

REVIEW

**of dissertation on the topic: “TEACHING STRATEGIES FOR CHILDREN
WITH DYSLEXIA AND DYSCALCULIA”**

for awarding the educational and scientific degree PhD in professional field

1.2. Pedagogy (Special Education)

PhD student: Dimitra Koraka

Research supervisor: Prof. Milen Zamfirov, DSc

Reviewer: Assoc. Prof. Diana Ignatova, PhD

The present review adheres to the basic requirements established during the discussion of the dissertation for obtaining an educational and scientific degree Ph. D.

1. Actuality and significance of the research problem in scientific and practical terms

The title of the work suggests expectations for developing a research program based on innovative ideas in educational practice. The topic's actuality arises from the increasing number of students with specific learning difficulties in general education schools. In this context, creating an appropriate educational environment and teachers' mastery of specialized approaches and techniques become crucial in today's educational context, serving as a starting point for scientific research.

It is also relevant to note that given the contemporary conceptual framework in interpreting of specific learning difficulties, which assumes the use of the "umbrella term" - "developmental dyslexia" or the identical term "specific dyslexia," which encompasses the terms "dyslexia," "disgraphia," and "dyscalculia," the title would be more robust if it did not imply subcategorization - dyslexia and dyscalculia. It would be more appropriate to use only the unifying term "developmental dyslexia" or mention only the group of children

with dyscalculia, as the focus of the study and the design of the research methodology are directed at this segment of the school population.

In connection with this, I would like to highlight the positive aspect that the doctoral student acknowledges in the introduction that both subcategories belong to a broader class of disorders that manifest themselves with specific characteristics in the process of acquiring school abilities, which are not a direct result of primary disorders. Furthermore, they state that basic diagnostic criteria for both groups of disorders are visual processing deficits, working memory (short-term memory) peculiarities, and data on linguistic specificity in early childhood development.

2. Content and qualities of the dissertation thesis

The presented dissertation thesis consists of 165 standard machine-written pages of text, 11 pages of bibliography and 52 pages of applications with detailed descriptions of the research methodology. The work is well structured, although it deviates from the standard requirements for writing such a work. This refers to the division of the work into parts - "A" and "B". Part "A" represents a literature review, and part "B", presents the research program and its implementation. Part "A" is divided into two subparts dedicated to the central terminological constructs in the exposition – „dyslexia" and "dyscalculia".

Part "B" is structured into three subparts - description of the research methodology, quantitative analysis of the data and qualitative analysis, concluding with integrations of conclusions, summary, recommendations for practice and descriptions of the innovative aspects.

The ratio between the theoretical part (Part "A" includes 94 pages) and the methodological-investigative part (Part "B" - 84 pages) is balanced, including the theoretical-applied aspects and contributions of the dissertation.

153 literary sources were researched (the majority of which are in English), including the works of established classical authors in the field of the problem addressed in the title, as well as modern ones. This gives reason to assume that the doctoral student has carefully

and thoroughly studied the subject matter. However, it should be noted that the list of literature is chaotically arranged and the sources are not sorted alphabetically. It is recommended that sources in Greek should be listed first, followed by those in English.

The introduction is focused and justifies the topic. Here it should be mentioned that it is not customary to comment on hypotheses and main research problems in the introduction, even though they do focus the reader's attention.

It is recommended that a list of tables and figures be included in the content, as well as indicating the application that constitutes a significant part of the dissertation's volume. There is a discrepancy between the indicated page numbers in the content and the pages within the text.

The text of the dissertation is presented systematically.

The literature review is developed sequentially and in depth, creating an impression of clarity in interpreting the problematic. The doctoral student has a good style of academic writing. The recommendation is related to presenting the main terminological constructs in light of the medical and social model in science, which would facilitate the clarification of conceptual ambiguities in interpretations of the problem "Developmental Dyslexia". Despite this, Dimitra Koraka manages to guide the attention towards the explanatory theories for the etiology of "Developmental Dyslexia", although she does not manage to systematize them. Very good impression makes the presentation of modern data from neuroimaging studies, which prove the biological basis of one hand over another of neural mechanisms and systems (which are at the base of cognitive processes), as well as neural disorders that in many cases predict deficits beyond the modal perception and are associated with manifestations of learning disabilities.

It should be noted that there are gaps in the representation of scientific classifications for Developmental Dyslexia, as the doctoral student presents only Ingram's, 1964 classic classification from the Western scientific tradition without citing the author. The lack of systematic presentation of the main terminological constructs in this work from the perspective of the medical and social model is one of the reasons why Dimitra Koraka probably does not represent and the typical for each model basic classifications.

On p. 28, the statement by the doctoral student that "specific dyslexia inevitably leads to spelling difficulties" surprises. According to phonological theories explaining developmental dyslexia, the delayed formation of phonological skills in children, which includes spelling skills as well, is at the root of reading difficulties, not the other way around.

In the literature review, the recommendation to the doctoral student is for providing more summaries and generalizations of paradigms, concepts, ideas, and opinions.

On p. 57, in an attempt to clarify the comorbid disorders of dyscalculia and despite having already extensively discussed the issue of "dyslexia" over about 50 pages, the student unnecessarily delves into definitions to answer the question "What is 'dyslexia'?"

On p. 58, there is an error in defining the term "developmental dyspraxia". Instead of "Developmental Coordination Disorder", the disorder is labeled as "Developmental Cooperation Disorder". Similarly, on p. 71, the term "dysarithmic" is incorrectly used instead of "dysarithmic".

Part B of the dissertation thesis presents the research program - goals, hypotheses, participants in the research. The tasks of the dissertation study are not systematized, although the focus of the doctoral student on research questions is commendable. Dimitra Koraka states two main objectives in the course of the study: the development of criteria for evaluating and identifying students with dyslexia and dyscalculia, and the development and application of methods for specialized pedagogical intervention in elementary schools. The first objective is too ambitious. In fact, the doctoral student does not achieve this goal, limiting herself to achieving the second stated objective.

Applied Tables, Figures, and Diagrams effectively visualize the parameters set by the doctoral student. It can be said that based on the quality assessment methods used - analysis, synthesis, summary, comparison – Dimitra Koraka successfully establishes dependencies and relationships embedded in the hypothesis and experimental program.

In terms of the scientific value of the dissertation, it is appropriate that one of the goals, which in turn implies the contribution points, is appropriately constructed. As a whole,

studies focusing on specialized educational intervention for dyscalculic children are relatively scarce.

In relation to this, the thesis of Dimitra Koraka has scientific value, both in terms of research and significant applied contribution. Experimental data are presented on the basis of which conclusions are drawn and hypotheses are confirmed. An original methodology consisting of two parts - evaluation and educational - is developed, the applicability and significance of which are empirically proven.

Question to the doctoral student:

- In the course of your research, what impressions did you gain regarding teachers' attitudes towards applying personalized approaches in working with children and students with specific learning disabilities, and what opportunities are there for this? Is there a regulatory framework in the Republic of Greece that governs the inclusion of children and students with special educational needs in the general education group of a kindergarten or a classroom?

Conclusion

The discussed dissertation, in terms of its conception, presentation, data processing and analysis, as well as its contribution points, meets the requirements of the Law on Scientific Degrees and Ranks. This gives me a reason to propose to the esteemed scientific jury to award Dimitra Koraka the educational and scientific degree "Doctor" in the field of higher education 1. Pedagogical Sciences, professional direction 1.2. Pedagogy (Special Pedagogy), which I will also support through this statement.

Sept. 30th, 2024

Sofia

Reviewer:.....

/Assoc. prof. Diana Ignatova, PhD/