

The Efficiency of Peer Teaching of Developing Non Verbal Communication to Children with Autism Spectrum Disorder (ASD)

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Abstract

This study aimed at identifying the efficiency of peer teaching of developing non – verbal communication to children with autism spectrum disorder (ASD). The study was carried out on a sample of (10) children with autism spectrum disorder(ASD), diagnosed according to basics and criteria adopted at Al – taif qualification center at (2013) in The Kingdom of Saudi Arabia(KSA) . The sample was divided into two (5) students groups, experimental and control. Researchers prepared peer teaching sessions and non – verbal communication scale and established its validity and reliability significances, Mann Whitney and Wilcoxon test in testing research hypothesis. Results showed statistically significant differences at ($\alpha \leq 0.05$) Level in experimental group due to peer teaching, of developing non verbal communication, efficiency to children with autism spectrum disorder(ASD), however these differences were not found in experimental group on the scale at (2) month follow-up experiment, indicating the peer teaching efficiency effect On non verbal communication to children with autism spectrum disorder(ASD) lasted after terminating the program.

Keywords: peer teaching, non verbal communication , autism spectrum disorder (ASD)

Introduction

Diagnostic statistical Manual IV (DSM – IV, 1994) and (DSM – V, TR, 2000) autism as: And state of chronic deficit in progressive development of the child, characterized with deviation and delay in the development of basic psychological function related to social and lingual skills, including attention, sensorial perceptions kinetic development, and its symptoms start during the first three years (Al – Zreigat, 2004), however, recent developments occurred on the mechanics by which we understand categories that fall within comprehensive developmental disorders (PDD) that were introduced in manual revised fourth edition, might have the greatest effect in effecting substantial change in this category. Among the examples explaining this development is the agreement that Rett syndrome is no more a behaviorally defined disorder (as other remaining categories), but has become a genetic defined disorder as a results of scientists identifying the gene that causes it (MeCP2), therefore the fifth edition has excluded this syndrome as one of autism spectrum disorder(ASD) (Machado, Caye, Frick & Rohde, 2013).

At the same time the fifth edition of diagnostics manual (DSM - V, 2013) puts autism spectrum disorder(ASD) under the umbrella of Neurodevelopment disorders. It is possible that scientist increased interest in the mechanisms of diagnosing autism disorders and other disorders accurately, is aimed at clearing vagueness and intersection between these disorders, have motivated the scientific committee in change of preparing the fifth edition to change the label of this category and its diagnostic criteria. Based on this the fifth edition of the statistical Diagnostic manual new is using a new label of the autism as autism spectrum disorder (ASD), which combines each of autistic disorder, Asperger syndrome, comprehension Development disorder(CDD) within one label as a related category which components differs according the number of severity of symptoms (www.autismspeaks.org).

Among the basic central disorders in autism children, which negatively affects in their development aspects and their social interaction are verbal communicative and non-verbal communicative disorders, represented in a clear disorder and weakness in non – verbal communication such as cues, facial expression and body language, as well as hand signs, eye communication in addition to poor communicative initiative with others or even lack of this initiative compared with normal children (Nasser, 2002).

Early intervention, to overcome communicative difficulties, experienced by autism children, might be very crucial to work on the development of these children capacity to communicate in an automatic way, therefore, starting to train youngster autism children between (4-9) Years old, has a clear effect on learning communication with others, through training them on how to express their feeling, emotions in more than one way, this can be achieved by providing them with appropriate environment, in which children learn visual communication skills, pointing to what is desirable, body gestures, voice tone (Seddiq, 2005)

Moreover, poor language and communication are among characteristics distinguishing autistic children and school stage, and that many of them possess little language at preschool stage, accompanied with poor non-verbal communication, they are also characterized with weak attention and soaring others with their attention which block their communication. In addition, they are also characterized with speak that is not appropriate to

their age level as well as words echoing and reversing nouns, however some scientists put deficit types in language and communication in autism children in two categories: Children who don't know how to take their roles, in interactions, situations, and social changes, and children who don't understand who communication occur on how to organize and direct their surrounding environment, as a result of poor understanding of the relationship between language grammar and communication resulting in a very difficult social dialogue (Mesibov, 1998).

Speech and sign is a part of a plan for increasing communication via all media and ways available, and teaching of signs must be integrated with practice to support other aspects of personal communication, in addition to exert efforts to go beyond sensation kinetic cues and the we of speech matching by autism children (Al – Zreigat, 2004).

Peer tutoring is among the strategies that helped developing social and social interaction skills among autism children, and studies showed that training in peer tutoring facilities interaction process between autistic children and their socially capable peers (Blew, Schwartz and Luce, 1985).

Students, in peer tutoring sessions, work in pairs, where peers assume special teacher role, while students with autism assume the role of lesson recipients, and through teaching and intervention by peers, peers are more competent and encourage the acquisition and executing direct teacher objectives with the student natural environment. Moreover and to enhance communication and social competencies, peers are taught the initiative and continue sharing with disabled children through modeling and lecturing accompanied with reinforcement to help them achieve academic, social responses and play skills, and in many cases students work on reinforcing visual communication, play activities, initiating conversation and offer or ask help, maintaining social communication and interaction, enlarging interaction content, displaying feelings as well as teaching peers on understanding communication patterns, with teachers providing assistance and support to peers who received training. By employing teaching strategies via a peers, non – verbal communication, in social situations and entertainment activities for autistic children can be improved (Azzarra'a, obeidat, 2011).

Research showed an improvement in social skills in autism spectrum disorder(ASD) children as a result of peer tutoring with them (Al – Momani, 2011, Thiemann & Goldstein, 2001; Harper, et al. al 2008).

There exist a set of methods used with autism spectrum disorder(ASD) children, that resulted in communication improvement of autistic children, including Class approach, early intervention programs emotional intelligence theory applications, behavioral training programs, using pictorial activity schedules, training programs, therapeutic programs, alternative communication methods, written cards, selective attention, and Makaton program (Fateeha, 2010; Al – Rawashdeh, 2012; Al – Quasmeh, 2011; Ismaeel, 2009; Shreet, 2007; Ali, 2008; Seddiq, 2005; Qutob, 2005; Nasser, 2002, Rubina et al, 2010; Hooper, walker, 2002; Grove and walker, 1990).

Significance of the study

Attempts to intervene with therapeutic programs by applying training or teaching technique to the skills of these children is a means to supply them with new linguistic outcome that helps them learn alternative communication types, and some behaviors patterns and social skills that help them reduce behavioral and linguistic disorders in their possession (Nasser, 2002). So the current study Might be an attempt to development needed non – verbal communication by peer tutoring as a result needed of improved social skills in them, there the problem of the study lies in checking the efficiency of peer tutoring method in developing non verbal communication among a sample of autism spectrum disorders(ASD) children.

Research questions

- Are there any statistically significant differences at ($\alpha \leq 0.05$) level in experimental and control groups ratings on the pre measure an non verbal communication scale?
- Are there any statistically significant differences al ($\alpha \leq 0.05$) level in experimental and control ratings at the post measurement on non verbal communication scale due to teaching method?
- Are there any statistically significant differences at ($\alpha \leq 0.05$) level in experimental mean ratings on non – verbal communication scale from post measurement to two months follow – up?

Research objectives

- Providing a new teaching method for children with autism spectrum disorder(ASD), based on peer tutoring to develop non verbal communication on studies scientific and theoretical principles?
- Providing non – verbal communication scale derived from theoretical literature in special education.
- Assessing the efficiency of peer tutoring approach on non – verbal communication for children with autism spectrum disorder(ASD).
- Opening the way for conducting future research studies on autism spectrum disorder(ASD) children topic, special in verbal and non verbal communication.

Method and procedures

Samples

Study sample was intentionally chose from children with autism closed with a server autism degree according

to CARRS Scale and direct observation by work can not accompanied with other disorders at Attain qualification center, subject ages ranged between (8-12) Years, totaling for (10) students and one experimental, with (5) students in each group.

Instruments

Peer tutoring method

A program for peer tutoring conducted by normal peers, through scheduling non formal interaction periods between children with autism and normal's, with high social skills and master non – verbal communication skills like shared attention skills visual communications imitation, listening and understanding, pointing to what is needed, understanding facial expressions and their indicative voice tones.

Two children, with outstanding social communication skills with peers, from normal children, having, at the same time non – verbal communication skills to express what they need in various social situations.

Explaining procedures to peer teachers from normal students, to work with children with autism syndrome disorder in different teaching tasks, where tasks and instruments to be used in peer tutoring, were described as well as explaining how to give instructions, reinforcement and how to control undesired behavior prior to conducted the session in social situations (going to the school shop, rest time, and sport lessons), in which normal peers interact with those with autism spectrum disorder(ASD).

Normal peer were trained on how to deal with autistic child in the task assigned to him during training, and peer tutoring sessions were scheduled with an average of three session per week for (25-35) minutes each session where training included free play, and in general periods of free play followed training process, and during free play periods, opportunity to train in non – verbal communication, during conducting social skills, was provided.

Peer was trained, prior to each session, in a well designed fashion, with teachers supervising the implementation peer tutoring method, where the method was applied for four months, with (40) sessions, and with a monthly average of (10) sessions.

Non – verbal communication skills scale for children with autism

Purpose of the scale

This scale was designed to measure nonverbal communication skills of autistic children, represented in some skills (Shared attention, visual communication, imitation, listening and understanding, pointing to what is needed, understanding facial expressions and its voice tones).

Preparing the pre-forma of communication skills scale for children with autism

- An exploratory study, through asking (10) experts in speech and language and teacher working with autism children about the main domains and themes of non – verbal communication. For the (8-12) chronicle age, that help improving autism children non verbal communication, was conducted, and their responses were recorded and their frequencies were calculated and descending ordered, and in light of the obtained results; items with (70%) agreement between experts and teachers were selected.
- Viewing scales related to the current study topic including linguistic communication rating scale for children with autism (Nasser, 2001), communication skills for children with autism scale (Al – Momani, 2011), language skills scales for autism children (Fateeha, 2010) and verbal behavior skills rating scale for children within (6-12) years old category.
- In light of this revision and based on researcher experience in working with autism children, the pre-forma of the scale consisting of (20) items was developed.

Validity and reliability indicators of the scale

Content validity

Content validity of non verbal communication skills of autism children by presenting its pre-forma to a panel of (9) university faculty members in special education at Al-taef university, to check out scales items appropriateness for the purpose it was set for and their appropriateness for children with autism, items clarity and comprehensivity in identifying non – verbal communication skills for autism children and the extent to which they pertain to dimension. Refrees opinions and comments, on scale items and dimensions were considered, where some item were deleted, and rephrasing other, however items with inter-referees agreement of (85%) were retained.

Construct validity

To establish non verbal communication skills scale construct validity, it was administered to an exploratory sample from out side the study sample consisting of (10) children, and items correlation coefficients with total score were calculated, and they ranged between (0.89- 0.95) while total scale reliability was (0.986).

Non – Verbal scale for autism children reliability

To establish scale's reliability, it was administered on a sample of (10) autism children, not included in the study sample, and was administered once again on the same sample (Test – retest method) after a period of two weeks, internal consistency (using Cronbach's alpha), was calculated, where it was (0.9666) for the total scale.

Administering and correcting the scale

Each item in the scale was given a rating score, with in three choices response scale (Mostly, sometimes, and never) with (3, 2, 1) scores respectively and scale maximum scores are (20x 3 = 60) scores while minimum scores are (20 x 1 = 20) scores.

Results

Results related to the first research question: Are there any statistically significant differences at ($\alpha \leq 0.05$) Level in experimental and control groups mean scores on the pre – Measurement on the scale?

Mean scores of experimental and control groups on the pre measurement on non verbal communication scale were calculated, however Mann – Whitney test for independent samples was used, and its results are displayed in Table (1).

Table (1), Mean scores of experimental and control group on pre – Measurement of non verbal communication scale

Variables	Experimented group(n=5)		Control group(n=5)		U	W	Z	Sign
	B	Sum scores	Mean scores	Sum scores				
Total non verbal Communication	5.10	25.50	5.90	29.50	10.50	25.50	-0.427	0.669

Table (1) showed no statistically significant differences at ($\alpha \leq 0.05$) level between experimental and control group mean scores at pre – Measurement, where Z value was not significant, suggesting similarity between experimental groups.

Results related to the second research question: Are there statistically significant differences at ($\alpha \leq 0.05$) level between experimental and control group mean scores at post measurement on non verbal communication scale?

Mean scores of both experimental and control groups at post measurement on non – verbal communication were computed, results are displayed in table (2).

Table (2), Mean scores at post measurement on non – verbal Communication scale for both experimental and control groups

Group	N	Mean score	Sum score	Man	Wilcoxon	Z	Sig
Control	5	3.00	15.00	0.00	15.00	-	Significant
Experimental	5	8.00	40.00			2.635	0.008

Table (2) showed statistically significant differences between mean scores of experimental and control group at post measurement on non – verbal communication scale and in favor of experimental group, suggesting the efficiency of training in peer tutoring for experimental group.

Results related to third research question: Are there any statistically significant differences at ($\alpha \leq 0.05$) level between experimental and control groups mean score on non – verbal communication scale at 2 month follow – up trial?

Mean scores of both experimental and control group, at (2) months follow – up trial, were computed using Wilcoxon test for related pairs, and table (3) shows these results.

Table (3), Positive and negative mean scores of experimental and control group at (2) months follow up trial

Group	Me score	Sum score	Z	Sig
Positive	1.75	.50	-0.272	Not sigaiific
Negative	2.50	2.50		0.785

Table (3) showed no statistically significant differences between experimental and control groups mean scores on non – verbal communication scale at (2) months follow – up trial where z value was not significant, indicating the existence of program effect after two months of training.

Discussion and recommendations

Discussion of results related to the first research question

Table (1) showed no statistically significant differences suggesting similarity in mean scores of both experimental and control group at pre – Measurement, where z value was not significant, indicating the presence of a high degree of homogeneity between the two groups, and this indicates that non – verbal communication skills of the experimental and control groups was similar at pre measurement, which allowed researchers to apply the program to see its effect on children.

Table (2) on the other hand, showed statistically significant differences between experimental and control groups at post measurement on non – verbal communication scale, where Z value was (-2.635) and it was statistically significant where experimental mean score exceeds that of control group at post measurement,

supporting the efficiency of peer – tutoring on the development at non – verbal communication skills in experimental research group.

So, children with autism mastering of non – verbal communication skills. Shared attention, visual communication, imitation. Listening and understanding, and pointing to What is needed, as well as understanding facial expressions and voice tones, as basic skills dependent on body gesturing from peer trainers, and its repetition during training session by part of peers. Individual training also led to the mastering of this non – verbal communication in children with autism spectrum disorder(ASD) meanwhile peer training focusing on mastering imitation and attention skills as basic skills, while focusing on beloved visual stimuli, which draws autistic child attention and make him positively participate in the training program, as well as helping him organize the environment in which interaction with peers takes place. Moreover, peer tutoring has an advantage over the teacher classical role as controller (dominant) in the teaching process, a matter that tension occurring among students against him as he is considered authority figure source, it also allow enough time for him to perform his human role represented by displaying care towards learners as individuals, prompting them to exert effort and work, helping them facing difficulties and overcoming what they face of obstacles, as well as develop their convenience that if the peer is able to learn, it become easy for him to teach, this is in addition to encouraging them to assume the role of peer torture because of their feeling that leadership is in the hands of similar peers, and hence there is a chance to repeat learning cycle more and more, till mastering skills in which he was trained, Discussion of the results related to the third research questions:

Table (3) showed no statistically significant differences between mean scores of experimental group of a (2) Month follow – up trial on non – verbal communication skills, where Z was statistically significant, suggesting the presence of program effect after two months of its terminating, where Z value was not significant, suggesting that autism children retain skills an which they were trained including shared attention, visual communication, imitation, listening and understanding, pointing to what is needed, understanding face expressions and voice tone, meaning the ability of peer teaching to create an effective and continuous communication method for children with autism spectrum disorder(ASD), which lead to facilitated non – verbal communication process to be able to express their needs and desires which results in increased their social interaction with other.

Recommendation

- The need for training normal peers in non – verbal communication methods and including them with children with autism spectrum disorder(ASD) to improve their verbal communication
- Conducting more studies in other centers to investigate the efficiency of peer tutoring in improving communication methods verbal and non verbal) in students with autism spectrum disorder(ASD).
- Conducting training courses to train teachers and parents of children with autism spectrum disorder(ASD) on peer tutoring strategy.

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