REVIEW

on the competition for the academic position "professor"
in the field of higher education 1. Pedagogical sciences, Professional direction 1.3. Pedagogy of education in… (Technology and entrepreneurship education in primary grades and Methodology of work in class time in primary grades)
by Prof. PhD Adrian Georgiev, FNIO, Sofia University "St. Kliment Ohridski"

Compliance of the procedure and the submitted documentation with the current regulations

The procedure for announcing the competition, as well as the determination of the scientific jury, corresponds to the provisions of ZRASB, respectively, and the Regulations for the terms and conditions for acquiring scientific degrees and occupying academic positions at SU "St. Cl. Ohridski", adopted by decision of the Academic Council on 31.10.2018, amended and supplemented by decisions of the Academic Council from 25.09.2019, 30.10.2019, 29.01.2020, 26.02.2020, 27.05. .2020, 21/10/2020, 16/12/2020, 26/05/2021, 30/06/2021 and 13/07/2022.

By order of the Rector of the SU "St. Cl. Ohridski" RD-38-390/13.07.202 a scientific jury was appointed and entered in the Register of the SU for members of scientific juries under No. 59/07.07.202.

General biographical presentation of the candidate

The only candidate in the competition is Associate Professor Lyuben Vitanov, a full-time associate professor in the Department of Elementary School Pedagogy at FNOI since 2000. The candidate Lyuben Vitanov has undergone academic growth through all academic degrees, has a defended doctoral dissertation, and in 2021 defends the degree of Doctor of Sciences.

Teaching activity

The teaching activity of Assoc. Prof. DSc. Lyuben Vitanov is primarily related to lecture courses and classes in various specialties at FNIO, as well as other educational institutions and training structures. Guided lectures and exercises in FNOI:

- Didactics of technique and technology
- Methodology of pedagogical work in the class
- Didactics of technique and technology - modern trends and approaches - Master's programs NUP, PNUP
- ID Methodology of road traffic safety training - special NUPCHE, 2nd year
- FD Education and play - MP NUP
- FD Guidelines for work in elective study hours
- Inclusive education (shared course with other teachers) OKS Bachelor and Master

Scientific production

Compliance with scientometric indicators of occupancy of the academic position

From the submitted report on the implementation of the minimum national requirements under Art. 2b of ZRASRB for scientific field . Pedagogical sciences, Professional direction 1.3. Pedagogy of education in… (Technology and entrepreneurship education in primary grades and Methodology of work in class time in primary grades), Associate Professor Lyuben Vladimirov Vitanov has indicated a sufficient number of points, with evidentiary material - publications, habilitation work, monograph, articles and

reports, published in referenced and indexed databases with scientific production, citations, guidance of successfully defended doctoral students, participation in projects, etc.
The total number of points in the reference is 1084, distributed in the individual groups of indicators of the reference.
Based on the submitted materials for the competition, I will make a brief analysis of some of the more significant scientific works for participation in the competition, namely:

Habilitation thesis - Monograph

Vitanov, L. (2022). Technology and entrepreneurship education. Sofia: SU "St. Cl. Ohridski". ISBN 978-954-07-5426-0, (monographic work), COBISS.BG-ID – 54001416, 324 pages.

The monograph describes and structures the main definitions, characteristics, types and directions of technology and entrepreneurship education in primary grades. It is spread over 324 pages and includes six chapters, 29 figures, 5 tables and 281 literary sources.

The first chapter examines technology and entrepreneurship education in the school education system. The most important moments of the historical development of the methodology, its place in school preparation and normative documents are structured and analyzed. Basic goals and competencies are described as expected outcomes in the learning taxonomies paradigm.

The second chapter analyzes the main problems in technology education. Basic definitions, types, content and characteristics of the main technologies are given: materials technology, mechanical technology (technique), energy technologies, information and communication technologies, agricultural technologies, food technologies. Basic guidelines and training examples are also provided.

A third chapter is devoted to engineering education. The most important definitions, main characteristics and types of engineering are systematized. Major engineering areas and content, engineering process and activities are indicated. The main relationships with design and construction training are defined. Basic guidelines and examples of engineering education are structured. The main issues of STEAM education and the "Science and Technology in Society" movements are analyzed, in particular STS, STSE and SSI concepts of technology education and entrepreneurship.

The fourth chapter examines the main issues of entrepreneurship education. Important definitions, main characteristics, and types of entrepreneurship are indicated. Economic problems related to education in primary grades are examined, such as needs and resources, production, money and banks, trade, consumers and producers, personal and family budgets. The main guidelines and examples of entrepreneurship training are systematized.

In the fifth chapter, the main strategies, methods and techniques of training in technology and entrepreneurship are structured. Basic concepts and learning priorities are described. A model of technology and entrepreneurship education methods has been developed on two levels: direct learning methods and techniques, and active and discovery learning methods and techniques. An important place is given to assessment and reflection in technology and entrepreneurship education.

In the last chapter, the main issues of the organization and planning of education in technology and entrepreneurship are considered. The main problems of the technology and entrepreneurship lesson and activities based on interests in technology and entrepreneurship are systematized. Attention is given to the planning of technology and entrepreneurship education in the light of reflective teacher practice. The main problems of organizing an effective learning environment in technology and entrepreneurship are indicated.

A published monograph that is not presented as a habilitation thesis

Vitanov, L. (2022). STEM education in technology and entrepreneurship. Sofia: Prosveta, ISBN 978–954–01–4229–6, 140 pages.

The monograph describes and structures the main definitions, characteristics, types and directions of STEM education in technology and entrepreneurship in the elementary grades. It is spread over 140 pages and includes eight chapters, 50 figures and 118 literary sources.

The first chapter examines the definition and main characteristics of STEM education. Some historical aspects of its development are indicated. The main levels and benefits of STEM education are described, as well as the orientations in its expansion. The place of technology and engineering in STEM is analyzed. Main problems of procedural STEM orientation, STEM competencies, STEM social and personal aspects, as well as important potential problems of STEM education are systematized. Space is allocated for the STEM facilitator role of the teacher.

The second chapter analyzes science in STEM education. The definition and main scientific activities, approaches and methods such as observation, research and experimental research are indicated. The main examples of STEM research activities in technology and entrepreneurship are described.

The third chapter examines technology in STEM education. The main definitions and characteristics of a technological process and the types of technologies related to the content of technology and entrepreneurship education in elementary grades are given. Specific guidelines are systematized and examples of STEM technology training are given.

The fourth chapter focuses on engineering in STEM education. The definitions and characteristics of the engineering approach and process, the learning of engineering design in STEM, and the core engineering areas of competence are systematized and analyzed. A special place is devoted to practical STEM engineering.

Chapter Five examines mathematics in STEM education. Definitions are given, STEM math activities are described, guidelines and examples for STEM math education in technology and entrepreneurship in the elementary grades are given.

Chapter six focuses on the visual arts in STEM education. Definitions and types of art in STEM are described, as well as STEAM creativity and innovation. Key guidelines and examples of STEM visual learning in technology and entrepreneurship are outlined.

Chapter Seven describes STEM learning through project work. Definitions are given and main characteristics are analyzed, as well as guidelines and examples of learning through STEM projects in technology and entrepreneurship.

The final chapter examines the core issues of STEM education through authentic practical problem solving. Definitions are systematized and main characteristics are analyzed, as well as guidelines and examples of learning through STEM problem-based learning in technology and entrepreneurship.

Articles and reports published in scientific publications, referenced and indexed in world-renowned databases of scientific information

Vitanov, L. (2022). A student-centered positive approach to education, learning and socialization in the classroom. Sp. Pedagogy. Book 1 /2022, ISSN 1314–8540 (Online), ISSN 0861–3982 (Print), pp. 52 – 64

The article examines a student-oriented positive pedagogical approach in the classroom, developed on the basis of humane pedagogy, positive psychology and pedagogy. A constructed teaching and learning model with four main components is described:

dynamic and shared selection and structuring of learning content; a positive approach to education and classroom management; competency-based learning; balanced approach of student-centered learning.

Methodological guidelines for the implementation of the student-oriented positive pedagogical approach in the class are also indicated.

Articles and reports published in non-refereed peer-reviewed journals or published in edited collective volumes

Vitanov, L. (2021). Technology and entrepreneurship education in the school education system. In: Education and the Arts: Traditions and Prospects. Collection of reports from the second scientific-practical conference. Sofia: "St. Cl. Ohridski". ISNN 2738-8999, pp. 465–474.

Technology and entrepreneurship training is an important part of general education at school. It is aimed both at the formation of two key competencies - technological and entrepreneurial, and at the development of many transferable competencies such as critical thinking, problem solving, project development, creativity, etc. Therefore, in the areas of competence and learning content, a variety of learning content and expected results are formed, which are supported by creating conditions for the implementation of many innovative learning strategies and methods. This article examines the place of technology and entrepreneurship in the curriculum, state education requirements, and elementary school curricula. The main normative requirements for the content and organization of training are systematized - areas of competence, global topics and main expected results. They are grouped into the two main areas of technology teaching and learning and entrepreneurship. Several important didactic opportunities of technology and entrepreneurship education for the development of key and transferable competences are indicated. The guidelines for increasing the contribution of technology and entrepreneurship training in general education in several areas have been systematized. The didactic possibilities of learning through transfer, expanding integration and cross-curricular connections, active participation in the implementation of STEM learning, learning to support social and emotional intelligence, as well as wider support for learning in a positive educational environment are described.

Vitanov, L. (2021). Innovative methods and techniques for student assessment. Pedagogical and social studies. SU "St. Cl. Ohridski", FNOI. ISSN 2683-1376, pp. 3 – 15.

Assessment is a key component in the learning process. Not only the diagnosis of students' academic achievements, but also their motivation and success in school depends on its effectiveness. Assessment is in a dynamic relationship with reflection, which enables better planning, organization and implementation of teaching and learning. Therefore, assessment should be conducted with a variety of methods and techniques, including non-traditional ones, in order to fulfill its ascertaining, diagnostic, motivational and prognostic functions in the learning process.

The article examines the nature and pedagogical possibilities of some innovative methods and techniques for assessment and reflection. Many of them are used successfully in the work of very effective teachers, however, are not yet implemented in mass practice.

Vitanov, L. (2022). Pedagogical priorities in technology and entrepreneurship education. Knowledge International Journal, 50 N2, 2022, ISSN (print) 2545-4439, ISSN (online) 1857-923X, Ref , pp. 221 – 227

Education in technology and entrepreneurship is aimed at forming two key competencies: technological and entrepreneurial. It makes its place in the general educational preparation at the initial stage of education particularly important. This also sets higher requirements for dynamic changes and priorities, consistent with the priorities in the European education policy, as well as the new STEM orientations in education.

This article examines the main methodological concepts and guidelines for determining pedagogical priorities in teaching and learning about technology and entrepreneurship. They are structured in several directions: constructivist, pragmatic, humanistic, connectivist, STEAM priorities, as well as an orientation to active learning. The main approaches and the specific changes resulting from them in the approaches, methods and techniques of training are examined.

Cognitive priorities are aimed at acquiring more procedural knowledge and skills, accessibility of learning when teaching learning content on a practical basis, etc. The pragmatic orientation is aimed at changes in the development of generally applicable competencies such as entrepreneurship and basic skills - critical thinking and creativity, as well as strengthening practical work and integration. Constructivist-based priorities relate to a more systematic underpinning of students' 'concepts' and understandings of technology and entrepreneurship, as well as strengthening collaborative collaborative learning and learning community interactions. Humanistic priorities are aimed at teaching more personally relevant knowledge, increasing the affectivity of learning, as well as developing self-confidence and positive self-evaluation. The priorities directed by connectivism are associated with a more active inclusion of information and communication technologies and the formation of skills to draw on experience and competencies accumulated in digital networks. Important STEAM priorities and priorities for active learning through more research, project work, problem solving, business games, etc. are also indicated.

Scientific theoretical, practical-applied, artistic and other contributions

Theoretical-systematic contributions

- A broad and structured analysis of the training methodology was made on technology and entrepreneurship - basic issues and problems of teaching and learning, concepts and priorities, normative documents, educational content, planning and organization of education, basic organizational forms and methods for teaching and learning (Document 10B - source B3, No. 1, source D7, No. 4, 7, 12, 16).
- The educational content, methods and a number of techniques for the formation of both the two key competencies – technological and entrepreneurial, as well as the development of many transferable skills such as creativity, critical thinking, problem solving, project development, etc. (Document 10B - source B3, No. 1, source D4, No. 2, source D 7 Nos. 4, 16, source E 21, Nos. 21-29).
- STEM education is described, systematized and analyzed technology and entrepreneurship linked more dynamically and systematically to science, mathematics and visual arts education. The essential role of technology and engineering, which ensure the implementation of many ideas and procedures from the natural sciences and mathematics in immediate and authentic practical activities, is examined (Document 10B - source D 4, No. 2).
- The role of entrepreneurship in technology education is described and developed the concept of its wider inclusion not only with topics, but also with specialized integrated tasks, projects and activities in technology education (Document 10B - source B3, No. 1, source D7, No. 4, 8, 12).

- The main issues of technology have been developed and systematized, including economic issues that are directly included in the learning content at the initial stage of education (Document 10B - source B3, No. 1).
- Methodical approach and options for teaching and learning are proposed

in technology and entrepreneurship, which combine pragmatic, constructivist and cognitive approaches to realize a balanced upgrade of active over traditional learning (Document 10B - source B3, No. 1, source D4, No. 2, source D7 No. 6, 11, 13, source D10, No. 17, source E21, No. 21 – 29).

- Structured and implemented in broad pedagogical practice methodical approach of process-oriented learning in technology and entrepreneurship. It contains a support of the general technology and options for its application in the modeling process when working with a variety of materials (Document 10B - source B3, No. 1, source D4, No. 2, source D7 No. 6, 11, 13, source D10, No. 17 , source E20, no. 18 – 21, source E21, no. 21 – 29).

Contributions in experimental research plan

- A methodology for interactive training has been created and tested for students from the majors for the preparation of primary teachers on the methodology of technology and entrepreneurship education and the methodology of pedagogical work in class time (Document 10B - source D7, No. 10).
- Strategies, methods, techniques have been developed, adapted and tested for student-centered active learning in technology and entrepreneurship and in class time such as problem solving, project work, experiential research, authentic learning, guided discovery and group inquiry, business and simulation games, reflective practice, etc. (Document 10B - source B3, No. 1, source D4, No. 2, source D7, Nos. 5, 13, source D10, No. 17, source E21, Nos. 21-29).
- A positive approach to education and education in technology and entrepreneurship in the classroom is described, systematized and proposed in a variety of methodological ways (Document 10B - source B3, No. 1, source D6, No. 3, source D7, No. 10, 11, source D 10, No. 17, source E 21, No. 21 – 29).

Practical contributions

- Various topics are developed, structured and systematized, lessons, examples,

ideas, tasks and activities for effective teaching and learning in technology and entrepreneurship (Document 10B - source B3, No. 1, source D 4, No. 2, source E 21, No. 21 - 29).

- A variety of STEM tasks and activities in which they are applied are described many scientific facts, approaches and procedures that extend and show the practical application of science knowledge in the primary grades (Document 10B - source B3, no. 1, source D6, no. 3, source D7, no. 10, 11, source D10, no. 17, source E20, no. 18 – 21, source E21, no. 21 – 29).
- Didactic options have been developed for the application of experiential research work, problem-based and project-oriented training in technology and entrepreneurship (Document 10B - source D 4, No. 2, source E21, No. 21 - 29).
- A variety of topics, tasks and activities are offered for more active integration of education in technology and entrepreneurship with education in Bulgarian language and literature, national studies, man and nature, mathematics and fine

arts (Document 10B - source B3, No. 1, source D4, No. 2, source E20, No. 18 - 21, source E21, No. 21 – 29).

Personal impressions

I know colleague Vitanov as an extremely productive author, especially in the field of textbooks, study aids and materials for the school network, as well as an innovator in the field of teaching methodology. As a special personal quality, I can also note the diligence of the prepared materials for the competition. His exceptional scientific leadership skills can also be highly appreciated, as well as the development and successful implementation of a number of scientific projects, both intra-university and national.

Final assessment.

In conclusion, I can say, and given the presented facts, analyses, scientometric data, etc., that the candidate far exceeds the requirements of ZRASB, and deservedly can occupy the academic position of PROFESSOR, with which I confidently suggest to the respected scientific jury to offer the FS of FNIO to elect Associate Professor Liuben Vitanov as a professor in the field of higher education 1. Pedagogical Sciences, Professional Direction 1.3. Pedagogy of education in… (Technology and entrepreneurship education in primary grades and Methodology of work in class time in primary grades), announced in the State Gazette, No. 48 of 28. 06. 2020.

22/09/2022
Sofia

Presented the opinion:
(Prof. PhD. Adrian Georgiev)