

CHILDREN'S DEVELOPMENT OF THE ABILITY TO UNDERSTAND OPACITY OF MENTAL STATES
(EXPERIMENTAL STUDIES WITH THE USE OF FALSE BELIEF TESTS AND INTENSIONALITY TESTS)

Promotor: Prof. UW dr hab. Maciej Haman

Abstract

The following dissertation focuses on the way an understanding of intensionality in pre-school children is shaped and developed, i.e. on the development of understanding that (i) mental representations are opaque, (ii) they have an aspectual profile, or (iii) they determine alternative modes of presentation of the same object. At the same time—bearing in mind the contemporary discussions over that subject—we attempted to answer the question of how far passing the false belief test is a good predictor that a child holds the knowledge that mental representations are opaque. Next, by means of numerous modifications introduced to a false belief test and an intensionality test (introducing a test with labels and changing the number of the labels chosen by children), we explored the issue of the extent to which such factors as linguistic demands (multiple labels for single object or property) can result in poorer results in the intensionality test as compared to the false belief test.

The following tests were applied in the research: /a/ false belief test (“deceptive box” version), /b/ intensionality test (“toy-car—pen” version), /c/ intensionality test (“policeman—daddy” version; a story about Anna), /d/ intensionality test (“toy-car—pen” version): a test with use of stickers (versions with two and four stickers). The following sample was chosen for the research: children living in cities and going to municipal kindergartens were chosen for the research. The basic qualifying criterion was the child’s age. 195 children participated in the research. They were divided into four age groups: 3-, 4-, 5- and 6-year-olds.

Having conducted numerous experiments testing an understanding of opacity of mental states by children aged between 3-6, the results show that the differences between the age groups are statistically significant and that there is positive significant correlation between age and answer correctness. Regardless of numerous modifications introduced to the form of construction of a test task, it turned out that after reaching 6 years of age, the majority of children give correct answers to opacity questions. It can be said that 6-year-olds performed above chance in all the experiments. At the same time, 4- and 5-year-olds still showed much difficulty performing tasks in the intensionality test. In turn, 3-year-olds always performed below chance level.

After investigating the relation between performance on epistemically opaque contexts and performance on false belief understanding, we observed a statistically discernible gap between the level of performance on both the tasks. Analyses of the level of correct answers (applying different methods such as McNemar’s or Cochran’s Q test) revealed statistically significant differences in children’s efficiency of responding to questions in the false belief task and in intensionality tests.

Further, it was shown that the very introduction of multiple terms/labels referring to the same object did not significantly lower the level of performance on both the tests (false belief test and intensionality test). The tasks with four choices (stickers) did not cause more problems to children than did the tasks with two stickers. The differences in the whole sample did not appear to be statistically significant with regard to the number of choices in a test. In turn, statistically significant differences were measured in the case of changing a task that required understanding a opacity of belief.

In the discussion of the results, it was explained what cognitive mechanisms determine the efficacy of performance on the intensionality test. We have accounted for a whole set of reasons for the fact that children find the intensionality test more difficult than the false belief test. Furthermore, we explained that the best solution to that issue is to treat the development (in understanding mental representations), after passing false belief test, in terms of the

enrichment of the content of the concepts being the basis for the ability to read and understand mental states. At the same time, we proposed that the process of enriching conceptual content (e.g. of the “belief” concept) should be regarded as a transition from coarse-grained concepts to fine-grained concepts.