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METACOGNITIVE SKILLS IN UNIVERSITY STUDENTS WITH AND WITHOUT AUTISM SPECTRUM DISORDERS

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Abstract:
Students with and without autism spectrum disorders (ASD) receive support and general and special education services in the classrooms of theoretical and laboratory courses at universities. The present study aimed to refer to the training of cognitive skills with students supported by Targeted, Individual Structured Integration Interventions of Special Education and Training (TISIPIf [SET]). In the hypotheses of the present, the content of the metacognitive skills in relation to assessing the degree of difficulty in understanding the course and whether it affects the individual method of study was investigated. Furthermore, the positive perceptions of peers were examined that are reflected in positive emotional thinks. They formed into experiential interactions through the individual and small group works of students with and without Autism Spectrum Disorders [ASD]. [N=100] students from the Agricultural University of Athens [AUA] participated in group workshops on memory techniques in the academic year 2021-2022. They were grouped into (N = 20 students) who were diagnosed with ASD and (N = 80) without ASD. According to the content of the pedagogical tool TISIPfSEN has examined the academic achievements, psychosocial disability and aggressive behaviours were discussed in individual Special Education sessions. The results showed no significant differences between the two groups in metacognitive skills in metaperceptual behaviours, with the exception of metacognitive skills in the individual study method they are using in the courses and their academic success scores in them. All the students improved with the individual interventions of SET. The results are discussed in light of current approaches to supporting students with ASD in universities.

Keywords: autism spectrum disorder, inclusive special education, training, university

1. Introduction

The general framework of people with autism spectrum disorder (ASD) comprises a description of persons who often have problems with social communication and

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interaction, and restricted or repetitive behaviours or interests (APA, American Psychiatric Association, 2013). Autism is a developmental disability caused by differences in the brain. Students with ASD who are arriving at universities may also have different ways of learning, moving, or paying attention. In this section, the definitions and principles study background information for young people with peculiarities as they are with ASD. Between the primary issues and controversies in their transition from childhood to student life, the way in which they are treated by their peers becomes more and more evident for those who have been diagnosed with ASD and without (Winnicott, 2016).

According to studies on the theory of emotional development, students broaden their self-identities and develop skills that make them socially (Wright, et al., 2014) and academically successful when maturing processes are accompanied by an enabling environment (Drossinou Korea, 2022).

Researchers from the University of Miami, Coral Gables, in Florida, USA, from the University of Waterloo, in Canada and from the University of Wisconsin-Madison Waisman Center in the USA have researched what people think about the way their peers evaluate in the laboratory, in the classroom and online (Usher et al., 2018). However, little is known about the degree of accuracy among post-adolescent students, particularly those with autistic spectrum disorder (ASD). These surveys take into account ethical standards for ethical approval. All procedures are carried out in studies involving human subjects in accordance with the 1964 Declaration of Helsinki and subsequent amendments to comparable ethical standards.

Although focusing on communication and interaction requires considering interpersonal and relationship dynamics, focusing on deficits or inadequacies of normative characteristics seems to form the basis of autistic disability, which has focused on research on education and therapy at the individual level (Synodinou, 2007). Indeed, deep literature has accumulated that narrates (Drossinou Korea, 2020: 859-895) how social skills differ in people with ASD from non-autistic ones with systemic investigations into their neurology, cognitive ability and behavior (Morrison, et al., 2020). A wide variety of intervention programs in Greece (Christakis, 2011: 190-229) (Hellenic Society for the Protection of Autistic People, 2022; Francis, et al., 2021) and France (Ciccone, 2019, Drossinou–Korea, 2016) has been developed using this evidence base to try to normalize individual characteristics with the assumption that doing so can reduce or mitigate autistic disability (Pallathra, et al., 2019). For adults with ASD without intellectual disabilities, (Pickard et al., 2021) most of these programs are psychosocial in nature and target three main areas of social competence: [1] social knowledge, [2] social skills, and [3] social motivation. Each has been identified as a basic autistic deficit and is considered to be the basis of the social isolation and reduced quality of life that autistic adults often face (Morrison et al., 2020).

Metacognitive skills in students with autism spectrum disorders utilize social knowledge that refers to the perception and interpretation of social information. These are considered to include (Drossinou Korea, 2022) exercises on social perception,

prioritization and detection of social information, recognition of emotions, and precise determination of the emotional state of others. and according to the theory of mind includes exercises to infer the thoughts and intentions of other people (Happé, 1994). The surprisingly small number of studies that have empirically tested this hypothesis (Hellenic Society for the Protection of Autistic People (H.A. f P.As.), 2022) have not tested whether training in cognitive skills in students with ASD demonstrates important correlations with social interaction in the real world for autistic adult students (Drossinou Korea, 2019).

Since social knowledge is often aimed at improving teachers, psychosocial interventions as a means to enhance social knowledge discuss individual social and cognitive performance in the courses by examining their academic curriculum at the University (Drossinou Korea, 2018).

1.1 The purpose

The purpose of this study was to understand the perception and meta-perception abilities of post-adolescent students with and without ASD in interactions with unknown peers. For this purpose, monthly micro group meetings in the memory techniques workshops were used with self-reference training exercises focusing on the metacognitive skills applied by students to the individual study method. At the same time, perceptions were examined in relation to the observed social interactive capacity emerging in the peers. In the hypotheses of this, the content of metacognitive skills regarding the assesses the degree of difficulty in understanding the course and how this affects the individual method of the study were investigated. Furthermore, the positive perceptions of the students reflected in the experiential interactions that developed during their participation were examined. in individual and micro group projects of university students with and without [ASD].

2. Literature review

2.1 Theoretical background

During social interactions, people interpret behaviors in order to form perceptions of others. Hetero-observations of peer students with or without ASD assess the factors associated with observed social ability when interacting with an unknown fellow student entrusted with the role of "host" partner (Golan et al., 2007).

Meta-perception is defined as the ability to form ideas about what the social partners think of us during social interactions (Laing et al., 1966). At the core of a diagnosis of [ASD] are the challenges of social communication (American Psychiatric Association, 2013), which may worsen during the transition from high school to university or during studying in it. Problems with meta-perception may be related to the social communication problems evident in binary social interactions in ASD and may be particularly evident during this critical (Wright, et al., 2014) post-adolescent student period.

2.2 Interpersonal perception and meta-perception

The theoretical approach to interpersonal perception was discussed in the research method by Laing's team (Cooper, 2009) which coined the term (Laing, et al., 1966) meta perception. This refers to the ability of one person to take into account the impressions of another person with whom he interacts. The meta-perception, sometimes referred to self-evaluation of behavior into relationship with other (Pfeifer, et al., 2009). It includes the ability to see oneself from the other person's perspective and is usually evaluated in binary interactions (Cooper, 2005).

The theory of mind (Baron-Cohen, 2001) also refers to the ability of the individual to attribute mental states such as beliefs and feelings towards oneself and others, while meta-perception, which is a more advanced skill involves the integration of the self with other perceptions. Since the theory of mind does not take into account all the variations in academic and social competence, however, other intra-individual characteristics of the person with ASD are required to be involved (Golan et al., 2007). These run through the psyche from the earliest stages to development, when children form mental representations that allow the interpretation of the mental states of others (Synodinou, 2007). By middle childhood, children are able to form ideas about what other children think of them (Drossinou Korea, & Alexopoulos, 2023). Reputation management during adolescence and post-adolescence focuses on what peers think of them as they develop advanced concepts about themselves and continue to develop their reputation management skills (Drossinou Korea, 2019).

3. Methodology

3.1. The pedagogical tool TISIPIf [SET]) and metacognitive skills

The present study is research in the field of special education, utilizing the well-founded theoretical perspective in the collection, recording and analysis of data from individual SET sessions and micro group meetings with university students who come with the request to address the mnemonic difficulties they encounter in their individual study method in the courses they attend and intend to be examined. Metacognitive skills are taught in accordance with the pedagogical principles and philosophy of inclusive education formulated in the Framework of Analytical Program Special Education (FAPSE) (Ministry of Education-Pedagogical Institutel, 1996). Academic and social competences are approached in the educational curriculum of interventions with metacognitive skills in university students and in female students supported by Targeted, Individual Structured Integration Interventions of Special Education and Training (TISIPIf-[SET]) (Drossinou Korea, 2017: 305-377).

In these, the methodologies of observing autistic behaviors are applied in order to formulate realistic individual goals of educational intervention with emphasis on the metacognitive skills they learn in students who seek help in their individual study to realize a series of issues mentioned:

- the nature and distinction of the course in theory or laboratory;

- the degree of difficulty in understanding the course;
- the routines of the individual study method;
- the degree of concentration of attention in the study;
- exploring the way of evaluation in the exams;
- the expression of the emotions experienced in interactive relationships at the time of the individual study of the course before the exam, during the examination and after the end of the examination;
- the negotiation of specific learning difficulties with professors.

3.2. Participants

100 students who participated in ten [10] micro group laboratories of mnemonic techniques at the Agricultural University of Athens [AUA] in the academic year 2021-2022. They were grouped into (N = 20 students) who were diagnosed with ASD and (N = 80) without ASD. The mnemonic techniques are parts of the educational interventions and exercise university students in metacognitive skills according to the pedagogical considerations that govern the content of TISIPIf-[SET]. These mnemonic techniques are identified by individualized objectives through metacognitive exercises focused on understanding the individual method of study, and recognizing the integration in the academic community. Emphasized on the transactions between students who interact educationally on the premises of the Faculties of the University. The participating students with ASD were 17 men and 3 women with an Average Age of 21.8 years. They have applied to the Student Welfare for facilities in their way of teaching and examination of the courses they receive in the framework of the Academic Program of Study. Also, these university students have been supported with individual Special Education and training sessions focusing on discussion topics, as listed below.

- Topic 1: Acquaintance with the student
- Topic 2: Request to student care for facilitation of exams.
- Topic 3: Individual study method – courses based on e.g. Winter/Spring semester program: metacognitive skills
- Topic 4: Examination schedule and Individual study method. Management of specific learning difficulties - concentration on attention.
- Topic 5: Participation in the workshop on mnemonic techniques with discussion on "Mnemonic functions and efficient study at the University with emphasis on coding".

  Finally, were discussed;
- the academic achievements,
- what it means the psychosocial disability, as well as
- the content of aggressive and delinquent behaviors in some cases of social interactions between university students.

3.3. The process of collecting data and the content of metacognitive skills

The methodology of hetero observations and informal pedagogical assessment of special educational needs is personalized [T-[I]ndividual] -SIPIf-[SET] to the university student with ASD regarding the assessing the degree of difficulty in understanding the course and the way they affect the individual method of study. Hetero-observations are reflected in the autistic behaviors that occur during interactive meetings with others, whether they are fellow students, professors, and staff of the University with which they deal. These are entered into exit tables, in some columns, with Basic Skills Checklists [BSCLs] and given the Diagnostic Statistical Manual on Intellectual Disabilities [DSM-5, American Psychiatric Association, 2013).

The data collection aims to understand and formulate the didactic intervention priorities based on the considerations of the pedagogical tool, defined by the acronym as [T-[I: individual]-[S: Structured Teaching]-[I: Integration Interventions]-[P program]- [SE: Special Education]-[T: Training] in the content of metacognitive skills. Table 1 shows that teaching priorities are set individually to a certain student, focusing on social skills that are metacognitively supported, seeking to learn to recognize and realize the importance of creating and maintaining friendships with their fellow students [1] but also to learn to acquire flexibility in thinking skills in daily transactions with them [2].

According to this data collection process, the content of metacognitive skills is recorded empirically with the individual skills in the way of learning, the way of memorisation and the way of communicating with fellow students and professors. In the continuum, we present a table [see Table 1] with the skills from a student with [ASD], aged 20 years who is in the 2-year and first semester of study with a baseline of the (29th) semester and the numbering of semesters in the linear continuum of educational and teaching interventions with the first semester in kindergarten as the starting point.

The content of metacognitive skills is defined by four thematic sections of hetero observations referring to the metacognition of skills [see Table 1] focusing on behaviors recorded in:

1) Social skills are recorded in social interactions, forming friendships, maintaining friendships, and understanding friends.
2) Communication skills are recorded in spoken language, verbal communication and body language.
3) Thinking skills are recorded in speech meaning, flexibility, imagination and creativity.
4) Academic skills are recorded in reading, comprehension, writing, painting and programming.

The data collection process includes the calculation of the average of deviations from the baseline. In Table 1, the average deviations of the semesters are calculated at the 12th semester from the 29th semester in which the student in question is located, i.e. 17 semesters downwards. This means that the levels of autistic difficulties are more than 60% corresponding to only the second semester of the fifth grade of primary school, while

the student is in and attends the academic course in the first semester of the second year at the University.

Peer Observations and Informal Pedagogical Evaluation	Student Name Petros Date Born: 2002 Age: 20 Class: 2nd Semester: 1st (29) Date: 17/12/2021													
	LEVELS (LINE) OF AUTISTIC DIFFICULTIES WITH DSM [5]. MEAN RANGE OF DEVIATIONS 12 of 29 semesters													
	Teaching Priorities: Social Skills- builds friendships [1] and Thinking Skills[2]													
	Social Skills			**Communication Skills**				**Thinking Skills**			**Academic Skills**			
Linear continuum of educational interventions for a student with ASD	**Social Interactions**	**Making friendships**	**Maintaining friendships**	**Understanding friends**	**Oral Language Verbal**	**Communication**	**Body Language**	**Meaning of Speech**	**Flexibility Imagination**	**Creativity**	**Reading-Comprehension**	**Writing-**	**Drawing Programming**	**Programming**
2nd semester of 2university years [30]														
1rst semester of 2university years [29]	29	29	29	29	29	29	29	29	29	29	29	29	29	29
2nd semester of 1university years[28]														
1rst semester of 1university year [27]														
2nd semester of 3 Luceum 26]														
1rst semester of 3 Luceum [25]														
2nd semester of 2 Luceum [24]														
1rst semester of 2 Luceum [23]														
2nd semester of 1 Luceum [22]														
1rst semester of 1Λυκείου [21]														
2nd semester of 3rd hight school [20]														
1rst semester of 3rd hight school[19]														
2nd semester of 2nd hight school[18]												19		
1rst semester of 2nd hight school [17]														
2nd semester of 1rst hight school [16]														
1rst semester of 1rst hight school [15]														
2nd semester of 6 primary class [14]	15							15						
1rst semester of 6 primary class [13]														
2nd semester of 5 primary class [12]	12	12	12	12	12	12	12	12	MEAN RANGE OF DEVIATIONS 11,			12	12	12
1rst semester of 5 primary class [11]														
2nd semester of 4 primary class [10]					10		10		10					10
1rst semester of 4primary class [9]														
2nd semester of 3primary class [8]				8						8				
1rst semester of 3primary class [7]														
2nd semester of 2primary class [6]											6		6	
2nd semester of primary class [5]														
1rst semester of 1primary class [4]														
1rst semester of 1ης δημοτικού [3]														
2nd semester of preschool class [2]														
1rst semester of preschool class [1]														

Table 1: Hetero observational methodology and informal pedagogical assessment of special educational needs in a student with Autism Spectrum Disorders [ASD]

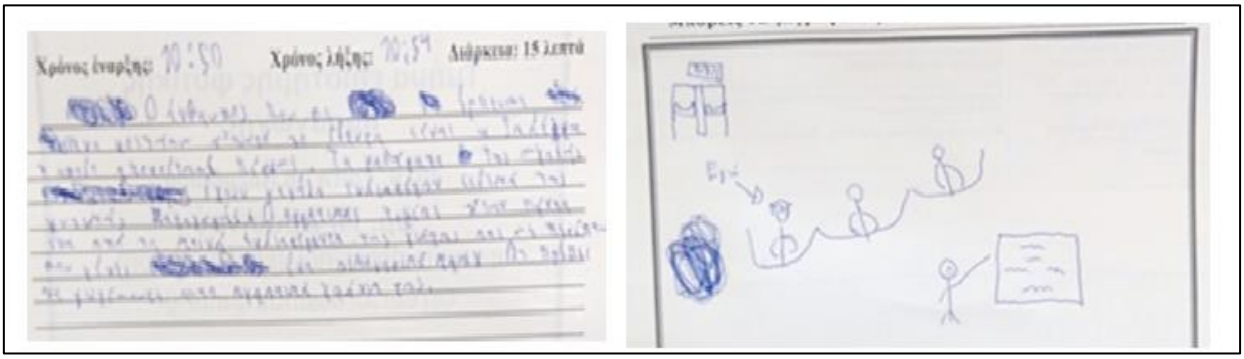

Figure 1: Academic skills are recorded in reading, comprehension, writing, painting and programming

The specific learning difficulties due to ASD are represented by the zigzag line in Table 1 in which the deviations are visualized based on the linear continuum of educational interventions that the student has received with ASD since the first semester of kindergarten.

In the data recording protocol in the targeted individual counseling session of Special Education and Training [TI]-CS-[SET], with the agreement of the student, personal information is recorded such as the name, the registration number, the department of attendance, the date of birth, the age, the date and the way of enrollment in the University, the number of courses he owes. The mobile phone and the e-mail. They also jointly agree on the objective of the intervention, which is succinctly formulated in the "Organization of an individual study in a certain number of subjects to be examined".

The below comment of university students with ASD ‘’*I would like to have more frequent sessions of special education and training. I consider them necessary to cope with the difficulties I face in the laboratory*’’ show the individual special needs for more time [Table 2]. In the Table 2 presented an excerpt from the protocol of an individual SET session with a university student with ASD. He attends a laboratory of phytopathology as a continuation of the theoretical courses. He realizes through our one-on-one meetings and discussions about metacognitive skills that the way he memorizes what is asked of him in the lab is laborious and time-consuming. While the slightest clumsy behavior can have an accident for the peer, for the investigative bodies or for the others. In the following table discussed the potentials and are recorded the positive behaviors. The weaknesses in the skills are identified in the negative behaviors.

According the teaching programs and strategies for people with special educational needs and severe learning difficulties have been differentiated the metacognitive skills with advanced techniques using the analysis of teaching objectives (Christakis, 2013, pp. 175-184).

Positively	Negatively
• I have will and zeal for work • I want to help others where I can • I like the subject of Phytopathology • I like the idea of working in the Phytopathology lab • My relationship with the children in the workshop is good • Also my relationship with everyone in the lab is good • There is a very good communication with my profs. • Last year I had a PhD who looked after me, we had a very good relationship and I learned a lot from him	• My Prof has all the good intentions but in my case there is a difficulty in communication resulting in me blocking and not being able to cope with the experiment. This is the most serious element • and perhaps things would have been better if he had personally known my difficulty • I really like the lab, but the pace is fast and that's why I don't get the experiment right • I believe that more slowly I can perform more and the experiment will turn out well because I own enough things • I am annoyed by some expressions such as that I learn them like a parrot, although this is not the reason, but that I need slower rhythms • Due to my difficulty, I cannot understand the placards of important people in the workshop and I feel bad. Like I'm being insulted

Table 2: Excerpt from the protocol of an individual SET session with a university student with ASD

Then, the plan for the strategic study of courses according to the student's perceptions and self-esteem is jointly discussed and structured in the following indicative intervention steps supporting (Christakis, 2013: 175-184) education in metacognitive skills.

- [1st step]: Distinction of courses indicating whether it is a laboratory or a theory e.g. in February I will be examined in [theories: 6 and workshops: 5]
- [2nd step]: Understanding and distinguishing the degree of difficulty in understanding the course on a linear scale from 1 to 9. Thus, from 1-3 are included the lessons of low difficulty in understanding, from 4-6 the lessons of medium difficulty and 7-9 the lessons of low difficulty in understanding.
- [3rd step]: Detailed description of the individual study method. Here the student runs through the individual study routines and discusses, realizing at the same time, the ways of individual study if it is the book, slides or texts from the e-class, professors' notes, handwritten notes of their own, notes of other students, mnemonic recalls from teleconferences, or from lectures with physical presence in the auditoriums or laboratories.
- [4th step]: He understands and formulates without fear the emotions he experiences in the study, distinguishing in them with a positive sign, with a negative but also in emotions, indifferent or indifferent.
- [5th step]: He realizes and verbalizes the degree of concentration of attention on a linear scale from 1 to 10, arguing the reasons for reduced or increased attention to what he studies each time.

Metacognitive skills: TABLE WITH SUBJECTS: Planning in courses to be examined in the fall semester
Department: Animal Production Science - 3 semesters

a/a course	lab and theory	Difficulty in understanding Small: 1-3, Medium: 4-6 Large: 7-9	Individual study method: 1. book, 2.e-class, 3.notes, 4. tele-lectures, 5. physical presence	Feelings about the study positive, negative, indifferent	degree of concentration of attention 1-10	Courses I have given before	Ways of facilitating the written exams [progress[1], group work[2], individual[3], at the end multiple choice[4], topic development [5]- and the portfolio [6] alongside the oral	Examination date	Examination time	Examination venue	Individual study preparation from [1 to 10]	Negotiation
1	**lab**	8	2.e-class,	negative	3	3times	[progress[1], group work[2], individual[3], at the end multiple choice[4], topic development [5]	6-Φεβ-23	14.00-17.00	Kalaisaki	2 to 10	I did
2	**theory**	6	1,2	indifferent	3	2times	topic development [5	[21/ 2/]	11.00-14.00	Kalaisaki	4 to 10	I don't
3	**lab**	6	2	indifferent	4	2times	topic development [5	21 Fev2023	11.00-14.00	Kalaisaki	4 to 10	I don't
4	**theory**	5	2	positive	5	first time	Investigation of the exam mode	17/2/	08.00-11.00	Sideri & Francopoulou	4 to 10	I did
5	**theory**	7	1,2	indifferent	5	first time	topic development [5	22/2/	14.00-17.00	Niavi	5 to 10	I don't
6	**theory**	8	1,2	negative	3	first time	topic development [6	31/1/	14.00-17.00	Koutsomitopoulou	4 to 10	I don't
7	**theory**	5	1,2	indifferent	5	first time	at the end multiple choice[4]	24/2/	11.00-14.00	Kalaisaki	4 to 10	I did
8	**theory**	6	2	indifferent	4	first time	topic development [5	2/2/	08.00-11.00	Koutsomitopoulou	3 to 10	I don't
9	**lab**	6	2	indifferent	4	first time	topic development [5	2/2/	08.00-11.00	Koutsomitopoulou	4 to 10	I don't
10	**theory**	5	2	positive	5	first time	topic development [5	8/2/	14.00-17.00	Sideri & Francopoulou	5 to 10	I did
11	**theory**	9	1,2,3	negative	2	first time	topic development [5	26Jan2023	08.00-11.00	Koutsomitopoulou	2 to 10	I don't
12	**lab**	9	1,2,3	negative	2	first time	[progress[1], group work[2], individual[3], at the end multiple choice[4], topic development [5]	27/1/	08.00-11.01	Koutsomitopoulou	3 to 10	I did
13	**theory**	7	2	negative	3	first time	topic development [5	14Fev2023	14.00-17.00	Koutsomitopoulou	4 to 10	I don't
14	**lab**	7	2	negative	3	first time	topic development [5	15Fev2024	14.00-17.01	Koutsomitopoulou	5 to 10	I did
15	**theory**	I've been through with advances										

Table 3: Metacognitive skills with advanced techniques using the analysis of teaching objectives

- [6th step]: Negotiation with the profs of specific learning difficulties resulting from autistic spectrum disorders.
- [7th step]: Taking photos with the mobile points from the lectures of the lesson that he wants to pay more attention to and are part of the individual electrical notes.
- [8th step]: Investigation of know how the course is evaluated, whether it is written answers to questions that will be given to questions developing a certain topic, or answers with multiple choices, or answers to issues with right / wrong, or answers to topics with a negative evaluation. Investigation includes participation in individual or group portfolio work but also exams with advances that are offset in

the final assessment grade. All these ways include the oral assessment with a presentation of part of the individual study taking into account the facilities for the written exams.

4. Initial results - discussion

Given the increasing number of university students with ASD, systems in tertiary education require pedagogical interventions that address the specialized learning needs of these people. Therefore, the purpose of this research was to highlight special education and training emphasizes on metacognitive skills teaching interventions that enhance university students' participation in academic courses. Specifically, we have investigated whether university students s' perceptions of ASD can assess the degree of difficulty in understanding the course affect the individual method of study.

So, the self-perception of the 20 students with ASD who self-evaluated their performance in the exams by calculating the individual study time they allocated in correspondence with the degree of difficulty in understanding the course. At the same time, applying the Theory of Mind, the evaluation of the ability to attribute mental states to others was discussed. This was of particular interest to participants with ASD regarding the distortion of the assessment of difficulty in understanding the course. Some said that a lesson has (Golan et al., 2007) a large volume and can hardly be memorized while the lesson was limited only to what the prof had posted on e-clas.

When asked the university students with ASD about confirming their understanding of the course traditions in person describing “what did the prof say in the lesson?" and justifying the know how the lesson will be been evaluated the distortion of the image of the lesson appeared. They changed the words of the teacher and replacing with the meaning that they had difficulty understanding. So, they could not explain “Why did the professor say with this way" and they would not consider the communication and academic message. The replies were recorded in writing and coded as correct or incorrect. About 30% of the responses were double-coded.

4.1 Students' perceptions in assessing the degree of difficulty in understanding the course affect the individual method of study

This results from the content of the metacognitive skills regarding planning in the courses under consideration in the winter semester. The metacognitive skills content has included the term readiness which refers to a university students’ 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 (Ministry of National Education and Religions-Pedagogical Institute, 2009). ASD 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. So, the metacognitive exercises are encoded in:

- A/a courses [l] laboratory and [t] theory;
- Difficulty understanding as Small:1-3, Medium:4-6 Large: 7-9;
- Individual study method: 1. book, 2. e-class, 3. notes, 4. teleconferences, 5. physical presence;
- Feelings for the study [p]=positive, [n]: negative, indifferent: [in];
- Degree of attention concentration 1-10;
- Lessons learned before and failed;
- Ways to facilitate written exams [progress [1], group work [2], individual [3], at the end multiple choices [4], subject development [5]- and the wallet [6] alongside orality-examination date/ exam time examination/ location;
- Preparation of an individual study from [1 to 10].

According to the learning readiness, this results from the content of the metacognitive skills in university students with ASD have great heterogeneity, and variability is found in the approaches they take to understand the content of the reading texts (Panopoulos & Drossinou-Korea, 2022).

4.2 The positive perceptions of peers are reflected in positive emotions between them. The results showed no significant differences between the two groups in metacognitive skills in metaperceptual behaviors, with the exception of metacognitive skills in the individual study method in courses and academic success scores. All students were improved as part of the monthly individual SET metacognitive skills interventions. These results are discussed in light of current approaches to supporting students with ASD in Universities. So, the positive perceptions of peers are reflected in positive formed emotions into the experiential interactions from the individual and micro group work of university students with and without autism spectrum disorders.

According to the mind reading work in the eyes (Baron-Cohen et al., 2001) that evaluates the ability to recognize the facial effect of the eye area of different adult faces, the positive perceptions of peers reflected in experiential interactions were evaluated. These are formed into positive emotional perceptions throught the individual and micro group work of university students with and without ASD (Drossinou-Korea, 2021) when there are no difficulties in working relationships mainly with those students who do not fall into the Spectrum of autistic disorders.

The results from the observed behavior (Avramidis & Kalyva, 2006) in a small group show the social capacity with the interactions recorded and codified in the frame of SET metacognitive skills. In these were studied the participant's talk time ratio, delay in the first expression, delay in the first spontaneous expression (Christakis, 2011: 190-229), the memory of recalling the particular oral phrase or names frequency of exchange of ideas and the frequency of searching for information by peers. In addition, the universal eye contact, and participation in the dialogue while waiting for the series were counted in the conversations into mnemonic techniques with efficiency, to the order

switching, to the answers and questions. The social difficulty was codified on a scale of 5 points ranging from 1: behaviors that prevent the continuation of a social interaction to 5 : in behaviors that support the continuation of a social interaction in the context of transactions on the university campus.

5. Conclusions and Recommendations

Social literacy, social skills and social motivation have been extensively researched and characterized as atypical characteristics in individuals with ASD, with the assumption that each contributes mechanistically to the wider difficulties of social interaction that diagnostically determine the condition. Despite this hypothesis, the research has not directly evaluated whether or how these three social areas (Baron-Cohen, 2001) social competence [1] social literacy, [2] social skills and [3] social motivation contribute to the real results of social interaction in the real world for students with ASD.

The current study concluded that the content of metacognitive skills in relation to university students' assessing the degree of difficulty in understanding the course affects and, in some cases, alters the individual method of study. This happens slowly and gradually by conducting exercises of social knowledge, social skills and social motivation to students with or without ASD who requested and took part in the e more than 6 monthly workshops on mnemonic techniques in the academic year 2021-2022.

Another concluding point refers to the interactive binary relationships between friends of fellow students and the positive perceptions of peers. These metacognitive skills, although reflected in positive emotional perceptions, remain quantitatively smaller compared to university students in the second third and fourth years and those who were freshmen. Students with ASD with the informal pedagogical assessment were found to respond less favourably to the interlocutors – students who attended the groups. In addition, performance in interactive social behavior in terms of [1] social knowledge, [2] social skills, and [3] social motivation were found to be minimal. Moreover, in contrast to the bibliographic predictions of positive interaction results in mixed dyads in mnemonic techniques workshops, participants may sometimes feel uncomfortable meeting with a student from another department for the first time.

In conclusion, the collective results suggest the reduced performance of students with ASD in interactive transactions where the abilities of social knowledge, social skills and social motivation are identified. These are not always matched with clear and predictable ways of communicating about the effects of their social interaction in the real world of students. In fact, they underline the need to develop and validate more ecological assessments of autistic social abilities and to take into account the dynamics of relationships, which are not limited to the affirmation of individual characteristics, when assessing social disability in autism (Drossinou Korea, 2022).

The proposals for further education on metacognitive skills in students with and without ASD stem from the need to expand supportive interventions in higher interactive and inclusive education. Metacognitive skills training teaches students to become aware

of perceptions stemming from interactions and perceptual relationships with peers. The difficulties are evaluated by the participating students themselves. So, when they answer at the end of the mnemonic workshops to the question "if he liked what you were watching". They declare an estimate on a scale of 5 points from 1 (not at all) to 5 (the most). It is necessary to further investigate and clarify what students with or without ASD say with the terms "I liked it" and "I didn't like it". Because, perceptions with positive vigor reflect one's ratings of peer preference, while negative perceptions reflect assessments of antipathy for the peer.

In addition, two elements that were not examined in this study and are proposed to be extrapolated in another research are mentioned:

- The first is regarding the criteria and incentives by which students chose to study at this faculty.
- The second refers to semi-structured activities that cause social-communicative and repetitive behaviors related to university students with ASD and help them to realize the various and different characteristics and meta-perceptions.

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Acronyms

1) Basic Skills Checklists [BSCLs];
2) Special Education and Training [SET] ;
3) Autism spectrum disorders [ASD];
4) Framework of Analytical Program Special Education (FAPSE);
5) Targeted, Individual Structured Inclusive Interventions Programs of Special Education and Training TISIPIf [SET];
6) Agricultural University of Athens [AUA].

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References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders fifth edition (DSM V).* Washington, DC: American Psychiatric Publishing.

Avramidis, E., & Kalyva, E. (2006). *Research methods in special education.* Athens: Papazisi, in greek.

Baron-Cohen, S. (2001). Consciousness of the physical and the mental: Evidence from autism. Στο P. Grossenbacher (Επιμ.), *Finding consciousness in the brain: A neurocognitive approach* (pp. 61-76). Amsterdam: John Benjamins Publishing Company;.

Christakis, K. (2013). Advanced techniques for the analysis of teaching objectives. In *Teaching Programs and Strategies: For People With Special Educational Needs and Severe Learning Difficulties* (pp. 175-184). Athens: Diadrasis, in greek.

Christakis, K. (2011). The education of children on the autistic spectrum, Chapter 5. In *The education of children with difficulties, Introduction to special education* (T. B, pp. 190-229). Athens: Diadrasis, in greek.

Ciccone, A. (2019). *L'observation Clinique.* Paris: Dunod.

Cooper M. (2005). The inter-experiential field: Perceptions and meta-perceptions in person-centered and experiential psychotherapy. *Person-Centered and Experiential Psychotherapies., 4*(1), pp. 54–68.

Cooper, M. (2009). Interpersonal perceptions and metaperceptions: Psychotherapeutic practice in the interexperiential realm. *Journal of Humanistic Psychology, 49*(1), σσ. 85–99. doi:10.1177/0022167808323152

Drossinou Korea, M. (2022, July). Special education meetings at the University and pedagogical reflections on autism. *International Journal of Humanities and Social Science Invention (IJHSSI), 11*(7 Ser. I), σσ. 45-51. doi:10.35629/7722-1107014551

Drossinou Korea, M,. (2020). Education narratives and social skills from the cinema. Chapter 20. In *Special Education Handbook and Training Narratives* (σσ. 859-895). Patra: OPPORTUNA, in greek.

Drossinou Korea, M. (2019). Persons with Autism and Dyslexia in the Tertiary Education: The Targeted Individual Structured Integrated Intervention Program (TISIPfS-A/D). *4th International e-Conference on Studies in Humanities and Social Sciences.* (σσ. 1-16). Belgrade - Serbia: Center for Open Access in Science. Ανάκτηση 6 2, 2021, από http://centerprode.com/conferences/4IeCSHSS.html

Drossinou Korea, M. (2022, July). Social Theories about the Disability of Autism. *International Journal of Social Science And Human Research, 5*(7), σσ. 3143-3149. doi:10.47191/ijsshr/v5-i7-52, Impact factor- 5.871

Drossinou Korea, M. (2017). Educational tools and pedagogical methodologies. Targeted Individually Structured Didactic Integration Programs of Special and Education Interventions (TISDIPofSEIs). Chapter 4. In *Special education and training (SET). The "through" special education proposal for the Training of children and young people with special needs* (pp. 305-377). Patra: OPPORTUNA, in greek.

Drossinou Korea, M. (2018). Vocational Training Education and Targeted, Individual, Structured, Integrated Program for Students with Autism (TISIPFS)-A}. *International Journal of Innovative Research & Development,, 8*(8), σσ. 268-274. doi: 10.24940/IJIRD/2019.V8/I9/AUG 19089}

Drossinou Korea, M. (2019). Persons with Autism and Dyslexia in the Tertiary Education: The Targeted Individual Structured Integrated Intervention Program (TISIPfS-A/D). *4th International e-Conference on Studies in Humanities and Social Sciences.* (σσ. 1-16). Belgrade - Serbia: Center for Open Access in Science. Ανάκτηση 6 2, 2021, In http://centerprode.com/conferences/4IeCSHSS.html

Drossinou Korea, M. & Alexopoulos, P. (2023, 2). Observation Methodology, Informal Pedagogical Assessment, and School Integration in a Student with Autism Spectrum Disorder. *International Journal of Social Science And Human Research [IJSSHR]*(6), pp. 775-784. doi:10.47191/ijsshr/v6-i2-02

Drossinou-Korea M. (2021, Nov-Dec). Participatory systematic empirical observation and special education training to students with autism. *International Journal of Art , Humanities and Social Studies, 3*(6), pp. 179-187. doi:https://ijahss.in/Archive/vol-3issue-6/IJAHSS0306069-179-187.pdf

Drossinou–Korea, M. (2016). Special Education of person with Autism in France. *Theory and Research in the Sciences of Education, Thematic volume: English-language issue. International Electronic Journal:*(21), pp. 57-72.

Francis, K., Karantanos, G., Al-Ozairi, A., & AlKhadhari, S. (2021). Prevention in Autism Spectrum Disorder: A Lifelong Focused Approach. *Approach. Brain Sci., 11*(2, 151), σσ. .1-19. doi:10.3390/brainsci11020151

Golan O, Baron-Cohen S, Hill JJ, Rutherford MD. (2007, Jul). The 'Reading the Mind in the Voice' test-revised: a study of complex emotion recognition in adults with and without autism spectrum conditions. *J Autism Dev Disord, 37*(6), pp. 1096-106. doi:10.1007/s10803-006-0252-5

Happé, F. G. E. (1994). An advanced test of theory of mind: understanding of story characters' thoughts and feelings by able autistic, mentally handicapped, and

normal children and adults. *J. Autism Dev. Disorders* (24), pp. 129–154. doi:10.1007/BF02172093

Hellenic Society for the Protection of Autistic People (H.A. f P.As.). (2022, 06). *Purpose and vision.* Ανάκτηση 01 10, 2023, In https://www.autismgreece.gr/sxetika-me-emas/skopos-kai-orama.html

Laing, RD., Phillipson, H., Lee, AR. (1966). *Interpersonal perception: A theory and a method of research.* Oxford: Springer.

Ministry of Education-Pedagogical Institutel. (1996). *Framework of Analytical Program Special Education (FAPSE).* Athens: National Printing Office.

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.

Morrison KE, DeBrabander KM, Jones DR, Ackerman RA, Sasson NJ. (2020, Nov). Social Cognition, Social Skill, and Social Motivation Minimally Predict Social Interaction Outcomes for Autistic and Non-Autistic Adults. *Front Psychology, 25*(11), pp. 591-100. doi:10.3389/fpsyg.2020.591100

Morrison, K. E., DeBrabander, K. M., Jones, D. R., Faso, D. J., Ackerman, R. A., and Sasson, N. J. (2020). Outcomes of real-world social interaction for autistic adults paired with autistic compared to typically developing partners. *Autism, 24*, pp. 1067–1080. doi:10.1177/1362361319892701

Pallathra, A. A., Cordero, L., Wong, K., and Brodkin, E. S. (2019). Psychosocial interventions targeting social functioning in adults on the autism spectrum: a literature review. *Curr. Psychiatry Rep., 21*(5). doi:10.1007/s11920-019-0989-0

Panopoulos, N. & Drossinou-Korea. M. (2022). Teaching Practices Of Oral Language And Reading Skills In Students With Autism Spectrum Disorder. *European Journal of Special Education Research,, 8*(4), pp. 28-47. doi:10.46827/ejse.v8i4.4382

Pfeifer JH, Masten CL, Borofsky LA, Dapretto M, Fuligni AJ, & Lieberman MD. {2009) . Neural correlates of direct and reflected self-appraisals in adolescents and adults: When social perspective-taking informs self-perception. *2009, 80*(4), pp. 1016–1038. doi:10.1111/j1467-8624.2009.01314.x

Pickard H, Pellicano E, den Houting J, Crane L. (2021, Jun 4). Participatory autism research: Early career and established researchers' views and experiences. *Autism.* doi:10.1177 / 13623613211019594. Epub ahead of print. PMID: 34088215.

Synodinou Kl. (2007). *Childhood autism. The therapeutic approach.* (6 ed.). Athens: Kastaniotis, in greek.

Usher LV, Burrows CA, Messinger DS, Henderson HA (2018, Feb). Metaperception in Adolescents with and without Autism Spectrum Disorder. *J Autism Dev Disorders, 48*(2), pp. 533-548. doi:10.1007/s10803-017-3356-1.

Winnicott W. D. (2016). *Maturational Processes and the Facilitating Environment. Studies in Emotional Development Theory.*(V. Galanis, Επιμ., & T. Hatzopoulos, Μεταφρ.) Athens: Epecina,.

Wright, CA, Wright, SD, Diener, ML. (2014). Autism spectrum disorder and the applied collaborative approach: a review of community-based participatory research and participatory action research. *Journal of Autism, 1*(1), pp. 1–11. doi:10.7243/2054-992X-1-1#sthash.eiannZpO.dpuf