

TEACHING EXPERIENCE OF SUSTAINABLE DEVELOPMENT COURSE IN POST-SOVIET COUNTRIES

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Abstract

The purpose of this article is to develop proposals for improving the organization of training by foreign teachers in national higher educational institutions (based on the analysis of the experience of teaching the course “Sustainable Development and Sustainability Science” at the Karakalpak State University, Nukus, Uzbekistan). Using the example of teaching a joint course by Uzbek and Swedish specialists at a higher educational institution in Uzbekistan, the authors described the features, the most important aspects and advantages of this training. The use of the method of comparative analysis, sociological research methods allowed us to identify problems in the organization and conduct of training. As a result of the survey, positive results for students and national teachers were systematized. The authors have developed recommendations for improving the organization of education at universities in post-Soviet republics with the involvement of foreign professors. It was concluded that in the context of globalization, it is necessary to develop cooperation between universities, to carry out a constant exchange of experience.

Keywords: Higher education, Uzbekistan, internationalisation, sustainable development.

JEL Codes: I23, O57, Q5.

Introduction

Recently, internationalization of education has been taking place all over the world: students of higher educational institutions of post-Soviet countries actively go to study at universities in foreign countries, leading teachers are invited to lecture at national universities. It should be noted that in post-Soviet countries, modernization and internationalization of higher education occur in some cases against the background of the preservation of traditional Soviet methods of organizing education, i.e., old educational programs with subject-oriented curricula, traditional structure and methods of teaching are preserved. Currently, Uzbekistan is turning to

the use of a credit-modular system, e-learning platforms, new assessment systems, and the expansion of mobility programs for teachers and students. In the field of higher education in Uzbekistan, both Western and Russian standards of education are being introduced. In Uzbekistan, branches of foreign universities have been actively opened in recent years (International Westminster University, Singapore University of Management Development in Tashkent and others). These educational institutions are characterized by teaching in English, lectures are given mainly by foreign specialists, and there are requirements for applicants to have an IELTS

language proficiency certificate. Typically, the cost of education is quite high compared to the cost of education in Uzbek state educational institutions.

At the same time, the invitation of leading foreign teachers to teach elective courses is becoming increasingly popular in state educational institutions of the country. So, starting from the 2018/2019 academic year, Professor of the University of Latvia Janis Zalioknis (Latvia), teachers of the Astrakhan State University of Architecture and Civil Engineering (Russia) Professor Yu. Lezhnina and Associate Professor E. Derbasova, Professor B. Isakulov, Associate Professor H. Abdulaev, Associate Professor J. Ataniyazov from Aktobe Regional University named after K. Zhubanova (Kazakhstan) were invited and conducted traditional classes at the “Civil Engineering” Department of the Karakalpak State University. Also, through various educational projects, Professor L. Kliucininkas from Kaunas University of Technology (Lithuania), has conducted short-term classes at this department since 2014 with a duration of one week with the participation of Jozef Mosiej from Warsaw University of Life Sciences (Poland), professor Lars Rydén from Uppsala University (Sweden) and Professor Björn Frostell from the Royal Institute of Technology (Stockholm, Sweden).

The large-scale implementation and use of on-line methods have been of utmost importance to make internationalization of both research and education between universities in different countries and even continents a practical possibility over the last few years. Without on-line methods the extensive travelling required for recruiting foreign teachers would be economically expensive, vastly time-consuming and not the least environmentally disastrous. The pandemic has in practice forced very many in all parts of the world to adapt to distance mode cooperation, a practice which previously was seen with some skepticism. But experience is that each one of us can adapt to getting to know each other over the Internet and find the best way to use this possibility. It is now increasingly used even when students and teachers are in the same city. For this purpose, several tools for on-line communication have developed; in this course we have used Zoom. In parallel the Internet has

developed and is now possible to use with more confidence and security. In this course troubles with Internet access have been relatively few and almost always possible to overcome in little time.

Thus, in cooperation with leading educational institutions, the possibilities of on-line education have been used. Starting from the 2020/21 academic year, on-line classes on the M.Sc. level course “Sustainable Development and Sustainability Science” by Professor Lars Rydén of Uppsala University (Uppsala, Sweden) and colleagues at the Swedish Aral Sea Society are held at Berdakh Karakalpak State University (Nukus, Uzbekistan). The experience gained from such international cooperation allows us to identify the characteristic features and differences in teaching systems, take into account the difficulties encountered, and use the proposed recommendations in this area when studying similar courses.

A number of monographs and articles are devoted to transformational changes in the education system in post-Soviet countries. Such articles include the work of Elliott J. G., & Tudge J. R. H. (2007), which analyzed the successes and problems in education in post-Soviet countries.

The monograph Huisman J., Smolentseva A., Froumin I.D. (2018) describes the diverse national education systems that emerged in the Soviet republics after the collapse of the USSR, their features and characteristics were highlighted.

Among the comprehensive studies in which the reforms of higher education in Uzbekistan are analyzed, works to be noted include Ruziev, K., & Rustamov, D. (2016); Ruziev, K. & Burkhanov, U. (2016); Ruziev, K. & Burkhanov, U. (2018); Krouglov, A. (2017); and Krouglov, A. (2022). Some studies have focused on comparative analysis of the changing state of higher education in post-Soviet countries. Many researchers (Yerken, A., Lan Anh Nguyen Luu, L.A. (2022); Yerken, A., Urbán, R., Nguyen Luu, L.A. (2022); Zhou, Y., Jindal-Snape, D., Topping, K., Todman, J. (2008)) characterized pedagogical, educational, mental differences in teaching systems. These studies concluded that it is necessary to take into account the differences, the subsequent adaptation of national students to the western

education system. The literature on this area of research is mainly represented by articles that examine the experience of teaching English in non-English-speaking countries (Galloway, N., Numajiri, T. and Rees, N. (2020); Perrin, S. (2017)).

For the successful implementation of a sustainable development strategy, it is necessary that training of personnel who have an idea of the vital necessity of implementing this strategy, its goals and objectives, and methods of achieving it be carried out all over the world. Currently, training courses on sustainable development are included in the programs of most universities in the world. The leading countries in the number of educational courses on sustainable development are the United Kingdom, Sweden, Finland, Norway and Denmark (Arslanova, L., Bagrova, K., Zamjakina, A., Kuznetsova, E., Novoselova, I.).

It should be noted that there are much more courses on “Sustainability” than on “ESG” (Environmental, social, and governance). In the review Fischer, D., King, J., Rieckmann, M., Barth, M., Bussing, A., Hemmer, I., & Lindau-Bank, D. (2022) based on the characteristics of 158 peer-reviewed research publications, the importance of designing the learning environment, understanding student attributes, measuring learning outcomes, promoting systemic change and promoting the vision of this area is shown. However, in higher educational institutions of post-Soviet countries, the introduction of courses on sustainable development into the curriculum is just beginning. Therefore, it is valuable to use the experience of teachers from European countries already at the initial stage of the introduction of these courses. The experience of teaching the course SDSS was discussed in 2022, at an international conference in Ukraine (Eshnijazov, R., Rydén, L., Frostell, B., Libert, B., 2022). In the study, Shchitova, N., Belozarov, V., Zolnikova, J. (2020), the methodology for the formation of competencies in the field of sustainable development of the region in higher educational institutions is characterized.

The lack of literature on improving the organization of teaching by foreign specialists in national higher educational institutions determined the choice of the purpose of the study, its object and subject. The object of research in the article is the transformation of higher education in post-Soviet countries. The subject of the study is the improvement of the organization of training by foreign teachers in national higher educational institutions of post-Soviet countries.

The purpose of this article is to develop proposals for improving the organization of training by foreign teachers in national higher educational institutions (based on the analysis of the experience of teaching the course “Sustainable Development and Sustainability Science” at the University Berdakh, Nukus, Uzbekistan).

Methodical approach

The research is based on the application of a qualitative research method and a comparative analysis method aimed at investigating problems and difficulties in the research process. Information for identifying the features of learning, problems in the course of teaching and developing proposals for improving the organization of training was obtained in the course of sociological and expert research. The use provided for questionnaires from home students in 2021 (n = 11) and in 2022 (n = 58); national teachers (n = 4), as well as interviews with home students in 2022 (n = 16). Conducting one focus group with teachers and home students after the end of the training course in 2021 allowed us to get an idea of how the course curriculum was implemented, its problems and difficulties; to get recommendations for improving training in the course “Sustainable Development and Sustainability Science”.

A target sample of students who attended this course was used; national teachers (Karakalpak State University named after Berdakh, Nukus; Samarkand State University, Samarkand), who took part in conducting joint classes with foreign teachers. Applicants for higher education of the educational level

“Master” of technical specialties “Construction and installation of engineering communications”, “Construction of buildings and structures”, “Power Engineering” and masters in the specialty “Management” were interviewed. Data collection took place in the period from 2021 to February 2023. Interviews and questionnaires were conducted in English and Russian. The data were analyzed using the recommendations for thematic analysis by Clarke, V. and Braun, V. (2013).

Results and discussion

1. Starting from the spring semester of the 2020/21 academic year (February-May 2021 academic year), a group of scientists from the Swedish Aral Sea Society, led by Professor Lars Rydén, began to conduct classes on the course “Sustainable Development and Sustainability Science” (SDSS) for students at Karakalpak State University named after Berdakh, (Nukus, Uzbekistan). It was an elective course in the chosen subject. In the master's program of Karakalpak State University, 2 credits were allocated for this course. Professor Lars Rydén and other experienced professors from Uppsala University and the Royal Institute of Technology were involved as lecturers, and also participated in conducting practical classes.

2. The training course consisted of 15 lectures lasting 90 minutes, each of them with 30 minutes (sometimes for practical reasons a little abbreviated) intermission in the middle for break and a discussion of prepared questions on the topic of the lecture. The lectures were all provided with a series of often about 60 power points slides, in which all important components of the lecture were shown as text and pictures. These slides were then made available as pdf documents on a webpage of the course for the students as study material. In addition, the lectures were recorded and available on the website as mp4 documents on YouTube. For each lecture a short reading course was put together and links to this material was available on the website of the course. These arrangements made it possible for students, especially for those with difficulties in following English language lectures, to rehearse the lecture.

3. The selection of students for the course took place from among those studying for a

master's degree in construction specialties, with a good knowledge of English. The main motives for studying in this course were (from the students' answers to the questionnaire questions): “the SDSS course was very useful and interesting”; “the course is related to writing a future master's thesis”; “the participation of foreign teachers as an incentive to hear about global trends”. Some students noted that “everyone should know about sustainable development.”

3. In the 2021/2022 academic year, six of the eight universities of Uzbekistan which previously participated in the “UZWATER” project joined the course. The format of classes remained the same, that is, 90 minutes of lectures consisting of two parts, with breaks of 10 minutes, and 60 minutes of student presentations. But due to the fact that the number of students this time was much larger, it was decided to hold student presentations separately in four subgroups, and appoint a responsible person from among Swedish scientists, as well as one of the Uzbek universities for each subgroup. Teachers of Uzbek universities joined the process of conducting lectures together with Swedish professors.

4. For the 2022-2023 academic year, after discussion and evaluation of the results by Uzbek and Swedish teachers, the following changes were made to the course organization:

a) The number of Uzbek universities were increased to disseminate the experience of teaching the course “Sustainable Development and Sustainability Science” (the Zhizzakh Polytechnic Institute, Uzbekistan was included in the training participants).

b) Uzbek teachers were involved to give lectures on some topics (lecture “Ecological situation in the Aral Sea” and others) and conducting practical classes on the course.

Some of the topics proposed by teachers from Sweden were completely new to Uzbek students (“Fundamentals of Sustainable Development”; “Resource Flows”). Uzbek students did not know up-to-date information about the impact of the crisis in the use of fossil energy resources on global climate change. General information about the content of the topics of the course is given in Table 1.

Table 1. The course Sustainable Development and Sustainability Science - lecture schedule spring 2022

Lecture	Title
Part 1 – Basics of Sustainability Science	
1	Introduction to Sustainable Development
2	Resource flows
3	Energy
4	Climate change
5	Ecosystems, land use, agriculture, forestry, water, salinization and biodiversity
Part 2 – Water and Sustainability	
6	Global water policies. Water and water cooperation in Central Asia
7	The Aral Sea
8	Water use and management - cleaner production
9	Water use and management - Agriculture and Sanitation
Part 3 – Society and Sustainability	
10	Urbanization; The sustainable city
11	A culture of mobility; Means of mobility; Energy of mobility
12	Quantification of sustainability; Measuring resource flows
13	Sustainable lifestyles and the dilemma of economic growth, global justice and ecologic sustainability
14	The processes of individual change
Course finalisation	
15	Discussion and Conclusion

**Source: compiled by the authors.*

At the end of the first half of the lecture, the teachers asked two or three questions for discussion on the topic covered, which were discussed by the students at the beginning of the second half of the lecture for ten to twelve minutes. Also, after each lecture, a practical lesson was held, at which students made pre-prepared presentations. It should be noted that the students were very conscientious about attending classes, skipping lectures were episodic phenomena. Eleven students of Karakalpak State University in the academic year 2020/21 were able to successfully complete the course (twelve students were announced, one could not complete due to difficulties with English). In the 2021/22 academic year, 58 students from five universities of Uzbekistan were able to successfully complete this course.

The questionnaires of students and teachers contained a high assessment of the content of the course, it was constantly emphasized: the course “was interesting and useful for them”; the explanations of the lecturers were sufficient; the list of references met the requirements and was sufficient. In the students'

questionnaires, it was noted that the number of hours for this course was sufficient and that the teacher's explanations were sufficient.

It is of interest to assess the intensity of training. The workload of studying this course in comparison with the usual academic load of students on the subject was intense, but moderate compared to other courses (75% of the students who answered). 25% of the students surveyed noted that the workload was more intense than usual in traditional courses due to difficulties in understanding English. At the same time, when assessing the load on the course, national teachers believed that the load on this course was more intense.

Both students and national teachers who took part in this course noted that they “felt the fundamental difference between this method of teaching the course from the traditional one.” As an explanation of the main difference in teaching methods, students noted the following answers (they could choose several answers): “greater independence and the ability to freely express their own opinion” - 90%, “Greater democracy and openness in the relationship between

students and teachers” – 55%. National teachers who took part in conducting classes on this course noted as the main differences “greater democracy and openness in the relationship between students and the teacher”, “a creative approach and a variety of teaching methods”.

All interviewed students and national teachers expressed the opinion that the applied teaching methodology contributes to: “the ability to analyze social, environmental problems and find a way to solve them” -77%; “better assimilation of the material” – 44%; “the ability to work independently” 22%. However, according to national teachers, at the present stage of training it is more appropriate to combine the advantages of the national methodology and individual elements of European methodologies. As a result of the conducted sociological survey, the characteristic features of the course were noted, according to the students, who determined its positive effect:

a) availability of the course page on the website of the Swedish Aral Sea Society, where lectures and recommended literature for study were posted. The materials were available for download. Students during the survey noted the importance of having a home page of the course, which contains all the necessary information for successful training in the course. The majority of respondents indicated that after a lesson, they regularly visited the course homepage, studied the available lectures and literature.

b) high level of group work activity, teamwork skills.

Students in the questionnaires noted that they liked the most as teaching methods:

practical classes (55%), problem-oriented discussions (66%) and group work. The peculiarity of the practical classes was that the students prepared small presentations on the main issues of the lecture, then there was a collective discussion of the presentations presented. According to the interviewed students, this form of practical training allowed to increase the level of students' mastering of educational material.

c) Each student made an average of 2 reports with a presentation of the material. Preparation of presentations was considered an important component of the course. This work contributed to the improvement of presentation skills, and to speak in English. The undergraduates noted that in the process of preparing for their presentations, they have become a real community of students, where everyone is ready to share their knowledge with their comrades, ready to support each other, share information.

Also, as the three most important aspects of the course, students noted:

- preparation and holding presentations (in English);

- considering economic, environmental and social aspects together;

- learning English.

d) The constant connection of the general provisions of the sustainable development course with the analysis of the environmental situation in Uzbekistan was highly appreciated, this was indicated by all the interviewed students

General assessments of the classes are given in Tables 2 and 3.

Table 2 Evaluation of the course in 2022 (rank from 1 to 10; 1 being very poor and 10 being outstanding)

Evaluation indicators	Evaluation of national professors	Student assessment
Course content	7,5	8,6
Presented lecture slides	8,5	-
Prepared literature on the course	6,5	-
Joint participation in the training of Swedish and Uzbek teachers	8	-

**Source: compiled by the authors.*

Table 3. What part of the course was most valuable for you (rank from 1 to 5, 1 is most valuable)

Evaluation indicators	Evaluation of national teachers	Students' evaluation
The lectures	3	2,6
The discussions during lecture breaks	3	3
The course Seminars	4	3,5
The literature provided	3	2,5

*Source: compiled by the authors.

During the survey, difficulties in understanding the text of lectures in a foreign language were highlighted as the main problem in studying the course. Language difficulties, to varying degrees, especially at the initial stage of training, were experienced by almost 70% of the surveyed students. Students noted difficulties in using unfamiliar terms, there were difficulties in answering and presenting the presentation. 25% of the students surveyed noted that there sometimes were technical problems related to Internet speed, but they were successfully overcome. National teachers made a note in the questionnaires that, in their opinion, some students had a lack of basic knowledge in some subjects due to the existence of a narrower specialization of education in Uzbekistan.

Conclusions

This evaluation of the course “Sustainable Development and Sustainability Science”, jointly presented by Swedish and Uzbek teachers in some higher educational institutions of Uzbekistan allowed us to draw the following conclusions: the involvement of foreign teachers in conducting classes on the course “Sustainable Development and Sustainability Science” has brought positive results.

1. Positive results for students. The students noted that the acquired knowledge will be valuable for the preparation of master's theses. Among the general assessments of the course, the following can be noted: “this course influenced the emergence of my interest in the sciences of sustainable development”, “the course prepares for joint work with other countries”. According to the feedback received, the students learned a lot from Swedish scientists (data collection and processing, including Internet materials; correct compilation and

presentation of their research, proper preparation of presentations and public speaking, conducting debates, and more).

Students noted that their English had improved markedly during the course. At the end of this course, most students were able to pass exams and receive B2 and C1 level certificates in English.

2. Positive results for national teachers. Uzbek teachers who took part in the classes noted that they had gained a lot of experience in conducting classes together with foreign colleagues. In their opinion, it seems expedient in the future to involve national teachers more widely in the educational process in cooperation with foreign teachers (lecturing; conducting practical classes; consulting work). Thus, this process has become useful not only for students, but also gave a significant impetus to the improvement and professional development of teachers of Uzbek universities. Such joint teaching is an excellent school for studying the best practices of European education, and can ensure continuity and further stability in the introduction of this course into the permanent curriculum at national higher education institutions.

3. Problems of implementation. The on-line format, in spite of excellent hearing and reading, depended on the performance of the computer for each of the students and teachers, which sometimes was a problem. The course also had to fit into the daily schedules of each university as it was “on-line”, even if the possibility to listen to a lecture later using YouTube existed. We thus had to find a common day and time of day which fitted everyone, and changes were not easily possible. The course was officially adopted as a curriculum course at Karakalpak State University named after

Berdakh (Nukus, Uzbekistan) and contracts were signed between the Swedish teachers and the university. In this case the attendance of the students was excellent. For the other universities, however, the attendance was completely

dependent on interest and was not 100%. Recommendations for improving training with the involvement of foreign teachers are summarized in table 4.

Table 4 - Recommendations for improving education with the involvement of foreign professors

Areas of improvement	Recommendations for improving learning from participants in the learning process		
	Students	Professors	
		National	Foreign
Organization of training on the course	<ol style="list-style-type: none"> Proposals for a trip to developed countries, to practice and get acquainted with the experience of sustainable development. Make written feedback from students about the lesson, about existing problems and suggestions from students. 	<ol style="list-style-type: none"> Conducting joint distance learning of Uzbek and Swedish students on this course, it would stimulate Uzbek students. Expanding the participation of Uzbek teachers in lectures. 	<ol style="list-style-type: none"> Mandatory appointment of national coordinators from universities and/or course assistants. Inclusion of sustainability aspects in their M.Sc dissertations, including questions.
Conducting similar courses for “Bachelor” level students			
Home page of the course	Place motivational videos; biographies of course teachers.		
References	To publish literature in Uzbek and Russian languages.		Constant updating of the list of references.
Making presentations	<ol style="list-style-type: none"> Pay special attention to the quality of preparation of presentation slides. Post short videos on this topic during presentations (videos from real life situations that have occurred recently); use interactive games. 	<ol style="list-style-type: none"> Preparation of presentations from national teachers. Collecting student presentations for further educational process. 	
Course content	Add a description of the projects that are currently being implemented in Uzbekistan and in the world		
The place of the course in the educational process		Include the subject in the university curriculum as a compulsory or selective course.	
Requirements for students of the course		New requirements for the level of English for obtaining a master's degree in Uzbekistan, i.e. the requirement of a B1 certificate.	

*Source: compiled by the authors.

Preparatory work is currently underway to teach the online course “Sustainable Development and Sustainability Science” also in 2023. Several other universities in Uzbekistan have expressed their desire to join this course. In the future, students from not only Uzbekistan, but also from other Central Asian and European

countries are being considered for joining the course. Thus, in the context of globalization, it is very important to develop cooperation between universities in every possible way, learn from each other, exchange experience, and use the opportunities provided.

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