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Understanding Verbal and Visual Metaphors in Children with Learning Disabilities: Relation to Verbal and Nonverbal Ability

Asma Sharkia Shmalia

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of Prof. Nira Mashal

School of Education, Bar-Ilan University

Abstract

Everyday discourse is rich in figurative and metaphorical expressions. In fact, there is no field of abstract concepts, such as emotions, ideas, and mental activities, which does not include an entire collection of metaphorical expressions that illuminate its various aspects. Metaphor is an essential ingredient of human communication, and it plays a valuable role in education. In the last few years, engagement with metaphors has transformed from a marginal issue to a central topic in educational research. Metaphors are used as a central mechanism for thought in the cognitive system and in basic cognitive actions, such as learning, concept building, problem solving, and the development of thought as a way to connect between old and new knowledge (Levi, 1995). Many researchers have examined the metaphorical abilities of children, but few studies have examined the metaphorical abilities of children with learning disabilities. This study joins others that have appeared in the last decade, which point to differences amongst the population with learning disabilities in understanding metaphors. Evidence has arisen from these studies for the existence of differences in metaphorical understanding amongst students with learning disabilities (Seidenberg & Bernstein, 1988; Lee & Kamhi, 1990; Mashal & Kasirer, 2011).

With regard to the study's purpose, four **research questions** were designed as follows: (a) Will differences in understanding visual and verbal metaphors be found in children with learning disabilities when compared to typically developing (TD) children? (b) Will differences be found in the understanding of verbal metaphors by children with learning disabilities and verbal difficulties in comparison with children with learning disabilities who exhibit a proper linguistic level but have visual-spatial difficulties? (c) Will differences be found in the understanding of

visual metaphors between the two groups of children with learning disabilities? (d) Is there a relation between one's level of function (verbal or visual-spatial) and one's metaphorical understanding (verbal or visual, respectively) in the groups?

The **research hypotheses** derived from these questions are:

1. Children in the two groups with learning disabilities (learning disabilities with verbal difficulty and learning disabilities with nonverbal difficulty) will demonstrate significantly reduced performance in the understanding of verbal and visual metaphors, in comparison to TD students.
2. Children with learning disabilities who possess verbal difficulties will have difficulty understanding verbal metaphors in comparison with the groups of children who have learning disabilities and possess visual difficulties. In contrast, children with visual difficulties will have difficulty understanding visual metaphors in comparison with children with learning disabilities who have verbal difficulties.
3. Children with learning disabilities who have verbal difficulties will have more trouble understanding verbal metaphors than visual ones. In contrast, children with visual difficulties will experience greater difficulty understanding visual metaphors than verbal ones.
4. A positive correlation will be found between functioning level (verbal or visual-spatial) and metaphorical understanding (verbal or visual, respectively).

Eighty children participated in the current study, from a sampling of sixth grade students ranging in age from 10-12. Of those, 40 were TD students and 40 had learning disabilities, and they were matched for age and sex variables. For the

purposes of this study, all of the subjects underwent a process of screening and filtering through a procedure based upon studies by Dimitrovsky et al (1998) and Even (2000), on the basis of their functioning on a Ray Test and Benton Test. After screening, 66 students were chosen who were suitable for the study's goals, and they were divided into three groups:

a. Thirty students with normal development, with an average age (M=11.4, SD = 0.5)
b. Seventeen learning disabled students with verbal difficulties, with an average age (M=11.31, SD = 0.62)
c. Nineteen learning disabled students with visual difficulties

Each of the three groups of students underwent a Metaphoric Triads Task (MTT), whose goal is to examine understanding of metaphors amongst children. The test is composed of two parts: a verbal section, which is designed to examine understanding of verbal metaphors, and a visual section, whose goal is to check understanding of visual metaphors through illustrated pictures. The material in the two sections is identical. The test was administered in two meetings—in the first, the visual section of the test was given, and after three weeks, an additional meeting was arranged in which a verbal section of the test was administered.

With regard to the first research question, whether differences would be found in visual and verbal metaphorical understanding amongst children with learning disabilities in comparison to TD children, the findings show that there are differences in metaphorical understanding between the two groups. Students with TD showed higher performance in understanding visual and verbal metaphors in comparison with the two groups of students with learning disabilities. In addition, amongst students with TD, verbal metaphorical understanding was better than visual metaphorical understanding.

The second research question was whether differences in verbal metaphorical understanding would be expressed amongst children with learning disabilities and verbal difficulties in comparison with those with proper linguistic levels and visual-spatial difficulties. The research findings show that students with learning disabilities and verbal difficulties had greater difficulty understanding verbal metaphors than the group of students with learning disabilities and visual-spatial difficulties and the group experiencing proper development. In addition, in measuring the understanding of visual metaphors, it was found that the functioning of students with learning disabilities and visual-spatial difficulties was the lowest in comparison with the other two groups.

With regard to the third research question, whether there is a clear connection between one's level of functioning (verbal or visual-spatial) and one's metaphorical understanding (verbal or visual, respectively) in all of the groups, the research findings show that there is a positive correlation between verbal functioning and verbal metaphors and between visual-spatial function and visual metaphors.

The study's conclusions confirm the gap in understanding figurative language between students with learning disabilities and those in the same age group who exhibit proper development. Secondly, the understanding of verbal metaphors is greater than that of visual ones amongst the group of students with proper development. In addition, students with learning disabilities who have verbal difficulties have greater difficulty understanding verbal metaphors than visual ones, and students with learning difficulties who have visual-spatial difficulties experience greater difficulty understanding visual metaphors than verbal ones. In addition, the higher one's level of verbal ability, the better one will understand verbal metaphors,

and at the same time, the higher one's level of visual-spatial ability, the higher will be one's understanding of visual metaphors. Finally, the understanding of figurative language first requires verbal comprehension and proper cognitive levels.

The current study contributes to academic knowledge in the area of understanding visual and verbal metaphors amongst the population of students with learning disabilities, who are differentiated by neuropsychological dysfunction in comparison with the group of students with proper development. In addition, this research is of importance both from clinical and educational perspectives and it can be the basis for developing intervention programs tailored to students with learning disabilities.