

REVIEW

By: Prof. Dr. Adriana Lubomirova Tafrova-Grigorova, (University of Sofia, Professional field 1.3. Pedagogy of Education in... (Methodology of Education in Chemistry), Member of the Scientific Jury, appointed with an Order of the Rector of the Trakia University, Stara Zagora No.1918 from 17.06.2022

Related to: A competition for the academic position of Associate Professor (Reader¹, Docent) open at Trakia University of Stara Zagora, Field of higher education 1. Pedagogical Sciences, Professional field 1.3. Pedagogy of Education in ... (Methodology of Education in Natural Sciences)

Presentation of the procedure and the applicant

The competition for the academic position of Associate Professor was announced in issue 41/03.06.2022 of the State Gazette and on the website of the Trakia University for the needs of the Department for Information and In-Service Teachers Training (DIITT). Only one candidate has submitted documents for participation in the competition and that is Dr. Margarita Slavova Peneva.

The applicant has submitted a set of documents containing:

I. Administrative documents

- I.1. Copy of the advertisement in the State Gazette
- I.2. Application for the competition
- I.3. Curriculum Vitae (CV)
- I.4. Higher education master degree diploma and annex thereto
- I.5. Diploma for educational and scientific degree
- I.6. Declaration of authenticity of the submitted materials and the information contained therein (without signature) in accordance with the Regulations for the Development of Academic Staff at the Trakia University of Stara Zagora
- I.7 Criminal record certificate

II. Research activity supporting documents

- II.1. List of the applicant's publications and copies of them
- II.2. Reference for fulfilment of the minimum national requirements according to Article 54 (1) of the Regulations for implementation of the Law on the development of academic staff in the Republic of Bulgaria and the additional requirements of the Faculty of Education of the Trakia University - Stara Zagora
- II.3. Reference summary on the scientific contributions of the candidate
- II.4. Summaries of the works after the PhD thesis defense

¹The Act on development of the academic staff in the Republic of Bulgaria states “reader” as a corresponding English term of Bulgarian “доцент“. In academic hierarchy of the European universities more popular is the term “associate professor” and in Germany – “docent”.

II.5. List of citations and copies of them

II.7. List of habilitated co-authors

II.8. Reference from the Central University Library of the Trakia University for publications and citations in journals with impact factor and/or impact rank (Web of Science and SCOPUS)

II.9. Declarations (separation protocols) from the co-authors of publications

II.10. Certificates of participation in projects

III. Documents on teaching activity

III.1. Copies of programmes of study for academic and qualification courses

All required documents are available, together with information on additional criteria related to the selection procedure.

A brief biographical reference

The participant in the competition Margarita Slavova Peneva was born on 27.03.1976 and finished her secondary education in the Natural and Mathematical High School "Geo Milev", Stara Zagora, Biology class with intensive study of English. She graduated as a Master in Biology and Chemistry at Sofia University St. Kliment Ohridski (2000). She was a teacher of *Biology and Health Education* in "Hristo Botev" High School, Stara Zagora for 8 years (2001 - 2008). From 2008 to 2015 and from 2018 to the present she has been an assistant professor of Methodology of teaching in biology and chemistry at the Department of Information and In-service Teachers Training (DIITT) of the Thrakia University – Stara Zagora. In the period 2015-2018, she was Deputy Director at DIITT in charge of training and qualification activities. As an independent doctoral student at the Faculty of Engineering and Pedagogy – Sliven, Technical University-Sofia, she defended (2018) her PhD thesis on the "Contemporary aspects of mentoring as a form of qualification and continuing education of teachers", supervisor Assoc. Prof. Dr. Nadezhda Kaloyanova.

Research activity

Scientific indicators

Dr. Peneva has submitted a list of two books - monographs and 30 publications in journals and conference proceedings. One of the monographs is a habilitation thesis and the other is a book based on her PhD thesis. The acquaintance with the academic output presented for the selection procedure, I found that the list of publications and the reference to the fulfillment of the minimum national requirements contained two abstracts of papers and 5 articles on which her dissertation thesis is based. Then, on 16 September – before the first meeting of the scientific jury (19 September), I sent an e-mail to the correspondence person of the Faculty of Education. In this e-mail, I asked the applicant to submit a list containing only the publications with which she participated in the competition, without including conference abstracts and in the Reference for the minimum requirements to exclude papers published in non-peer-reviewed journals. I have also quoted item 8 b) of the *Regulations for the Implementation of the Development of Academic Staff Act in the Republic of Bulgaria* (DASARB) about the specific requirements for the academic position of associate professor: "...evidences (publications and others) presented for awarding educational and scientific degree "Doctor" ... cannot be reproduced (Art. 24, para. 1, item 3 of the DASARB)". In response, I actually received a detailed

report on the minimum requirements, but in it, the candidate again included A1 (conference abstract) and four of the publications, on which the dissertation was based: B3, B6, B8 and B9.

Dr. Peneva has divided her publications into three areas: “Methodology of teaching in *Man and Nature* and in *Natural Sciences* – group **A** (16 articles and conference papers); “Problems of qualification of pedagogical specialists” – group **B** (10 articles and conference papers) and “Promotion of project activities” – group **C** (4 articles).

Of the 16 publications listed in Group **A**, I exclude conference abstracts (A1 and A8). The remaining **A** publications have the following characteristics: articles in journals, refereed and indexed in world renowned databases of scientific information (*Web of Science*) – 1; 5 articles are published in scientific journals: 1 - in a reviewed international scientific journal “Актуальная наука” (in Russian), 3 articles are in “Pedagogical Forum” – a DIITT online journal, and one is under print in “Pedagogical Almanac”, a journal published by the Faculty of Education of “St. Cyril and St. Methodius” University of Veliko Tarnovo. Both above mentioned Bulgarian journals are listed in the National Reference List of contemporary Bulgarian scientific publications with scientific review. The remaining 8 papers were published in conference proceedings. Three of the conference proceedings are included in the National Reference List: A2, A5 and A10. There is a discrepancy between the content of the A12 copy and the year in the title of the collection – a publication of the Faculty of Engineering and Education, Sliven. I could not find this particular edition on the internet, but by default with similar collections from past years I assume it is listed in the National Reference List. The other four collections: A3, A4, A7 and A13, are not included in the National Reference List, but assuming they were reviewed, I decided to classify them as “articles and papers published in not referenced journals with scientific reviewing or published in edited collective volumes”.

Of the publications marked **B**, I exclude the five articles (B3, B6, B7, B8 and B9,) presented in the abstract of the dissertation, as well as B10, because it is not in the contest profile. It contains methodological instructions for learning of folk art and, in addition, it was published in the journal “Kindergarten. School”, which is not listed in the National Reference List and for which there is no evidence of scientific review. In the B1 and B2 conference papers, authors A. Kalcheva and M. Peneva give information about an interactive whiteboard of the Luidia company (eBeam technology) and instructions for its use. In both papers an “example version” of the same lesson on Bulgarian spelling in word formation is presented. In both B1 and B2 there are no results of scientific research, but rather methodological instructions for a lesson in the Bulgarian language school subject, not in science. I do not accept for evaluation and review these two papers, as they do not correspond to the contest profile, do not contain scientific results or analysis as well as they do not contain references except sites for interactive whiteboard.

I am not going to rate and review the four articles in Group **C**. They are undoubtedly useful in promotion of the European Researchers’ Night but they present information about events rather than scientific results.

So, I accept for assessment the two monographs (M1 and M2), the publications from A2 to A16, without A8 and B4, B5. I also will assess the compliance with the national requirements and the requirements of Trakia University in groups E, F and G. In accordance with the Regulations for the Implementation of the DASARB for 1. Pedagogical Sciences, a minimum number of points is

required for the groups of indicators A, C, D and E (In Bulgarian: A, B, Г, Д). As can be seen from Table 1, except in Group E (citations), the number of points in Indicator Groups A, C and D reaches but does not exceed the required minimum, despite some compromises in favour of the candidate on Indicator 7 in Group D.

Table 1. Minimum points required by groups of indicators for the academic position of Associate Professor under the Regulations to the Law

Group of indicators	A	C	D			E			Total
Indicator	A1	C3	D5	D6	D7	E11	E12	E13	
Min. national requirements/points	50	100	200			50			400
M. Slavova Peneva/points	50	100	75	30	95	45	30	80	455
			200			155			

Dr. Peneva has provided evidence of 3 citations in SCOPUS/Web of Science refereed journals, 3 citations in monographs and reviewed collective volumes, and 18 citations in non-indexed referenced journals. In the publications of V. Demireva-Vutkova and D. J. Novakov listed as citing, the citations are not found in the text of the publications, but only in the bibliography – a common practice that should not be tolerated. Two of the citing publications – conference proceedings from Spain, I could not find in SCOPUS and Web of Science, but I accept on trust the statement submitted by the Trakia University Central Library.

Table 2. Fulfillment of additional requirements according to Annex 8.4 of the Regulations of the Trakia University

Group of indicators	F (14-21)			G (22-29)	
Indicator	F16	F17	F21	G22	G 25
M. Slavova Peneva/points	-	20	-	20	5
	20			25	

Notes to Table 2. Indicator groups F and G are recommended criteria of the Trakia University but are not mandatory as national requirements. It is correct to score 20 rather than 60 points in group F for the three stages of a project, in this case the international project *Researchers in the Knowledge Triangle*. For the *XXII International Pedagogical Forum project on Human Values and Virtual Challenges* in Education I do not award points as it is a university project and not a national one. For the co-authored textbook *Aspects of Teaching Man and Nature* the candidate scores 20 points, which I do not accept because the textbook is not submitted for the competition and cannot be found at the link provided. For indicator G25, I accept 5 points instead of 10 points, since the second referenced paper is presented in the abstract of the dissertation.

Overview of publications

Dr. Peneva's publishing activity since the defense of her doctoral dissertation (2018) mainly covers the application of situational methods in early science education.

The monograph *Situational Teaching for the Formation of Natural Science Competences* (2022) focuses on the use of pedagogical/learning situations in the teaching of *Man and Nature* school subject. The author proposes “a didactic technology – an invariant for situational teaching in *Man and Nature* at the primary school stage”. Specific learning situations that could be applied in teaching practice are described on the basis of a proposed algorithm and a schematic model of an invariant didactic technology. The opinion of a total of 41 respondents: teachers, experts in district education offices and lecturers in higher education institutions, on the applicability of the described learning situations in science education was examined through a questionnaire containing 10 questions. The study leads to the conclusion that the proposed learning situations are an appropriate means of achieving the expected results in the curricula and are a prerequisite for the formation of key competences. The monograph has practical relevance for science teachers, but theoretically there are a number of unclear concepts presented and used. For example, at the beginning (section 1.1.2), the concept of *pedagogical situation* is interpreted extensively and this term is used until page 26, but from page 60 to the end it is replaced by the term *teaching/learning situation*. It is not clear what the relationship is between a *pedagogical situation* and a *teaching/learning situation*. There are other inaccuracies regarding terminology: the “working definition” of method on p. 7, followed by a description of the situational method in teaching (1.1) is in disharmony with the treatment of situational methods of teaching as a *type of teaching/learning situation* (Contents - p. 3 and Section 1.5). A literature review on a given topic should be an analysis of published research results, resulting in conclusions and revealing perspectives for new research in the outlined research field. With regard to the research and analysis of the scientific literature on the situational method, I consider the generalizations and conclusions drawn as a positive result. In my opinion, the literature sources are not sufficient in number (47) and especially in representation of authors: outside the Russian and Bulgarian researchers, there are only 6 English-writing authors. The detailed analysis of the *Man and Nature* programmes of study on the possibilities for the formation of scientific literacy through the competency-based approach and the application of the situational method should be highlighted as useful for Bulgarian educational practice. The teaching/learning situations presented and the ideas for their variants are also of practical importance for teachers. The significance of the monograph would have been greater if the author had conducted a study with pupils on the results of the application of the situational method.

The creation and application of teaching/learning situations in science education is the focus of publications A10 to A15. Among them, “Study of teachers' attitudes to the situational methods use in their work” (A15), published in *Education and Science Policy Strategies* journal (2022), stands out. The article presents a survey of teachers' attitudes to the use of situational methods in their teaching practice. The aim is to establish teachers' understanding of the structure and the nature of the situational method, as well as their readiness to apply it in teaching. This is actually the only pedagogical research presented in candidate's articles. Publications A10 to A14 present ways of creating learning situations on particular examples, but there is no research on the effectiveness of the situational method for students.

Papers A2, A3, and A4, in which the candidate is the third author, describe various activities to develop key competencies by integrating mathematics and science content. This is an extremely important issue for teaching practice, but these publications also do not display Dr. Peneva's research skills.

Paper A5 (2011) describes the technical parameters of a “Fourier systems” instrument for educational purposes and its application to students. I am familiar with this instrument – it was provided through a project and experimented in some schools more than 10 years ago. Despite its usefulness, however, its distribution has remained extremely limited, so the description of the instrument's capabilities is relevant to a small number of teachers. In the article there are no results of scientific research but personal impressions.

Papers A6 and A7 (2013) describe project-based learning on healthy eating (A6) and a dramatization of a story focused on environmental education for fifth graders (A7). The publications contain some interesting methodological ideas for teachers, but do not have the qualities of scientific articles.

In the article A9 (“Актуальная наука”, 2018), the authors propose simple experiments illustrating thermal pollution of the environment. I always welcome publications that offer learning experiments and demonstrations, especially ones that can be done with materials at hand. The experiments described are just that, but unfortunately the article remains at the level of a best practices description, without original scientific contributions.

The article A16 (2022) reports “an attempt to examine the extent to which the concepts embedded in the curriculum enable the formation and development of scientific literacy” (quote from the article). A statistical method was applied which, in the words of the author, “is commonly used to study the behaviour of large systems”. The conclusions however would be more convincing if qualitative pedagogical research methods were applied, followed by analysis as done in the monograph M1.

Papers B4 and B5 deal with survey methods in pedagogical research and statistical processing of their results. These articles are essentially compiled texts and as such are useful for survey researchers as they can find information gathered in one place. However, from a scientific point of view, these articles do not contain new ideas and original scientific contributions.

The monograph “Mentoring in Modern Education” (2019) completely covers Dr. Peneva's dissertation. The topic does not fit the profile of the competition, so I will not discuss the merits of this book, especially since its content has already been evaluated by an authoritative five-member scientific jury.

In the e-mail mentioned above, I quoted in full Article 54(1) of the Regulations to the Development of Academic Staff Act: „Applicants should submit a reference of original scientific contributions, accompanied by relevant evidences.“ The reference received in response to the letter repeats the initial one. Its contents: abstracts of some publications, “contribution to development of programmes of study”, “promotion of project activities”, “contribution to citations” is puzzling. Apparently, the applicant has not understood that “original scientific contributions” means to present the applicant's personal contribution to science, in this case to the science of education. Citations are an indicator of the impact the author's work has in the publishing sphere but are not scientific contributions in themselves. Both curriculum development and science popularization are very useful activities for the university and society, but are not original scientific contributions.

Teaching

From the CV of Dr. Margarita Peneva I conclude that she has more than the required experience as an assistant professor – from 2015 until now, with one interruption of two years, when she held an administrative position also related to education – Deputy Director of DIITT. Her activities as a lecturer include teaching in various qualification forms related to biology and chemistry education, training of pedagogical specialists, supervision and coordination of research activities of trainees and graduate students (the number of graduates is not indicated), etc.

The activity of the candidate in the preparation of programmes of study (11 issues) for courses in the bachelor and master programmes of the Trakia University, as well as for postgraduate qualification forms, is impressive. However, of the 11 listed programmes, she has submitted copies of only four which she has included in the minimum requirements reference.

In the list of her publications, Dr. Peneva has included two textbooks (2011 and 2014), and in the reference for contributions - one, without specifying which of the two. I cannot assess the pedagogical merits of these textbooks, since I could not find them on the indicated websites.

Participation in projects

Dr. Peneva has participated in one university project funded by the Trakia University and in one international project *Researchers in the Knowledge Triangle*, funded annually by the European Union under the *Horizon 2020* programme, which evolved into *Horizon Europe*. The realization of this project is reflected in the *European Researchers' Night*, which aims to make visible the work of researchers and to attract young people to scientific careers. Dr. Peneva promotes the events organised and implemented by the DIITT of the Trakia University within the frame of *European Researchers' Night*. Evidence of this promotional activity are four informative articles in the “Science” journal, a publication of the Union of Scientists in Bulgaria.

Other notes

I have not found evidence for any plagiarism in the candidate's publications (excluding scanned copies). There are individual passages in papers B4 and B5 borrowed from other authors as a result of the compilative nature of these publications.

I do not know Dr. Margarita Peneva personally. I became acquainted with her professional appearances through the documents provided to me. In my review I tried to reflect her scientific and teaching activities objectively and in accordance with the requirements of the Development of Academic Staff in the Republic of Bulgaria Act.

Conclusion

In my opinion, Dr. Margarita Slavova Peneva has potential and scope for research, but unfortunately this potential has not been realized in the materials submitted for this competition. Dr. Slavova formally satisfies the minimum requirements of the Act on Development of the Academic Staff in the Republic of Bulgaria, its Regulations and the Regulations of the University of Trakia. Qualitatively, however, her original scientific contributions are very modest. Outside the monograph on situational methods, only two of the publications meet the definition of a scientific article. §1.14. of the Act on Development of the Academic Staff states: “an *article* is a published scientific work meeting the requirements of point 12 (“published scientific research in which certain aspects of

problems and issues are addressed") which contains a description of original scientific research ... ". Original research is lacking in most publications. Only one article has been submitted to a journal that is reflected in a worldwide database of scientifically refereed and indexed journals (Web of Science), and this can be taken as an indication that the candidate for an academic position is poorly known to the international scientific community in the field of science education. The scientific reference apparatus on which the publications are based is very limited in number (in most cases between 1 and 4 references).

The above arguments and all my previous critical comments offer sufficient grounds for giving **a negative assessment** to the candidature of Dr. Margarita Slavova Peneva for the academic position of Associate Professor in the field of higher education 1. Pedagogical Sciences, professional field 1.3. Pedagogy of Education in..., "Methodology of Education in Natural Sciences", for the needs of the Department of Information and In-Service Teachers Training.

Octobre 30, 2022

Signed:

(Prof. Dr. Adriana Tafrowa-Grigorova)