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Review of Doctoral Thesis

Author: Giannamaria Manno
Title: Linguistic register and teaching-learning of the function concept in the Secondary school
Reviewer: PaedDr. Soňa Čeretková, Ph.D.

1. General description

The thesis consists of six chapters, the presentation and the aim of thesis as the first part of thesis, the rich part is appendix (more than 40 pages and the bibliography). The thesis is written on 206 pages all together. The conclusion of the thesis author preformed in the fifth chapter. The sixth chapter is interesting theoretical introduction to the construction and description if the milieu.

The structure of thesis conforms to principles and requests to the structure of scientific thesis.

The author has studied and used appropriate number of bibliography sources used and quoted in the thesis. It is the evidence of the deep theoretical knowledge and very good orientation in the problem discussed in the thesis.

The word processing of the thesis is adequate. The using of different fonts and structure of the text is proper and helps the reader to better orientation in the text. Some pictures in the copy are not big enough to be readable (pg. 154 - 159). It is not ordinary custom to print the scientific work in two-sides format, too.

The thesis fulfils the formal requests on good level.

2. The topicality of the thesis

Theory of mathematics education as the scientific discipline deals with many exciting topics today. A lot of reserchers precieve the elementary and primary level in teaching and learning mathematics as the most important level. It is the age of pupils when the basic attitude to the subject is

The author has performed good orientation and wide knowledge of different parts of theory of mathematics education considered in the thesis: theory of didactical situations (chapter 1), mathematics and language (chapter 2) and has did sufficient research concerning to the topic (chapter 3), as well as the theoretical introduction into embodiment theory (chapter 4) and the learning from the point of view of neuronal approach (chapter 5) are pointed the author's ability to perform the scientific work on the required level.

The topic of thesis is current and relevant in the context of up-to-date research in theory of mathematics education.

3. Aims and methods of the thesis

The aims and methods are performed in the introduction as well as the hypothesis of the research. Chapters 1-2 are theoretical background of the research. Chapter 3 performed the research process and its results.

The chapter 3 **A teaching proposal** is the core of the research part of the thesis. The aims, background of the research problem, hypothesis and research methodology are clearly described in this chapter, as so the results of research and its' interpretations and conclusions.

The analysis of pupils answers in test or the analysis performed and orally described activities during the game Play-Path are interesting results of the experiment. The author's explanations of the obtain results from the point of view of hypothesis introduced at the page 69 are correct and satisfactory to the aims and methods required in doctoral thesis.

The chapter 3 is nice example of active research work in theory of mathematics education.

The chapter 4 introduces the embodiment theory and its place in mathematics generally, and in mathematics education (through conceptual metaphors). It is the author's successful attempt to find the connection between embodiment theory, everyday language expressions (vertical, plumb line, perpendicular) and mathematics education methods (play-path game) to help children to find the correct mathematics knowledge (see pg. 94).

The thesis is inspired from both of the theoretical and methodological point of view. Aims and methods are clearly described, author represents the ideas and knowledge with sufficient theoretical background. The aims were fulfilled, methods of research work are appropriate to the aims and hypothesis formulated in the thesis.

4. Results of thesis and their benefit

From what was said above, it is clear that is able to organize and realize the significant research work in theory of mathematics education.

The theoretical background, both mathematical and didactical, and the active research work performed in the thesis of is benefit to existing materials and ideas in the research of theory of mathematics education.

5. Questions

1. Are there some different teaching attitudes and aims in teaching planimetry and stereometry? Is there some connection of these attitudes to conclusions described by author on the page 110 of the thesis?

2. I miss the connection of the theory of Piaget psychology of child and described neuronal approach of learning in the chapter 5. Is there some connection from the point of view of author's research target group (children 5-10 years old) and the ability of the child to understand and solve the problems given in research test and play-path game?

6. Conclusion

In my opinion, the thesis by **Giannamaria Manno** fulfils all the conditions for gaining the PhD. degree in Theory of Mathematics Education; therefore it is recommended.

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