

**ŠKOLOVANJE NA DALJINU S UČENICIMAS
POREMEĆAJIMA IZ AUTISTIČNOG SPEKTRA**

**DISTANCE EDUCATION OF CHILDREN WITH AUTISM
SPECTRUM DISORDER**

Pavlin Nina

Osnovna škola Narodnog heroja Rajka Hrastnik, Slovenija

SAŽETAK

Djeca s poremećajima iz autističnog spektra često imaju problema s komunikacijom i imaju slabije razvijene izvršne funkcije mozga. To utječe na njihovo učenje, neovisnost, svakodnevne zadatke i međuljudske odnose. Često im je teško prihvatiti promjene i kruti su u rješavanju problema. Učenje na daljinu bilo je poseban izazov kako za mene, tako i za učenike s poremećajima iz autističnog spektra i njihove roditelje. Prilikom pripreme materijala za e-učenje suočila sam se s raznim pitanjima, poput toga kako održavati kontakt sa učenikom koji verbalno ne komunicira, kako održavati naučenu svakodnevicu, kako pripremiti prikladan i učinkovit materijal. Dobra suradnja s roditeljima bila je ključna za uspješno suočavanje s izazovima koje predstavlja današnja situacija. U svom izlaganju predstaviti ću svoju nastavničku praksu učenja na daljinu zajedno s primjerima materijala za e-učenje, opisom organizacije vlastitog rada, nastavnim metodama i komunikacijom s roditeljima i učenicima. Također ću predstaviti načine na koje sam se suočila s problemima zbog nedostatka verbalne komunikacije kod učenika, kako smo održavali svakodnevicu s roditeljima na daljinu i kako smo osiguravali da učenici nastave napredovati, da stječu nova znanja i održavaju već stečene vještine, razvijaju područja deficita i kako izgleda povratak natrag u školu.

Ključne riječi: poremećaji iz autističnog spektra, učenje na daljinu, dobra nastavna praksa

ABSTRACT

Children with autism spectrum disorder often have problems with communication skills and poorly developed executive brain functions. These affect their learning, independence, home tasks and social skills. Children with ASD struggle change and with solving problems. Distance education has been challenging for me, my students and their parents. During the preparation of my e-learning materials, I dealt with certain questions, such being, how to stay in touch with a student that doesn't speak, maintain his daily routine and how to prepare suitable and effective learning materials. Good cooperation with parents was crucial for successfully dealing with the challenges posed by the given situation. I will present my teaching practice of distance education with examples of my e-learning materials, give a description of the organization of my work, teaching methods and communication with students and their parents. I will also present the methods I used to cope with the problems presented by the absence of verbal communication in my students, how we maintained a daily routine with their parents at a distance and what we did to provide continuing progress, gain new knowledge, maintain assimilated skills, develop areas of deficit and what it was like to come back to school.

Key words: Autism spectrum disorder, distance education, good teaching practice

INTRODUCTION

Children with Autism spectrum disorder (ASD) often show comorbid symptoms of anxiety, depression, anger and problems with behaviour and attention (J. A. van Steensel, & J. Heeman, 2017). Their problems with understanding verbal and non-verbal communication, impact on using language for communication (M. Rao, & Gagic, 2006). All those symptoms, along with the deficit in social skills and problems with using imagination and thinking abstractly, lead to deficits in their playing and learning.

They often have problems in participating in an educational process, but some research shows good impact of learning with online learning platforms (Faraj, etc., 2020). Children with ASD find it easier to assimilate knowledge through play, both with a concrete didactic material and online educational games. Online educational games help children with ASD to feel more comfortable and relaxed while doing such activities (Faraj, etc., 2020). My students with ASD often get more motivated to learn through online educational games, and they also respond better to it.

There isn't a single best method of teaching children with ASD but using concrete learning materials and visual supports can help them with coping in everyday struggle. It also shows many positive effects on learning process of children with ASD. Visual support cannot only be used in school, but also at home, shopping, doctor's appointments etc. Visual supports help ASD children with communicating because they attract and hold a child's attention, they enable them to focus on the message and reduce anxiety. Additionally, they make abstract concepts more concrete, and they help them express their thoughts (M. Rao, & Gagic, 2006). Some resources show that children with ASD are more frequently visual learners than auditory, and prefer alternative models of communications, such as pictures, visual schedules, etc. (M. Rao, & Gagic, 2006). Visual supports can be a successful learning material for teaching literacy skills, encouraging positive behaviour, signalling activity change, etc. They also contribute to the needed structure and routine that is necessary for children with ASD.

Children with ASD often have problems understanding social cues such as gestures, facial expressions, body language and voice tone (M. Rao, & Gagic, 2006). They also struggle with using nonverbal and verbal social clues, understanding the perspective of others and interactive play or participation in leisure activities (L. Hyman, E. Levy, & M. Myers, 2020). Online educational games provide concrete feedback on success in a way that is more understandable to them, such as pictorial warnings supported by characteristic sounds on a successful and unsuccessful attempt, where their correct answer can win them a piece of the puzzle - a properly solved task then represents a completed puzzle, collected stars or losing "lives" in a failed attempt, etc.

Therefore, the more visual and the more concrete the support method is, the better their understanding on what we want for them to do is. In school I use many visual supports, for example visual schedules, visual rules, a spot for students to line up, steps for a proper hand washing, a lot of colourful, visual and tactile touches, concrete learning materials, colour support (each student has one colour for their personal belongings, for instance a blue glass, blue space in wardrobe), personal photographs on their workstations and belongings, PECS, etc.

For an effective treatment for children with ASD the role of parents and a good cooperation with parents and the teacher are crucial (L. Hyman, E. Levy, & M. Myers, 2020). They are often teacher's co-therapist. But parents of children with ASD frequently report higher levels of stress and other negative affective states than parents of typically developing children (Enav, etc. 2019). They also show lower parental self-efficacy or belief in their ability to effectively parent their child. They can even have a smaller active role in the learning process and the child's development (A. Crowell, Keluskar, & Gorecki, 2019). With a respectful dialogue and showing them, they are worth it and that we understand them, parents become more effective and put tremendous energy into being a source of support in the growing potential in their children (A. Crowell, Keluskar, & Gorecki, 2019).

An early intervention, which in addition to the previously mentioned learning methods, also includes teaching observation and learning strategies by imitation, training to focus on the learning process and the integration of model learning from peers. All mentioned, allows children with ASD to progress and assimilate the necessary skills. However, teaching children with ASD must be consistent and intensive in all its settings for a successful outcome. Isolation of children with ASD inhibits their learning process. Moreover, it can even lead to the aggravation of their deficits (A. Taylor & A. DeQuinzio, 2012).

Due to the declared pandemic of COVID-19, on October 24th, 2020, the Decree on the temporary ban on gathering people in institutions in the field of education and universities and independent higher education institutions came into force again in Slovenia. For the second time in a calendar year, schools were forced to teach at a distance. After the first experience of a few weeks of distance learning, I was able to be more prepared for the expected re-period. I wanted to upgrade the teaching methods that proved to be successful and thus improve the distance learning process. At the end of the year, the Constitutional Court then suspended the execution of the Decree on the temporary ban on gathering people in institutions in the field of education for children with special needs. It instructed the government to allow the implementation of programs for children with special needs, which were expected to start by January 4th.

GOOD TEACHING PRACTICE WHILE WORKING REMOTELY

Based on the evaluation of distance learning with parents, where we talked about their coping with the first period of distance learning, our cooperation, ways of communication, ways of providing learning materials, the choice of learning materials and the child's progress, I created a plan for the re-education of distance learning with the guidance of the management. In the plan, I defined cooperation and communication with parents: Parents accessed the instructions for work on the school e-portal Rajko on a daily basis. There, under each day, they found instructions for each individual student, and links to educational recordings, educational didactic games, instructions for carrying out activities in pdf format were also attached, etc.

Picture 1

Screenshot of my page on the school e-portal Rajko (My weekly regards)

The screenshot shows the 'portal Rajko' interface. At the top, there is a navigation bar with the text 'Z ZNANJEM MED OBLAKE' and a search icon. Below the navigation bar, there are links for 'Domov', 'I. triletje', 'II. triletje', 'III. triletje', 'NIS', 'PPVI', 'ARNES učilnice', and 'Koledar srečanj v živo'. The main content area is titled 'PPVI I. STOPNJA' and includes the teacher's name 'Nina Pavlin' and email 'ninci.pavlin@gmail.com'. A section titled 'NAVODILA ZA DELO' contains a message from the teacher: 'Dragi učenci! Se čisto čisto malo pa nas bo obiskal Božiček. Jez ga že komaj čakam, pa vi? Glede na to, da je ta teden zadnji v tem koledarskem letu, vas čakajo prav posebne praznične naloge. Zelo zelo vas pogrežam in vam pošiljam ogromen objem,' followed by a small illustration of a Christmas tree and a owl character. Below the message, there is a table for the week of December 21st to 24th, 2020.

Datum	Gradivo	Videosrečanje	Dodatno delo, povezave
21. 12.	PONEDELJEK	NE	NE
22. 12.	TOREK	NE	NE

Source: <https://rajko.splet.arnes.si/>

Picture 2

Screenshot of my page on the school e-portal Rajko (Daily table)

Datum	Gradivo	Videorežanje	Dodatne dat. povezave
21. 12.	PONEDELJEK	NE	NE
22. 12.	TOREK	NE	NE
23. 12.	SREDA	NE	NE
24. 12.	ČETREK	NE	PROSLAVA OB DNEVU SAMOSTOJNOSTI

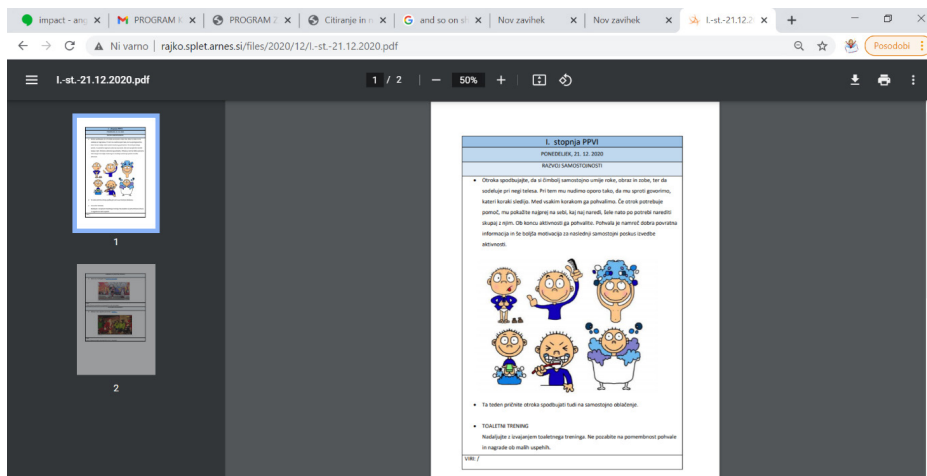
(Visited 405 times, 1 visits today)

Povezave
 • OŠ IŠR
 • MIZ
 • Obšna hrana
Naslovnici
 • SOGO dostopnost
 • e-portal Rajko
Arxiv
 • december 2020 (3)
 • november 2020 (3)

Source: <https://rajko.splet.arnes.si/>

Picture 3

Screenshot of my instructions




Simultaneous work in the form of videoconferencing is not possible due to the student's deficits, so I agreed on receiving evidence of distance learning via e-mail in the form of pictures and recordings of the student's products and activities. We communicated several times per week by phone and e-mail for regular conversations.

This communication was especially important at the weekends with the aim of evaluating the work done so far and for planning the work for the future. I also communicated with my students over the phone every few days.

In designing the material, I took into account the student's shortcomings and strengths, as well as any necessary adjustments. To teach the areas of Independence Development and Work Education, the students filled in the activity monitoring tables on a daily basis. I encouraged them to routinely take care of themselves and participate in household chores. The table was printed by their parents or made by the student himself every week.







Picture 4

Weekly table of Independence Development

	PONEDELEK	TOREK	SREDA	ČETRTEK	PETEK	SOBOTA	NEDELJA
UMIVANJE ZOB (jutraj) 							
OBLAČENJE 							
UMIVANJE OBRAZA 							
UMIVANJE ROK 							
UMIVANJE ZOB (večer) 							
TUŠIRANJE/KOPANJE 							
UPOŠTEVANJE BONTONA PRI JEDI 							

Picture 5

Weekly table of Work education

	PONEDELEK	TOREK	SREDA	ČETRTEK	PETEK	SOBOTA	NEDELJA
POSOPRAVIM POSTELJO 							
ZA HRANJENJE PRIPRAVIM IN POSOPRAVIM MIZO 							
POMIJEJ, POBRISEM POSODO 							
POMAGAM V KUHINJI 							
POMETEM/POSESAM 							
ZLAGAM NOGAVICE, PERILO 							
ODNESEM SMETI 							
DRUGO: _____							

Every morning in class, we start the day by preparing a class calendar. Students love to prepare a class calendar, and simultaneously develop time orientation skills and learn objectives in the field of knowing the days of the week, months of the year, seasons and weather. Because I wanted to continue developing these areas, I instructed their parents to look at the calendar with the students in the morning at home, mark which day of the week, also the date, discuss the previous day, the following day, and observe what the weather is like.

I encouraged parents to involve their children in various household chores as well as cooking. For this purpose, I provided them with a great link to instructive videos of preparing simple meals and recipes written in the easy-reading method.

In distance learning, I used online educational games, which I found on the internet or I designed them myself with the help of online tools, as the most common learning tool for the assimilation of school knowledge. It was difficult finding suitable games online, as most games for children with ASD are less suitable or they are mostly in English.

An example of an educational game designed by me was in the learning topic of pets. The student had to connect a photo of a pet with an audio recording of an animal sound.

Picture 6

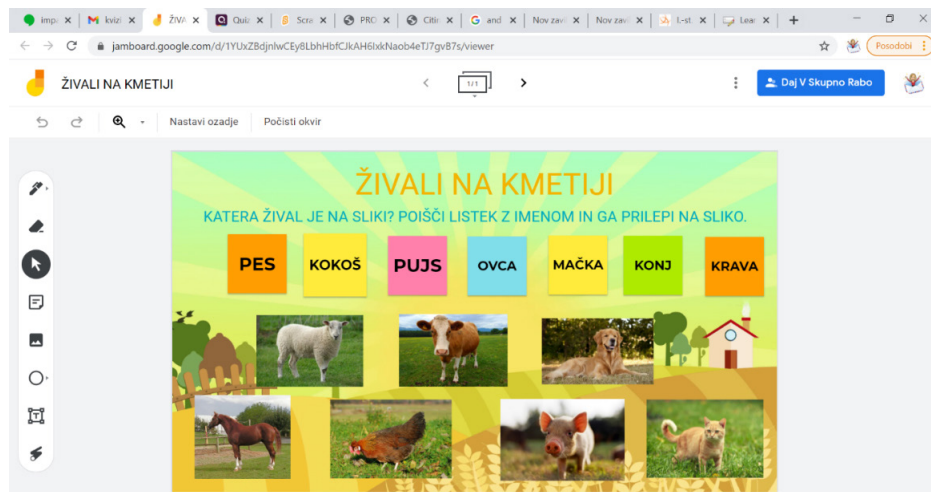
Example of my educational game (Connect a photo of a pet with an audio recording of an animal sound)



Another student had to connect the word to its meaning in the same learning topic - a photograph of a suitable animal. He put the word to the photograph of the animal.

Picture 7

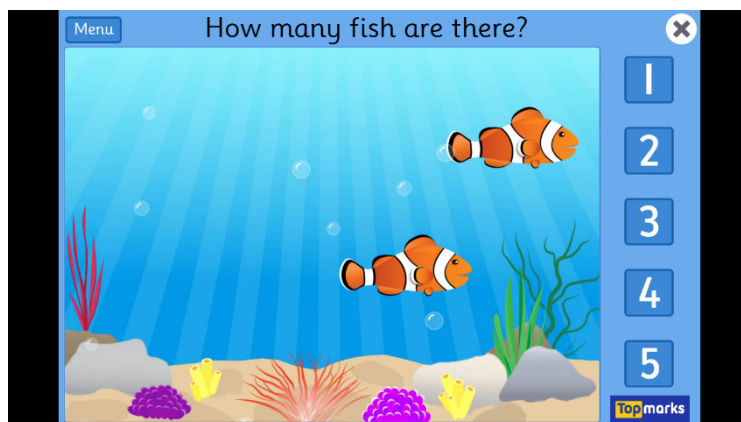
Example of my educational game (Connect the word to its meaning in the same learning topic - a photograph of a suitable animal)



In developing number performances up to 5, I also used educational games I found online, such as the one where a student helped a diver count the number of animals in the sea.

Picture 8

Example of online educational game (Developing number performances up to 5)



Source: <https://www.topmarks.co.uk/maths-games/3-5-years/counting>

In teaching sports, I encouraged parents to exercise in nature and sent them various links to fun exercises or dances for children. For example, they exercised with their soft toys or played dance games.

Picture 9

Example of online workout for kids



Source: <https://www.youtube.com/watch?v=7VAElkGmXno>

Picture 10

Example of online dance game



Source: <https://www.youtube.com/watch?v=2UcZWXvgMZE>

In arts, I included a variety of activities, from free visual expression, creating in nature, to creating while following the steps from the video. When planning the activities, I mentioned the use of materials that the students had at home. For example, in physical education, students had to go for a walk with their parents, pick autumn leaves and make a hedgehog for Art class at home, step by step.

Picture 11

Example of video How to make a Hedgehog



Source: <https://www.wamwcegd0jec.youtube.com/watch?v=>

As part of the music class, students listened to musical fairy tales, learned new songs from videos, relaxed while dancing and learned about various instruments.

We also carried out activity days remotely. For example, for the Forest Detectives Sports Day, parents were given instructions in pdf format, with various forest activities. Students had to write their names or compose a forest message from the material they found in the forest. Then the students had to fill in the table and look for something thorny, something green and porous, something cold, dirty and rocky in the forest, etc. In the end, they had to find a tree they liked and do some forest challenges.

FOREST CHALLENGES:


1. Choose your tree in the forest.
2. Try to hug your tree.
3. Close your eyes and feel what his bark is like.
4. Smell the trunk.
5. Listen to the birds singing and the buzzing of bugs near your tree.
6. Observe the colours your tree has.
7. Look at his leaves in detail.
8. Find out if your tree has fruits.
9. Look carefully for any animals near your tree.
10. Look for a trail that was left behind by a forest animal near your tree.

Picture 12

ŠOLA ZA GOZNE DETEKTIVE


Dragi učenci,
 Svoje sposobnosti in veščine za gozdne detektive
 Preizkusi na različnih gozdnih lovih. Učitelj Šole za gozdne
 detektive bo s teboj pripravljal vaše sposobnosti in spretnosti,
 da si lahko iz pravega lesa, da postaneš tako pravi gozdni detektiv!

Zaženi sami vas smelo pri spremljanju učencev!



1. GOZDNI LOVI **SESTAVI GOZDNO SPOROČILO**


S pomočjo skrinj, ki jih najdeš v gozdu (darovi: veje, lubje, mah, skrinje, lubje itd.) sestavi gozdno sporočilo. Lahko napišeš svoje misli, tvoje besede ali še kaj, tiho misli.



2. GOZDNI LOVI **POIŠČI NEKAJ**


Sledi tabeli in v kvadratih napiši ali nariši, kaj si našel v gozdu:

BRODČASTEGA	SINEGA	ZAVITEGA
DELEKNEGA IN LUMENČASTEGA	KVADRANEGA IN LEKNEGA	KOŠNČASTEGA IN RODEČASTEGA
NEŽNEGA, ŽUMBEČASTEGA IN RUMENČASTEGA	DOLGEGA, TANKEGA IN KRAVČASTEGA	MOKREGA, UMAZANEGA IN KAMNČASTEGA



3. GOZDNI LOVI **MOJE DREVO**

1. V gozdu si izberi svoje drevo.
2. Povečaj si ga in ga imenuj.
3. Zapiši si na postelj kakega iz njegovih lubjev.
4. Povečaj ga.
5. Povečaj ga še enkrat in ga imenuj.
6. Povečaj ga še enkrat in ga imenuj.
7. Povečaj ga še enkrat in ga imenuj.
8. Povečaj ga še enkrat in ga imenuj.
9. Povečaj ga še enkrat in ga imenuj.
10. Povečaj ga še enkrat in ga imenuj.



Example of my instructions for the Forest Detectives Sports Day

METHOD

Before the start of the second period of distance learning, I recorded the current state of the child's functioning. I observed what the students could do in the chosen field and where they still needed help. The selected areas of observation were gross motor skills, fine motor skills, graphomotor skills, perception, orientation, speech and language, memory, school knowledge and skills, attention and concentration, social - emotional area and behaviour, independence and self-care. I presented my observations to their parents. When the students came back to school, I then did the observation again in the same areas, immediately in the first week when I came back and then again after 2 months.

I also did an interview with the parents before I started with distance learning again. I asked them about how they felt about distance learning again and about their expectations. After distance learning, I had another interview with the aim of evaluating our cooperation, our communication, the choice of learning materials and the child's progress.

During distance learning, I recorded the weekly response of the parents, how often we participated, and observations about their work, well-being, and so on. I also recorded observations regarding the child's progress.

RESULTS

A 7-year-old student who does not communicate verbally began giving up diapers a few weeks before re-schooling at school and at home and started to use the toilet for the number one. The student was taken to the toilet 3 times a day according to the established schedule. During distance learning, his father tried to follow my instructions and steps to continue toilet training. Unfortunately, he was not successful in training, because the child had to use the diaper again when he returned to school. The student does not communicate verbally and started using the PECS method a month before distance re-schooling. During distance learning, according to his father, this was too demanding at home, so when we returned, we started getting used to using the method again. After a few weeks, the student regained his knowledge and progressed extremely fast in using the PECS method. Now, he is able to independently show a picture of what he wants for lunch, when he is thirsty, when he wants his favourite toy and when he needs to go to the toilet. In the field of gross motor skills, fine motor skills, graphomotor skills, orientation and memory, the student did not show any progress when he came back, but the situation did not worsen. In the area of self-care and independence, progress was made upon returning to school. The student began to tidy up his supplies and workspace on his own, and he also started to use cutlery more appropriately. Now, when he arrives to school, he changes his clothes and shoes and does the same when it's time for him to go home. In the field of school knowledge and skills, the student has made significant progress. He reached the goals for knowledge in line with expectations and at the same speed as desired in school. In the area of attention and concentration and behaviour, there was a noticeable decline during distance learning and especially on his return. The student found it difficult to get used to the new routine, he was less and less motivated for schoolwork, and behavioural outbursts became more frequent. When coming back to school, he showed a markedly weak attention, having difficulty concentrating on work. He was more likely to refuse schoolwork, behavioural outburst still occurred. After two months, progress was noticed. The student has re-learned the school rules and daily routine. He also progressed in the area of attention and concentration, and disturbing behaviour and behavioural outbursts rarely occur and are milder and shorter.

The second student started to indicate a setback during distance learning. His products indicated a deterioration in graphomotor skills and a failure to adopt learning objectives. His reading became less fluent, his reading comprehension less effective, and problems began to appear in the field of mathematics, which was otherwise his strong field. Parents said that the student finds it increasingly difficult to focus on work and is less and less motivated for it. Deterioration in gross and fine motor skills and memory was also observed. Coming back to school, the situation was the same as during distance learning. The student has a distinctly weak attention, the occu-

rence of his tics is more frequent, only that this time they are more pronounced. He often asks for a break and to rest, and during the activities he tunes out more frequently. When he came back to school, he expressed great joy, mentioning several times that he missed his friends and teacher. In the area of independence and self-care, his situation has not changed.

Parents have already expressed their gratitude for our frequent communication and my support and understanding during distance learning. In the end, they said that our way of working together not only made it easier for them to face the challenges posed by distance learning, but also managed to keep some of the skills children already learned, and even progress in some of them. In the beginning, they were afraid of their capability of coping with the new situation, how they would organize the work, and last but not least, how the situation would affect their child. They were afraid that the children would regress and forget the assimilated knowledge and skills. They expected to find it difficult to get used to the new way of working at home and consequently have frequent behavioural outbursts. During distance learning, they had both good and bad periods, periods when they found it easier to bear the stress of the situation and periods when they doubted themselves and did not know how to organize. With each passing week, the work at home became more and more difficult for the parents, they were less and less active, less and less motivated and expressed more and more signs of stress. They needed my help in the form of conversation, motivation, encouragement, and understanding more often. On days when it was too difficult for them to cooperate, we agreed to take a day off. I tried to be understanding and in moments when they were not able to work with me took that into account.

When comparing my observations of both students, I found that the student where the father coped with stress more easily and was more active in the distance learning process, the student retained a large part of the already assimilated skills, abilities and knowledge and even progressed in some areas. The student, where the mother increasingly expressed stress in coping with distance work and began to be less participatory in the process of distance learning, the student stopped progressing and even regressed in some areas.

Online learning games, tables for homework and self-care and the fun and educational videos have proven to be a good motivational learning tool. The students assimilated knowledge in a fun manner and kept the skills they had already adopted. On days when intrinsic motivation was lower in both parents and students, these tools helped to reduce the stress and increase the motivation in a relaxing way. Tracking tables and daily observation of the calendar, allowed for the maintenance of a routine and predictability, which helped students with ASD to form some structure and indirectly reduce the occurrence of expected disruptive behaviour.

DISCUSSION

During distance learning, I tried to support the parents of my students in coping with the situation. Their role in distance learning has proven to be crucial. Due to the students' shortcomings, they were not able to interact directly with me, so the parents took over the work of the teacher, and I prepared the materials for them. The children's progress was also conditioned by the level of their activity and participation.

What parents pointed out as good way of my work was that I offered them support in the form of daily conversations about the way of work, evaluation of work and also support in the form of counselling to deal with the new situation (work organization, coping with disruptive behaviour, coping with stress). Namely, we had both good and bad days, solved various problems, but in the end, we managed to survive during this extremely demanding period. I adapted my materials to the students and parents, their home conditions and, last but not least, their well-being. The used teaching material proved to be good and useful, as it allowed children to progress in a fun and motivating way, and also reduced any problems in the area of disruptive behaviour.

Distance learning has brought something positive. During this time, I was forced to improve my knowledge in the use of online tools to prepare interactive and student-friendly learning tools. I will happily include this in my teaching in my direct work with students and by doing so enrich my lessons.

REFERENCES

1. J. A. van Steensel, F & J. Heeman, E. (2017). Anxiety Levels in Children with Autism Spectrum Disorder: A Meta-Analysis. *Journal of Child and Family Studies*, 26, 1753–1767. <https://link.springer.com/article/10.1007/s10826-017-0687-7>
2. M. Rao, S. & Gagie, B. (2006). Learning through seeing and doing: Visual supports for children with autism. *TEACHING Exceptional Children*, 38 (6), 26–33. <https://journals.sagepub.com/doi/10.1177/004005990603800604>
3. L. Hyman, S., E. Levy, S. & M. Myers, S. (2020). Identification, Evaluation, and Management of Children with Autism Spectrum Disorder. *Pediatrics*, 145 (1). <https://pediatrics.aappublications.org/content/145/1/e20193447>
4. A. Taylor, B. & A. DeQuinzio, J. (2012). Observational Learning and Children with autism. *Behavior Modification*, 36 (3), 341–369. <https://free.openeclass.org/modules/document/file.php/SOC176/observational%20learning.pdf>
5. Enav, Y., Erhard-Weiss, D., Kopelman, M., C. Samson, A., Mehta, S., J. GROSS, J. & Y. Hardan, A. (2019). A non-randomized mentalization intervention for parents of children with autism. *Autism Research*, 12 (7), 1077–1086. <https://onlinelibrary.wiley.com/doi/full/10.1002/aur.2108>

6. A. Crowell, J., Keluskar, J. & Gorecki, A. (2019). Parenting behavior and the development of children with autism spectrum disorder. *Comprehensive Psychiatry*, 90, 21–29. <https://www.sciencedirect.com/science/article/pii/S0010440X18301925>
7. Faraj, A., Alzahrani, S., Almumtin, R., Alrajhi, D., Alshyban, S., Alshabanah, M., Alsmadi, M. & Almarashdeh, I. (2020). Developing and Implementing an Online Learning Platform for Children with Autism. *International Journal of Scientific Research in Science and Technology*, 13, 133–141. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3568233