

O P I N I O N

by Assoc. Prof. Dr. Gencho Valchev, Thrace Universities - Stara Zagora
of a dissertation for awarding the educational and scientific degree "doctor"

Title: "Information and Communication Technologies in Education"
in the field of higher education 5. Technical sciences
professional direction 5.3. Computer and communication technology
doctoral program "Computer Systems, Complexes and Networks"

with author Ava Ahmed Chikurteva
scientific supervisor: Prof. Dr. Dimitar Karastoyanov

1. Relevance of the problem

New innovative methods and means with application in education are the subject of the dissertation. Among the technologies used, the role of ICT is essential. The topic of the dissertation is current. The Ph.D. student demonstrates knowledge of the state of the problem and cites global approaches and solutions.

The purpose of the dissertation is to research and develop information technologies, resources, methods, and means to expand and improve e-education. The tasks are related to the research of existing ICT for the application of electronic education and Project-based learning in an electronic environment and proposing new approaches.

There is a correspondence between the set goal and tasks, the chosen research methodology, and the stated contributions.

2. General characteristics of the dissertation work

The dissertation is 134 pages long, structured into 4 chapters, a conclusion, contributions, a list of publications, two appendices, and a bibliography. 129 literary sources were used.

In the first chapter, an overview, analysis, and systematization of the various types of information and communication systems with application in education are made.

In the second chapter, types of platforms and multimedia developments for Project-based learning are presented.

In the third chapter, innovative solutions and block structures in the field of Project Based Learning are proposed.

The fourth chapter describes experiments on Project Based Learning and the Flipped Classroom method. Various simulations have been performed.

3. Characterization and evaluation of the contributions in the dissertation work

The research in the dissertation is aimed at using ICT in new approaches in education. The doctoral student was able to analyze, summarize and integrate not only the modern information and communication technologies necessary for education; but also to apply innovative educational structures and methods - Project-based learning and the Flipped Classroom. There is compliance of the chosen research methodology with the set goal and tasks of the dissertation work. I believe

that the doctoral student successfully coped with the set goals and objectives of the dissertation - developing models, project-based lessons, interactive assistance, and digital educational resources.

I positively assess the obtained results as mainly scientific and applied.

4. Publications of the dissertation student on the topic of the dissertation work

The dissertation is based on 6 scientific publications. Two of the publications are referenced in SCOPUS/WoS. Three of the publications are independent, and in two others the doctoral student is in the first place. This gives me a reason to conclude that they were all prepared by the Ph.D. student.

5. Use of the obtained results

In the documents attached to the dissertation, there is an official note from the "Druzhiba" Private School assuring that an experiment was conducted in a real learning environment, which is a good certificate for the work done by the dissertation student.

6. Critical notes and recommendations

Syntactic, grammatical, and technical errors were made in the dissertation, as well as errors in some numbering.

The inaccuracies do not detract from the contributions of the dissertation, but the author should be more precise when publishing her future results.

7. Conclusion

The dissertation complies with the conditions of ZRASRB, PPZRASRB, and the Rules for the specific conditions in IICT-BAS. The dissertation contains scientific and applied results of an innovative nature, which I evaluate positively. The candidate demonstrates an ability for independent research. I strongly recommend to the Honorable Scientific Jury the awarding of the educational and scientific degree "Doctor" to Ava Ahmed Chikurteva in the field of higher education 5. Technical sciences, professional direction 5.3. Computer and communication technology, in the doctoral program "Computer systems, complexes and networks".

2.03.2022

Member of the Scien

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