Abstract

Academic writing is one of the most abstract and complex literacy skill for students at all ages (Arfé et al., 2014). The main goal of the current study was to test the contribution of an intervention program focused on academic writing products at the microstructure and macrostructure levels among students with mild intellectual disability (ID) studying for a B.A. degree.

The participants are part of the "Empowerment" project, a 3-stage academic inclusion program for students with ID at the Faculty of Education, Bar-Ilan University, Israel. As part of the academic requirements, they had to write a scientific paper in each course.

Previous studies examining the oral narrative ability of adults with ID used the micro-macro system analysis (Altman et al., 2022; Zanchi et al., 2021). Microstructure indices refer to lexical and grammatical components of the text (Martzoukou et al., 2020). Macrostructure indices refer to the structure of the text as a whole and to the information conveyed through it and refers to indicators (Altman et al., 2016). In the present study we used the microstructure and macrostructure indices for the first time for analyzing academic writing.

Method: Participants were six students (MCA = 30.43, SD = 5.38) with ID (MIQ = 69.17, SD = 2.56) who are studying for B.A. degree as part of the "Empowerment" Project.

Intervention program: A 16-week intervention program was constructed for this study in order to improve the students' academic writing skills. The intervention program was built according to the four writing stages model of Chenoweth and Hayes (2003).

Research design: The intervention was delivered in two phases in two semesters, with a 7-month break between the two semesters. Each phase contained 16 90-min sessions, according to the principles of spiral teaching (Graham et al., 2016; Troia, 2014).

The writing products were measured at five different time points: Before the intervention (Time 1), during the two intervention sessions (Time 2, 3, 4) and at the end of the second intervention (Time 5).

Assessment tools: The writing was analyzed according to the microstructure indices (total number of words, paragraphs and sentences in the text, number of words per paragraph, lexical density, percentage of adjectives and syntactic complexity) and macrostructure indices (text structure, paragraph structure and coherence index). The learning curve was also examined.

Findings: One-way repeated measures ANOVA indicates significant higher scores in the posttest compared to the pretest in the following measures: Microstructure indicators (total number of words, paragraphs and sentences in the text, number of words per paragraph, lexical density, percentage of adjectives used). Macrostructure indicators (the coherence indicators global linkage, local linkage). Significant improvement was found in the complexity of the

structure. No difference was found in the microstructure index of syntactic complexity. Three types of learning curves in the micro and macro indices were demonstrated.

Conclusion: The findings indicate that a long-term, spiral intervention program is effective in improving academic writing skills that require high cognitive involvement among graduates with ID both at the microstructure level and at the macrostructure level.

The Structural Cognitive Modifiability (Feuerstein, 2003) and the Compensatory Age Theory (CAT) (Lifshitz-Vahav, 2015) can serve as explanations. The CAT claims that chronological age plays an important role in determining the cognitive level and ability in a population with ID at an older age, and that mediated learning may result in the acquisition of skills that were absent from the cognitive repertoire of participants before the intervention program. Maturity and life experience contribute to the development of cognitive ability in the population with ID in their adulthood (Lifshitz, 2020; Lifshitz-Vahav, 2015).