

Socratic Seminars for Students with Autism Spectrum Disorders



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Abstract

This paper explores the possibilities of the pedagogical use of Socratic dialogue as a basis for educating students diagnosed with autism. The Socratic dialogue is a particular pedagogical method used in educational settings to enhance student's thinking and dialogic abilities. Research has proven that Socratic dialogue may result in improved language, interactive, and critical thinking abilities, as well as have effect on students' self-evaluation. The social nature of dialogic learning may scaffold children with specific abilities to effectively interact with others and perceive those others' emotions. Presently, education of students diagnosed with an Autism Spectrum Disorders (ASDs) use a variety of educational interventions, mostly inspired by behaviorist theory. These include little or no systematic use of dialogue as a pedagogical means of scaffolding students' abilities. However, several of these behaviorist methods have been tried out for a long period, educating students with ASDs, and have also proved to be successful to certain extents. In this article, we explore why and how Socratic dialogue can be used as an effective strategy for educating individuals diagnosed with autism. Hence, the investigation ends by introducing a dialogue-based teaching design that is compatible for children diagnosed with ASDs, to be explored and evaluated.

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Introduction

The ideal pedagogical dialogue could be described as an activity directed towards discovery, new understanding, teaching, and learning in a decentered and non-authoritarian way (Burbules, 1993), even though this ideal might be difficult to reach in classrooms (Burbules, 2000). Educational dialogue is in some ways a specific genre that partly differs from the everyday conversations or critical and emancipative dialogue. In the school context, the dialogue is aimed at students learning a particular knowledge or developing abilities that they can use in interaction with others, when undertaking a learning project, or when participating in democratic processes (Pihlgren, 2016). Burbules (1993) identifies four types of pedagogical dialogue, based on two kinds of distinctions. The first distinction concerns the relation between dialogue and knowledge construction. A dialogue is either convergent, looking for a final answer or conclusion, or it is divergent, where no final answer is sought but rather a plurality of points of views. The second distinction regards the participants' dialogical relation toward each other. This can either be inclusive (playing "the believing game") or critical (playing "the doubting game") (cf. Elbow, 1986). The four types are defined as follows:

- Conversation – inclusive and divergent
- Inquiry – inclusive and convergent
- Debate – critical and divergent
- Instruction – critical and convergent

Most common in classrooms is the instructional dialogue, followed by conversation, and to some extent debate (Liljestrand, 2002; Pihlgren, 2016). However, teachers initiating inquiring dialogues, using analyzing questions, have shown to have important impact on students' learning results (Hattie & Timperley, 2007).

Socratic seminars and closely related educational activities like philosophy for children (P4C), or deliberative dialogues have traditionally been practices in various countries to teach thinking skills, and as a supplement to classroom education (Pihlgren, 2008). The Socratic seminar – a German and Swedish tradition, and the Paideia seminar – an American tradition, are a particular pedagogical method for preschools and classroom learning using inquiring dialogue to enhance student's thinking and dialogic abilities. It is an educational approach, that consists of certain steps, where the teacher will help a group of students to build a respectful climate for dialogue, and the seminar will consist of the following steps (Adler, 1984):

1. Taking part of textual a material that the seminar will focus on (text, picture, film, diagrams).
2. Setting a group mode of dialogue (talk to each other, present counterarguments, ask questions, cooperate to find answers), and each participant setting a personal goal.
3. Starting question, asking each participant to consider an evaluative question concerning the textual material, starting the dialogue.
4. Analyzing the ideas in the textual material and ideas presented by participants and evaluating the analyzed ideas.
5. Evaluating the dialogue and setting the goals.

The length of the seminar will vary depending on the students' group age, experience, and endurance, somewhere between 15-30 minutes. The teacher will function as a facilitator, asking open-ended questions and promoting the cooperative dialogue among the students but without presenting answers or rectifying what is said. The seminar, at its best, is a mutual search for better understanding, but not always resulting in group consensus. Instead, different ideas are encouraged to enhance thinking and understanding. Research has proven that the seminars may result in improved language, interactive, and critical thinking abilities, as well as to have effect on students' self-evaluation (Billings & Fitzgerald, 2002; Pihlgren 2008; Orellana, 2008).

Research Objectives

Presently, education of students diagnosed with an Autism Spectrum Disorders (ASDs) use a variety of educational interventions, mostly inspired by behaviorist theory. These include little or no systematic use of dialogue as a pedagogical means of scaffolding students' abilities. However, designing adequate teaching programs for students with autism requires an appropriate knowledge of their unique educational needs. Children diagnosed with Autism Spectrum Disorder (ASDs) are shown to demonstrate problems with social communication, emotional regulation, imitation and imagination, sensory integration, problem solving, attention, and motivation. Several of the methods in use have been tried out for a long period, educating students with ASDs, and have also proved to be successful to certain extents, but not to other.

We have in our practice, as well as in our research, seen substantial progress of social abilities, as well as critical thinking and language, with students in preschools and compulsory schools using Socratic, Paideia seminars. In dialogic seminars contexts, interaction with other people is methodically facilitated and encouraged, helping both teachers and students co-construct their knowledge and develop their understandings in flexible ways. The social nature of dialogic learning may serve as a scaffold for children with specific abilities to effectively interact with others and perceive those others' emotions. Our interest for using the method with groups of students diagnosed with ASDs, and evaluating the results, led to the assumption that the students might benefit from participating in systematic dialogic training. This paper is, thus, the starting point of this work, discussing why and how a dialogue based teaching is compatible with the educational needs of children with ASDs.

Research methodology

We used a structured literature examination method, integrative research review (Backman, 1998; Cooper & Cooper, 1989), where the goal is to make a research synthesis, comparing findings in literature on autism, social and emotional abilities, and the use of dialogue in Socratic, Paideia, seminars. We have searched in data bases and purposefully reviewing and integrating the relevant literature to categorize the insights supporting our conclusions and to construct a dialogue-based teaching method that is fitting for children diagnosed with ASD (Starrin et al., 1991).

The focus population are children diagnosed with ASDs, and with social and communication difficulties, but without severe communication or cognitive deficits. This primarily includes children with Asperger's Disorder. Although these children are of normal intelligence, they are often faced with life-long problems coping with reciprocal social interaction and emotional behavior (Critchley et al., 2000). However, children diagnosed with other ASDs may also benefit from this model, since social and emotional difficulties seem to be the most prominently described common characteristic among all children diagnosed with ASDs.

A Review of the Definitions of ASDs

The term "autism" is derived from the Greek root "auto" which means "self". Though "autism" is a familiar term in the early twenty first century, it was only recognized in the 1940s as a severe disability (Snell, 2002). In 1908, Eugen Bleuler first used the term "autism" to describe a specific type of social withdrawal that he observed in schizophrenia (Cotugno, 2009). Leo Kanner (1943) borrowed the term "autism" to refer to a group of children with inability to relate to people and situations, failure to use language for the purpose of communication, and obsessive desire for the maintenance of sameness in the environment. One year later, Hans Asperger (1944) published a report describing a group of children and adolescents with characteristics similar to Kanner's description; but with no significant delays in early

intellectual development or language skills. He used the term “autistic psychopathy” to describe this condition. Almost forty years later, in 1981, Lorna Wing used the term “Asperger’s Syndrome” for the first time and referred to it in her research on autism. In 1988, Wing used the term autistic continuum to define the range of possible autism disorders, from profound to mild (Cotugno, 2009).

Following then, in 1994, the American Psychiatric Association’s Diagnostic and Statistical Manual: Fourth Edition (DSM IV) used the term Pervasive Developmental Disorder (PDD) to cover a group of developmental disorders that are characterized by impaired development across the social, cognitive, emotional and language domains. (American Psychiatric Association, 1994). The American Psychiatric Association (APA) has updated the standards for diagnosing autism spectrum disorder in 2013 in the fifth edition of the APA’s Diagnostic and Statistical Manual of Mental Disorders. The DSM-5 uses the term autism spectrum disorders (ASDs) the two broad categories of symptoms, social communication and restricted repetitive behavior, to diagnose the disorder. Other conditions for a valid diagnosis of ASDs include presence of symptoms from early childhood, a significant impact of symptoms on a child’s day-to-day functioning and the absence of any diagnosis of intellectual disability or developmental delay. Autism spectrum disorders (ASDs) is thus a developmental disorder with a range of severity and impairments, characterized by deficits in social communication and repetitive and stereotyped interests and behaviors (APA, 2013).

The recent studies suggest that children meeting the “Autistic Disorder” criteria range in numbers up to 12 per 1,000 children (Kopetz & Endowed, 2012). In addition, about 80 percent of children with autism also meet the criteria for mental retardation, with significant limitations in IQ and adaptive behavior scores (Snell, 2002). Recent studies suggest that most of the risk of developing ASDs is due to variations in genetic structure (Auerbach et al., 2011; Gerdtts et al., 2013). It has been well-established that developmental abnormalities associated with autism become apparent by 12 months of age (Osterling et al., 2002). There are also studies which suggest that infants with older siblings with Autism Spectrum Disorders (ASDs) are at increased risk for developing an ASD or subtle, inconsistent, but multi-faceted deficits in emotional expression and referential communication (Cassel et al., 2006).

In addition to investigating the role that genes play in ASDs, several studies have reported functional and/or structural abnormalities of the neural system in autistic populations. It is demonstrated that the “social brain” areas of autistic individuals are less active compared to those of control groups. These social areas (e.g. amygdale, anterior cingulated, insula, temporal parietal junction and medial prefrontal cortex) are responsible for processing “mind-reading” tasks (Baron-Cohen, 2009). A functional MRI (fMRI) study reported abnormalities in regional brain activity of adults with autistic disorder during the explicit and implicit processing of emotional facial expressions. Autistic subjects in this study did not activate a cortical “face area” when explicitly appraising expressions, or the left amygdala region and left cerebellum when implicitly processing emotional facial expressions (Critchley et al., 2000). Children diagnosed with autism also experience depletion in serotonin synthesis in the first few months after birth that contributes to hemispheric asymmetries in global and local connections, compromising language development (Dalton & Bergenn, 2007).

While autism is generally defined by a suite of negative characteristics, recent studies are emphasizing the abilities and strengths of people diagnosed with autism. For instance, perceptual regions of the brain seem to be activated more among people diagnosed with autism during a non-verbal intelligence test. While, non-autistics individuals typically perform equally well in tests of verbal and non-verbal intelligence, people diagnosed with ASD score much higher in non-verbal tests, such as Raven’s Matrices that need no verbal instructions and no verbal response to complete, than in verbal ones, such as Wechsler’s Scales that rely on verbal instructions and answers (Mottron, 2011).

Furthermore, the ASDs are, as shown, quite a divergent group, with great variations within what is considered to belong to the diagnoses. It has been documented that 10-25% of children diagnosed with autism fail to develop speech (Koegel et al., 2009). It, therefore, seems incorrect to consider the nearly 75% of children diagnosed with autism as mentally retarded, because although they do develop speech, they are having problems expressing and articulating their needs and communicating with others (Dalton & Bergenn, 2007).

Taking all the research presented above, it would be logical to conclude that a combination of various factors may be responsible for ineffective social interaction in children diagnosed with autism. However, the intent of this paper is not to prove that ASD does or doesn't exist as a proper diagnosis but to find an educational model, helping children with the type of problems targeted. And it is hypothesized that effective training programs can be used to influence, regulate, and even remedy the symptoms categorized as ASDs.

A Review of Current Educational Interventions for Children with ASD

Students with autism spectrum disorders typically qualify for special education services. Therefore, research and program development in the area of educational intervention for children with ASDs have focused largely on the early years of development; the earlier intensive interventions are made, the higher the likelihood of positive outcomes (Scott & Chris, 2007; Myers & Johnson, 2007; Koegel et al., 2009). There are several different approaches to educating children with autism. The current educational programs can be classified and discussed under three main categories: educational/behavioral, pharmacological, and biomedical-neuroscience approaches. The educational/behavioral approaches have the strongest research basis. Pharmacological approaches are not viewed as being appropriate or effective for all, and must be used cautiously, and in combination with educational treatments. Biomedical-neuroscience approaches are experimental with no existing validation at this point (Snell, 2002).

There are several evidence-based methods and strategies often used in educational programs for children with ASDs including:

- Applied Behavior Analysis (ABA) is the process of systematically applying principles of behavioral theory to promote positive and adaptive behavior in students with autism. There are several studies presenting data on the impact of ABA on reducing inappropriate behavior and in increasing communication, learning, and appropriate social behavior in students diagnosed with autism (Baer, Wolf & Risley, 1968; U.S. Department of Health and Human Services, 1999).
- Discrete Trial Teaching (DTT) uses applied behavior analysis techniques to eliminate skill deficiencies of students with autism (Lovaas, 1987). The basic skills are broken down into small steps and are taught using discrete trials at a time (Smith, 2001). Discrete Trial Teaching procedures have proven effective in many areas such as receptive language, gestural communication, play skills, prevention of problem behaviors, sentence structure and functional communication skills (Ünlü & Vuran, 2012).
- Picture Exchange Communication System (PECS) is a visual communication training program that has been developed to educate children with social-communication deficits. The system seeks to teach spontaneous social-communication skills by means of symbols or pictures (Charlop-Christy et al., 2002; Howlin et al., 2007). This program involves non-vocal methods of communication including sign language, picture-point systems, electronic devices, and other picture-communication systems using basic behavioral principles and techniques such as shaping, differential reinforcement, and transfer of stimulus control via delay to teach children functional communication (Charlop-Christy et al., 2002).
- Pivotal Response Treatment (PRT) is an evidence-based intervention program, built on the

principles of Applied Behavior Analysis (ABA) to address the behavioral, communicative, social, and academic impairments of children with autism (Genc & Vuran, 2013; Renshaw & Kuriakose, 2011). PRT aims to address the core deficits in social motivation and alter the child's developmental trajectory toward a more typical path by providing supplemental learning opportunities which enhance the reward properties of social communication interactions (Steiner et al., 2013).

- Relationship Development Intervention (RDI) is a parent-based, cognitive-developmental approach to improve social-emotional, cognitive, and functioning abilities in students with autism. The primary caregivers of children are trained through workshop sessions to provide daily opportunities for successful functioning in increasingly challenging dynamic systems (Gutstein et al., 2007). Following the training sessions, parents plan regular weekly or biweekly meetings with a certified RDI consultant to address goal setting, program planning, and progress updates. Parents and their children both participate in re-evaluation every six months to monitor and adjust intervention (Gutstein et al., 2007).
- Social Communication/Emotional Regulation/Transactional Support (SCERTS) is a program intervention to develop the ability of autistic children to learn and spontaneously apply functional communication, emotional expression and trusting relationships with others (Prizant et al., 2006).
- Verbal Behavior (VB) approach employs specific behavioral research on the development of language and functional account of language to teach children multiple functions of language (e.g. mand, tact, intraverbal), and to teach each function using the ultimate controlling variables specific to that function (Carr & Firth, 2005).
- Occupational Therapy (OT) is often provided to promote development of self-care skills (e.g., dressing, manipulating fasteners, using utensils, personal hygiene) and academic skills (e.g., cutting with scissors, writing). It also may assist in promoting development of play skills, modifying classroom materials and routines to improve attention and organization, and providing prevocational training (Scott & Chris, 2007).
- Sensory Integration Therapy (SIT) is based on principles from neuroscience, biology, psychology, and education, and hypothesizes that some children with learning disorders experience difficulty processing and integrating sensory information and that this, in turn, affects their behavior and learning (Schaaf & Miller, 2005). The goal of this program is to facilitate the development of the nervous system's ability in organizing responses to sensory input in a more productive way (Williamson & Anzalone, 1997).
- Training and Education of Autistic and Related Communication Handicapped Children (TEACCH) is a differentiated and family-centered curriculum developed for individuals with autism of all ages and developmental levels (Schopler, Mesibov & Baker, 1982). This program uses visual supports to capitalize on the visual strength and preference for processing information to meet the individual needs of children with autism and communication disabilities. TEACCH focuses on structuring the physical environment to assist students with autism to successfully interact in the environment and understand meaning (Schopler, Mesibov & Hearshey, 1995).

Educational methods such as cognitive-behavioral therapy (CBT), incidental teaching, mand-modeling, time delay, activity-based teaching, peer tutoring, self-management, and social stories are other scientifically grounded strategies that have been recommended for teaching students with autism.

In addition, there are special projects for individuals with autism and their families. The Global Autism Project, for example, a nonprofit organization dedicated to providing resources, awareness and greater understanding of autism, is on a quest to provide services to individuals with autism in underserved communities throughout the world. The Autism Awareness Care and Training Centre (AACT) of Accra, Ghana, helps parents of children with autism improve their understanding of the disability and provide them a safe, supportive place for help. The Society for Rehabilitation of Mentally Challenged (SOREM) is another project which provides programs that foster "societal interaction," and they regard physical fitness as critical for individuals with autism (Kopetz & Endowed, 2012).

A Critical Evaluation of Current Educational Interventions for ASDs

Although there are some reports on the effectiveness of the above presented programs on development or on modifying behavior for children with ASDs, they have come under criticism in recent years for a variety of reasons. The usual criticism is that the research upon which they were based is not valid or reliable. There have been no controlled comparisons of educational or combined interventions to support claims of their efficiency (Snell, 2002; Myers & Johnson, 2007). Moreover, evaluations of most of these interventions rely mainly on single case or on case series studies or on non-randomized group trials (Howlin, et al., 2007). Critical aspects of interventions also remain unknown, including the impact of family factors on outcomes, and the relationship between an individual with autism, the appropriate treatment protocol, and the expected outcomes. Finally, there is a vast discrepancy between what is known about effective educational interventions, and what is available for children diagnosed with autism across settings, cultures, and income levels (Snell, 2002).

As we have seen earlier, children diagnosed with Autism Spectrum Disorder (ASDs) demonstrate difficulties with social communication, emotional regulation, imitation and imagination, sensory integration, problem solving, attention, and motivation. The current interventions address every-day communication, social skills, daily-living skills, play and leisure skills, academic achievement, and maladaptive behaviors as children having problems to answer to stimuli with an accurate response (Myers & Johnson, 2007). Most of the educational methods build on principles aiming to change the behavior of the student, and not focusing on their higher intellectual capacities and their reflection on self or situation. They are almost solely built on a behaviorist educational theory, with short, teacher controlled activities, including rewards or corrections depending on how the student perform.

Taken together, the current interventions do not address more complicated abilities like engaging in dialogue, inquiring processes leading to a deeper understanding of what is discussed, or intricate social interaction.

A Review on Socratic Dialogue as an Educational Strategy

Inquiring dialogue, as defined by Burbules (1993), can be a comprehensive, systematic, and structured pedagogical method within the school curriculum (Pihlgren, 2010). Positive results on social and emotional abilities have been found when systematically using Socratic, or Paideia, seminars in groups of students. The Socratic, Paideia seminars employ cooperative dialogue to investigate ideas and textual material for the group to mutually come to a better understanding with the help of a facilitating teacher, asking open-ended questions, but not giving answers or dictating what should be understood. This is one of the most thoroughly investigated classroom methods using inquiring dialogue. It is also more structured than, for example, deliberative dialogues. These two factors were important when choosing this method here.

Studies show that participating in systematic and recurrent Socratic (Paidiea) seminars can improve students' social and emotional abilities. It encourages and motivates them to express their viewpoints, and to realize the difference between personal and idea conflicts (Billings & Fitzgerald, 2002; Pihlgren, 2008). It is reported that students participating in Socratic, Paideia seminars develop their language skills and ability to interact and cooperate with others (Robinson, 2006). In addition, there is evidence on the positive effects of using Socratic questioning in cognitive therapy to sort out difficulties and complicated emotions (Kennerley, 2007).

The Swedish National agency of Education (Skolverket, 2011) has recently published an extensive research-based evaluation of the methods and materials used in Swedish schools to better

understand which ones enhance social and emotional abilities among typical students. Large amounts of quantitative and qualitative data were collected from more than 40 schools; the data were analyzed and interpreted by acknowledged researchers. Programs and lessons aiming at training empathy, emotional and social competence were proven to have no positive effects, and some of the programs even proved to have opposite effects – increasing bullying among the students. The students often found these lessons boring and sometimes even offensive. The lessons became a “school activity” – the student answered what the teacher was expecting, instead of reaching a higher ability of social and emotional competence. Interestingly, this study indicated that, students showed improved skills and abilities in social and emotional domains, when structured inquiring dialogues were used in teaching. It makes clear that inquiring dialogue has more positive effects on learning, compared to other methods.

Using systematic Socratic dialogues in education facilitates and encourages flexibility in thinking, as well as critical thinking skills (Orellana, 2008; Pihlgren, 2008). Particularly young children use the seminar facilitator as a role-model to understand and be able to perform the particular respectful and critically examining mode of interaction (Pihlgren, 2008, cf. Rogoff, 1990). The group agreeing on and evaluating individual and group goals for the dialogue before and after the Socratic seminar can help participants to visualize the cooperative dialogue (Robinson, 2006). The seminars are highly structured, evolving through a series of set stages, helping the students to keep on track, and to navigate into problem solving and deeper thinking by hearing other students’ thoughts. The students need to concentrate to be able to build on other participants’ ideas and to be able to go on to new ideas when necessary (Pihlgren, 2008). The teacher will encourage the dialogue between the students by asking interpreting, analyzing or evaluative questions like “Why does this happen? How can we interpret this? What are the pros and cons?” This questioning nature of the Socratic seminar may shift students’ attention toward a focus on the learning situation and intrinsically motivates them to actively engage in a mutually reciprocal interaction (Nouri, 2014).

Children Diagnosed with ASDs in Socratic Dialogue Seminars

According to a vast amount of literature, the following characteristics are the most put forward interventions for autistic children: (1) behaviorally based; (2) carefully planned and monitored instruction involving task analyses of skills, individualized incentives, goals embedded in routines and activities, and adequate intensity and quality; (3) ongoing, planned opportunities for interaction with typical peers; (4) need-based supports and intervention for families; (5) services delivered in many different settings to meet support needs and promote generalization; (6) broad curricular content that addresses all developmental needs; and (7) proactive use of positive behavior support for challenging behavior (Snell, 2002). Most notably, Myers & Johnson (2007) have summarized the important principles and components of effective early intervention for children with ASDs as following:

- Entry into intervention as soon as an ASD diagnosis is seriously considered;
- Provision of intensive intervention, with active engagement of the child at least 25 hours per week;
- Low student-to-teacher ratio to allow sufficient amounts of 1-on-1 time and small-group instruction to meet specific individualized goals;
- Inclusion of a family component (including parent training as indicated);
- Promotion of opportunities for interaction with typically developing peers;
- Ongoing measurement and documentation of the individual child’s progress toward educational objectives;
- Incorporation of a high degree of structure through elements such as predictable routine, visual activity schedules, and clear physical boundaries to minimize distractions;
- Implementation of strategies to apply learned skills to new environments and situations

- (generalization) and to maintain functional use of these skills;
- Use of assessment-based curricula that address: functional, spontaneous communication, social skills, including joint attention, imitation, reciprocal interaction, initiation, self-management; and functional adaptive skills that prepare the child for increased responsibility and independence;
- Reduction of disruptive or maladaptive behavior by using empirically supported strategies, including functional assessment; cognitive skills, such as symbolic play and perspective taking, traditional readiness skills and academic skills as developmentally indicated.

Helping the students to develop their social and emotional skills, and intellectual abilities are important educational aims in teaching students with autism, as well as other students (Snell, 2002). Such objectives encourage students to make and keep friends, read and interpret social situations, understand body language and proximity make accurate judgments of specific people-to-people interactions (cf. Mehring & Dow, 2001), extract social information from faces and regulate emotional responses during mutual interactions.

How the above stated objectives are best reached? It has been reported that autistic individuals have good or even exceptional memory for facts that can be developed and used to bolster existing deficits (Frith & Happé, 1995). It has encouraged some leaders in the field to point out that educational programs for students diagnosed with ASDs should be grounded in the unique ways they learn, instead of suppressing their behaviors, and to make them follow a typical developmental trajectory (Mottron, 2011). The use of cooperative dialogue and open-ended questions, as used in the Socratic, Paideia seminar, might present an alternative where this might be achieved. The following section will reflect on some important factors considered in the current literature for ASDs education and relate them to the features of the Socratic, Paideia seminar to show the potential of dialogic seminars for improving the education for these children

The potential of dialogue in social communication behaviour

Individuals diagnosed with ASDs are thought to demonstrate rigidity or inflexibility in their thinking and behavior, something often attributed to severe deficits in their ability to communicate and interact effectively with other individuals (Cotugno, 2009; McEvoy et al., 1993). Inflexible, rigid behaviors are supposed to include several difficulties such as isolation, noncompliance, aggression, stereotypic movements or activities, transition problems, and tantrums which may ultimately limit the ASDs individual's independence (Cotugno, 2009).

However, all humans are social beings who are innately preprogrammed and biologically wired to communicate with others and themselves (Nouri, 2014). According to Nouri (2014), dialogue is a unique feature of humans; no other animal is able to interact in dialogue as humans do. Accordingly, it is quite possible that social interaction plays an important role in development of children diagnosed with ASDs, as it plays in development of all children, and it is fair to consider that knowledge of dialogic strategies and techniques is important to their development. This might presuppose that students diagnosed with ASDs will benefit from participating in systematic seminars where interaction with other people is methodically facilitated and encouraged, and by which both teachers and students co-construct their knowledge and develop their understandings in flexible ways

The potential of dialogue in emotional regulation

Children with autism are often reported to lack appropriate means to communicate and may rely on aggression and other disruptive behaviors to express their needs (Koegel, Koegel, & Steibel, 1998). Self-modeling is used to strengthen their social, vocational, motor, cognitive, and instructional skills

(Bellini & Akullian, 2007; Koegel & Koegel, 1990). Self-management is also used as a technique for reduction or elimination of stereotypic behavior (Koegel et al., 1992). The observed social and communication deficit of children with ASDs is thought to be attributed to their impaired “theory of mind” (Frith & Happé, 1995, 1998; Baron-Cohen, 2000). They are, thus, thought to have an impaired capacity to understand mental and emotional states of others and are thought not able to detect explicit or implicit intentions of others.

Recent findings show that social processing in the brain is strongly interrelated with the processing of emotions (Nouri, 2014). We have earlier concluded that programs, aimed at training the social and emotional abilities of students in general often fail to do so. However, systematic dialogues in seminars enhance emotional and cooperative skills (Pihlgren, 2010; Robinsson, 2006; Skolverket, 2011) as well as sorting out difficulties and complex emotions (Kennerley, 2007).

A notable finding here is that active engagement in social interactions (e.g., use of verbal language) is one of the best predictors of long-term positive outcomes in programs for children diagnosed with autism (Iovannone et al., 2003). This would imply that engaging in seminar dialogues may positively improve the social interaction abilities of children diagnosed with autism. The emotional involvement in seminars might encourage them to act and react to the emotions of others. They would be assisted to regulate their own emotions through verbalizing their feelings and interpreting other’s emotional expressions.

The potential of dialogue in imagination and imitation abilities

Role-modeling in learning plays a key role, and human infants have a specific sensitivity to imitate facial expressions within their first hour of life (Csibra & Gergely, 2006; Meltzoff & Prinz, 2002). Recent studies on humans’ brain also indicate that the human brain is equipped with a neural system that specializes in understanding both the actions of others and their emotions and intentions. Researchers have named these neurons “mirror neurons”, because they “mirror the behavior of others” (Gallese et al., 1996, p. 995). Evidence has been presented that the mirror neurons system of autistic individuals is less actively reading the movements of others (Enticott et al., 2012; Theoret et al., 2005), or their facial expressions of basic emotions (Dapretto et al., 2006; Sato et al., 2013). These findings are supposed to explain the structural and functional difficulties in the brain of children diagnosed with autism to imitate others’ actions and to respond to social interaction.

An important potential of Socratic seminar learning is related to its possibility to facilitate learning by role-modeling (Pihlgren, 2008). The open-ended, questioning, and probing approach to problem-solving and analysis, as well as the respectful approach to fellow participants is learnt when practicing with others (Orellana, 2008; Pihlgren, 2008). As we have concluded from previous research, this has shown to be particularly effective with younger children where the facilitator is working as a role-model during the dialogue, and when the events in the dialogue are openly discussed and assessed by the participating students in the goal-setting and evaluating process. Hence, we claim that Socratic, Paideia seminars might help the autistic students to understand how to communicate emotion, thought, and to take actions similar to those that the teacher and other students display during the seminar, if the teacher is actively working as a role model, facilitating the cooperative dialogue and allowing the seminar process to be discussed and assessed by the participants.

The potential of dialogue in multi-sensory integration

It is generally believed and extensively reported that the majority of individuals diagnosed with Autism Spectrum Disorders (ASDs) experience severe difficulties in modulating and integrating multiple

sensory inputs, especially visual, auditory, and tactile inputs (Dalton & Bergenn, 2007; Baranek, 2002). They are said to frequently having difficulties with modulating motor skills such as sitting, switching, walking, stopping, running, jumping, balance and coordination. These sensory and motor problems in children diagnosed with autism seem to be associated with self-absorbed behaviors such as rocking, spinning, or hand flapping (Greenspan & Wieder, 1997). It has also been suggested that these behaviors occur because individuals diagnosed with autism try to cope with the multiplicity of sensory inputs that they have difficulty modulating and integrating, by finding repetitive ways to distract the brain, or even connect to the surrounding context (Maiese, 2013; Stubblefieds, 2013).

Several programs based on sensory integration theory (SI) have been designed to engage children in active sensory and motor challenges involving multimodal sources of stimulation, but sensory integration alone is not purported to produce gains in cognitive achievement; instead, it is designed to remove neurobehavioral obstacles that prevent learning (Dalton & Bergenn, 2007). One suggestion is that educational programs for young children diagnosed with autism should incorporate appropriately structured physical and sensory environments, such as “creative movement therapy” (Hartshorn et al., 2001), that accommodate these unique sensory processing patterns and provide opportunities for developmentally appropriate sensory-motor experiences within the context of functional educational goals (Baranek, 2002).

In the Socratic seminar, learning process’ cognitive, physical and motor skills to some extent are brought together when the students share knowledge and experiences in multiple and productive ways (Jenkins et al., 2008). Multiple modes of representation (oral, facial, visual, auditorial) are included, but the content discussed is more important than the way an idea is delivered during dialogue. The Socratic seminar provides a highly predictable structure, helping students to practice their skills in a safe environment. These factors imply that students diagnosed with autism, who display deficits in sensorimotor integration and recognition of facial emotions, tone of voice, and gesture (cf. Dalton & Bergenn, 2007), still might participate intellectually.

The potential of dialogue in problem solving abilities

While individuals diagnosed with ASDs are reported to show delays on tasks that require global processing, they may perform better on the tasks that require detail-focused processing (Frith, 2003; Shah & Frith, 1993). This observed failure to process global features is supposed to be attributed to weak central coherence, whereby general, decontextualized meaning is thought to be missed due to an obsessive attention to detail (Happe & Frith, 2006). Consequently, children diagnosed with ASDs are said to exhibit limited capability in generalization of knowledge and skills to new situations (Pierce et al., 1997). It is therefore thought to be necessary to provide increased structure and task-analyzed goals in designing curriculum for children diagnosed with ASDs (Erba, 2000). Previous research suggests that teaching children diagnosed with autism “question-asking” strategies has a significant role in enhancing spontaneous child-initiated social interactions and expressive language development (Koegel, et al., 1998). Exposed to real-life opportunities through dialogue, they might learn how to act in school and in society.

In Socratic seminars, open-ended questioning embedded in the process of learning has been shown in extensive research to help students to find new solutions, analyze, understand emotions, and see new possibilities (cf. Andersen, 1987, Billings & Fitzgerald, 2002; 1994; Orellana, 2008; Pihlgren, 2008). This is shown to be partly due to the highly regulated structure of the seminar and the teachers questioning, helping the students to learn how to navigate within the structure to come to an understanding of the more complex and intricate ideas discussed during the dialogue (Pihlgren, 2008; Orellana, 2008).

The structured Socratic, Paideia seminars might allow children diagnosed with autism to go from seeing specific details in a textual material or to focus on a specific aspect of a discussed idea to eventually achieve an understanding of a whole system, as it is in fact a part of how the investigation during the seminar is done – analyzing the parts to understand the whole. This understanding may eventually allow children to combine and apply their understanding into new settings and situations.

The potential of dialogue in motivation to learn

A major problem reported in the field of autism is a lack of motivation that is said to be especially apparent when students attempt to complete learning tasks (Koegel & Egel, 1979). They are reported to show very little interest in academic assignments and exhibit disruptive behavior when assignments are presented. One possible explanation presented in literature is that children with autism are capable of producing joint attention, but lack the social motivation to share their interests with others (Vismara & Lyons, 2007).

However, a research overview suggests that incorporating specific motivational variables such as choice, combining of tasks, and natural reinforces during intervention leads to improvements in core symptoms of autism and may possibly be effective in academic areas (Koegel, Singh, & Koegel, 2010). Participating in the process of open-ended questions, as well as in group interaction, motivates the students to actively engage in actions (Jensen, 2015, Pihlgren, 2013). In the Socratic seminar, the participants work together to solve problems and cooperate to find better solutions, hopefully motivating the children diagnosed with autism to participating in reaching a common goal – to explore and come to a better understanding, if not come to the same conclusions.

A Dialogic based Model: Weekly Socratic Seminars for Children with ASDs

Our firm belief is, as Stubblefield (2013) states, that many of the individuals diagnosed with ASDs are able to think and also make conclusions about other people's feelings and about intellectual ideas. The above insights from relevant literature highlight the potential of dialogic learning as a basis for a pedagogical approach in the teaching, learning and schooling of children diagnosed with ASDs.

Taken as a whole, educational interventions should focus on the abilities that might promote the students' understanding of, and interaction with, other people. One of the insights from this literature is that learning, understanding, practicing and sharing with others, are abilities that enable individuals with autism to cope, thrive and excel in environments that are safe and accepting of diversity (Kopetz & Endowed, 2012). We propose a dialogic based educational model; we call Weekly Socratic Seminars for Children with ASDs. It is a model built on the recurrent structure in the Socratic seminar, where the development of social, emotional and cognitive functioning are considered as critical components. As mentioned, this model takes into account the unique characteristics of the effective educational intervention for children with ASDs, along with the principles of dialogic seminars. Weekly Socratic seminars for children with ASDs aim to fulfill the following objectives:

- To understand and appreciate their own viewpoints and others' perspectives;
- To work well with others and comprehend how the self is perceived by others;
- To actively question, discuss and individually construct new knowledge;
- To encourage self-esteem and self-confidence;
- To engage in authentic experiences in situated learning settings;
- To take more responsibility for making decisions and activities;
- To understand and appropriately react to the emotional intentions of others;
- To understand and use verbal as well as non-verbal language;
- And, to reduce dependence on others and extend the abilities for supported functioning at

home, in school, and in society.

Such a model should be based on recurrent, weekly Socratic seminars. The seminar will follow the steps of the Socratic, Paideia seminar as presented in the introduction. The instructional materials including (but not limited to) texts, pictures, films, metaphors, idioms discussed in the seminars need to be organized from the following four aspects

- Developmentally appropriate;
- Of interest to students;
- Stress on the problems related to human social interactions, emotions, or dilemmas;
- Encourage students to search for solutions and dynamic discussion.

Given the challenges with language and shifting attention, visual supports can help students to make the sequence of school tasks and daily activities understandable and predictable.

Individuals with ASDs have difficulties with the linguistic structure, and social use of language. Children diagnosed with Asperger's syndrome by definition display fewer problems with linguistic structure, but do manifest pragmatic difficulties, and deficits in the effective social use of language (Brentani et al., 2013). Collaborative projects thus are useful tools that provide students with authentic social experiences they need to live in their society. The teacher needs to engage all students in dialogue and keep conversations confidential, and within the group, to create a secure room for "brave exploring" (Pihlgren, 2008). He or she must be a willing partner, not only questioning, but also listening, supporting, and giving constructive feedback emotionally. The teacher will work as a facilitator, facilitating the discussion by asking questions to the students and by pointing out connections or differences in different participants' ideas, and by functioning as a role-model in thinking, reasoning, listening and by showing respect of other participants' ideas.

Physical organization of the classroom should facilitate reciprocal interaction and communication. The 6-8 participants are seated round a table, where everyone can see each other. The facilitating teacher is placed as one in the group. The classroom is sparsely furnished and decorated. The only thing on the table is the subject of dialogue which can be presented through pictures, signs, drawings, symbols or objects.

The initial goal setting and evaluation will function as a way to promote the rules of the seminar. The following dialogic rules will also be presented to the participants, in order to clarify the social interaction and its system:

- Think carefully
- Help others to think better
- Listen to others' ideas
- Be prepared to change your mind if you hear a better idea

Students' insights and ideas are respected and teacher adopts creative and innovative ways with positive attitude to help them to make choices. The students are encouraged to engage in discussion with their peers and to take an interest in other children, to learn how to interact with others and to read other children's behavior.

Assessment techniques and procedures

Assessment in teaching is a continuous and integral part of the learning-teaching process of every seminar. Assessment has proven to enhance the students' understanding of the process as well as

of the content (Hattie & Timperley, 2007; Robinsson 2006). The purpose of assessment is to recognize the various strengths and needs of the group as well as of individual students.

It is of vital importance that assessment of students' work be conducted in a safe and supportive context where their problems and concerns related to knowledge, attitudes and skills can be addressed. Effective assessment demands a broad range of challenges by which children with autism could explore their needs, feelings, knowledge and skills. Assessment should consist of self-assessment as well as provide specific and formative feedback, unveiling to the student how to progress. This will be done after every 3rd seminar, using rubrics (designed around criteria like listening, thinking, talking, and understanding) for formative assessment, concentrated on self-evaluation, and supported by the teacher. Later in the process rubrics might be used as a material for peer-evaluation and discussions.

Parental involvement

Students diagnosed with autism often require support from their home and their community. Hence, a positive and collaborative relationship with the family is beneficial to children. Parents will be kept informed of the program and how it progresses, and they will also be trained through workshops how to support their child's development through techniques such as open questions, productive discussions while reading, listening to music, watching films, and playing computer games at home. They will also be invited to participate in Socratic sessions and dialogue with teacher and students in the classroom.

The overview of relevant literature discussing ASDs suggests that children with ASDs have extensive, long-term educational needs and the individualized education programs (IEPs) for these students need to be planned, implemented, and evaluated by an interdisciplinary team of special educators, general educators, and speech and language pathologists (Snell, 2002). Furthermore, weekly Socratic seminars for children with ASDs should be designed and implemented through authentic dialogue with a team of professionals.

Conclusion

Drawing on a body of evidence, the outline provided here is based on an assumption that humans are biologically wired for dialogue and interaction with one another in socially and culturally shaped contexts. Children are social learners who will actively construct meaning and knowledge as they interact with their cultural and social environment through dialogue (Nouri, 2014). We have concluded that this also is true for children diagnosed with autism. We have considered positive effects of using Socratic seminar in ordinary classrooms, and the potential of dialogue in developing social and emotional skills of children. Accordingly, we proposed and introduced "Weekly Socratic Seminars" as an educational program for children diagnosed with ASDs. This dialogic based model could contribute to construct a novel and strength-based methodological resource and professional paradigm for educating children diagnosed with ASDs. We hypothesize that, children's social and emotional skills as well as their intellectual abilities could be developed by providing them with learning opportunities that facilitate and encourage discussion and mutual understanding. In this model, the teacher should promote learning by being a role-model and by structuring the seminar and its context to support it. Our model also includes authentic dialogues with parents about what can be done to improve this process.

Further research however, is clearly needed to establish the impact of dialogic based interventions on social and academic success of children with autism. The interested scholars are suggested to test and evaluate the proposed dialogic based model of this study in future studies across different cultures.

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