Bar Ilan University

The Contribution of performance and verbal IQ in the ability to conduct Conversation and cooperation within the age group of autistic children with minimal verbal skills.

Dror Koren

Submitted in partial fulfillment of the requirements for the Master's Degree
in the School of education of Bar Ilan University

Ramat Gan, Israel 2017

Abstract

Background

Autism Spectrum disorder (ASD) = is the interference with neuro-developmental birth disorder that appears before the age of three years and has the effect of lowered social-communicative skills, repetitive behavior and stereotypical interests (DSM-V, 2013). Twenty-five to thirty percent of children with ASD, may be with limited verbal skills (Minimal Verbal and those with AUTISM = MVCwA) or children who are Nonverbal even after the age of five (Tager-Flusberg, & Kasari, 2013) and defined position according to the DSM-V (2013) as low functioning autism (Classic autism) or as having serious social and communicative disabilities. Kasari, Brady, LORD, and Tager-Flusberg (2013) define autism classic as IQ<70 and MVCwA as children with up to 30 spontaneous words spoken. MVCwA will be defined as having low functioning behavior (Cohen, CONDUIT, Lockley, Rajaratnam, & Cornish, 2014), in cognition (Lidstone, Fernyhough, Meins & Whitehous, 2009) in adoptive behavior (Bolte & Poustka, 2002). Among these children, the appearance of symptoms of disability such as "echolalia" and limited joint attention and communicative intent, may be more serious when compared to verbal children with ASD (Lidstone et al., 2009).

The profile cognitive dissonance of MVCwA is not uniform (Tager-Flusberg, & Kasari, 2013). The intellectual ability of MVCwA is found to be lower than children with ASD higher verbal skills. In addition, the combination of intellectual disability and ASD is more common amongst MVCwA and their performance IQ is higher than their verbal IQ (Lidstone et al., 2009). During their development, there may be an improvement in their IQ and verbal skills (Gomez, Sigman, Hutman, 2011). The lack of language and behavior skills that is common in MVCwA make it harder on the validation of measurement tools accepted for this population. The shortage of the measurement is a significant obstacle in the field MVCwA (Tager-Flusberg, & Kasari, 2013).

The shortage of studies for this population is reflected also in the field of social research that includes cooperation and communication capabilities .Collaboration is a central skill for competence and social interaction (Bauminger, 2007) which is a major factor in social life and helps in the cognitive development (Doescher & Sugawara, 1992). The ability to cooperate is built on two complementary processes: 1. The ability to understand the intentions of other people. 2. The ability to share intentions and experiences with others (joint attention) (Bratman, 1992; Liebal, Colombbi, Rogers, Warneken, & Tomasello, 2008). Additional capability used as a basic collaboration is the ability to understand the mental reference of others (the Colombi, Liebal, Tomasello, young, Warneken & Rogers, 2009) and understand different mental situations of others (Theory of Mind = TOM) (2001Baron-Cohen). Joint attention and TOM is damaged in children with ASD. Among MVCwA these deficiencies are even pronounced, resulting in inability to collaborate, coordinate and synchronize between individuals (Fawcett, & garton, 2005; Rochell, & Teasley, 1995).

In the realm of social discourse, among children with classic autism there is a significant reduction of intentional communication for social needs than in children without ASD. Amongst children with classic Autism it's possible to see that MVCwA there are less intentional communication and less frequency of communicative activities as compared to children with classic autism who use spoken language (Maljaars, Noens , Joseph & Tager-Flusberg, 2004, JANSEN, Berckelaer-Onnes Scholte, & Van, 2011).

There are too few studies involving MVCwA in general and in particular their social abilities have led to very few research studies that deal with cognitive skills and communication capabilities of these children. The few research studies found show that with MVCwA there is difficulty in understanding spoken or visual communication from individual words to complex instructions (Tager-Flusberg, & Kasari, 2013, Fernell Hedvall Kjellmer, Gillberg, & Norrelgen, 2012). Studies on social dialog among MVCwA were not found.

The purpose of the research

Disability in the spoken language harms the abilities of MVCwA to participate in conversation, and social interaction, and the ability to develop communicative and interactive skills with members of their age group which harms their cognitive development. Although the numbers of MVCwA in the relative sequence of the Autistic spectrum, there are very few studies that deal with MVCwA and the connection between their social capabilities and their cognitive skills. Due to the importance of the subject and lack of existing research we have tested the relationship between performance cognition, and verbal cognition to social discourse and collaboration of MVCwA.

Assumptions and research

In this study, a number of assumptions relating to the link between performance and verbal IQ of MVCwA and the link to collaborative capabilities and conversational capabilities and one research question. The first proposition is that we will find a positive correlation between the performance IQ and verbal IQ and the connection between the degrees of collaboration among MVCwA, in addition we will find the effect of the severity of the disability on the connection between the performance and verbal IQ and collaborative capabilities among MVCwA.

The second research proposition is that we will find a positive correlation between the performance IQ and verbal IQ and the connection between the degrees of conversation among MVCwA, in addition we will find the effect of the severity of the disability on the connection between the performance and verbal IQ and conversational capabilities among MVCwA.

The third research question we asked if there is a connection between the verbal IQ and the ability to converse. Because of the conflicting findings in the literature between the verbal IQ and social discourse among MVCwA we were unable to formulate a hypothesis for these measurements and we ask the question if there is a connection between verbal IQ and the ability of social discourse among MVCwA and if such a connection is found, whether the severity of the disability will effect the connection.

The fourth research assumption was whether we will find a connection between the collaboration and social conversation among MVCwA and if cognitive abilities will facilitate between measurements of collaboration and measurements social conversation.

The method

This research is part of a larger research that examined abilities in attention, conversation and collaboration of 54 MVCwA between the ages 8-16, students in schools for children with ASD (including such students that are diagnosed as MVCwA) and those certified as Autistic according to the SCQ (questionnaire to parents used for discerning autism (Rutter, BAILEY, & Lord, 2003). Terms of the threshold for inclusion in the study were collaboration with an adult and the use of any alternate communication tools at the level of at least 20 words symbols. Additional Terms were iq level of limited mental function medium or higher (IQ>35) as found in the test (Raven's colored progressive matrices, Raven, 1976) and in the Peabody test (Peabody Picture Vocabulary Test-III DUNN & Dunn, 1997,).

Information for social conversation and the capabilities of the children's social collaboration skills, collected through two observations. 1. The scale to encode social conversation is a tool to measure the components of conversational skills of same age group children whether typical or autistic (Capps, Kehres, & Sigman, 1998). In this study we have adapted the scale to the profile of MVCwA. 2. The observation of cooperation is built on the basis of the index of collaboration of Warneken, Chen, and Tomasello (2006) and is also adapted to the profile of MVCwA.

The results of the

The findings reinforce the basic assumption of the first research hypothesis. Two measurements of collaboration were found to have a positive connection with the performance IQ. It was found that as long as the performance IQ was higher the level of joint attention with the peer and the level of enjoyment of the child's interaction with adults was higher. No effect was found in the severity of the disability on the connection between the performance IQ and the measure of collaboration. In addition, amongst

MVCwA with high performance IQ, the level of coordination with the peer was distinctly higher as compared to MVCwA with low performance IQ.

As for the link between the verbal IQ and measurements of collaboration it was found that as long as the verbal IQ was higher so the level of synchronization with the adult was higher and the level of the joint attention with the peer was lower. The negative connection does not corralate with the expected direction of the assuptions of the research. In addition, we found that the severity of the disability had no effect on the connection of the measurements of cooperation and measurements of verbal IQ. It should be noted that no differences in collaboration capabilities between MVCwA with high verbal IQ and MVCwA with verbal IQ.

The results of the research also confirm in parts the basic assumption of the second research hypothesis. In accordance with this hypothesis we found that so long as the performance IQ was higher the children made more eye contact with their peers and had less incidents of aggressive behavior. Together with this, in the Mann Withny tests it was found that children with lower performance IQ had more eye contact with adults than children higher performance IQ. In addition, a positive connection was found between the performance IQ and the use of the alternate supportive communication for non-communicative purposes. In accordance with Mann Withny tests the children with higher performance IQ used the alternate supportive communication for no communicative purposes more than children with lowered performance IQ. The effect of the severity of the disability was found on the positive axis between the level of the performance IQ and between the use of the alternate supportive communication for non-communicative purposes, and after the removal of the effect there was a lowering of the correlation and became non-distinct. There was no additional effect of the severity of the disability on the correlation between performance IQ and communicative measurements. As opposed to the research hypothesis was found a negative correlation between the performance IQ and the head turning toward the adult and eye contact made.

As an answer to the third research question it was found that most measurements of verbal IQ had a negative correlation with conversational measurements. In addition,

it was found that the severity of the disability had an effect on the connection between verbal IQ and measurements of verbal communication with the peer and the adult in a mediated situation and in a nonmediated situation, and also between verbal IQ and nonverbal communication with a peer in a nonmediated situation. As a result of removal of the effect there was a strengthening of the negative correlation between the measurements. In addition, it was found in the Mann Withny test that MVCwA with lower verbal IQ smiled more and turned their heads toward the adult more in a mediated situation as compared to their peers with higher verbal IQ. In addition, it was found that MVCwA with lower verbal IQ showed more relevant activities to forward communication with the peer in a nonmediated situation than their peers with higher verbal IQ.

As for the fourth research hypothesis, for interaction with the adult in an observation of conversation it was found many more positive distinct correlations with collaboration measurements than for interaction with the peer. As for these measurements, the more conversation with the adult, the children cooperated more in the observation of cooperation. For the measurements of the observation of communication it was found more distinct correlation between nonverbal communication measurements and measurements in cooperation then measurements of verbal communication with cooperative measurements. That is children that used more nonverbal communication in the observation of communication, showed more cooperation in the cooperative observation.

It was found that the correlation was distinct in the observation of conversation and the observation of cooperation: joint attention, aggressive behavior and coordination:

1. So long as the children showed more joint attention in the cooperation observation, they showed higher ability in the conversational observation.
2. So long as the children showed greater negative behavior in the observation of cooperation so the conversational observation results were lower.

3. So long as the coordination with the adult was higher so the communication with the peer in the communicative observation was distinctly lower and the reverse was also true. So long as the coordination with the peer was higher so the communication with the adult in the communication observation was distinctly lower.
4. In the control over the effect of measurements of performance and verbal IQ, with regard to the connection between measurements of conversation and cooperation it was found that the verbal IQ has an effect on the correlation between measurements of conversation, that were found to be negative correlation with measurement of verbal IQ and the measurement of cooperation. It was further found that most of the correlations that were effected by performance and or verbal IQ included measurements of nonverbal communication in in the conversational observation. Most of these measurements were characterized by the turning of the head or eye contact. The type of effect and the correlations, positive or negative, that were received after the control, is different between couples of measurements. We were able to observe, with the removal of the effect of the measurement of the IQ that the correlation was strengthened between most of the measurements and was found positive. In addition, we can observe that the measurement of verbal IQ had an effect on all the correlations, which were lowered after the control, and did not have a distinct statistical result, the performance IQ had an effect on half the measurements mentioned above.

Summary and Conclusions

From the review of the literature it seems that few studies into the cognitive abilities of MVCwA and even less research was done into the connection of these abilities and collaboration and social conversation among these children. This lack of studies is due to a shortage of appropriate assessment tools to check the capabilities of MVCwA (Kasari, et al., 2013). The purpose of this research was to expand the existing knowledge about the connection between cognitive abilities of these children, and collaboration capabilities and social conversation of these children.

This study found that the performance and verbal IQ range of MVCwA is wide. In this study were included children with performance IQ range between 38 -125 and verbal IQ range between 36 -101 and approximately 11% to 14% of participants (10 participants tested with verbal IQ and 16 tested with performance IQ) are within IQ range of border or higher. The performance and verbal IQ are related partially to the conversation and cooperation abilities, sometimes with a positive connection and sometimes with a negative connection. In light of the shortage of tools tailored to measure the capabilities of MVCwA the correlations between observation of conversations results and the results of observation of collaboration strengthen the validity of the measured observations, and showed that these measurements may fit to test social abilities among MVCwA.

The findings of this research validate only partially the research hypotheses and show two trends in relation to the link between the measurements of performance and verbal IQ: on the one hand, when the performance IQ had a distinct correlation with the observed measurements, in most instances there was a positive correlation. That is so long as the performance IQ was higher so the children had more success in their cooperative and conversational tasks. On the other hand, when the verbal IQ was in distinct correlation with the observed measurements in most cases there was a negative result. So long as the verbal IQ was higher so the children succeeded less in the collaboration and conversational tasks.

The results of this research extend if only a little the window through which we look at the population of the MVCwA and enhance our understanding of the characteristics of this population. Expanding the knowledge about the characteristics of the population can lead to more accuracy in building appropriate intervention programs. In addition, from the results, when we meet a child with autism and minimal verbal skills, we must recognize that reduced verbal skills or lack of verbal abilities are not the essence of it all. Perhaps the difficulty of the child who cannot by himself bring to fruition his abilities should be the responsibility of those who provide him with care and assistance.