

Abstract

This study aimed to examine whether and to what extent kindergarten children in the Arab education system in Israel spontaneously apply scientific thinking and research skills during scientific experimentation and express scientific curiosity, and whether these abilities and behaviors are influenced by such attributes as cultural, socioeconomic background and general intelligence. The research hypotheses were that kindergarten children from the Arabic society would apply scientific thinking and research skills during a scientific experiment to a great amount, that the children would demonstrate a great deal of scientific curiosity during their studies in the kindergarten and that inquisitive behavior and scientific curiosity would be influenced by the children's socioeconomic status. The study involved 60 kindergarten children from three kindergartens in different socioeconomic groups (low, medium, high). The research used the Mixed-research method using several research tools. The main research means was an integrated behavioral-cognitive tool that includes various indicators to perform scientific thinking skills, research skills and scientific curiosity. The tasks assigned to the children included interviewing puppets, scientifically observing the process of yeast fermentation, and researching and discovering objects. The results of the study supported the hypothesis that kindergarten children would apply scientific thinking and research skills during the three tasks observed through the integrated cognitive-behavioral tool. In addition, the study confirmed the hypothesis that, in the kindergarten children who participated in the study, socioeconomic background influenced scientific thinking abilities, scientific research abilities, and the manifestation of scientific curiosity.

The significance of this study is that, first, it reinforces the assumption that students from low socioeconomic backgrounds may have fewer opportunities and less exposure to the acquisition of knowledge and scientific skills. Accordingly, the findings of this study show gaps between children from high and low socioeconomic environments, suggesting that to help children from low socio-economic populations overcome the gap, they should be provided with appropriate opportunities in the

educational setting to increase their motivation and self-confidence. Second, till now, similar research regarding scientific curiosity and scientific thinking have only been carried out within the Jewish population; this study is the first to investigate these issues in kindergartens in Arabic-speaking society, a part of the fabric of the country's population, to understand the attitudes of these children towards science, their research abilities, and their displays of curiosity. This study paves the way for further research to understand in depth the impact of personal and social background factors on scientific thinking and scientific curiosity in Arabic-speaking society and in general. Another innovation this study offers due to the fact that very little research has been published so far in the literature about scientific thinking, curiosity, and scientific curiosity in general, and in particular among kindergarten children. This study adds a tier of knowledge on top of the little known so far.