ABSTRACT

The aim of the thesis is to describe the decision making process of students in the so-called simple categorization, i.e., decision whether a particular object is or is not an element of a category. This process is examined in the context of categories of mathematical objects. The theoretical part of the thesis presents arguments why the study of simple categorization of mathematical objects is important for mathematics education. These arguments are not only based on the available literature in mathematics education, but also partly draw on historical, mathematical and psychological literature. The practical chapters of the thesis describe the design and piloting of a research tool suitable for this research. The dominant elements of this tool are the measurement of the binary answers (yes / no) of the respondent and of his/her reaction time. This tool is then used in the Main study based on mixed, qualitative-quantitative methodology. It was found that with the help of the proposed tool, while adhering to appropriate methodological rules, it is possible to distinguish different approaches of respondents to categorization. In addition, the basic patterns in the decision-making process of the respondents were described. These are, for instance, differences in the categorization of examples and non-examples, differences in the categorization of simple and more complicated objects, the relationship between the number of correct responses of respondents and their reaction times, etc. These findings may be important for further research in this area and subsequent applications. Such an application can be, for example, comparing the quality of respondents' mental concept representations using simple categorization.

KEYWORDS

Categorization, categories, mathematical objects, mathematical concepts, representations, concept image, concept definition