.99	1.72	3.12	1.68	4.88**	2.14

* < 0.05; ** < 0.01

Table 5. Comparison of the psycho-emotional functioning of teachers working with students in the autism spectrum and teachers who work with students with other SEND

		Teachers working with students in the autism spectrum		Teachers working with students with other SEND		Statistics (t-Student)	d Cohen
		M	SD	M	SD		
fatigue							
	before COVID-19	3.15	1.13	2.76	1.12	2.88**	1.12
	during COVID-19	3.27	1.29	3.78	1.38	3.18***	1.34
nervousness							
	before COVID-19	2.58	1.08	2.53	1.13	0.38	1.10
	during COVID-19	3.31	1.25	3.72	1.33	2.64**	1.29
sadness							
	before COVID-19	4.61	1.51	3.13	1.70	7.67***	1.60
	during COVID-19	4.51	1.17	4.15	1.43	2.34*	1.30
stress							
	before COVID-19	4.44	1.38	3.43	1.63	5.59***	1.50
	during COVID-19	2.77	1.38	3.49	1.50	4.12***	1.44
work engagement							
	before COVID-19	5.09	0.98	5.01	0.95	0.72	0.97
	during COVID-19	2.92	1.67	4.08	1.67	5.74***	1.67
composure							
	before COVID-19	4.48	1.22	4.61	1.04	0.97	1.14
	during COVID-19	3.98	1.39	4.12	1.14	0.90	1.28
a positive look at the future							
	before COVID-19	4.00	1.51	4.54	1.35	3.11**	1.44
	during COVID-19	4.01	1.46	3.97	1.35	0.26	1.41
bad mood (headache)							
	before COVID-19	3.99	1.68	2.93	1.52	5.41***	1.61
	during COVID-19	3.85	1.31	3.36	1.33	3.03**	1.32
engaging in helping other people							
	before COVID-19	3.92	1.40	4.11	1.26	1.15	1.33
	during COVID-19	3.57	1.59	3.94	1.46	2.02*	1.53
professional burnout							
	before COVID-19	3.99	1.72	2.89	1.63	5.44***	1.68
	during COVID-19	3.12	1.68	3.27	1.64	0.76	1.66

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

psycho-emotionally during the pandemic than before the pandemic in several ways. During distance learning, teachers felt less stressed and less professionally burnt out. However, as the results showed, the pandemic had a negative impact on their overall level of tension (ner-

vousness), control, or commitment to work and helping others.

Teachers who work with students on the autism spectrum (ASD) on a daily basis differ in many ways from other teachers who also work with children with special

educational needs and disabilities (SEND) in terms of psycho-emotional functioning. Details of this comparison can be found in Table 5.

Considering psycho-emotional functioning before the pandemic, one should conclude that teachers working with students on the autism spectrum (ASD) had a deteriorating quality of health in this regard compared to teachers working with other students with special education needs and disabilities (SEND). They were more likely to feel tired, sad, stressed, burned out professionally, more likely to have somatic symptoms (abdominal pain and headaches), and less likely to have a positive outlook on the future. During the Sars-CoV-2 pandemic, the performance of teachers working with students on the autism spectrum improved in some respects. Compared with teachers working with other students with other SEND, they still felt sad more often and had somatic symptoms more often. In addition, they were less engaged in their work and in helping others. However, teachers who worked with children on the autism spectrum during the pandemic were less likely to feel tired, nervous, and stressed compared to other teachers in the study.

EDUCATING CHILDREN WITH AUTISM SPECTRUM DISORDER DURING THE PANDEMIC

The idea of integrating students with various disabilities into public schools is becoming increasingly popular around the world. There is also a trend in Poland to replace special schools with integration units (Kulesza et al., 2019). There are new publications dealing with the methodology of teaching students with special educational needs (Kulesza, 2013), but no one predicted that teachers would face a new challenge – distance education for students with ASD.

Teachers participating in the study were asked to evaluate their work during distance learning. Questions were asked about the practical dimension of the teachers' work: the level of preparation for online teaching, contact with parents, the impact of distance work on family life and the functioning of students. The results are presented in Table 6.

The vast majority of teachers working with students on the autism spectrum (95%) saw the need to train teachers in computer programs for remote work and

Table 6. Teachers' Opinion on Distance Education for ASD Students During a Pandemic

		Teachers working with students with autism spectrum	Teachers working with students with other SEND	Statistics
		%	%	Chi-square
1. Online classes is stressful for me.	Definitely disagree	8.3	8.3	0.22
	I rather disagree	13.2	11.4	
	Difficult to say	18.1	18.2	
	Rather I agree	34	34.8	
	Definitely agree	26.4	27.3	
2. There is a lack of technical support (computers, tablets, Internet access) for teachers who cannot afford such a purchase.	Definitely disagree	6.3	1.5	10.37*
	I rather disagree	16	12.1	
	Difficult to say	9.7	13.6	
	Rather I agree	24.3	37.1	
	Definitely agree	43.8	35.6	
3. Teachers should be trained in computer programs used for distance learning.	Definitely disagree	0.7	0	4.66
	I rather disagree	2.1	3.1	
	Difficult to say	2.1	5.3	
	Rather I agree	29.4	22.1	
	Definitely agree	65.7	69.5	
4. I am afraid that students will record my lessons and post them on the Internet without my knowledge.	Definitely disagree	17.9	16.3	4.52
	I rather disagree	27.1	19.4	
	Difficult to say	23.6	21.7	
	Rather I agree	20	24.8	
	Definitely agree	11.4	17.8	

5. During distance education, my contact with the parents of the students increased.	Definitely disagree	11.9	9.4	3.51
	I rather disagree	18.2	15.6	
	Difficult to say	14.7	15.6	
	Rather I agree	30.1	39.8	
	Definitely agree	25.2	19.5	
6. During distance learning, I adapt the methods, forms, work tools and materials to the needs and capabilities of my students.	Definitely disagree	1.4	0.8	0.35
	I rather disagree	1.4	1.5	
	Difficult to say	11.8	13.1	
	Rather I agree	36.8	36.2	
	Definitely agree	48.6	48.5	
7. Distance learning benefits teachers and students.	Definitely disagree	38.9	42	8.51
	I rather disagree	39.6	34.4	
	Difficult to say	13.2	13	
	Rather I agree	2.1	8.4	
	Definitely agree	6.3	2.3	
8. Distance learning has enabled the transmission of knowledge in a more interesting way.	Definitely disagree	17.6	19.1	3.23
	I rather disagree	38	28.2	
	Difficult to say	19.7	24.4	
	Rather I agree	18.3	22.1	
	Definitely agree	6.3	6.1	
9. Remote work from home has a negative impact on my family life.	Definitely disagree	9	2.3	7.35
	I rather disagree	13.9	15.9	
	Difficult to say	25	27.3	
	Rather I agree	22.9	29.5	
	Definitely agree	29.2	25	
10. I think I am well prepared for conducting distance education.	Definitely disagree	2.1	3.9	3.10
	I rather disagree	13.9	10.9	
	Difficult to say	41	34.1	
	Rather I agree	30.6	37.2	
	Definitely agree	12.5	14	
11. Distance learning has a positive impact on the school absence of students with ASD.	Definitely disagree	26.6	17.4	6.97
	I rather disagree	12.6	9.8	
	Difficult to say	23.8	36.4	
	Rather I agree	24.5	25.8	
	Definitely agree	12.6	10.6	
12. Distance learning deepens the differences in knowledge levels between students with ASD and students without difficulty.	Definitely disagree	4.2	3.1	3.41
	I rather disagree	4.9	4.6	
	Difficult to say	9.8	4.6	
	Rather I agree	30.1	29.8	
	Definitely agree	51	58	
13. The educational achievements of a student with ASD during distance learning depend on the individual work effort of the parents.	Definitely disagree	0	2.3	6.73
	I rather disagree	8.3	3.8	
	Difficult to say	15.3	13.6	
	Rather I agree	42.4	39.4	
	Definitely agree	34	40.9	

* $p < 0.05$

also saw the problem of access to hardware (computers, tablets, Internet) (68%). Many teachers (85%) adapted their methods, forms, tools, and materials to the needs and abilities of their students in distance education, with some (43%) feeling well prepared to deliver distance education. Still, many of them (60%) found delivering online courses stressful, one in three (31%) feared that students would record their lessons and post them online, and more than half of teachers (52%) felt that working remotely from home negatively impacted their family life. Although some teachers (55%) found that pandemics and distance learning contributed to more contact with students' parents, the majority of teachers viewed this form of teaching negatively.

Most of teachers who work with student on the autism spectrum (ASD) believe that the pandemic has deepened the knowledge gap between students with special education needs and disabilities (SEND) and students without difficulties (81%). Many teachers who work daily with students on the autism spectrum (76%) admitted that a student's academic performance in distance education depends on the work performance of his or her parents.

More than half of the teachers (56%) disagreed that distance education provided a more engaging form of knowledge delivery, and 79% disagreed that distance education was beneficial to both teachers and students. This is consistent with the findings of the report *Distance Education: What Happened to Students, their Parents and Teachers?*, which showed that during the pandemic, teachers were less likely to engage in leisure activities (sports, spending time with family) and more likely to sit up late at night at their desks preparing lessons and sending materials to students (Ptaszek et al., 2020; Pisula et al., 2019; Turska-Kawa et al., 2020).

In evaluating distance education of students with ASD, teachers working with children on the autism spectrum are not completely different from teachers working with other groups of children with SEND (Table 6). Teachers working with groups of students with other than special educational needs and disabilities (other than ASD) were significantly more likely to perceive a lack of technical support (computers, tablets, Internet) for teachers who could not afford to purchase it.

DISCUSSION

The aim of the presented research was to find out teachers' experiences and opinions about working with students on the autism spectrum disorder (ASD) during the pandemic caused by SARS-CoV-2.

Scholars increasingly emphasise that the profession of teaching often involves a high level of emotional stress resulting from the sense of responsibility for caring for and supporting children (Sawchuck & Samuels, 2020). As research has shown, during the pandemic, teachers felt tired, sad, and most importantly, less committed to helping others. Therefore, there have been calls to surround teachers with special emotional support during the pandemic so that the pandemic does not "kill" in them the willingness to act on behalf of others (Jones & Kessler, 2020).

From the studies presented, as well as reports from other countries (see Crane et al., 2021), it appears that teachers view the impact of pandemics on the functioning of students with special education needs negatively. For this reason, publications have been produced with recommendations for working with such students remotely (see Roberts & Bradley, 2021; Crane et al., 2021). Although teachers quickly became comfortable with virtual reality and some stated that they would continue to use "new solutions" such as online quizzes and tests or e-learning platforms when they returned to school, the vast majority of teachers felt that students with special education needs, including students with autism spectrum disorder, achieved better instructional outcomes in traditional schools. These opinions also apply to students with ASD, as already mentioned in the introduction (e.g., Baweja et al., 2021; Buchnat & Wojciechowska, 2021; Colizzi et al., 2020).

The results are consistent with the findings of the studies by Jankowiak and Jaskulska (2020). The authors studied teachers' well-being and attitudes toward distance education. The study involved 782 teachers of different educational levels (from elementary to secondary school teachers). The results of these studies showed that distance education was positively evaluated only by those teachers who had used various methods using multimedia and the Internet in the past when conducting their classes. The areas of work that involved providing emotional support to students during distance learning were rated negatively by the teachers. Teachers agreed that distance learning deepens the differences between students, but they also often expressed the belief that everything will return to normal when they return to school.

STUDY LIMITATIONS

We believe that the major limitation of our research was the declarative nature of determining one's psycho-emotional functioning. When projecting future research, it would be recommended to use standardized tools for mental health measurement. Moreover, only a few di-

mensions (selected based on the results of pilot studies) were used to describe psycho-emotional functioning. In the future, when describing the mental health of teachers working with students with ASD, it would be worth expanding this list to include other variables.

Since the survey covered both the pandemic and pre-pandemic periods, it seems interesting to repeat the survey sometime later, when teachers will be able to evaluate their work practices and students from a different perspective – the post-pandemic period. It will then be worth checking how many distance education solutions are still used. Since the survey covered both the pandemic and pre-pandemic periods, it seems interesting to repeat the survey sometime later, when teachers will be able to evaluate their work practices and students from a different perspective – the post-pandemic period. It will then be worth checking how many distance education solutions are still used.

CONCLUSIONS

In the face of a global trend towards digital forms of education, powered partially by the COVID-19 pandemic, the need to tailor teaching approaches to the requirements of pupils, especially those with ASD, is more important than ever. Despite extensive studies on remote teaching, the scientific literature still has substantial gaps, particularly with the specific issues faced by students with ASD. As a result, it is critical to deepen the discussion on these issues by more completely assessing how to present educational procedures to fulfill the requirements of students with ASD and identifying specific areas that require additional investigation. The study reported in this paper has the potential to add scientific value to the issue of remote teaching for children with ASD by analyzing teachers' perspectives on the usefulness of these practices in the context of the COVID-19 program.

Research on remote education for students with ASD is an important part of the wider discussion on education and teaching in the digital age. Although the COVID-19 pandemic accelerated the development and implementation of remote education solutions, there was already a demand for more flexible and diverse forms of teaching. Remote education provides new opportunities for students with ASD in terms of (1) customization: students

can learn at their own pace and in their preferred environment, which can reduce stress and anxiety, (2) individualization: teachers can more easily adapt the curriculum and teaching materials to meet the individual needs of each student, and (3) accessibility: remote education can make education more accessible to students with ASD who live in remote areas or have difficulty commuting to school.

It should also be noted that remote education also presents some challenges, which may include (1) communication difficulties: students with ASD may have difficulty communicating online, which may make it difficult for them to participate and interact with their peers; (2) lack of structure: some students with ASD need a clear structure and routine to learn. Remote education may make it difficult to provide such structure; (3) limited stimulation: students with ASD may need additional sensory stimulation to focus and learn.

Further research on remote education for students with ASD should aim to identify the best online teaching practices for students with ASD, including the development of teaching materials and learning tools tailored to the needs of students with ASD, understanding the impact of remote education on students with ASD, both educationally and socially. The results obtained can help improve remote education for students with ASD and provide them with better educational opportunities.

In a broader scientific context, research on remote education of students with ASD can contribute to developing theories of teaching and learning in the context of online education, understanding the impact of technology on the education of students with special needs, including students with ASD, expanding knowledge of the autism spectrum and its impact on learning. This research is extremely important as it can help create a more inclusive and effective education system for all students, including students with ASD.

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