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## **USING LABSTER VIRTUAL LABORATORIES IN TERTIARY EDUCATION**

**Myroslav Solovei**

Candidate of Pedagogical Sciences  
Associate Professor,  
Vice-Rector for Academic Affairs,  
Kyiv National Linguistic University  
mir.solovei@gmail.com

**Liudmyla Solovei**

Candidate of Pedagogical Sciences,  
Associate Professor of English  
Language and Communication Department,  
Borys Grinchenko Kyiv University,  
l.solovei@kubg.edu.ua

The impact and challenges of the COVID-19 pandemic and the war against Russian invaders have sped up the digitalization of teaching-learning process in Ukraine. Indeed, the education system is facing a paradigm digital shift, creating and inventing new possibilities for both educators and their adult students. Today's students are more often called "digital-age learners".

These students are "less dependent upon traditional education institutions for knowledge acquisition and are much more self-reliant, exercising their internet-based skills to aggregate data and information" (Collier, Burkholder & Branum, 2013).

Thanks to digital technologies, a number of educational projects have been created to increase the quality of the teaching-learning process. Labster is one of them. It was created by scientists, curriculum designers, and game developers. Many educators, who have already been applying this program consider the Labster simulations well-designed and engaging for students. Labster includes more than 300 simulations and offers a complete platform for science education. Tertiary students using their personal computers, mobile phones, and other devices find themselves in real situations, which are provided by virtual labs. They face a scientific interactive problem that should be solved. The educational simulations may seem boring, but virtual Labster frame science in a fun, visual, real-world scenario.

Virtual labs contain not only learning simulations but supplemental resources such as theory pages, videos, quizzes, animations, and others as well. Tertiary students doing their tasks may try lab simulations as many times as they need to improve their grades. In this way, they keep on learning from their struggles and mistakes. Students can do virtual lab experiments in Biology, Physics, Chemistry, Genetics, Anatomy, Physiology, Biotechnology, and other courses (Kanwal, 2021).

Many of these simulations are associated with real-world problems, such as stem cell therapy to treat blindness, visualizing cancer cells to distinguish unique characteristics, and analyzing DNA to solve a crime (Tripepi, 2022).

Such interactive simulation diversifies traditional teaching lessons and definitely motivates students. Educators should realize the potential of this program to enhance student learning.

Labster has many advantages and its application is able to simplify the teacher's preparation for the lessons and make it easier. Firstly, Labster integrates with many Learning Management Systems (LMS), including Canvas, Blackboard, and Google Classroom. Secondly, Labster simulations are available in English, German, French, Spanish, and Italian languages. Thirdly, Labster learning simulations may be included in the curriculum plan of the educator. Besides, their usage help save the lesson time, because every simulation completed by the student is automatically graded. In this way, the educator always gets the feedback. And finally, the educator has full access to every student's dashboard where one can get information about the student's performance, his/her progress or mistakes and difficulties he/she has met. Thus, virtual labs provide collaborative adult learning and in case a student faces a challenge, the educator may identify it and coach the student immediately.

It's a fact, that Labster is able to help overworked educators to reinforce the results of their teaching activity and reduce their burnout teaching their subjects online. Digitalization of education has to ensure the innovative incorporation of modern technology and digital tools to assist the progress of teaching and learning and to create more possibilities for online learning. Using digital technology must make the learning experience more meaningful, challenging, and engaging.

However, digitalization of teaching and learning, and modern digital resources certainly provide challenges for educators. They have to facilitate university student learning, customize their activities to meet individual student needs, to evaluate student learning through data-driven instructional methods.

But many educators lack knowledge and proficiency with innovative technology. The gap in the technology skill prevents effective digital learning teaching. Optimization and improvement of the opportunities of digital learning in general and usage of Labster project in particular require new skills of educators. Every educator should have the access to training and professional development either online or face-to-face workshops. They need to be trained to increase student learning.

To sum up such digital tools as Labster virtual laboratories have a great educational potential for teaching learning process. It is advisable to apply it into Ukrainian practice of tertiary education more widely.

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## **СПІЛЬНА З ОДНОЛІТКАМИ ДІЯЛЬНІСТЬ ЯК ЗАСІБ ФОРМУВАННЯ ПРЕДМЕТНО-ПРАКТИЧНОЇ ДІЯЛЬНОСТІ ДІТЕЙ 5-ГО РОКУ ЖИТТЯ**

**Пономаренко Тетяна Олександрівна**

Київський університет імені Бориса Грінченка  
доктор педагогічних наук, професор,  
професор кафедри дошкільної освіти  
[t.ponomarenko@kubg.edu.ua](mailto:t.ponomarenko@kubg.edu.ua)

**Рудницька Олена Петрівна**

Київський університет імені Бориса Грінченка  
магістрант кафедри Дошкільної освіти  
[oprudnitska.fpo22@kubg.edu.ua](mailto:oprudnitska.fpo22@kubg.edu.ua)

Дитячий вік є важливим періодом у розвитку кожної особистості. Для дітей п'ятого року характерна особлива активність і цікавість у пізнанні навколишнього світу. Це період, коли вони активно вивчають різні аспекти