

BAR-ILAN UNIVERSITY

**Examining Global and Local Perception in Visual and Auditory Modality:
Comparison between Readers with Dyslexia and Readers with ADHD**

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

Abstract

The main purpose of the present article is to determine whether or not students with developmental Dyslexia and with ADHA (Attention-Deficit Hyperactivity Disorder) differ from normal readers in their LOCAL and GLOBAL perceptions of auditory and visual modality.

The LOCAL and GLOBAL perception was tested via three tasks cast on all subjects: first, The Navon Task, designated to test the perception skills in a visual task where subjects were required to identify global or local stimulus; second, The Palmer & Kimchi Task, specified to test the effect of size and density in visual modality; and the third task tested, via various tone voicing, the processing skills in auditory modality.

The postulation at the basis of this article is that the processing characteristics we use affect the reading skills and stimuli perception in our lives, and by that on our learning abilities and daily functioning.

In the relevant literature, research shows that during global perception, a larger amount of right hemisphere activity is found, while in a local perception, the left hemisphere is more active. In addition, subjects with Dyslexia were shown to suffer from a left hemisphere damage, while subjects with ADHD seemed to have a right hemisphere damage.

In the present reaserch, we tested the perception ability of the participants when exposed to a non-verbal (shapes) stimulus and to auditory stimulus. For that purpose, we established three groups of 18 subjects each, as follows: Group A - subjects with Dyslexia, Group B - subjects with ADHD and Group C - healthy subjects (control group). All subjects were within the range of 20-37 years of age.

The results among subjects with Dyslexia in the two visual tasks and the auditory task showed GLOBAL preference, same as with the control group; yet, their perception rate has been significantly lower than the control, healthy subjects. This finding reflects a difficulty in word segmentation (splitting of sounds), and in reading long and unfamiliar words.

On the other hand, participants with ADHD showed no preference to LOCAL or GLOBAL perceptions in the visual tasks, a finding that reflects the difficulties they face trying to see the whole picture, and, sometimes, to understand the small details that compose this full context. In the auditory task, however, these subjects' achievements were similar to those of the control group, implying that their auditory skills are not affected by their disorder.

The uniqueness of the present research is in that it is the first to test the LOCAL and GLOBAL perceptions of two examinee groups, in two different modalities. The article raises the need to treat Dyslectic people in a manner that refers to the various modalities at the same time; by that it offers additional support to earlier subjects, that claim the existence of more than one cause on which Dyslexia is based.

In addition, among ADHD sufferers, we can assume that a treatment via attention allotment may enable them to focus on details, and only then on the full picture, or vice versa; another option is to consider treatment via musical means, in order to regulate the attentiveness of these subjects.