

Using a Direct Instruction Procedure in Teaching Receptive Language to Children With Autism

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Children with autism have problems with receptive language. The purpose of this study was to evaluate the effect of using direct instruction in teaching receptive language skills to children with autism. The sample consisted of 18 students with autism, their age ranged between five and seven years. All participants had autism that affected their receptive language performance. An experimental design was used to compare the receptive language skills of nine students in the experimental group who received a direct instruction program with nine students in the control group who received traditional instruction. The teachers carried out 14 sessions. The results indicated that there were significant improvement differences between the two groups in favor of receptive language skills of children with autism in favor of the experimental group. The study was practical, low cost, and easy to implement the procedure to improve receptive language skills for children with autism. The results and their implications are discussed further.

Keywords: autism, direct instruction, receptive language, language instruction, teaching language

INTRODUCTION

Autism is diagnosed based on abnormalities in social interaction, communication, and cognitive flexibility that are evident before age three; language onset is significantly delayed in children with autism (Al zyoudi, 2014). For this reason, these children often have significant language development delay as they struggle to maintain conversation with another person. The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) published by the American Psychiatric Association (2000) is one of the most frequently applied sources in diagnosing children with autism. The diagnostic criteria in the language and communication fields are classified as late speaking or never speaking, difficulty in starting or counting communication, extraordinary or repetitive use of language (Carnine, Silbert, Kame'enui, and Tarver, 2010; Gantman, Kapp, Orenski, Laugeson, 2012). The difficulties in language and communication skills in children with autism affect cognitive and social development; in addition, it can cause behaviour challenges. Therefore, the applications for developing language and communication skills are considered as one of the most important interests for speech and language specialists and teachers working in the field of autism (Makowski, McLaughlin, Johnson, and Beiers, 2013).

Children with autism vary in their language abilities. Although, only few studies analyzed differences between expressive and receptive language abilities based on group design (Konstantareas, Rios, and Ramnarace, 2010). Children with autism have difficulties related to respective language skills as well as verbal expressive language skills (Maljaars, Noens, Scholte and Van Berckelaer-Onnes, 2012). However, despite the difficulties encountered both in expressive and receptive language skills, a substantial number

of publications on language and communication issues in autism focus on and evaluate issues related to expressive language skills. There are limited numbers of studies related to receptive language in children with autism (Abrahams and Geschwind, 2008; Maljaars et al., 2012; Noens and Van Berckelaer, 2005; Shumway and Wetherby, 2009). Lovaas (2003) defines receptive language as responding nonverbally to others' verbal stimuli. The term receptive language, however, is quite broad and encompasses response classes that are controlled by different types of antecedents. Thus, specifying the exact contingency arrangements that produce specific types of responses such as various sub-skills that are grouped under the broader domain of receptive language may be useful in assisting practitioners to develop programs to teach these sub-skills. For example, receptive language includes behavior such as nonverbally identifying objects, actions, persons, and locations. Additionally, receptive language includes performing actions upon requests (e.g., jumping, clapping, etc.), and nonverbally relational terms such as prepositions and pronouns (Maljaars, Noens, Jansen, Scholte and Van Berckelaer-Onnes, 2012).

Communication is a necessary component of socialization. Research suggests that children with poorly developed language may experience social problems. Jansen, Culemans, Grauwels, Maljaars, Zink, Steyaert, Noens (2013); Higgin, McLaughlin, and Mark Derby (2011); and Qi and Kaiser (2004) compared social skills of children with language delay with normal children. Therefore, research focusing on intervention strategies intended to improve communicative language might greatly benefit children with autism from the perspective of enriching language and increasing the opportunity for socialization. Those children with language delay exhibited poorer social skills compared to normal children.

To date, there is limited research to guide teachers and specialists in teaching receptive language skills to children with autism. Benner, Trout, Nordness, Ron Nelson, Epstein, (2002) investigated the effects of the entire language for learning program. Results indicated that children who received language for learning instruction had statistically higher scores than other children. One of the most used methods in teaching language and communication skills to children with autism is the Direct Instruction method which shares characteristics with other behavioral approaches in some ways as mentioned by Flores and Ganz (2007) and McCrimmon, Schean, Saklofske, Montgomery, and Brady (2012):

1. Through task analysis, program skills and tasks are broken into parts to meet the needs of learners
2. There are sets of teacher behaviors and procedures (e.g., model, lead, and test), and immediate feedback,
3. Students engage in repeated practice,
4. Program procedures are designed so that the learning environment and teaching behavior set the stage for the learning environment and teacher behaviors set the stage for effective learning.

Flores and Ganz (2009) documented the positive effects of the Direct Instruction method in improving communication and reading skills of students with autism and in spelling instruction. Research has shown that direct instruction is not only successful in reading but in spelling instruction. Bishop, McLaughlin, and Derby (2011); Cole, McLaughlin, and Jognson (2012); Hamad et al., 2022; Heward, (2013), Whalen, Moss, llan, Vaupel, Fielding, and MacDonald (2010) demonstrated the effectiveness of using intensive intervention programs in developing receptive language skills. One such program, language for learning is ideally designed and suited to be delivered by teachers to children with autism to teach them the language skills and concepts necessary for understanding oral and written language.

The purpose of this study was to extend previous research using Direct Instruction into Arab culture. This research also served to assess the effects of Direct Instruction of a Language program to improve receptive language skills in children with autism. It appears that no research to date has examined the effects of the Direct Instruction of a Language program on the receptive skills of children with autism within the context of the UAE.

This study was limited in terms of: a) time available for program implementation. Although students made progress and statistically significant gains, it is not known how a comprehensive implementation of the Direct Instruction would affect students' performance; b) Direct Instruction was not compared to any other method or strategy. Therefore, the results show that Direct Instruction was effective for the experimental group rather than demonstrating any advantages of using other methods; c) although the

current study extends previous research, a larger group involving students with varied levels of functioning is needed to translate the results to the larger population.

METHODS

Participants

The eighteen males aged between 5-7 years old classified as having autism by assessors in their center. The authors using Gilliam Autism Rating Scale (GARS) confirmed their diagnosis; the teachers completed the Arabic version of the scale (AbedrHaman and Hassen, 2004). All were attending special education classrooms and had an individualized education plan (IEP). They have difficulties in understanding language, inability to understand sentences, respond to verbal comments, answer questions, and fail to respond when they are called by their names.

Settings

The study was conducted in one school in Al Ain in the United Arab Emirates (UAE). Two special education teachers implemented the individualized education program (IEP). The classroom environment and instructional programs were tailored to students' needs as stated in their IEPs. These included strategies such as small group direct instruction. Direct instruction sessions lasted for 10-15 minutes per child.

Participants

The sample of the study consisted of 18 students with autism. The participants were randomly assigned into two groups: the experimental group included nine children who were subjected to the experimental treatment, and the control group included nine children.

Study Design

For this study, a pre-test-post-test experimental design for the experimental and control group was employed. Thus, the experimental group received the intervention program. Pre-assessment was conducted before beginning the intervention by the authors and the special education teachers. Each participant was shown ten pictures of items. The participants were asked to identify by pointing to each item by name (e.g., show me the man eating his dinner).

Dependent and Independent Variables

The dependent variable for the participants was learning receptive language. The independent variable was direct instruction procedures which were carried out by presenting verbal instruction and in which visual support based on gestures and signs along with verbal instruction was provided.

Intervention

The Direct Instruction language program used in this study was Language for Learning (Englemann and Osborn, 1999). The placement in the program was determined by the placement tests incorporated in the program materials. The program Language for Learning is based on the presentation of predetermined language instruction formats. The materials were organized in a sequence designed to provide maximum benefits from the teacher's direct instruction. 14 sessions were carried out. For a five-week period, each participant received three intervention sessions per week from a special education teacher. These sessions were drawn up based on assessment data from a receptive language test. To set up instruction, the child sat close to the teacher so that he could see the pictures. During instruction, the teacher presented each exercise as it appears in the presentation guideline.

RESULTS

To examine whether there were statistically significant differences in the post-test means of the receptive language scores for children with autism, the analysis of variance (2x2) was used, and the results

of this analysis were summarized in table 1. The results reveal that there is a significant difference ($p < 0.05$) between the control and the experimental group at the post-test. In addition, for the experimental group, there was a significant difference ($p < .05$) between their performance on both the pre- and post- tests. Table 1 presents the results of this analysis.

TABLE 1
RESULTS OF ANALYSIS OF VARIANCE

Source of variance	Sum of Squares	d.f	Mean of Squares	F Ratio
Between groups	240.66	2	120.33	9.55*
Within groups	676.82	28	24.17	
Total	917.48	30		

* $p < .05$

Table (2) demonstrates the means, standard deviations, and the level of significance for the means of the pre-and post-test scores of the groups.

TABLE 2
MEANS, STANDARD DEVIATIONS AND THE LEVEL OF SIGNIFICANCE OF THE PRE AND POST TEST SCORES

	Pre- test	Post- test	sig
Experimental group			
M	69.13	88.47	P < .05
SD	12.66	11.25	
Control group			
M	70.67	71.72	P > .05
SD	14.93	16.87	

Table (2) shows that the mean scores for the post-test are 88.47 and 71,72. For the experimental group sample and the control sample, respectively.

DISCUSSION

The purpose of this study was to extend previous research using Direct Instruction in Arab countries. This research also served to assess the effects of Direct Instruction of Language program to improve receptive language skills of children with autism. It appears that no research to date has examined the effects of the Direct Instruction of Language program on children with autism. The researchers implemented the intervention program to address receptive language skills for a five-week period. Children's performance was measured over time by using curriculum-based assessments (CBA) included in the intervention program. Results indicated that the intervention program has a strong effect on students' learning. This extends prior research which indicated that there was a functional relation between Direct Instruction and increased receptive language skills when investigating specific instructional methods with Direct Instruction programs (Aloufi et al., 2021; Crowley et al., 2013; Konstantareas et al., 2010; Makowski et al., 2013; Maljaara et al., 2012). Students on the experimental group participated in the language form and the rate prescribed by the program. As Flores and Ganz (2009) found, the students followed directions, remained on-task, and responded to instructional demands and tasks without deviation from the

management techniques recommended within the program. In contrast to the previous studies, the current study provided a more realistic implementation for the Direct Instruction programs.

Previous research demonstrated that students with autism could successfully participate in Direct Instruction, including its unique instructional formats such as individual resounding and the presentations of multiple skills within one lesson (Flores and Ganz, 2009; Gantman et al., 2012 ; Tashtoush et al ., 2022 ;Wardat et al., 2022). Within the current study, the experimental group was able to participate in all portions of the lessons and successfully move from one level to another. The results of this study extended previous research in terms of: a) conducting this research in an Arab country; b) using two groups (experimental and control); c) from the use of portions of programs to the presentation of the whole programs; d) exposing experimental group to lessons in which they learned multiple skills.

This study demonstrates that students with autism can benefit from direct instruction. However, students in the experimental group in the current study successfully participated in Direct Instruction, which required sustained attention and frequent responding.

It appears that the Direct Instruction program tested in the present study can greatly increase the receptive language skills of children with autism and potentially prevent academic and social failure. Individuals who serve or care for young children should focus on developing language skills using instructional and curricular methods that have been empirically validated, as opposed to relying solely upon traditional methods (e.g., reading stories and singing).

Future research is needed regarding the efficacy of comprehensive implementations with a larger group of students with varied levels. Another area of needed research is students' progress assessment.

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