

REVIEW

by **Prof Dr Roumiana Peytcheva-Forsyth**

on the competition for the occupation of the academic position “Associate Professor” in professional field 1.3. Pedagogy of Mathematics and Information Technology in Primary Education, for the needs of the Faculty of Educational Studies and the Arts (FESA), Sofia University “St. Kliment Ohridski” (SU),

announced in SG, issue 93/26.11.2019 and on the SU website

Competition Candidate: Chief Assistant Professor Dr Lyubka Krasteva Aleksieva, FESA, SU

Competition Data

In the competition for the position of Associate Professor, announced by Faculty of Educational Studies and the Arts (FESA), Sofia University “St. Kliment Ohridski” in professional field 1.3. Pedagogy of Mathematics and Information Technology in Primary Education, Ch. Asst. Prof Dr Lyubka Krasteva Aleksieva is the only candidate. The competition is announced on the basis of a sufficient number of teaching hours in compulsory courses. The candidate meets the requirements of National Acts (ЗПАЧРБ, ППЗПАЧРБ) and the Regulations on the Terms and Conditions for Acquiring Scientific Degrees and Occupying Academic Positions in Sofia University “St. Kliment Ohridski” for the occupation of academic position “Associate Professor”. Competition procedure complies with the requirements.

Candidate Data

Ch. Asst. Prof Dr Lyubka Krasteva Aleksieva was born in 1981 in Sofia. She graduated from National Professional High School for Polygraphy and Photography, specialty Photography, in Sofia, in 2000.

The candidate obtained a bachelor degree in Sofia University “St. Kliment Ohridski” in specialty Primary Education with English as a Foreign Language and is qualified as: Pedagogue, Primary teacher and Teacher in English as a foreign language. Later, in 2008 – Lyubka Aleksieva obtained a qualification Master-Pedagogue in Master degree programme

Information Technology in Primary Education in Faculty of Primary and Pre-School Education of Sofia University “St. Kliment Ohridski”. In 2014 Lyubka Aleksieva earned an Educational and Scientific Degree “Doctor” in pedagogy of mathematics education after the successful defence of her thesis "Instructional Potential of Educational Software in Mathematics Education", Diploma No CY 2014-114. During her doctoral education the candidate completed a quarterly doctoral specialization in Doctoral School of Institute of Education, University of London in Doctoral programme “Pedagogical Research Methods”. In the period January – November 2014 Lyubka Aleksieva attended a programme for postgraduate professional development in Sofia University “St. Kliment Ohridski” at the Faculty of Pedagogy and acquired qualification “Specialist in design and delivery of online education”.

The candidate’s teaching activity in Sofia University started in 2010. In the first year of her professional career she was a part-time assistant in mathematics education in Faculty of Primary and Pre-School Education and one year later (2011) she was elected as a full time Assistant Professor in ICT in education in the same Faculty. From 2015 to the time of the competition Lyubka Aleksieva is a Chief Assistant Professor in Pedagogy of Mathematics and ICT Education.

Lyubka Aleksieva successfully combines teaching with her research in 4 international and 11 national institutional projects in which she performs leading and coordinating functions (at national, faculty and university levels), as well as functions such as facilitator and educator. Notably representative is Dr Aleksieva’s participation in project „TeSLA - An Adaptive Trust-based e-assessment System for Learning” part of „Horizon 2020 - Research and Innovation Framework Programme”, in which she was an institutional Pilot Leader and researcher. Also very representative was her role in the project “Hands-On ICT: Learn, Practice and Teach Creativity and ICT” where Lyubka Aleksieva was a MOOC Course Lead Facilitator for Bulgaria.

The candidate’s professional and expert qualities are recognizable and acknowledged at institutional level which is evidently demonstrated by her election as a technical assistant and a member of an Expert Council of the Centre for Distance Education (CDE) at Sofia University.

As such she supports and implements different activities of CDE, related to preparation and conduction of Open days for the university academic staff, maintenance of the web page of CDE, preparation of informational resources to support the accreditation of programmes in distance form of education (DFE), conduction of teacher trainings for working in DFE, etc.

In her short but intense and varied professional career the candidate demonstrates high level of expertise recognizable at faculty, institutional, national and international levels, sensitivity towards the quality of her own and of the others' professional performance, expressed in a notable presence in the academic life of the faculty and university, national and international forums and projects. Dr Aleksieva follows a clearly outlined academic and research focus in the intersectional area of teaching mathematics and ICT in primary education and educational potential of digital technologies, with persistently high motivation and demonstrating strong professional development in the field.

Teaching Activity

The teaching commitment of Ch. Asst. Prof Dr Lyubka Aleksieva is impressive and respectful. She teaches 10 different disciplines in several specialties of the Faculty of Educational Sciences and Arts (formerly Faculty of Primary and Pre-School education) of Sofia University „St. Kl. Ohridski”, which are part of bachelor and master degree programmes. The candidate is an assistant in some of them and a leader in others. Some of the disciplines are predominantly theoretical in nature, while others are mainly practically oriented. Some of the courses lead by the candidate are thematically allocated in the field of mathematics education, and the other part is allocated in the field of educational information and communication technologies. This makes Dr Aleksieva's teaching experience versatile and broad, credible and respectable. Since 2017 she also teaches in one of the courses of the first accredited distance education programme in SU – the master degree programme “Information and Communication Technologies in Education”, Faculty of Pedagogy of Sofia University.

The teaching activity of the candidate is directly related to the announced competition in professional field 1.3. Pedagogy of mathematics and information technology in primary education and it is conducted in a total of 13 Bachelor's and Master's degree programmes and postgraduate professional development programmes.

A substantial characteristic of Dr Aleksieva's teaching is the innovative approach in the design and teaching of her subjects. A significant part of her courses are developed in electronic format in Moodle learning environment, and the quality of the design of these courses is evident by the received international certificate of quality "Epprobate" (27.04.2014) of the course "Didactics of Information Technology in Primary School". The learning content in her online courses is presented in a variety of multimedia resources (presentations, audio lectures and video tutorials in Moodle environment), as well as various tasks and activities for students conducted online. All this inevitably leads to an increase of the quality of teaching, assessment and pedagogical communication in the courses lead by the candidate. Much of Dr Aleksieva's research is thematically related to the scientific field of her teaching, which allows her to experiment in her practice, to model its refinement and apply new models for its improvement. This makes Dr Aleksieva a representative of research practitioners who are constantly improving their practice, influenced by their research, and refining their research inspired by their practice.

Publication Activity

The entire publication activity of Ch. Asst. Prof Dr Lyubka Aleksieva is also respectable.

The total number of candidate publications is 58, 4 of which are textbooks and 17 are handbooks. For the Associate Professor competition she has submitted 20 scientific publications (11 in Bulgarian and 9 in English). Of these, 10 papers have been published in internationally referenced and indexed scientific journals in worldwide databases. Six of the submitted publications are in non-refereed peer-reviewed scientific journals. Two studies are presented, which are published in edited volumes, and one book based on the content of her dissertation for a doctoral degree. In the list of publications, the central place holds Dr Aleksieva's habilitation monograph work "Electronic Resources in Primary Education".

The submitted scientific works for the competition comply with the minimum national requirements (under Art. 2b, para. 2 and 3 of ЗПАЧРБ) and respectively with the additional requirements of SU "St. Kliment Ohridski" for the occupation of academic position "Associate Professor" in the scientific filed of the competition, as follows:

Indicators Group	Content	Required points according to the minimum national requirements for Associate Professor	Candidate points
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A	Indicator 1	50	50
Б	Indicator 2	0	0
В	Indicator 3	100	100
Г	Sum of indicators from 4 to 10	200	270,16
Д	Sum of indicators from 11 to 13	50	230
Е	Sum of indicators from 12 to the end	0	–

The information provided by the Library and Information Services Department of the University Library at Sofia University “St. Kliment Ohridski” for the candidate's cited and indexed publications indicates 7 indexed publications and 1 citation in Web of science, 4 indexed publications and 2 citations in Scopus, and 16 citations found by the author herself. A Google Science reference shows the h-index 3 for the candidate's 9 indexed publications and 17 citations.

Description of the candidate’s scientific works

Lyubka Aleksieva's research is focused on the intersection between pedagogical , content and technological knowledge, defined and studied by Mishra and Kohler and presented in their model Technological Pedagogical Content Knowledge (TPCK). Although in some of her publications, Dr Aleksieva explores the specific field of education in primary school in theoretical and practical terms (Г 6: No 10, Г 7, No 3), and in others she focuses on the specificity of certain digital technologies (e.g. multimedia, e-assessment systems, learner authentication systems, virtual classroom, etc. - Г 6: No 1, Г 6: No 2,) her main research interest is where the achievements of these scientific and practical fields intertwine and become symbiotic, namely, **digital technology assisted education or e-learning** (B 3, Г 5, Г 6: No 5, Г 6: No 9, Г 7, No 1).

A special aspect of this intersection is teachers’ preparation to effectively provide technology-rich education to primary students. The major contributions of Aleksieva’s scientific publications and research activity are taking place right in this symbiosis. In this cross-section of technological pedagogical content knowledge, Dr Aleksieva search, appropates and finds solutions that would guarantee increasing of the motivation for learning as well as students' learning achievements. Researches aimed at identifying the existing / necessary competences of teachers to provide quality education with integrated digital technologies, at defining deficits in teachers' digital competences, at designing models to improve their training

and qualification in this field, are also placed there. The research cycle in which the works published by the author go through starts with a study of international and national experience in the field, goes through researching the status of existing practice from the perspective of its key participants (students, teachers, educators) and ends by constructing models for its refinement. Thus the cycle between theory - practice - a renewed theory is closed, mediated by research, which ensures the improvement of both - theory and practice of integrating technology into learning.

Thematically, the publications of Dr Aleksieva completely correspond to the profile of the announced competition for acquiring the academic position of "Assistant Professor". Their meaningful relevance and innovativeness in the search for naturally integral approaches and solutions to the studied phenomenon are indisputable. They are focused on the discussed intersection, namely the potential of digital educational technologies to improve the quality and effectiveness of education, and especially of mathematics and ICT education in primary school. This intersection also identifies some specific research focuses, thematic centres, each of which brings specific scientific and practical contributions. In this regard, they will be discussed below.

Scientific and applied scientific contributions of candidate's publications

I accept the summarised contributions drawn by Dr Aleksieva which I will comment thematically as follows:

In the field of educational digital technologies:

1 – E-assessment as an essential element of e-learning has a special place in the candidate's publications. These are publications written in cooperation with Bulgarian and distinguished foreign researchers from the largest distance universities in Europe. Most of these articles are in English and are published in high-rated referenced journals with impact factor (Publications Γ 6. No 1, 2, 3, 4, 6, 8). Issues explored in the cited publications are globally relevant, as are the modern technologies for electronic assessment and authentication of students, which influence on students' learning, motivation, achievements, and their impact on academic integrity are only studied over the last decade with the advent of these new technologies. With such focus are published research results (some of which are comparative studies among several European universities) in which Dr Aleksieva is a co-author. One emphasis in the investigated issues is on the impact of the introduction of authentication technologies on the access to education of SEN students, which results are an important contribution to this relatively new and sensitive field of research. In this sense, the published

scientific findings of the research with co-author Lyubka Aleksieva represent a major theoretical contribution to the emerging paradigm of e-learning and e-assessment, as well as a practical contribution aimed at improving the policies and practices for introducing these technologies into education worldwide. The candidate's participation in such international research teams is a fact that speaks evidently of her research skills and her academic language communicative competences.

2 – Contributions at theoretical and practical level related to the topic of **e-learning resources** with a focus on their development, adaptation and utilisation in the context of primary education, and particularly in the context of mathematics education.

The most significant contribution in this research field brings the monography "Electronic Resources in Primary Education". It is a logical continuation of the author's sustained research interest in the potential of digital technologies to support teaching and learning by enhancing students' motivation and interest, and hence their learning achievements.

In her habilitation work, Lyubka Aleksieva demonstrates skills of an analyst, researcher and practitioner, which in their combination lead to the development of competence model of teachers for working with electronic resources. This model is a reliable tool for the assessment of the competences of primary teachers, identification of deficits in their competences, and thus for outlining the needs in teachers' preparation for acquisition of such competencies.

In theoretical aspect, the author's contributions can be summarized as follows:

- An in-depth analysis of the phenomenon of electronic educational resources in the scientific literature contributes to the further clarification and refinement of the related conceptual field, and of the author's definition for the purposes of empirical research. For the enrichment of the analysis contributes the discussion of the advantages and disadvantages of integrating e-learning resources into training, which specifies and contextualises this conceptual framework.

- One of the important theoretical contributions of the monograph is the discussion on different aspects of the electronic resources quality in the context of primary education, on the basis of which a criterion system covering three levels has been created: criteria for educational content; criteria for interoperability; and criteria related to visual and multimedia design. This criterion system could serve as a reliable tool for assessing / self-assessing the quality of e-resources used in primary education, as well as for promoting the quality of this activity in educational practice.

- The competence model for working with electronic resources developed by the author has characteristics of both theoretical and practical contribution. On the one hand, it enriches

the theoretical field related to the digital competences of teachers in the current century, and on the other, it could serve as a diagnostic tool for the competences of teachers in this field, as well as to support the design of curricula for teachers' preparation in acquiring competencies to work with electronic resources.

- The analysis of the results of an empirical study conducted with nearly 500 teachers from the whole country, which explores and outlines the most typical practices in the use of e-resources in education with a focus on mathematics education also serves as a theoretical contribution. An important emphasis here is the identification of interrelationships between factors relevant to instruction, such as age, education and professional experience, and the use of e-resources, digital literacy and competencies of teachers for working with e-resources. The findings drawn by the analysis of the data could serve as a reliable scientific basis for curriculum designing for preparation of primary (and not only) teachers in the field of electronic resources and their use for educational purposes.

3 – In the field of **educational multimedia**:

Regarding the book "Educational Multimedia for Studying Tabular Multiplication and Division", which is an enriched and updated version of Dr Aleksieva's dissertation, I will not comment on the contributions that have been made in her defence for the award of an educational and scientific degree "Doctor". I will only comment on the contribution that relates to the updated section of the book, namely the development of a model for studying table multiplication and division using educational multimedia. Right at that place Dr Aleksieva's competencies as a theoretician, researcher and practitioner are manifested in the intersection between theoretical, content and technological knowledge, where the specifics of phenomena such as education, technology, methodology of teaching specific subject knowledge (mathematics) intertwine and unite. In this intersection is also the main theoretical contribution of the updated version of the dissertation, which enriches the theory of integration of digital technologies in specific educational contexts. These theoretical contributions have considerable potential to foster enriching the educational practice with respect to improve its quality.

All digital products created by the author for the purpose of her empirical research, for illustrating her theoretical ideas as well as for direct use in teaching practice, can be pointed as a significant **contribution to the practice** of integrated technologies in education. In the case of the commented book, these are "author's multimedia tasks and activities that can be performed in math classes in parallel with any of the existing textbooks, as well as in the independent preparation of students in the field of "Tabular multiplication and division".

These are also digital resources for online learning, e-courses, e-learning guides for teachers' training and self-training.

4 – Dr Aleksieva also demonstrates a scientific and practical interest in **teaching in a synchronous virtual learning environment** as two of her publications are devoted to the study of different aspects of synchronous e-learning. One presents the analysis of the results of studies related to the accessibility of web content in the context of synchronous learning in a virtual classroom, and the other presents the results of a research on the competences of university students in primary school pedagogy to teach in a synchronous virtual classroom. In both cases, the research focus is on a very relevant issue and I would recommend the candidate to deepen her research in this area so that significant scientific contributions in this field to be shared with the academic community in current referenced and indexed scientific publications.

Personal impressions of the candidate

I have known Lyubka Aleksieva from the time she was a PhD student in the Doctoral School in the field of e-learning at Sofia University, which I managed. She was one of the 16 PhD students sent for specialization in the Institute of Education (IoE) at University of London within the PhD project. The feedback on her presentation at one of the world's leading institutes in the field of educational sciences was extremely positive. She was one of the few postgraduate doctoral students at the Institute of Education who took full advantage of the huge number of opportunities offered by the institution in the field of pedagogical research, including attending a large number of courses at the IoE Doctoral School, participating in several international conferences, etc. This made me to entrust her with the coordination of activities of Faculty of Primary and Pre-School Education within the project for introduction of electronic forms of distance education by the European Structural Funds, and at a later stage I entrusted her with participation in international project Hands-on ICT, where she put Bulgaria in a leading position in her capacity as a lead facilitator in MOOC course. My impressions of her work and the feedback of her foreign colleagues were so positive that I invited Lyubka Aleksieva to become the coordinator of the pilot studies of Sofia University under the Horizon 2020 project "TeSLA - An Adaptive Trust-based e-assessment System for Learning".

Her contribution to the successful implementation of the project, not only at Sofia University but also in Europe, has been noticeable and noticed by all partners. Dr Aleksieva became a desired co-researcher and partner in the research and publishing of scientific articles.

As a co-author of some of these publications, I would like to declare Dr Aleksieva's equal participation at all levels of planning and conducting relevant empirical research, as well as the development, translation, and publication of research papers.

In conclusion, I can say that Lyubka Aleksieva is among these young people, investments in which give us reason to believe that we did not work in vain.

Conclusion

The complete research and teaching activity of the candidate Ch. Asst. Prof Dr Lyubka Aleksieva, offers a solid evidence of professional development so far and in the future. The presented evidences and arguments give me a reason to propose to the members of the Honourable Scientific Jury to support her application in the announced competition and to vote favourably on the election of Ch. Asst. Prof Dr Lyubka Aleksieva for the academic position "Assistant Professor" in the professional field 1.3. Pedagogy of mathematics and information technology in primary education.

17.03.2020

Prof Dr Roumiana Peytcheva-Forsyth