

**FaR 2021****International Forum “Freedom and responsibility in pivotal times”****ENVIRONMENTAL EDUCATION FOR SUSTAINABLE  
DEVELOPMENT: EDUCATIONAL MODULE "CONSCIOUS  
CONSUMPTION" FOR NON-CORE SPECIALIZATIONS**

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**Abstract**

This article is devoted to the development of an education module about conscious consumption for students of all specializations and qualification. The main purpose of the module is formation of an eco-culture among students through a deep systematic transition from a culture of consumption to awareness in the choice of goods and services. The module importance is caused by the necessity of development of the population's personal responsibility through practical experience. There are many educational courses for students that are dwelled on sustainable development, but they are either for core specialization, or provide only a theoretical basis, so it is difficult for a student to apply their skills in practice. In the developed module the new technologies are used in the learning process to avoid the monotony of the educational environment and process. Proceeding from the module feedback the collective of authors received affirmation that the module earns the attention of students and its subject area is relevant.

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## **1. Introduction**

Consumption and production have significant impact on the environment as the driving force of consumer economy as the ecosystem degradation that threatens human development and existence itself is caused by socioeconomic progress over the past century (Elhacham et al., 2020).

In the current situation, it is necessary not only to improve the measures to mitigate environmental damage, but also to train professionals to do it. So education of non-major specializations on environmental issues is important, as assurance of acceptable level of anthropogenic factors with a negative impact on the environment is possible only through knowledge and personal responsibility (Maslennikova et al., 2017).

## **2. Problem Statement**

The module importance is caused by the necessity of development of the population's personal responsibility through practical experience. There are many educational courses for students dwelled on sustainable development, but they are either for core specialization, or provide only a theoretical basis, so it is difficult for a student to apply their skills in practice.

## **3. Research Questions**

Project objectives:

- Development of the discipline pedagogical design.
- Preparing lecture material on relevant environmental topics for Generation Z.
- Creation of modern media content.
- Development of an online educational module dedicated to the basics of sustainable development and conscious consumption for students of non-core training areas that meets the modern needs of generation Z.
- Placement of the educational module on the website <https://openedu.ru/>
- Formation of personal responsibility for the state of the environment among course participants.
- Practical application of the provisions of ecology as a science in human life as an element of the environment.

## **4. Purpose of the Study**

The goal of the project is the formation of an ecological culture among students of all specializations and qualification through a deep systemic transition from a culture of consumption to awareness in the choice of goods and services, based on personal responsibility and understanding of their place in the environment.

## 5. Research Methods

One of the main tasks of modern educational technologies is the transformation of traditional education, aimed at the accumulation of knowledge and skills in the process of student personality development.

In the developed module the new technologies are used in the learning process to avoid the monotony of the educational environment and process. Conditions have been created for changing the types of activities of students and ways of perceiving information. For example, a student can not only view and listen to a video lecture, but also read its text attached to each topic.

The developed module uses information and communication technology. Moreover, this process consisted of several stages.

At the first stage, an analysis of bachelor's degree programs for students who would have access to the developed module "Conscious Consumption" was carried out. Selection of topics that advise the subject of the discipline and the required competencies and choice the type of lesson and features of the material for the selected type were also performed at that stage. It was decided that the presentation of the material should be in the form of short lectures lasting up to 10 minutes. In this case, the theoretical material (text) will be accompanied by appropriate visualization (photos of historical figures, diagrams, visual duplication of important definitions and laws, covers, recommended books, posters, etc.). All of the above contributes to an easy perception of the material and allows students to avoid monotony, because in the lecturer's speech there is a constant reference to any other sources of information, authors, etc.

At the second stage, the corresponding video lectures were recorded, and additional sources were selected on the topic of the module. They are available to the listeners of the module in the section of additional information (literature, podcasts, thematic blogs, movies, and websites).

At the third stage, after the completion of the online module, an analysis of feedback from students as well as an analysis of the dynamics of academic performance were carried out. In addition, the rating of the module itself among the available sections of the optional discipline was studied.

In the fall of 2020, 399 people signed up. This indicates a high interest and demand among students for the information presented in the module.

The developed module uses the technology of critical thinking. After all, without critical thinking it is impossible to talk about awareness. Critical thinking is a necessary condition for freedom of choice, forecast quality, and responsibility for one's own decisions.

At the same time, the organization of the educational process consists of several stages.

At first stage, there are an actualization of existing knowledge and awakening of interest in the topic. In the text of the lecture questions are asked about examples of events, facts, and names that are heard by everyone (well-known names, brands, corporations).

At second stage, new information, its comprehension and systematization are obtained. In the text of the lecture, questions are asked and calls for thinking are formed "what if", "imagine", "do not expect that someone will do something for you, create tomorrow yourself" and so on. The listener forms his own position regarding the information received.

At third stage, students consolidate new knowledge and actively rebuild their own primary ideas in order to include new concepts in them. At this stage, the student's independent work is performed, in which each of them conducts an analysis of modern trends in rational consumption.

At the end of the completed work the student describes the conclusion. It includes a description of their own established position on the material covered and an assessment of the process (conclusion in work after completed tasks and filling in feedback).

The developed module also uses gaming technologies, despite the fact that communication with the teacher in real time is not provided. The game is contained in the concept of performing independent (laboratory) work.

Laboratory work includes several processes:

- Physical - students need to personally disassemble, count your things, go to the store, and take the required photos.
- Intelligent - students need to conduct a SWOT analysis for a real project.
- Cognitive - students need to independently find in the store (online store) goods with various markings and inscriptions, then using course materials, determine if the found goods relate to ecological goods or greenwashing.
- Creative - after analyzing their own wardrobe, students need to offer creative solutions to optimize it.

In this case, the gaming environment includes both a room (place of residence, store) and the use of objects (clothing, goods, hygiene products). Undoubtedly, the technology of modular training is worth mentioning since the developed module is an optional section in the discipline of Life Safety. This discipline has been modernized in a way to meet the educational needs of each student in accordance with his inclinations, interests, and capabilities.

The control of progress in the module is carried out using the following assessment tools: laboratory work and test.

Table 1 shows the criteria for evaluating laboratory work. An assignment for laboratory work and a template with assignments for its implementation is available to the student from the moment the course is opened on the Open Education platform. The student can upload the report on the work performed to the platform from the moment the course was opened and after a week after the completion of the course. After checking the content of the report, the teacher of the module gives an appropriate grade and comments on the work performed.

During the work the student understands how, in practice, he can apply practical advice to reduce the negative impact on the environment in real life (in his own experience) using personal input, knowledge, skills and abilities. As the students noted in the feedback: "This is a task, by completing which you will definitely learn many useful things."

**Table 1.** Criteria for evaluating laboratory work

Grade	Requirements
«5» (excellent)	all the tasks of the laboratory work have been completed, the student answered all the control questions clearly and without errors
«4» (good)	all the tasks of the laboratory work have been completed; the student answered all control questions with comments
«3» (satisfactorily)	all the tasks of the laboratory work with comments have been completed; the student answered all control questions with comments
«2» (unsatisfactory)	the student have not been completed or performed incorrectly the tasks of the laboratory work; the student answered the control questions with errors or did not answer the control questions

Testing is carried out to assess the theoretical material learned by students (content of lectures).

The criteria for evaluating the tests are shown in Table 2. After studying the theoretical material, the student must pass the test in order to understand how well he has mastered the material or if there are any controversial questions. In this case, after passing the test and saving the answer, the student can view the correct answers. As a result, the student can see his mistakes and additionally work through the necessary material, using additional course materials. In addition, the student can ask any questions of interest to him at the consultations held during the module using video communication (Zoom platform).

**Table 2.** Test execution requirements

Requirements	Maximum points
90% and more correct answers	5
75% and more correct answers	4.5
60% and more correct answers	4
40% and more correct answers	3

Within the framework of the module, self-training of students is also implemented. By completing the assignments, the student understands how in real life he can apply the practical advice received in the module and make a personal contribution to the development of future generations throughout his career. As a result, the student is motivated to further expand knowledge in the studied area and an incentive to apply it.

It should be noted that the module is implemented on an online platform and is available for passage at any time during the month. This additionally trains the student in the organization of his working time, makes it possible to individually choose the place of study and other additional conditions.

For each topic of the module a list of additional sources is provided that are recommended for students to familiarize themselves with. Additional resources include not only tutorials and research articles, but also modern popular materials such as blogs, animations, podcasts, and training videos.

Some sources are required to study, as there are questions about them in the final module test. Thus, students are motivated to read additional literature.

The laboratory work included in this module should be performed individually by each student. The format of the assignment in which the student must choose eco labelled goods, optimize the wardrobe (Cimatti et al., 2017; Peters et al., 2021), find funds with microplastics (Horton & Barnes, 2020), and assess their ability to switch to separate waste collection allows the teacher to quickly determine whether this is an original work, the degree of its development and the degree of student involvement.

## **6. Findings**

As a result of the work an educational module was created. In this module there is a series of seven lectures, a laboratory work and a final test on how to reflect conscious consumption in a lifestyle and what global environmental, economic and social problems everyone can help to solve.

In the developed module in the learning process modern technologies are used to avoid the monotony of the educational environment and the monotony of the educational process. Conditions for changing the types of activities of students and ways of perceiving information have been created.

The module “Conscious consumption” forms the basic knowledge and skills for understanding of production and consumption patterns, rational use of resources, and human impact on the environment. The module allows students to study such modern concepts and concepts as Sustainable development, Circular economy, Zero waste, Fast and slow fashion, microplastics, Greenwashing, Eco-shaming, Eco-anxiety, and others. Moreover, module is also dwelled to master daily “eco-habits” through practical work.

The online module is designed in such a way that the student does not need to complete additional disciplines before starting training. Despite the fact that the lectures contain topical issues related to global world problems and trends, including environmental, economic, social, all information is presented in such a way that it will be understandable to a modern student of any level of training.

The module management team has spent a lot of time on the preparation of theoretical material on the module subject as well as adaptation of the material for the modern generation. An extensive analysis of the available materials on the module subject was carried out. As a result, the team has compiled a detailed list of additional modern materials including blogs, documentaries and services that facilitate the understanding of the concept of Sustainable Development and the transition to mindfulness in the choice of goods and services.

Upon completion of the module students will:

- know the main threats to the environment and human health today;
- will be able to choose goods and services that are safe for the environment and human health, organize their life and work in accordance with modern social and environmental concepts;
- will be able to create and maintain safe living conditions and assess critically threats to health and the environment.

## 7. Conclusion

Proceeding from the module feedback the collective of authors received affirmation that the module earns the attention of students and its subject area is relevant.

The educational module was posted on the website <https://openedu.ru/>. As a result of the project, from September 28 to October 26, 2020, an online course was implemented on the Open Education platform, which was studied by 399 people.

After completing the course, some participants left feedback. Participants commended:

- analysis of all components of our life;
- the usefulness and importance of the information;
- the relevance of the voiced topics;
- the material supply;
- a task for self-study (laboratory work), performing which "you will definitely learn many useful things".

By completing the assignments, the student understands how to apply practical advice to reduce the negative impact on the environment in everyday life based on the concept of sustainable development and conscious consumption using personal input, knowledge, skills and abilities. As a result, the students become motivated to further expand knowledge in the studied area and an incentive to apply them.

Based on the work done and the results obtained, it is planned to supplement the course with theoretical information, based on the requests and wishes of the listeners. After that the project can be scaled up and become open to students of other educational institutions.

At ITMO University, the module can also be implemented at all levels of qualifications as an optional discipline included in any curriculum. If necessary, the content of the module can be supplemented or reduced in accordance with the request of the heads of educational programs. This will not be difficult because the authors of the module have the appropriate competencies.

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