

## REVIEW

for a dissertation on the topic "Content of Biological Education in the Bulgarian and Californian Educational System - a Comparative Analysis" of a dissertation for awarding the educational and academic degree (PhD) in: field of higher education: 1. Pedagogical studies, professional range: 1.3. Pedagogy of teaching in... , PhD program: Teaching methodology in biology

Author: PhD student Maya Ivanova Gacheva

Reviewer: Prof. Dr. Yanka Dinkova Merdjanova, Department of Didactics, FP, SU "St. Kliment Ohridski"

*Presentation of the PhD student:* The student has many years of diverse experience in the problem area of her research - teaching, educational, qualification, project - both abroad and in Bulgaria. And at the moment she is an active Biology teacher in a Bulgarian school with an international profile. These facts allow authentic and competent source comparative research and the PhD student has used these potentials of the environment and her personal experience to the maximum.

*Substantive evaluation of the work:* Extremely *topical issues* for the educational content, against the background of the dynamics in the development of scientific knowledge; of the integrative trends and at the content, but also at the educational activity level, such as binary and open classes; of international synchronization at all levels - practice, its resource provision, innovation for educational content, pedagogical competence provision, regulatory compliance and management of these multidirectional processes. The problems of the open and yet specific realization of "private" methodologies or didactics will unfold as a key process for future education. We have a work, the result of a conscious research dedication and focused very precisely on a comparative analysis of educational content at all its levels of manifestations - **from concepts through laws and textbooks to the methodology that occurs in and through the results and academic achievements of students. This full scope of the 'Methodical' deserves the highest contribution distinction.**" The work also has *all the specific quantitative and qualitative characteristics* in order to be "identified" as excellent :

1. Optimal volume 168 pages, 78 literary sources, 50 documents, 16 tables and 37 figures. The separate 4 parts are balanced and correspond to a well balanced concentration on the issues relevant to the topic: **the first part is the methodology of the research and in itself is a scientific contribution at the methodological research level - fig. 3.** The second and third parts are conceptual-theoretical and interpret, according to the objectives of the study, the competence approach, the normative base and its implementation part - the educational documentation.
2. We have a clear and rich concept, based on established pedagogical theses and further developed by the author. **It synergizes the methodological, theoretical-analytical,**

**historiographical, empirical levels of scientific research in the "home" of the Methodical - this is unique.**

3. The comparative analysis is structured according to very well-written criteria and indicators aimed at the purpose of the study. It is not only ascertainable, but also analytical and prospective with accompanying conclusions for adaptation and transfer of experience.
4. The empirical part in the 4th chapter of the work testifies to both the author's assumptions and the goals and tasks of the work, and is aimed at the benefits for the practice of biological education in Bulgaria.
5. The language and style of the author are sustained in academic and genre terms. Very precise use of the conceptual scientific apparatus - distinguishing "content of education" from "content of training" (p. 20), which correctly predetermines the further methodological structuring and empirical implementation of the comparative analysis in the entire procedure.
6. The research is authentic and original.

*Abstract and publications:* The abstract reflects the work objectively. There are 3 publications – in scientific journals, sufficient and representative of the author.

- *Points of contribution:* I fully accept the ones presented, which also reflect my preliminary additions for: 1. First methodological scientific research level of contribution ; 2. For the first time, the realization of the historiographical aspect of biological education in the context and for the purposes of the Biology Teaching Methodology.

And I can't help but emphasize how crucial team scientific leadership is for this wide and simultaneously distinctive subject-colored characterology and accomplishments of the work— from two well-known, excellent methodologists and pedagogues, **Assoc. Dr. N. Raycheva and Assoc. Dr. I. Petkova**. This team embodies the modern and future trends in the development of training such as specialization and integration - towards openness for competent personal development.

*Notes, questions and recommendations:* they are addressed to the colleague as an expert methodologist and as an author who will publish her work.

*Notes and recommendations for future work and future research :*

1. *For this academic work and the future* - To expand the 4th part to analyze the achievements of students and further development in **a longitudinal perspective**.
2. *For this academic work and the future* - To continue and deepen the recommendations for the Bulgarian model at the level of the normative base - Ordinance No. 16 for textbooks, Standards for educational content, Curricula.

*Questions :*

1. Which **of the Bulgarian experience** in structuring, processing or methodical implementation of teaching content in biology does Maya Gacheva consider a **worthy transferable achievement internationally** ?
2. What are the further **research directions** of the author as a methodologist?
3. The necessary **3 urgent** changes in "her" methodological field from normative, at the level of textbooks/learning resources and in practical order, for which doctoral student Gacheva is still working?

*Conclusion:* In view of the legal and compliant course of the procedure, compliance of the candidature with the academic-metric requirements, the realized unique results and contributing moments in the work in the field of Teaching Methodology in Biology, the full integration of the PhD student in the educational practice and in the academic life, I recommend the awarding of the educational and academic degree "doctor" to the members of the academic jury *under PR 1.3. Pedagogy of teaching (Methodology of teaching in Biology) of the PhD student Maya Ivanova Gacheva.*

August, 2024, Sofia.

Author of the review: .....

(Professor Dr. Y. Merdzhanova)