

Improving the teaching of economic geography in geography departments of universities for sustainable development

G. S. Berezhnaya*

Immanuel Kant Baltic Federal University, Kaliningrad, Russia

Abstract. The paper considers the major aspects of improving the teaching of economic and geographical courses for students of the field 05.03.02 “Geography” in the interests of sustainable development. The study of the course “Economic and social Geography of Russia” is considered in detail as an example. Based on the analysis of documents regulating the learning process, scientific and pedagogical literature and generalization of the experience in teaching the course, current trends in selection of academic content, organization of educational process, system of evaluation of students' achievements were revealed. Attention to the issues of sustainable development in the capture of all topics, an integrated approach to the study of industries and regions, the activation of students' cognitive activity in all types of classes, the appropriate use of electronic, including distance teaching methods, ensuring evaluation transparency and accounting of students' learning achievements meets the interests of sustainable society development.

1 Introduction

From the point of view of ensuring the sustainable society development, it is required to improve the quality and accessibility of education as a whole, increase students' awareness of sustainable development through the educational content, formation of critical and systemic thinking, holistic vision of the outside world, skills of interaction and problem solving [1]. Economic and geographical courses are traditionally part of the basic training of specialists in geography and have a significant potential for improving the level of students' competencies in sustainable development. Their content and teaching methods do not remain unchanged. As a pedagogically processed reflection of the relevant scientific courses, the academic courses respond to changes occurring in the economic and geographical science and in pedagogy. In addition, changes in social life are also reflected in the content and methodology of economic geography study. On the one hand, this happens indirectly, through the connection to the branch of science, because science, as it develops, responds in turn to the challenges of society. On the other hand, society directly affects the entire system of higher education through the social order for a specialist with certain competencies. At the same time, pedagogical research does not pay enough

* Corresponding author: berezhnaja-gs@rambler.ru

attention to the changes taking place in the methodology of teaching geography at the higher education level. So, at the level of dissertations, the history of higher geographical education [2], the issues of training teachers of geography [3-7] are studied. The issues of teaching methodology for non-pedagogical geographers in the system of higher education are not presented in the topics of dissertation research for 2010-2020. Some aspects of geographers' training, such as the role of individual courses and information technologies in the educational process, the formation of a number of personal qualities and professional competencies, including those in the field of sustainable development, are discussed in scientific articles and conference materials [8 – 14]. Thus, there is a contradiction between the need to improve the practice of teaching disciplines of professional training of students-geographers in accordance with modern requirements and interests of sustainable development and insufficient scientific and methodological development of this problem.

The goal of our work is to summarize the experience of teaching economic geography for students studying in the field 05.03.02 “Geography”, to identify current trends in the selection of content and methods of educational process organization in the interests of sustainable development on the example of mastering the course “Economic and Social Geography of Russia”.

2 Materials and methods

Analysis of normative documents regulating the learning process: lesson plans, work programs and their annotations, which are in the public domain (the sample included Lomonosov Moscow State University, St. Petersburg State University and federal universities); analysis of scientific and pedagogical literature, conference materials, generalization of pedagogical experience in teaching the course.

3 Results and discussion

Course content. One of the requirements for the student course content is its compliance with the current level of development of the relevant science, an adequate reflection of its content [15]. The economic geography content is changing dynamically enough, primarily due to the inclusion in the field of analysis of new fields of economy and social life: management, credit and financial, political, environmental, etc. The possibilities of IT technologies in research and presenting their results are also being increasingly used. This leads not only to the emergence of new sections in existing economic and geographical courses, but also to the emergence of independent, highly specialized courses in new research areas. Therefore, when selecting the content of the “Economic and Social Geography of Russia” itself, it is necessary to consider the educational profile, the whole range of socio-economic and geographical courses included in lesson plan, to optimize the content through the active use of interdisciplinary connections, or integration of narrow courses into a complex one. The thematic course structure, as a rule, includes the following main sections: theoretical frameworks of the socio-economic geography of Russia; position of Russia in the modern world; general characteristics of natural conditions and resources, population and economy of Russia, including the development and location of the main sectoral and intersectoral complexes; characteristics of economic and geographical regions. Some programs do not have a regional section. In general, while maintaining a comprehensive approach to characterizing the territorial organization of Russia's population and economy, the depth and detail of consideration of these or other sections varies. Informing in the field of sustainable development is provided through attention to the environmental problems of industries and territories, the issues of economic growth and its

consequences, the environmental spectres for transforming the territorial and sectoral structure of the economy [14], examples of “green” technologies in production, the study of socio-economic, demographic problems of regions, constant monitoring of relationships in socio-economic systems of different ranks. In this aspect, it seems important to preserve the regional section, as it contributes to the formation of an integrated approach to the study, assessment and planning of socio-economic development of regions of different scales.

Methods and forms of training organization. The effectiveness of competencies formation in sustainable development depends on the applied educational technologies, their diversity and innovation [14], the presence of cooperation and dialogue in educational process [1]. It is also worth noting the need for reasonable and appropriate use of electronic learning technologies, distance online courses, which allow to increase the mobility of students and the availability of education, which also meets the interests of sustainable development [16]. The lesson plan provides for lectures, practical classes and independent work of students in economic geography. In modern conditions of increasing quantity and availability of information and reduction of hours for classroom work, as well as based on the above provisions, the use of only traditional informational lectures seems ineffective. At the same time, refusal from lectures can lead to a loss of consistency and uniformity of semester work of students, a decrease in the scientific level of education [17]. There are a number of methods for conducting a lecture class, that are beneficial in increase the cognitive activity of students. Thus, the higher school uses problem lectures, binary lectures, “flipped learning” model, visualization lecture, web lecture, slide lecture, electronic lecture system, lecture-conversation, lecture-discussion, case study lecture, press-conference lecture are used in higher education [17-23]. Since the pedagogical community has not developed a generally accepted understanding of all these types of lectures, we consider it necessary to give an explanation of the used terms.

Problem-based and binary lectures have been used in higher education pedagogy for quite a long time. Their methodological and didactic foundations were laid in the works of M.I. Makhmutova, A.M. Matyushkina, M.I. Skatkina, I.Ya. Lerner et al. in the second half of the twentieth century. In the course of a problem lecture, a problem situation, which is resolved in the process of dialogue between lecturer and audience [23], or when teacher himself shows the progress of solving the problem is modeled [24]. This method is especially effective when studying some theoretical approaches to the analysis of economic territorial organization, problems of development of individual industries and regions. A binary lecture can be seen as a variant of problem-based learning, implemented by two teachers. A live discussion of a debatable issue is modeled before the students, and various points of view are presented. The co-presenter of the binary lecture can also be a student who has the necessary level of training.

During the lecture-conversation, the teacher engages students in a dialogue on the topic under consideration. In our opinion, the most productive use of a heuristic conversation is when the teacher's questions lead students to solve the problem and thus gain new knowledge.

The lecture press conference is based on students' questions to teacher. The questions are collected, systematized, and then a lecture is given that contains systematized answers to the raised questions. Another option for this type of lecture is for students to report on the questions raised by the teacher [25]. This approach seems effective in discussing problems of economic restructuring in the country, regional development, environmental and demographic problems.

A lecture with case studies involves students analyzing problem situations related to the material being studied and making a decision about them [25]. The material for case problems tasks can be environmental problems of a particular territory, deciding on the advisability of building an enterprise in a particular locality, the development of a particular

industry in the region, planning the development of social infrastructure, etc. Such a task is presented in the form of a text or video clip, with questions on the problem requiring the application of knowledge obtained at the lecture or in independent work. The problem is solved together, by whole student group, the teacher comments on answers, directs the discussion towards the best solution.

The “flipped learning” model assumes that students study new theoretical material independently, and in class they perform practical tasks on the topic, discuss the most important and difficult issues, and work in groups [20-23, 26]. Students receive theoretical material for independent study in the form of an electronic resource, a video lecture, a text document, a textbook paragraph. Also immediately may be offered and tasks for self-checking or preparing materials for classroom work (questions to the teacher, the problems for discussion in the group, the task for peer control, etc.). When using electronic lecture complexes, elements of online courses in distance learning systems (for example, the element “Lecture” in LMS Moodle), training tasks, questions for automated control are built into them.

Lecture-visualization supposes a visual presentation of information with the help of a visual series: graphs, charts, videos, illustrations, etc. Today most often visual materials are collected in a presentation. The visuals are accompanied by the teacher's comments [19, 25, 27, 28]. In the course “Economic and Social Geography of Russia”, this type of lecture is in demand when studying the location of natural resources, industry centers; the level, dynamics, and territorial differences of socio-economic indicators. As a specific geographical method of visualizing the material, we will distinguish the use of maps of different content, cartograms and cartodiagrams, allowing to visualize certain natural and socio-economic characteristics of the territory. Students can also be involved in the creation of cartographic material, which will not only contribute to the formation and consolidation of theoretical knowledge, but also to the development of practical skills of transforming information into a visual cartographic form.

A slide lecture is understood as a presentation containing drawings, diagrams, tables, and other materials, accompanied by a voice-over narration. Such a lecture is an independent learning unit and can be used in the organization of students' independent work, distance learning. Sometimes a slide-lecture is understood as an ordinary lecture read by a teacher and accompanied by a slide show. In this interpretation, it is close to a lecture-visualization.

Web-lecture – a relatively new method of conducting classes and involves the use of distance technology. Following L.Yu. Shchipitsina, by web-lecture we will understand “a predominantly monological synchronous form of organization of academic interaction, allowing a systematic presentation of theoretical ideas on one of the scientific problems to a group of listeners, who can be located in different places, using various computer technologies and services”. [29, p. 218]. An asynchronous form of web lecture – a recording of synchronous lecture or portions thereof. It is also possible to create special video lectures [30]. In the course “Economic and social geography of Russia”, this format can be applied in the “flipped learning” model, when the lecture recording is offered as homework. It also seems appropriate and interesting to include synchronous web lectures (or recordings thereof) given by leading scholars in economic geography. Unfortunately, to date, the latter option is not widespread.

Also at lectures are used such methods of activation of cognitive activity, as making a mental map by students independently, in groups, together with the teacher; maintaining an electronic glossary; making a supporting outline, including hypermedia, analytical tables [19]. The compilation of “business cards” for industries or economic areas can be used. To do this, the teacher previously creates a template form, which students fill out during the lecture. For example, a business card for an industry may contain the following questions-

elements: industry name; sub-industry; characteristics of raw materials and finished products; location factors; major centers; intra- and inter-industry connections; problems and prospects. The introduction of elements of automated knowledge control at lectures with tests, interactive tasks, crossword puzzles, rapid response systems will help to control the assimilation of knowledge by students, correct the learning process in a timely manner [19, 31]. The lectures intensification with the help of electronic technology requires good equipment of educational buildings with computers and communication channels. The problem of providing each student with an electronic workplace in the classroom can be solved using the concept of BYOD (Bring Your Own Device) [19]. When preparing electronic materials, the teacher should pay attention to the possibility and correctness of their work on tablets and smartphones.

It should be noted that the most effective is the use of various types of lectures and methods of enhancing the cognitive activity of students on them. The choice of forms and methods for a particular lesson is made taking into account its topic, goals, level of preparedness and interest of students, technical equipment, and teacher's capabilities.

Thus, we consider it advisable to maintain lectures as one of the main forms of classes in the discipline "Economic and social geography of Russia" and other economic and geographical courses, while revising their methodology towards activation of students' activity, wide use of electronic learning tools, increased integration of students' independent and classroom work.

Practical sessions in the course are conducted using different forms and methods of teaching. These are seminars, work with statistical material, contour maps, creating presentations, compiling characteristics of the region, industry, etc.

Seminars are advisable to conduct on controversial issues of theory, current topics of socio-economic geography of post-Soviet Russia: different approaches to analysis of territorial organization of production, geography of tertiary sphere, regional policy and sustainable development of territories, etc. When conducting seminars, attention should be paid to the involvement of all students in discussion of raised issues, simulate problem situations of cognitive nature, encourage scientific argumentation of the expressed point of view. If the seminar is based on reports prepared by the students, no report should be left without questions and discussion. A seminar evaluation scale should be developed that takes into account all aspects of learning activities in such a session: preparation of reports, participation in discussions, posing and answering questions. When assessing participation in discussion of the question, the report, it is necessary to pay attention to the quality of scientific argumentation of the expressed student's point of view, the ability to lead the discussion in compliance with the necessary interaction rules.

Practical work, as a rule, is dedicated to the study of a branch or region, and represents a set of tasks of a different nature (analysis of statistical material with the construction of tables, graphs, charts; making industry charts; work on outline maps / development of thematic maps; making analytical tables; search and arrangement of information on a given problem, including work with cartographic sources, etc.). Let us consider some of the important features of such tasks at the present stage.

When compiling tasks, it is necessary to provide for the student's work with information: the need to select, structure, classify, convert from text to visual form, etc. The bank of tasks differentiated by the level of complexity in several variants is useful. Individualization of tasks will increase the independence of students in their performance. When working with cartographic materials it is worth using not only paper atlases, but also electronic versions.

Separately, let's talk about working with contour maps. This type of task is traditional for school and university geography, it helps to better absorb the material in the territorial connection. When making contour maps tasks, the tasks with simple copying of the map

should be avoided. Traditional paper contour maps and also electronic ones should be used. The easiest option is to create interactive tasks based on them using special services (e.g., LearningApps.org). The advantage of such tasks is that they are automatically checked. In addition, students can themselves create schematic maps and cartodiagrams on the teacher's instructions, using graphic editors. Thus, not only subject knowledge will be formed, but also general professional competencies in information technologies will develop. When using tasks performed in the electronic environment for practical work, their individualization becomes even more important, which will limit the possibility of non-independent performance of tasks by students.

In order to learn by students about the regional differences of the territory of Russia, it is important to draw up and discuss the characteristics of the subjects of the Russian Federation. We will organize this work as follows. At the beginning of the course, the students are given the task of describing one of the subjects of the Federation by choice. The characteristic is made according to the model plan proposed by the teacher, and is designed in the form of a presentation in compliance with certain requirements. Students then present their presentations with commentary to classmates and answer questions from students and the teacher in a regional studies class. The speeches are grouped by economic area in advance, making it possible to consider both intra-area similarities and differences. In such classes it is important to provide not only high-quality reports and presentations, but also a full discussion with the active participation of all students in the group.

Thus, during the practical lessons, various methods of organizing the students' work with inclusion of information technology, aimed at formation of subject knowledge and skills, development of general professional competencies are used. In this case, the greatest attention should be paid to creating conditions for increasing the students' activity and independence.

In accordance with modern trends in the development of higher education, independent students' work takes a significant place in lesson plans. It has already been mentioned above when discussing the methods of lectures and practical classes. This is an independent study of new material in the "flipped learning" model with the help of information and traditional technologies, preparation for seminars, creating reports, presentations, compiling characteristics of regions and industries, work in distance learning systems.

Methods and forms of control. The lesson plans for the course "Economic and Social Geography of Russia" as the final form of control provide credit or exam. At present, universities widely use the cumulative system of grading students, which stimulates their systematic work during semester. The most widespread is the point rating system (PRS) to assess the students' achievements. The specific system model and its organizational support is determined by the university, but the basic principle of construction is that all types of academic work performed by the student in the course are evaluated by a certain number of points, the minimum thresholds for admission to the final certification, for crediting the course, when putting the final grade, not only the final control result, but also work during the semester takes into account. As a rule, semester work accounts for 60-70% of the maximum possible amount of points and respectively 40-30% of the final control. Among the PRS's advantages, at the discipline level, stimulation of students' regular work during semester, the possibility of self-management and self-organization of educational activities by students, objectification and transparency of assessment procedures, possibility of ranking students by academic performance are noted [32-34]. We consider it appropriate to use this approach to evaluate the work of students in the study of economic geography. We use for the course "Economic and social geography of Russia" the following point scale: the maximum sum of points – 100, including semester work (practical work, containing various types of tasks, seminars, compiling the characteristics of the region and presentation) – 60, exam – 40. The exam is conducted by computer-based testing using

individualized options. The evaluation data are recorded and processed using the Kant Baltic Federal University's AIS for grades and quality of education.

4 Conclusions

The study identified the following current trends in improving the teaching of economic geography. Economic and geographic disciplines remain an important component of the basic training of geography students. Changes in the content of economic and geographic courses correspond to the changes taking place in scientific disciplines: new areas of research in science and, accordingly, new sections of academic courses appear. While maintaining the overall structure of the course “Economic and social geography of Russia”, an integrated approach to the study of the territorial organization of population and economy, we can talk about the variability in terms of coverage depth and breadth of certain issues in programs of different universities. Informing students in the field of sustainable development of territories is carried out through attention to the interrelationships in socio-economic systems, environmental, socio-economic problems in the study of all course topics. The methods and forms of learning organization within the defined plan types of classes are varied and tend to create conditions for the active involvement of students in systematic learning activities, the use of information technology, strengthening the independent component, which is in the interests of sustainable development. It seems advisable to maintain lectures as one of the main forms of classes, with the widespread use of electronic learning tools, the use of techniques aimed at enhancing students' activities, increasing the integration of their independent and classroom work. When conducting practical lessons, the attention is also paid to creating conditions for increasing the students' activity, independence. Independent work of students includes the study of new material in the “flipped learning” model with the help of information and traditional technologies, preparation for seminars, creating reports, presentations, compiling characteristics of regions and industries, work in distance learning systems. The introduction of distance learning technologies is important for student mobility and educational availability. We consider PRS to be the most rational way of assessing achievements in the course, since it helps to organize regular work in the semester, provides objectivity and transparency in assessing the results of students' educational activities throughout the entire study period. These trends improve the quality of education and serve the interests of sustainable development.

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