European Journal of Special Education Research
ISSN: 2501 - 2428
ISSN-L: 2501 - 2428
Available on-line at: www.oapub.org/edu

DOI: 10.46827/ejse.v8i4.4382 Volume 8 | Issue 4 | 2022

TEACHING PRACTICES OF ORAL LANGUAGE AND READING SKILLS IN STUDENTS WITH AUTISM SPECTRUM DISORDER

Nikolaos Panopoulos[1i],
Maria Drossinou-Korea[2]
[1]PhD in Special Education,
University of Peloponnese,
Greece
[2]Assistant Professor,
University of Peloponnese,
Greece

Abstract:
Communication includes a wide range of difficulties for students with Autism Spectrum Disorder (ASD) from acquisition and processing of information and verbal expression to reading and writing. Therefore, these students face challenges in their school life. The purpose of this research is to evaluate and apply teaching practices for the cultivation of oral and reading skills in students with ASD The methodology used was action research in three general secondary schools and lasted 3 years. The research was conducted in Greece by the second teacher of the class who only supported students with special educational needs. Specifically, we conducted three case studies of students with an average age of 15.3 years. Students were diagnosed with ASD. Qualitative data from the action research were collected through observation methodology with informal pedagogical evaluation in checklists of basic skills. Furthermore, the methodology of the intervention with field notes was applied to the form of the teaching interaction. The results showed that students respond to comprehensive differentiated teaching interventions, which include oral speech and reading comprehension activities.

Keywords: Autism Spectrum Disorder, oral speech, reading skills, evaluation, didactic intervention

1. Introduction

Autism Spectrum Disorder (ASD) is characterized by deficits in social interaction, and communication, but also by the presence of stereotyped movements and behaviors (DSM V) (American Psychiatric Association, 2013). More specifically, according to the diagnostic manual International Classification of Diseases (World Health Organization,

[i] Correspondence: email nikospano@windowslive.com

2019), people with ASD may present certain characteristics, such as difficulties at the social level as they find it difficult to participate in peer groups and show an interest in social interaction or to understand communication rules, while also showing a deficit in interaction with their interlocutor. Furthermore, they present difficulties in their effective participation in dialogue, deficits in the development of the morphosyntactic domain (form and syntax of speech) and use of monotonous vocabulary. In addition, students with ASD have difficulties in the pragmatic domain and oral comprehension, while in their speech there is an untested use and repetition of words and phrases.

Students with ASD face difficulties in their academic skills as well. Fleury et al. (2014), in their research regarding the treatment of learning needs in secondary education, argue that although these students cultivate reading skills, throughout their schooling the rate of improvement is slower compared to that of their peers with learning difficulties. Furthermore, the same researchers argue that students with ASD may have difficulties in decoding and text comprehension skills and conclude that oral language skills are a predictor of their performance in reading comprehension activities.

2. Literature Review

2.1 Reading Skills

Much research data demonstrates that reading comprehension difficulties, on average, are more prevalent in individuals with ASD compared to their typically developing peers. In particular, according to Solari et al. (2019), previous studies show that 38% to 73% of students with ASD have reading comprehension difficulties compared to 30% of students without special educational needs in secondary education. The same researchers in their research in which they examined the reading profile of students with ASD, aged 8 to 16 years, report that 68.8% of the participants have comprehension difficulties and 50.5% have deficits in word decoding skills (Solari et al., 2019). In another research, it is claimed that 37% and 65% of students with ASD in studies that have been done have reading comprehension difficulties regardless of their IQ (Henry & Solari, 2020). Furthermore, the research emphasizes that reading comprehension and its basic skills have been the subject of research in recent years, as it is a fundamental ability that is vital for academic and professional success, while further investigation of teaching practices suitable for dealing with comprehension difficulties of specific children (Henry & Solari, 2020).

Given the great heterogeneity found in students with ASD, variability is found in the approaches they take to understand the content of a text. According to Roycroft (2015), there are three reading comprehension profiles: those who understand the central meaning of a text without further interpretation, those who understand the text better with the support of images, but may focus only on the visual stimulus and misinterpret the content of the text when the pictures are removed, and those who use strategies (asking questions or connecting their knowledge to information from the text) but have difficulty making predictions. The same researchers report that the reading

comprehension performance of students with ASD may be influenced by factors such as text type, their prior knowledge and experiences, their language ability in terms of vocabulary range, and spoken language (eg. communication difficulties affect vocabulary, grammar and thus the understanding of written language), as well as the semantics of words.

Similarly, Ricketts et al. (2013), report that as with their typically developing peers, oral language skills play an important role in the development of reading comprehension. They themselves in their research regarding reading comprehension in students with ASD and the prominent role of spoken language state that reading comprehension is an area of difficulty for many people with ASD due to their inability to decode words and cultivate their spoken language, which is a prerequisite for the development of social interaction and the expression of their mental state. Furthermore, according to Henry & Solari (2020), reading comprehension is a result of decoding words and spoken language. Decoding skills, on the other hand, refer to a person's ability to process orthographic information and connect the written code with the corresponding phonological information in order to read words accurately. And oral language includes various skills such as vocabulary, storytelling and listening comprehension skills. Extensive research shows that children with ASD perform worse in reading-related skills compared to their typically developing peers. However, only a few intervention studies have been conducted to address the relative reading and oral language deficits associated with comprehension difficulties in this population.

Children with ASD display a wide range of expressive and receptive language abilities. Even without significant delays, many children with ASD experience atypical language development that affects their ability to understand or communicate effectively with others. Their difficulties in oral language skills such as vocabulary, morphology (ie, the smallest unit of words that convey meaning such as prefixes and suffixes), grammar, syntax (ie, order of words in sentences) and listening comprehension are related to and affect their reading outcomes understanding (Henry & Solari, 2020). Furthermore, individuals with ASD often exhibit social-cognitive deficits related to reading comprehension (Brown, Oram-Cardy, & Johnson, 2013). Social-cognitive skills are important to storytelling since the stories we tell require a way of organizing and sharing important experiences by talking to each other. Therefore, people with ASD often have narrative deficits as they have difficulty recognizing and understanding the thoughts and feelings of characters and are unable to predict social events. Therefore, according to Brown, Oram-Cardy and Johnson (2013), supporting students with ASD in oral/social discourse skills about character emotions and social situations in texts can be a way to enhance their understanding.

2.2 Learning Readiness

According to Sousa and Tomlinson (2011), the term readiness refers to a person's current proficiency with respect to a set of knowledge and skills characterized as essential and a prerequisite for students' active participation in the learning process. The same

researchers report that preparedness is not synonymous with ability. For example, a student who appears to have limited oral ability may nevertheless demonstrate advanced vocabulary readiness and knowledge of issues of interest. Learning readiness refers to physical, motor, social-emotional, behavioral , linguistic and cognitive skills that students need to cultivate in order to cope with the learning process (Millians, 2011). Through learning readiness, the student acquires knowledge and skills and forms attitudes that help him adapt seamlessly to the school environment and respond successfully to the curriculum. The level of development of learning readiness is likely to decisively influence the entire educational course of the child and his success in life. Therefore, readiness affects the learning process and runs through all grades of primary and secondary education (Drossinou-Korea, 2017).

In Greece, the learning readiness of students with SEN is assessed through neurodevelopmental areas, as defined by the Pedagogical Institute (Ministry of National Education and Religions-Pedagogical Institute, 2009). Neurodevelopmental areas of learning readiness affect the learning process of language skills in students with ASD, as they are related to factors such as perceptual skills, mental ability, personal experience, maturity level, visual and auditory discrimination ability, language development, sensory development, nervous system function, interest in learning, as well as social and emotional competence (Ministry of National Education and Religions-Pedagogical Institute, 2009). Learning readiness is a multidimensional term that refers to all phases of a child's development and mainly includes the child's mental, emotional, social and physical readiness to accept, process and utilize environmental stimuli. Learning readiness refers to the phase of preparing the child to acquire knowledge and skills and to form attitudes that will help him adapt seamlessly to the school environment and successfully respond to the demands of the curriculum (Drossinou-Korea, 2020). According to the Greek Special Education Analytical Program Framework (1996), the learning readiness of students with ASD is examined through four neurodevelopmental areas: oral language, psychomotor, mental abilities and emotional organization. For the needs of this work, the neurodevelopmental area of spoken language will be highlighted.

2.3 Oral Language Skills

The neurodevelopmental area of spoken language includes the phonological, semantic and syntactic domains. Phonological development mainly refers to the differentiation of sounds to produce phonemes and their linking to produce words. Semantic development is linked to the acquisition of vocabulary so that the student can listen, understand what he hears and participate in the dialogue while waiting for his turn. Syntactic development follows an evolutionary process, which begins with the holographic expression through a word. Connecting two words is the beginning of the syntactic structure, followed by the formation of sentences with three words, etc. (Drossinou-Korea, 2017).

In particular, for students with SEN, like those with ASD, it is sought to cultivate their learning readiness in the area of oral language through listening activities, participation in dialogue and clear and precise expression (Drossinou-Korea, 2017).

Listening skills are related to hearing and perceiving a variety of sound stimuli (phonemes, syllables, words, sentences). Phonological development mainly refers to the differentiation of sounds to produce phonemes and their connection to produce words (Ministry of National Education and Religions-Pedagogical Institute, 2009). Therefore, the ability to distinguish sounds aurally is a prerequisite for the child's linguistic development at the phonological level. According to the Greek PAPEA (1996), students with ASD are assessed and supported with activities that focus on discrimination, recognition, imitation and production of letters, syllables, words and phrases, but also on listening and carrying out commands heard by students with ASD. Regarding the skills of participation in dialogue, the purpose of the activities is the communication of the individual with others, with the aim of the smooth psychological development of the individual and his social adaptation to the environment (2017). Through speech, students with ASD develop interpersonal relationships, express feelings, cooperate with others by following rules and, finally, integrate smoothly into their peer group, family, school and wider society (Drossinou-Korea & Panopoulos, 2018). Activities aimed at engaging in dialogue using words related to the content of the textbook and waiting their turn before answering questions about school subjects, thus helping to manage the student's spontaneous actions that usually create problematic situations, both for himself and his peers (Drossinou-Korea & Panopoulos, Strengthening social skills in students with an intellectual disability in secondary education, 2017). Finally, students with ASD are assessed and supported in activities of clear and precise expression with the aim of describing and narrating with words and sentences using appropriate verbs, adjectives, etc., as well as formulating questions related to the school subject (Christakis, 2006).

Students with ASD may present deficits in oral language, similar to those of students with speech and language impairments (Tager-Flusberg, Rhea, & Catherine, 2005; Nation, Clarke, Marshall, & Durand, 2004). Although delays and deficits in oral language are not core characteristics of children with ASD, they are nevertheless generally among the first symptoms of this special educational need (Durleman, Marinis, & Franck, 2016). According to Green and Scott (2011) speech disorders include problems in articulation (ie, substitutions, distortion, omissions, additions), fluency (ie, stuttering) and voice (ie, vocal quality, pitch, intonation) and linguistic disorders, however, include problems in the following areas: form (phonology, morphology, syntax), content (semantics) and function (pragmatics). Simms reports that upon entering kindergarten, approximately 7% to 8% of children have evidence of language impairment and are at significant risk of difficulty with language learning and social adjustment tasks as they progress through school. Difficulties in oral language are substantially and quantitatively below those expected for age, resulting in functional limitations in effective communication, social participation, academic performance, or occupational performance.

Stuart (2018) in his research on teaching interventions for ASD students, highlights the listening difficulties that this particular student group may present and refers to specific techniques that can be applied to support this group. Special education and

training teachers need to hold the student's attention before giving an instruction or asking a question. Also, it is necessary to keep in mind during the teaching intervention the longer processing time that the student needs and to avoid giving complex instructions and information. Also, it is beneficial to accompany the verbal information with pictures, visual programs, gestures, visual examples and written instructions so that they understand the spoken word. In addition, Stuart (2018) regarding the skills of participating in dialogue but also the skills of clear and precise expression argues that many students show some difficulties in word retrieval, even if they know an answer, they may not be able to find the words. Supporting students in these specific skills requires the use of visual stimuli to process information more easily and quickly. Also, it is useful to use scenarios in order for the students to participate in the dialogue by formulating clear and precise sentences. Also, teachers can teach the student how to ask for additional information (Who? What? Where? When? etc.). Finally, it is beneficial for them to use a communication board that will provide various communication options for students with low verbal ability.

3. Purpose of Research

Given the increasing number of students with ASD, school systems require pedagogical interventions that address the specialized learning needs of these children (Centers for Disease Control and Prevention, 2018). In a study by Thomaidis et al. (2020), the prevalence of students with ASD, aged 10 to 11 years, was recorded at 1.15% in Greece. Therefore, the purpose of this research is to highlight teaching interventions that enhance students' participation in language courses. Specifically, we investigate whether students with ASD in secondary education can cultivate oral language skills, so that they have an active role in the learning process of the general classroom. More specifically, the following is investigated in this work: whether students with ASD cultivate academic skills by participating in integrated differentiated teaching interventions that include both oral language activities (clear and precise expression, listening and participation in dialogue) and reading comprehension activities.

4. Method

The methodology used was action research in three general education schools in the Southern Region of Greece and lasted 3 years. The research was conducted in Greece by a second-class teacher who only supported students with special educational needs. Specifically, we conducted three case studies of students with an average age of 15.3 years.

4.1 Sample

The sample of the action research consists of three secondary school students with special educational needs based on their diagnoses by the competent Center for Educational and Counseling Support (CESY):

(A) Student

He is a 16-year-old student, who studied in the first grade of the general high school. The student has been diagnosed with Pervasive Developmental Disorder. According to his family history, he belonged to a family of four with high financial background. The parents' request was for the student to show more interest in the language course. In the previous school years, the student studied in the integration section of the High School. He had a good understanding of spoken language, however, he was unable to produce communicative speech and share information about his daily life. He had intermittent eye contact. He was not always able to maintain a dialogue with his classmates, as his attention was distracted by other stimuli. Cognitively, the student presented several deficits compared to his typically developing peers, as he had low levels of processing verbal and non-verbal visual-perceptual information. His reading comprehension was patchy even on short text with simple concepts. He could not adjust his reading speed to understand the content of the text. In the production of speech, he presented deficits that referred to a student of a lower developmental stage.

(B) Student

He is a 17-year-old student, studying in the first grade of the general high school. According to the opinion of the competent KESY, the student has been diagnosed with "serious neurological and orthopedic defects". Also, according to the Medical Evaluation Directorate of the Disability Certification Center of the Unified Social Security Agency, the student's total disability rate was 70%. More specifically, it is recorded that he presented "spastic paresis of the right upper extremity on the ground of cerebral palsy" and falls under the laws of paratetraplegia accompanied by mental retardation. The student was subjected to special physical therapy exercises every day. He belonged to a family of four with a low economic and educational level. The parents' request was for the student to "improve reading and writing skills." The student attended the first grade of Primary school when he was eight years old. In primary school, he had no support from a special education teacher, while in the three grades of high school he attended an integration department. The student showed a good understanding of spoken language, however, he often asked his interlocutor to repeat what he said, as he did not understand difficult concepts. Difficulties, however, were observed in the correct formulation of the spoken word at a syntactic and grammatical level. The student regarding the gross and fine faculties of the right leg and hand was non-functional, therefore when he walked he was supported by someone. Limitations in mental abilities are secondary difficulties due to the neurological problem he is dealing with. Therefore, he had difficulty performing cognitive tasks that require more complex processing, even though he exerted effort to

complete them. In reading, he was deficient in fluency, comfort, correct intonation and punctuation. He read syllabically without rhythm, transposing, omitting or adding letters or syllables. He did not answer comprehension questions adequately. He made logical arguments but did not fully develop them.

(C) Student

This is a student, 16 years old, who studied in the first grade of the general high school. The student has been diagnosed with "pervasive developmental disorder." In his spare time, he watched dinosaur movies or played video games such as "Jurassic World: the game". He belonged to a family of four with a high educational and financial background. The parents' request for the student was "to be effectively supported to be admitted to a school of higher education". The student had no support from a special education and education teacher in Primary School, while in the three classes of High School he attended an integration department. The student's speech was most often judged to be correctly formulated. However, he could not always engage in dialogue, as he did not wait his turn to speak, as he only referred to matters that concerned his interests. He asked questions and used negative and affirmative sentences at the right time, however verbal description and narration were judged to be limited. Usually, in the classroom, he chattered and did not focus his attention on the teacher of the general class. In terms of basic language skills, he could decode and encode words. However, when he read multisyllabic words he had difficulty pronouncing them and needed time to spell them internally and then read them aloud. The student's reading ability was characterized as average, as he read without rhythm, making intersentential pauses and without fluency. He was able to understand text with simple grammar and syntactic structure but struggled to find ways to process deeper meanings in the information he was given. He seemed happy and was kind.

4.2 Research Tools

In order to extract data, and informal pedagogical assessment was used with some checklists of basic skills (LEBD) concerning the neurodevelopmental areas of learning readiness for the spoken word. Oral language LEBDs include listening skills, clear and precise expression, as well as participation in dialogue during the teaching of literature courses.

Also, some LEBD of general learning difficulties concerning the philology courses were used. The completion of the specific LEVD concerns: (a) language skills regarding reading, writing and speech production, (b) skills in the neurodevelopmental areas of oral language, psychomotor, mental abilities and emotional organization, (c) math skills, such as numeracy, operations and problem-solving skills and (d) elements of positive, negative and delinquent behaviour.

The LEBDs are completed in an Excel file table as follows: the horizontal lines record the skills of each area, assessed according to the interactive pedagogical relationship and experience, for the student's performance in cognitive and academic skills, as well as functional and adaptive behavior skills. The vertical lines of the tables

record the semesters of study according to formal and compulsory education, on an ascending scale from the number 1 which corresponds to the first semester of standard schooling in kindergarten to the number 26 which corresponds to the second semester of standard schooling in the third grade of Lyceum. A horizontal solid line crosses the horizontal lines and is the "baseline", which corresponds to the student's current semester of study according to their chronological and school age. The researcher-educator of special education and education symbolically notes in the table the cell where he estimates that it corresponds to the level of achievement of each skill. When he completes this process a jagged line is created showing the student's highest and lowest deviation from the baseline. The special education and education researcher is asked to create three grid lines that record the student's performance during the initial, mid-term, and final informal educational assessments.

Finally, according to the observation methodology, the didactic interaction form was used as a research tool. In the didactic interaction form, the special education teacher makes diary entries through self-observation and peer observation, evaluating the educational process and the student's progress. In this way, he re-sets teaching objectives and re-feeds his teaching program. Field notes are recorded based on the rhyme between the self and the student and the pedagogical reflection, thoughts and feelings about what took place in each teaching intervention are recorded through cross-observation and self-observation.

4.3 Produce of Research

The action research was carried out in the general classroom by the second teacher, who specialized in the subject of special education and training. The research lasted three school years (27 months). In the first phase of the research, the special education teacher collected information to form a picture of the individual, school and family history for each case study. In the second phase, the informal pedagogical evaluation was carried out with LEBD in order to draw conclusions regarding the level of learning readiness and learning difficulties in the philology courses. During the third phase of the research, research-teaching objectives were defined for each case study, teaching steps, teaching materials as well as speaking activities. In the fourth phase, the teaching interventions were carried out for each student case study.

Regarding the first case study, the teaching intervention took place in the Greek language class two hours a week according to the weekly school schedule. The teaching and research goal was defined as "to read, understand and memorize with the help of visual conceptual aids 8 sentences (Verdana font, regular style, size 14) with 10 words answering comprehension questions clearly and accurately". Regarding the second case study, the teaching intervention took place in the History lesson. The teaching intervention took place 2 teaching hours per week according to the weekly school schedule. The teaching and research objective for the student was set to “read and understand a 10-sentence text (Verdana font, regular style, size 14) engaging in dialogue on topics related to historical events. Regarding the third case study, the teaching

intervention took place in the History lesson and was carried out twice a week according to the weekly timetable. The teaching and research objective for the student was set to "read and understand a 15-sentence text (Verdana font, regular style, size 14) by engaging in dialogue on topics related to historical events".

During the teaching interventions, the students received the following instructions: (a) explore the differentiated material, such as a dossier or work file (figure 6) (b) write their personal details, (c) place the cards with the day, the month and year where the teaching intervention takes place, (d) identified the start time of the teaching intervention, (e) listened or read the text with the visual conceptual facilitators without help, with little help, with help or with a lot of help from the teacher, (g) do the language skills enhancement activities and the escalating difficulty speaking activities that involved listening, expressing clearly and accurately, and engaging in dialogue. After the end of the teaching intervention, the researcher-educator of special education collected the qualitative documents, such as written texts, photographic or audio material, as well as videos, filled in the didactic interaction form, in which he recorded his pedagogical reflection through cross-observation and self-observation for each teaching intervention, and during the fourth phase, he proceeded to the intermediate informal pedagogical assessment of the students based on the LEBD, in order to re-evaluate his teaching program and redefine activities. In the fifth phase of the action research, the special education teacher collected data from the final informal pedagogical assessment for each student based on the LEBDs, as well as from the teaching intervention form, extracting results regarding the achievement or non-achievement of the teaching-research objective for each student.

5. Results

The students of the action research studied in the first grade of the Lyceum of the first semester (21st semester). According to the initial informal pedagogical assessment, a large deviation from the students' study grades was observed in some oral language skills. Specifically, the greatest discrepancy was observed in the area of clear and precise expression, such as description and narrative skills. Furthermore, deficits were observed mainly in skills of participation in dialogue, such as the formulation and reconstruction of arguments. After the completion of the teaching interventions in the course of history and the Greek language, mainly an improvement was found in listening, recognizing and understanding course terms (18 o semester: second grade of middle school, second semester), in the formulation and expression of extended sentences and in the skills of description and narration (16th semester: first grade of middle school, second semester). Also, in the skills of participation in dialogue, an improvement was observed in the exchange of information between students (17th semester: second grade of middle school, first semester) and in the formulation and reconstruction of arguments (14th semester: sixth grade of primary school, second semester).

Table 1: Neurodevelopmental skills in learning readiness

Skills of oral language	**Semester basis of students**	**Average semesters of FIPE**	**Average semesters of FIPE**
Listening in Greek language and history courses			
1. Follow simple or complex oral instructions to participate in the lessons.	21 (First grade of first semester high school)	20	20
2. Follow simple or complex oral directions for activities.		19	19
3. Listening and understanding of narratives that refer to the courses.		18	18
4. Listening, recognizing and understanding course terms		17	18
Clear and precise expression in Greek language and history courses			
1. To be expressed in simple sentences	21 (First grade of first semester high school)	18	19
2. To be expressed with complex sentences		17	18
3. To be expressed with augmented sentences		16	18
4. Answer comprehension questions using up to 15 word cards		17	17
5. Answer comprehension questions using up to 15 visual conceptual facilitators.		18	20
6. Answer comprehension questions with the help of reasoning tables		15	17
7. Describe an event using up to 15 keywords related to the courses		14	16
8. To narrate (beginning, middle, end) using up to 15 keywords related to the courses		14	16
Participation in a dialogue in Greek language and history courses			
1. Waiting his turn to speak during teaching.	21 (First grade of first semester high school)	20	20
2. Use specific words or phrases to participate in a dialogue (eg sorry, please, thank you)		19	20
3. Expression of feelings and questions related to the courses		17	18
4. To give and get information to his classmates.		15	17
5. Formulation and reconstruction of arguments.		13	14

During the initial informal pedagogical assessment, in the LEDBs of general learning difficulties in history and the Greek language, a greater deviation from the baseline (students' study line: 21st semester) was found, mainly in comprehension and writing. Specifically, in the first student case study (black line) comprehension skills ranged in the

13th semester of study (sixth grade of primary school, A' semester). In the second student case study (blue line) reading comprehension skills fluctuated in the 12th semester of study, while in the third student case study (red line) the student's level of comprehension was observed to correspond to the 15th semester of study (first-grade middle school, A ' semester) (Figure 2).

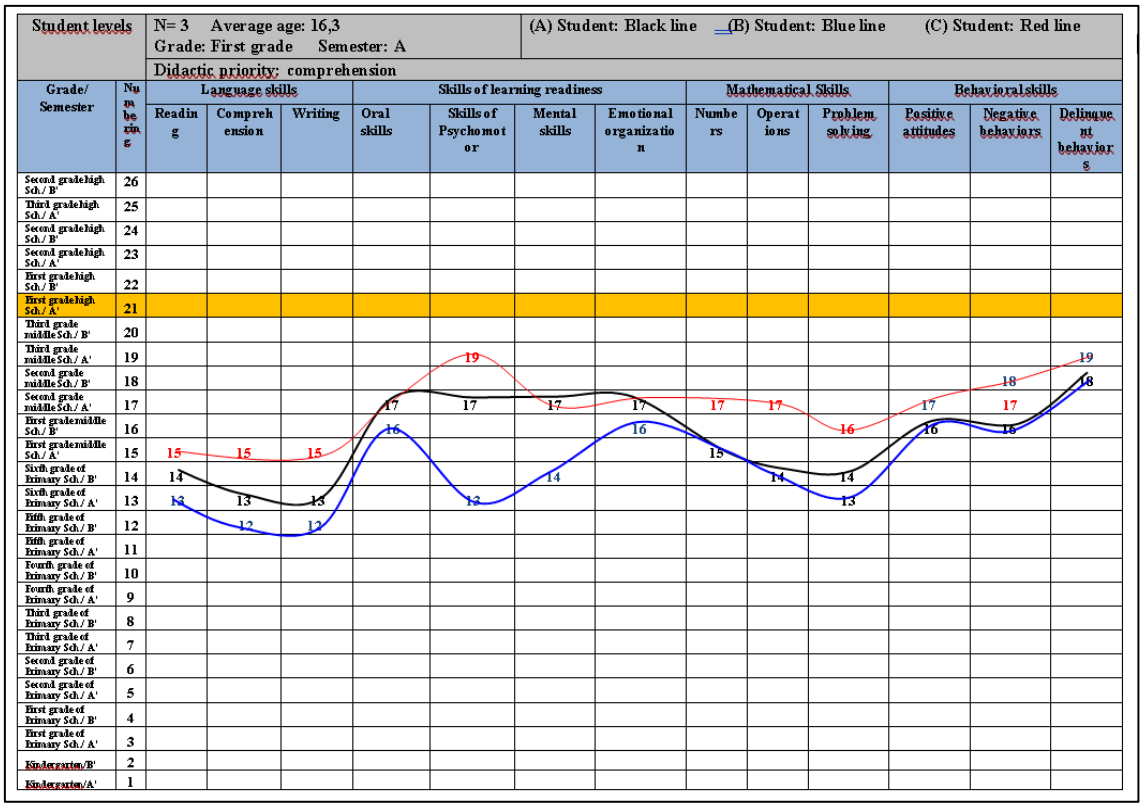
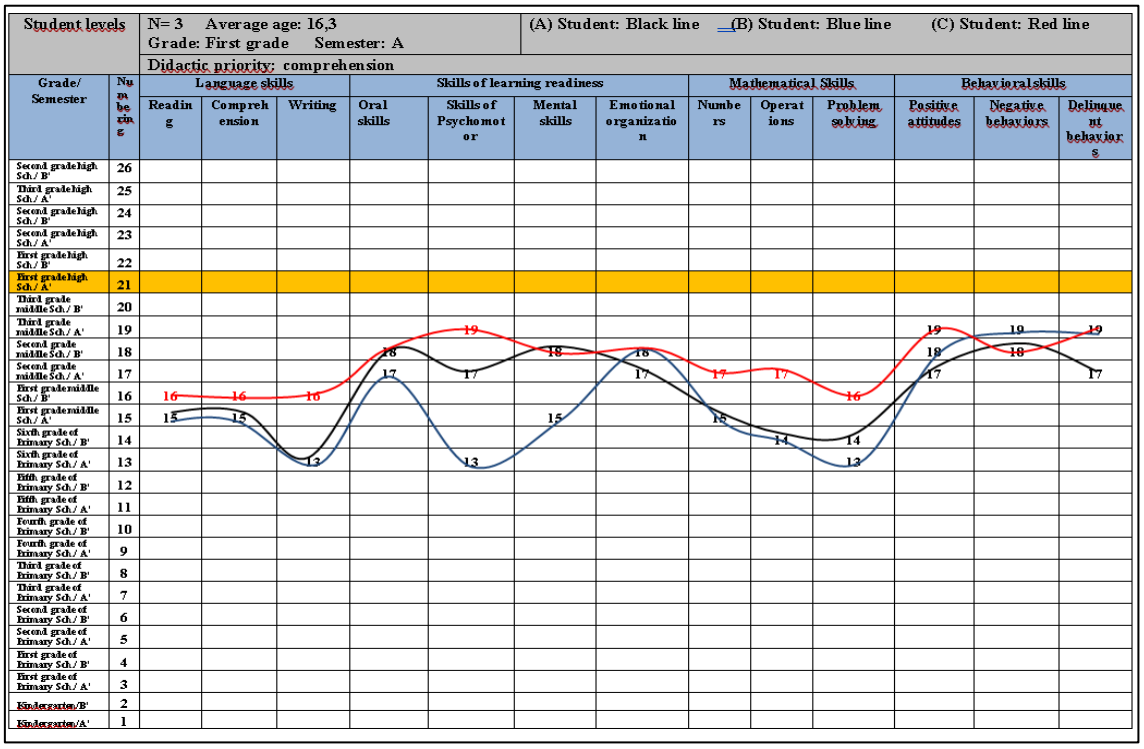


Figure 1: Checklist of basic skills of general learning difficulties.
Initial pedagogical evaluation of the three students

According to the observations in the final informal pedagogical evaluation, it was found that the students improved in the Greek language and history course mainly in reading and comprehension through activities that cultivated their oral language. The first student (black line) in comprehension skills made progress in three semesters of study (15th semester). The second student (blue line) improved by two semesters, while the third improved by one semester (16th semester) (Figure 2).



Student levels	N= 3 Average age: 16,3 Grade: First grade Semester: A							(A) Student: Black line	(B) Student: Blue line	(C) Student: Red line			
	Didactic priority: comprehension												
Grade/ Semester	Numbering	Language skills			Skills of learning readiness				Mathematical Skills			Behavioral skills		
		Reading	Comprehension	Writing	Oral skills	Skills of Psychomotor	Mental skills	Emotional organization	Numbers	Operations	Problem solving	Positive attitudes	Negative behaviors	Delinquent behaviors
Second grade high Sch./ B'	26													
Third grade high Sch./ A'	25													
Second grade high Sch./ B'	24													
Second grade high Sch./ A'	23													
First grade high Sch./ B'	22													
First grade high Sch./ A'	21													
Third grade middle Sch./ B'	20													
Third grade middle Sch./ A'	19													
Second grade middle Sch./ B'	18													
Second grade middle Sch./ A'	17													
First grade middle Sch./ B'	16													
First grade middle Sch./ A'	15													
Sixth grade of Primary Sch./ B'	14													
Sixth grade of Primary Sch./ A'	13													
Fifth grade of Primary Sch./ B'	12													
Fifth grade of Primary Sch./ A'	11													
Fourth grade of Primary Sch./ B'	10													
Fourth grade of Primary Sch./ A'	9													
Third grade of Primary Sch./ B'	8													
Third grade of Primary Sch./ A'	7													
Second grade of Primary Sch./ B'	6													
Second grade of Primary Sch./ A'	5													
First grade of Primary Sch./ B'	4													
First grade of Primary Sch./ A'	3													
Kindergarten/B'	2													
Kindergarten/A'	1													

Figure 2: Checklist of basic skills of general learning difficulties.
Initial pedagogical evaluation of the three students

Also, according to the didactic interaction form, the students actively participated in the process of the two lessons. The differentiated pedagogical material enhanced their interest in learning and increased their concentration of attention. Regarding the speaking activities to support listening, the students listened carefully to the texts read by the teacher-researcher. Then, they placed on each text the appropriate visual conceptual facilitator according to the degree to which they understood the text (Figure 3). Regarding speaking activities to support clear and precise expression, students were asked to place the appropriate cards with words in order to form simple, complex or extended sentences. In this way, students learned to formulate arguments with the help of visual conceptual facilitators for various social or educational topics (Figure 4). Regarding the dialogue participation activities, the students answered with the help of visual conceptual facilitators questions that were written on cards and related to the content of the lessons (Figure 5).

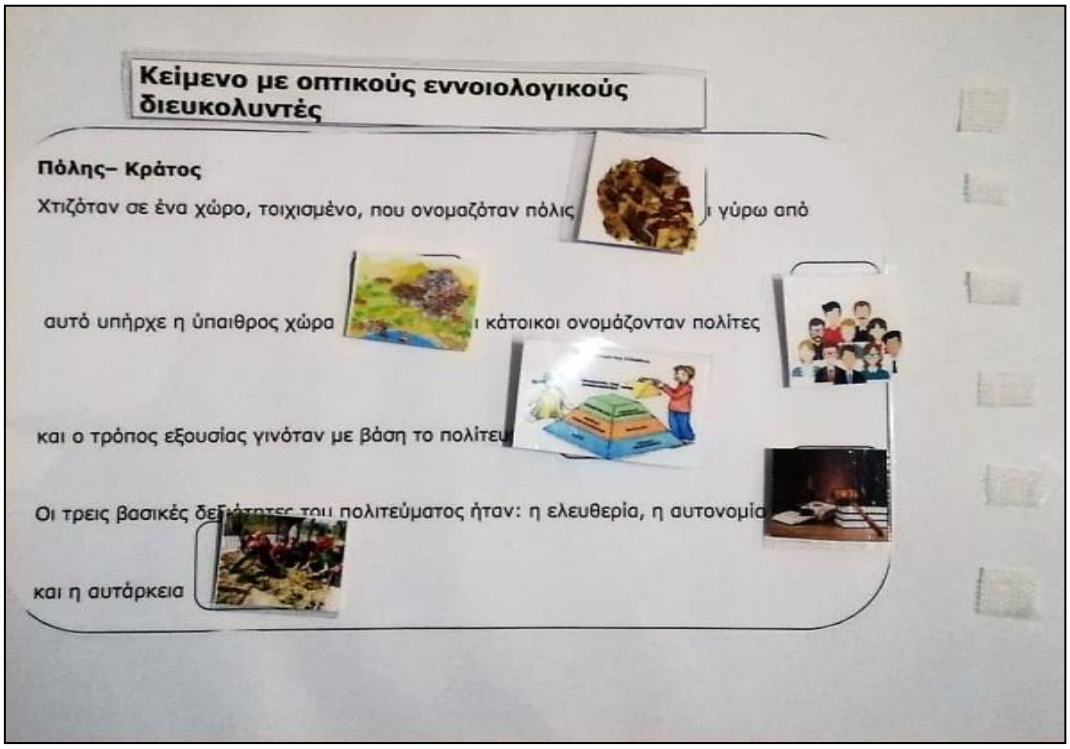


Figure 3: Differentiated text with visual conceptual facilitators

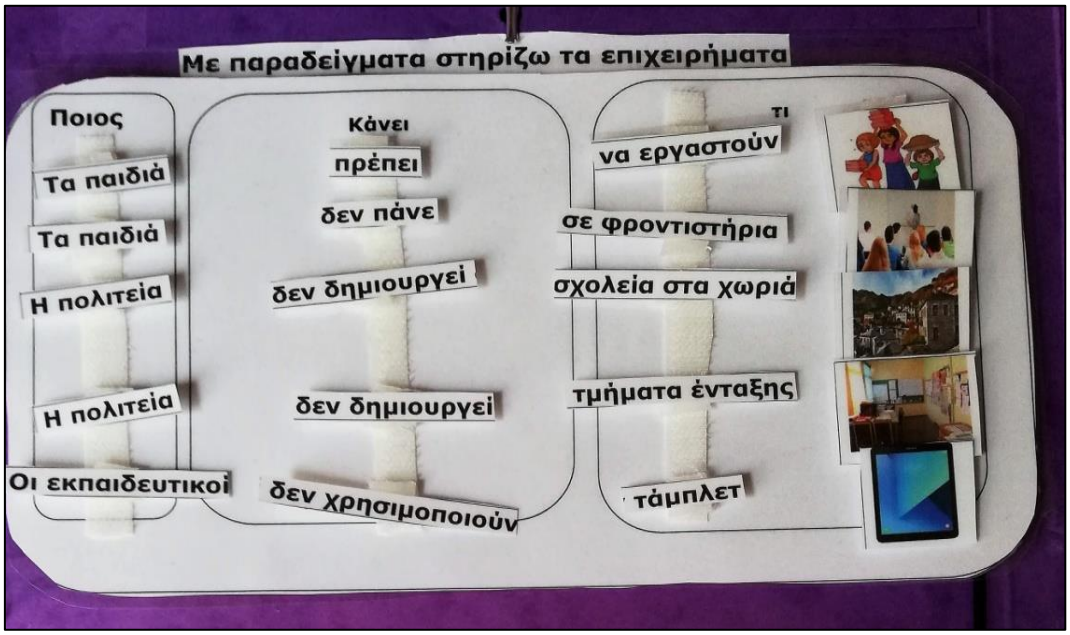


Figure 4: Students form simple sentences by placing mobile cards with subjects, verbs and objects

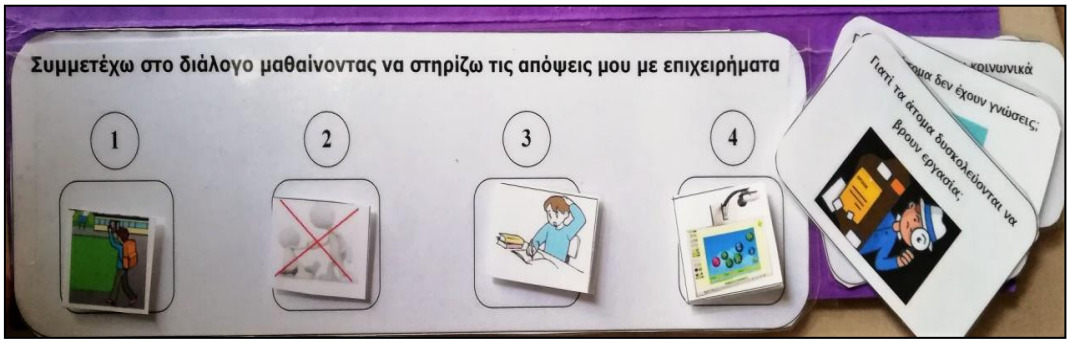


Figure 5: Students engage in dialogue in the form of quizzes learning to support or reconstruct arguments

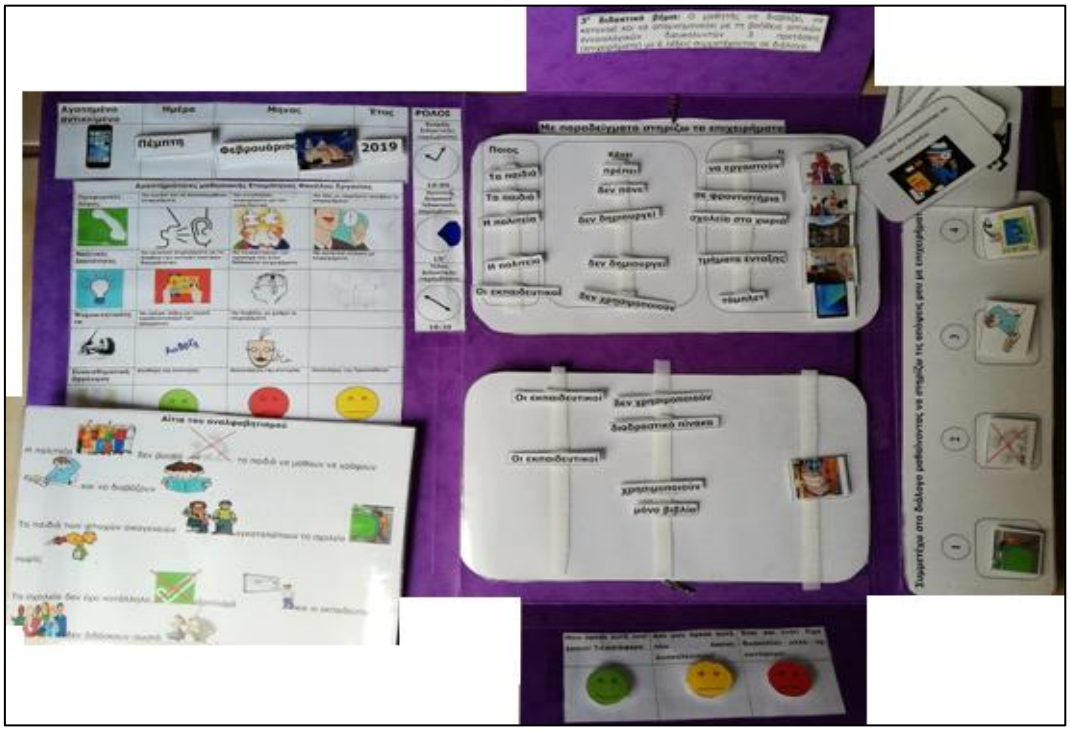


Figure 6: Differentiated pedagogical material: Structured folder

6. Conclusions

Students with ASD face problems in their active involvement in the teaching of secondary education subjects. Their learning readiness in terms of oral language may be assessed considerably lower than the levels at which their peers without special educational needs are assessed. Oral language skills such as listening, engaging in dialogue, as well as clear and precise expression skills are a key factor in their performance in school subjects that require good reading comprehension.

In an article by Dromi, Rum and Florian (2018) with regard to the communication of young people with autism with ASD, their spoken language may range from very low levels of listening and understanding, clear and accurate expression and production, and participation in the dialogue. Still, according to research estimates, as they emphasize, 15-20% of people with ASD fail to learn even single words for communication purposes,

while about 50% face difficulties in expressive skills until adolescence, such as phonology, syntax, grammar, semantics and pragmatics. Indicatively, students with ASD present difficulties with grammar and syntax rules as a result of which they fail to produce or understand connected speech (for example sentences with a specific structure: Subject, Verb, Object or questions of the type, Who, Where, When, Why ,- WH-questions). Also, they show problematic switching between transmitter and receiver roles (e.g., I wait my turn to speak), use inappropriate words, literal interpretation of language, and finally, fail to develop and maintain a topic of conversation (Rapin, 1996; Adams, 2001). Through the informal pedagogical evaluation in the sample of our research, the above difficulties faced by students with ASD in the course of History and Greek Language were found.

Also, in this research, it was found that students with ASD show limitations in reading comprehension, as they have not mastered the levels of learning readiness in oral language required for their age. Norbury and Nation (2011) believe that reading comprehension outcomes in children with ASD are related to oral language skills that support the development of these processes so that deficits in oral language are closely related to reading comprehension deficits. Bishop and Snowling (2004) state that decoding ability is supported by phonological language skills, while comprehension is supported by non-phonological language skills. These may include structural language skills such as semantics (word knowledge) and grammar, as well as higher-level comprehension processes such as inference.

Finally, in the present research, it was shown that students with ASD can be actively involved in the learning process by achieving satisfactory performance in reading comprehension and oral language through an integrated pedagogical material that includes differentiated reading and oral language activities. As it has been accepted by other researches, in secondary education the differentiated teaching method is an educational proposal to support students with neurodevelopmental difficulties in basic academic skills related to secondary education courses (Panopoulos & Drossinou-Korea, 2019).

In conclusion, we conclude about pedagogical practices for students with ASD in secondary education:

- Informal pedagogical assessment of students with ASD in secondary education courses to assess their ability in reading and oral language skills is considered particularly useful.
- Students with ASD need to enhance their learning readiness in terms of listening skills, participation in dialogue, as well as clear and precise expression skills in order to cope with the demands of the curriculum as defined for school subjects.
- With the appropriate differentiated pedagogical material, students with ASD maintain their attention and can be supported simultaneously in oral language and reading comprehension skills (Figure 6).
- The use of visual conceptual facilitators in texts and their gradual removal helps students to understand the basic meanings of the texts (Figure 3).

- Simple commands and instructions prompt students with ASD to listen and understand information.
- Students with ASD can formulate their thoughts correctly using the grammar of words and the construction of sentences with the help of flash cards (Figure 4).
- Students with ASD actively participate in dialogue by answering questions in the form of a quiz (Figure 5).

Acknowledgement
We would like to thank the parents of the students who gave us permission to conduct the action research.

Conflict of Interest Statement
The author declares no conflicts of interest.

About the Authors
Nikolaos Panopoulos holds a doctorate in special education and training from the University of Peloponnese in Greece. He has been working as a teacher in Secondary schools for six years. Furthermore, he teaches courses at the Speech Therapy Department of the University of Peloponnese, such as: a. Special education and training I: Early Intervention, b. Special education and training II: Learning Readiness.
Maria Drossinou-Korea is an assistant professor of special education and education at the Department of Philology at the University of Peloponnese. He holds a PhD in clinical psychology from Panteion University in Athens. He worked for many years as the head of the Hellenic Pedagogical Institute and is the author of two books with the following titles: a. Handbook of special education and educational narratives, b. Special education and training. The "through" special education proposal for the education of children and young people with special needs.

References

Adams, C. (2001). Clinical diagnostic and intervention studies of children with semantic–pragmatic language disorder. *International Journal of Language and Communication Disorders, 36* , pp. 289–305.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM V)* (5th ed.). Washington: American Psychiatric Publishing.

Bishop, D., & Snowling, M. (2004). Developmental dyslexia and specific language impairment: same or different? *Psychological Bulletin, 130*, pp. 858–886.

Brown, H., Oram-Cardy, J., & Johnson, A. (2013). A meta-analysis of the reading comprehension skills of individuals on the autism spectrum. *Journal of Autism and Developmental Disorders, 43* (4), pp. 932–955.

Centers for Disease Control and Prevention. (2018). Autism Spectrum Disorder (ASD) prevalence statistics, morbidity and mortality weekly report. *Surveillance Summaries, 67* (6), pp. 1-23.

Christakis, K. (2006). *The education of children with difficulties.* Athens: Atrapos.

Dromi, E., Rum, Y., & Florian, J. (2018). Communication, language, speech in young children with autism spectrum disorder (ASD). In *Handbook of Communication Disorders.* Berlin: 811-828.

Drossinou-Korea, M., & Panopoulos, N. (2018). Language skills for the sexual education in individuals with intellectual disability. *International Journal of Latest Research in Humanities and Social Science, 1* (4), pp. 67-76.

Drossinou-Korea, M. (2017). *Special education and training. The "through" special education proposal for the education of children and young people with special needs.* Patras: Opportuna.

Drossinou-Korea, M. (2020). *Handbook of special education and educational narratives.* Patras: Opportuna.

Drossinou-Korea, M., & Panopoulos, N. (2017). Strengthening social skills in students with an intellectual disability in secondary education. *Sino-US EnglishTeaching, 14* (6), pp. 345-359.

Durrleman, S., Marinis, T., & Franck, J. (2016). Syntactic complexity in the comprehension of wh-questions and relative clauses in typical language development and autism. *Applied Psycholinguistics, 37* (6), pp. 1501-1527.

Fleury, V., Hedges, S., Hume, K., Browder, D., Thompson, J., Fallin, K., & Vaughn, S. (2014). Addressing the academic needs of adolescents with an autism spectrum disorder in secondary education. *Remedial and Special Education, 35* (2), pp. 68-79.

Green, S., & Scott, C. (2011). The history of speech and language impairments. In *History of Special Education* (pp. 120-149). Emerald Group Publishing Limited.

Henry, A., & Solari, E. (2020). Targeting Oral Language and Listening Comprehension Development for Students with Autism Spectrum Disorder: A School-Based Pilot Study. *Journal of Autism and Developmental Disorders, 50*, pp. 3763-3776.

Millians, M. (2011). Learning Readiness. In S. Goldstein, & J. Naglieri, *Encyclopedia of Child Behavior and Development.* Boston: Springer.

Ministry of National Education and Religions-Pedagogical Institute. (2009). *Special education and training teacher's book, learning readiness activities.* (M. Drossinou, Ed.) Athens: Organization for the Publication of Textbooks.

Nation, K., Clarke, P., Marshall, C., & Durand, M. (2004). Hidden language impairments in children: parallels between poor reading comprehension and specific language impairment? *Journal of Speech, Language and Hearing Research, 47* , pp. 199–211.

Norbury, C., & Nation, K. (2011). Understanding variability in reading comprehension in adolescents with autism spectrum disorders: Interactions with language status and decoding skill. *Scientific Studies of Reading, 15* (3), pp. 191-210.

Panopoulos, N., & Drossinou-Korea, M. (2019). Teaching Intervention to Support Reading Skills in Students with Intellectual Disability. *Open Journal for Studies in Linguistics, 2* (1), pp. 19-34.

Rapin, J. (1996). Practitioner Review: Developmental language disorders: a clinical update. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 37* , pp. 643–655.

Ricketts, J., Jones, C., Happé, F., & Charman, T. (2013). Reading comprehension in autism spectrum disorders: The role of oral language and social functioning. *Journal of Autism and Developmental Disorders, 43* (4), pp. 807-816.

Roycroft, H. (2015). Autism Spectrum Disorder and Reading Comprehension: Challenges and Implications in the Primary School. *Journal of Special Needs Education in Ireland, 29* (1), pp. 55-65.

Solari, E., Grimm, R., McIntyre, N., Zajic, M., & Mundy, P. (2019). Longitudinal stability of reading profiles in individuals with higher functioning autism. *Autism, 23* (8), pp. 1911-1926.

Solari, E., Henry, A., McIntyre, N., Grimm, R., & Zajic, M. (2020). Testing the effects of a pilot listening comprehension and vocabulary intervention for individuals with autism. *Research in Autism Spectrum Disorders, 71*, pp. 101500-101513.

Sousa, D., & Tomlinson, C. (2011). *Differentiation and the Brain, How Neuroscience Supports the Learner-Friendly Classroom.* Bloomington: Solution Tree Press.

Special Education Curriculum Framework. (1996). *Journal of the Government of the Hellenic Republic, 208* (1), 4041-4076.

Stuart, S. (2018). Interventions for Students with Autism. In *Viewpoints on Interventions for Learners with Disabilities.* Emerald Publishing Limited.

Tager-Flusberg, H., Rhea, P., & Catherine, L. (2005). Language and Communication in Autism. In *Handbook of Autism and Pervasive Developmental Disorders* (pp. 335-364). John Wiley & Sons.

Thomaidis, L., Mavroeidi, N., Richardson, C., Choleva, A., Damianos, G., Bolias, K., & Tsolia, M. (2020). Autism Spectrum Disorders in Greece: Nationwide Prevalence in 10–11 Year-Old Children and Regional Disparities. *Journal of Clinical Medicine, 9* (7), pp. 2163-2183.

World Health Organisation. (2019). International Statistical Classification of Diseases and Related Health Problems. (11). Retrieved from https://icd.who.int/en