

**СЕКЦІЯ: ІНСТРУМЕНТИ, МЕТОДИ ДИСТАНЦІЙНОГО ТА
ЗМІШАНОГО НАВЧАННЯ В ЗАКЛАДАХ ОСВІТИ**

**DIGITAL PORTFOLIO AS A WAY OF STUDYING NATURAL SCIENCES:
PROJECT WITH THE SUPPORT OF DAAD**

Krytska Anastasiia

Bachelor's degree of Secondary Education (Mathematics),
Ternopil Volodymyr Hnatiuk National Pedagogical University,
krytska_am@fizmat.tnpu.edu.ua

Skaskiv Hanna

assistant of the Department of Informatics and Methods of its Teaching,
Ternopil Volodymyr Hnatiuk National Pedagogical University,
skaskivg@tnpu.edu.ua

A digital portfolio can become an important tool in the study of natural sciences, as it allows you to integrate theoretical knowledge with practical tasks and research in a digital format.

Here are some key aspects of using digital portfolios in science education at Ternopil Volodymyr Hnatiuk National Pedagogical University:

1. Interactivity and engagement: The digital portfolio engages students to actively interact with the learning material through a series of tasks, explorations and puzzles that stimulate their interest and motivation to learn.

2. Development of critical thinking and problem-solving skills: In the process of creating a portfolio, students analyze information, synthesize it from various sources, put forward hypotheses and make decisions.

3. An interdisciplinary approach: A digital portfolio can cover different fields of natural sciences, allowing students to understand the relationships between disciplines.

4. Collaboration and Teamwork: A digital portfolio can be used to collaborate on projects, which promotes teamwork skills.

5. Accessibility and convenience: The digital portfolio is accessible via the Internet, convenient for use in the classroom and for self-study.

6. Motivation and engagement: Digital design elements in a portfolio can increase student motivation and make the learning process exciting.

The main goal of the project: To increase the efficiency and involvement of students in the process of studying natural sciences (biology, chemistry, physics, ecology, etc.) by integrating interactive, research-oriented projects into the educational process.

Relevance of the project idea:

- compliance with modern educational trends;
- increasing students' interest and motivation;
- development of key skills of the 21st century;
- interdisciplinary approach;
- integration of technologies and online resources;
- availability and flexibility [3].

The introduction of digital portfolios as a way of studying natural sciences is a project aimed at increasing the efficiency and involvement of students in the learning

process through the use of interactive, research-oriented digital projects. The project to introduce digital portfolios as a method of studying natural sciences is an innovative approach that uses digital technologies to create educational content that includes biology, chemistry, physics, ecology and other sciences. Each project in the portfolio will have an interesting plot and a variety of tasks that will allow students to demonstrate their knowledge and skills.

Possible risks that could affect the implementation of the project:

1. Technical problems: failures in the operation of the website or platform where the digital portfolio is placed; difficulty integrating various online tools and resources.

2. Insufficient technical support: lack of proper technical support for teachers and students when using digital portfolios.

3. Resistance to changes on the part of teachers: some teachers may not be ready or willing to change their traditional teaching methods; insufficient motivation or skills to use new technologies in education.

4. Lack of access to technologies: some students may have limited access to computers, tablets or a stable Internet connection at home.

To minimize these risks, a thorough risk management plan must be developed, which will include:

1. Creation of reliable technical support and backup systems.

2. Conducting training and motivating teachers to use new methods.

3. Ensuring access to technologies for all process participants.

4. Compliance with the rules of copyright and data security.

The timeline for implementing the project can vary based on factors such as the project's scope, resource availability, and technical challenges. An estimated duration of 3–6 months is typical for this type of project. This period includes phases such as planning and designing the digital portfolio framework, developing content and tools, conducting tests, and finally launching the portfolio system for educational use.

One of the key aspects is the integration of various online resources into the digital portfolio, such as videos, simulations, 3D models and interactive visualizations [1; 2]. This will allow students to visually study natural phenomena and conduct virtual experiments. Emphasis will be placed on developing critical thinking and problem-solving skills through assignments that require students to analyze information, synthesize it from various sources, hypothesize, and make decisions. Many of the projects in the portfolio will involve group work where students will be required to collaborate and share ideas, which will promote the development of effective communication, leadership and teamwork skills. Portfolios will be available online, which will ensure flexibility and individualization of the learning process, giving students the opportunity to work on them both in class and independently.

To increase the motivation and involvement of students in the learning process, a system of points, badges, levels and rewards will be integrated within the portfolio. Training workshops for teachers on the use of digital portfolios in the educational process will also be held, and resources and instructions will be created to facilitate it.

References

1. Balyk N., Shmyger G., Vasylenko Y., Skaskiv A., Oleksiuk V. The didactic aspects of blended learning in higher educational institutions during the pandemic. Scientific Editor Eugenia Smyrnova-Trybulska, 2021. № 13. P. 65–75.

2. Skaskiv H. Innovative teaching methods in the training of future computer science teachers. *Innovatsiyna pedagogika*, 2020. Vyp. 30. T. 2. P. 90–93.

3. Online Portfolio. Tufts University. URL: <https://careers.tufts.edu/resources/what-is-an-online-portfolio> (available at: 02.11.2024).