Educational module "Specialist's integration into the professional environment" based on Massive Open Online Courses

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Abstract

The objective of the paper is to describe the results of launching an educational module Specialists integration into the professional environment. This module is flexible and aimed at improving foreign language competency as well as obtaining professional and transferable skills that employers look for. We conducted a multi-stage research, which included the questioning of undergraduate bachelors of the graduate course and the identification of their needs, interests and expectations; studying the experience of leading universities in teaching general and professional foreign languages; a survey of potential employers, partners of Kursk State University, and monitoring of various job-hunting sites. As a result, implementing this module we created the mechanism of innovative activity in the process of foreign language learning.

1 Introduction

It is widely known that innovations in education is purposeful introduction of new methods, techniques, technologies and ideas which aim at obtaining stable and more effective results.

The objective of the paper is to describe the results of launching an educational module Specialists integration into the professional environment. The module represents a flexible masters degree program of foreign language learning that allows to improve foreign language competence and also to form professional and so called transferable skills. We suggest that academic courses organized in similar way improve students motivation, enables

them to use the most current and up to date recourses and join different academic and professional societies. The process of course choice is organized in terms of synergetic approach which help students not only make the right choice but realize what skills they really want to develop or improve through university programs.

We conducted a multistage research, which included the questioning of undergraduate bachelors of the graduate course and the identification of their needs, interests and expectations; studying the experience of leading universities in teaching general and professional foreign languages; a survey of potential employers, partners of Kursk State University, and monitoring of various job-hunting sites. As a result, through the implementation of this module we created the mechanism of innovative activity developing critical thinking.

Education is considered to be a conservative field that does not usually respond to the modern society needs. Due to the rapid development technologies change our ideas about the ways of obtaining knowledge and force us to make serious changes in common approaches to the educational process. Now IT technologies are widely used in teaching and help learners get the necessary knowledge and develop the ability to deal with information. New technologies make the learning process flexible, allow you to choose the training format and its pace, concentrate on a very specific topic or vice versa in order to do an unusual interdisciplinary program. In other words, the individualization and personalization of the learning process allow the learner fully engage in a creative process and not to worry about possible success or failure.

2   Future job trends

Distance also does not play a significant role anymore a learner can do courses of many prestigious universities online from anywhere in the world. In future online distance schools and universities will become an equal alternative to traditional full-time education, and "online tutors" will supervise the educational process and help learners master the program. Education is becoming more specific and practice-oriented, especially for university students and adult learners. All the curriculum disciplines should correspond to a common goal which is the development of competences necessary for social and professional integration of a young specialist in a modern, rapidly developing society.

According to the Atlas of Professions (the project created by the Agency for Strategic Initiatives (ASI) in collaboration with Moscow School of Management Skolkovo) most of the currently relevant professions will become obsolete by 2030, and so-called hybrid specialties will become popular. For example, many industries now require physicists or IT specialists with a good knowledge of psychology and sociology, and the specialist of broad range skills such as bioengineers and biotech-nologists have great potential in future. It should be mentioned that skills, not professions become obsolete. The industries themselves cannot disappear but some functions can. Nevertheless top level specialists will still be of great demand.

One of the most important issues in the labor market development is the coordination between system of education and the labor market. Employers form a request for new specialists, focusing on current demands. First, they face a lack of a certain specialist, and then they look for the right candidate. It takes time to realize what specialist is needed. The crucial task is to predict the demand for specialists that are not available yet, encouraging leading universities to organize their training and foreseeing new activity types.

The results of The Future of Jobs survey were presented at the World Economic Forum in Davos in 2016[WEF16]. Researchers have identified TOP-10 professional competencies, which will be highly demanded by major employers by 2020:
1. Solving complex problems;
2. Critical thinking;
3. Creativity;
4. Managing skills;
5. Interactions with others;
6. Emotional intelligence;
7. Common sense and decision-making;
8. Service orientation;
9. Negotiation skills;
10. Cognitive flexibility.

Soft and transferable skills can no longer be considered as supplementary (extra) skills. They become basic for most professions.

Another factor that should be taken into account when creating innovative educational programs is the characteristics of the new generation learners who enter the universities today and in a few years they will come to the job market. They are so-called "Generation Z". The phenomenon of people born in the mid 1990s in the West and early 2000s in Russia is now manifesting itself. They are those who were born with a "button on the finger" - a digital generation, high-tech children living in virtual space and feeling comfortable in a digital world.

The characteristics of the "Generation Z" or the portrait of the MeMeMe person is constantly supplemented with new descriptions. The most striking features of the "Generation Z": perfectly work with any information; learn quickly; do several things at the same time (write a message, listen to music, play a computer game and learn lessons); "Clip-on" thinking; infantilism; bad memory (no need to learn the information if you can look for it on the Internet), not willing to compete, want fulfillment and excitement in their lives[For17].

"Generation Z representatives prefer communicating from their homes. In contrast to the previous generations that preferred face-to-face meetings, "Generation Z feels comfortable communicating online. The need for security is a priority. They prefer to be aware of the new trends, follow high-tech innovations, and moreover to participate in their development themselves - this is the need that was "born" with them.

Taking into consideration the characteristics of the new generation students and modern employers demands, the process of choosing the learning strategy can be described using a synergetic paradigm, which becomes even more urgent at the edge of the Fourth Industrial Revolution.

Synergetics focuses on the disclosure of universal mechanisms of self-organization of complex systems of any type, including social ones. Analyzing complex non-equilibrium systems, Synergetics tries to predict their evolutionary development. Synergetic models of self-organization consider society as a non-equilibrium system of a special type, which stability is ensured by the interaction of external and internal factors.

The synergetic style of scientific thinking includes a predictable, evolutionary vision of the world. Ecological, social and economic crises have become a sign of our time and posed specific tasks for the science that can be solved 'sinergo' within the framework of interdisciplinary research. Synergetics gives a relatively simple description of complex systems and an understanding of the complex things at the level of general trends, from the point of view of the possible trends in the evolutionary processes. One of the key concepts of Synergetics is the "attractor".

In different sciences the term "attraction" is used in the sense of attraction of a point to an attractor. A strange attractor is a so-called fractal set, i.e. it has the properties of selfsimilarity and can consist of several parts, each of which is similar to the general figure. E.N. Knyazeva and S.P. Kurdyumov in their work understand attractors as "real structures in space and time, on which the processes of self-organization in open nonlinear media come out. Attractor-structures look like evolutionary goals[Kny02].

According to our point of view, attractors line up complex nonlinear structures, put them into a relatively stable state and make order out of chaos. We believe that choosing a learning strategy is similar to the attraction process in complex self-organized systems. A learner may see the order parameter as an attractor which determines the choice of various training courses.

We see this order parameter as a factor featuring the external or internal environment of the individual, which manifests itself most at a certain moment of perception and data processing and directs the process of choosing a learning strategy. When choosing the course, the learners have been already enrolled in their Masters Degree Program and have determined their major and possible ways of making a career. At the same time they are surrounded by friends and family and play several social roles spending a lot time on hobbies, social networks, video blogs being members of different communities. Any factor mentioned above may become the order parameter when choosing a learning strategy for "Specialists integration into the professional environment" course.

Choosing a course is similar to the attraction process in dynamic nonlinear systems and an attractor determines the further system functioning. Since the attractor appears, the system moves from the latent state to the bifurcation moment, which assumes multiple ways of development. The attractor mobilizes consciousness and leads to the moment of bifurcation.

The order parameters are the key to the attraction process. We should consider that in personality sphere and the external context sphere various parameters regulate the attraction process functioning. Unconsciously, an individual can rely on one or more parameters due to his personal perceptive-affective-cognitive experience[Kri10]. The order parameters put the system into a state of relative stability while an individual makes a decision or sets a goal and then he chooses a course.

It seems possible to draw an analogy between the bifurcation process (the process of overcoming instability in Synergetics) and the process of professional self-determination of the learner. If we assume that at the moment

of choosing a course the learner is at a critical point searching for a solution a very specific system emerges. The initiating element of this system is the learner himself and his task to choose a course so the course chosen within Specialists integration into the professional environment module seems to be the solution of the problem.

Hence, the process of choosing is triggered unconsciously in the learner's mind. At the moment of choosing a learning strategy he decides for himself what his expectations of the training course are. A whole set of factors can be used as the order parameters. We distinguish three basic order parameters and subordinate contexts functioning within: - Personality sphere assumes emotional and sensual problem perception. If I like it or not" question has to be answered. - Intellectual sphere includes knowledge of different types which direct the way the learner determine actuality or necessity of a course, the knowledge being useful and the opportunity to increase his intelligence level. - External context sphere is regulated by the parameters related to the learner's social life, his being involved in various communities and social activities.

We assume that the set of several elements described above can serve as the order parameter. Having considered different options the individual starts shaping his working strategy and recognizes the importance of doing a course and this is the moment when appropriate motivation originates.

3   Educational module Specialists integration into the professional environment

We have developed the educational module "Specialists integration into the professional environment". This module is quite flexible and aimed at improving foreign language competency as well as obtaining professional and transferable skills that employers look about.

While experience is one factor that can help you find a job, there are also other skills that vary from interpersonal to professional ones. It can happen that it is not what you learn from books that matter in job market but what you are as a person and what you will be as a professional are the things that do matter. We have carried out a multistage research proving the necessity of bringing changes into the current foreign language course curriculum at universities to help graduates become a good fit for a company they would like to work for.

We have interviewed 234 final year bachelor students of Kursk State University about their needs, demands and expectations from masters degree course and about their satisfaction with competencies and skills they have already obtained while doing bachelor course.

The survey proves the general satisfaction with the program but it obviously demonstrates the necessity of changes. 40% of respondents think that the skills they have developed are irrelevant to the field they are going to work in. Some of the students wrote comments in the questionnaire that they really want to develop some general skills that are relevant and helpful across different areas of life. In fact most of them have these transferable skills but they need help to identify them.

Some of the respondents also would like to introduce courses which help them make up contacts with some professional societies, search, find and use the right information from different international sources, exchange information or continue their education using different internet educational platform. They do not have enough confidence to use such platforms feeling lack of knowledge and experience to do online courses.

Hence we have developed a flexible module that includes working with educational platforms such as Coursera while studying a foreign language. It is flexible as it can be adjusted in accordance with the interests and demands of the group and the society. This module can be introduced into the masters course or become an independent program of supplementary education for those who want to change their professional sphere or refresh their skills.

Coursera courses approximate from six to ten weeks long, with one to two hours of video lectures a week. These courses provide quizzes, weekly exercises, and sometimes a final project or exam. Each course includes short video lectures on different topics and assignments to be submitted, usually on a weekly basis. There is an iPhone and Android application[Pet97].

We used this platform as it gives free access to the lectures so the University students could choose any course they like and study the content of the course. The module was introduced into the course of Academic English at the department of Physics and Mathematics (Applied Mathematics and Computer Science, Mathematic methods in Economics and Finance) and Department of Economics (Economics, Company Economics and Branch market Analysis) in 2016-2018. Academic English is a 54 hour course which lasts one semester (18 weeks) it means students have a 3 hour class a week.

Students choose the course they want to do which makes the module a flexible program suitable for different interests and demands. In the introduction class students together with the teacher study the Coursera platform, read the sites policy, register and work with content of the site looking up the courses the platform offers. They also create a group in Viber, WhatsApp etc. or any other mobile phone application for chat communication. As

a home task, students have to discuss the courses they would like to do in the chat. They are only constrained by the time period of the course.

There should be an upcoming course or course that has just started with the access to join it. In the next class students discuss the advantages and disadvantages, the reasons why they want to do this course and what this course can give them. They write the name and short description of the course on multicolored stickers and place them on the board. Then they walk around and study the themes of the courses their friends have chosen trying to think why this course can be useful to them as well. Next the multicolored stickers are being grouped in accordance with the specialization of the course and students join the relevant group to talk about the reasons why they want to do the course. In their group they have to decide which course the majority would like to do. After the discussion the group prepares a small presentation of the selected course.

At this stage the teacher acts as a moderator of the discussion. After they have listened to every group, the students make the final decision and choose only one course for the whole group on the basis of arguments presented. Undoubtedly, the teacher should moderate the ongoing debate and teach the students not only to prove their opinion, but also listen carefully, assess objectively the opinions of other students, and not just focus on their own choices. This will allow students not only to develop discussion skills, but also to look more broadly at the opportunities that group interaction provides.

The experiment shows that the students of the training program 01.04.02 Applied Mathematics and Computer Science, Mathematic methods in Economics and Finance have selected the course which is not directly connected with their professional field. But the course aims at developing skills of creative thinking, making alternative innovative solutions. The group turned out to be more interested in transferable skills than professional. So the course content can be developed meeting the group requirements. The group makes a decision like a self-organizing system subconsciously trying to fill in the gaps in knowledge to obtain new skills. We believe that this process can be described with the above mentioned synergetic model.

As soon as the students decided upon the course and registered for it, the teacher gives the recommendations on the volume of lectures they are supposed to watch and discuss in chat during the week. If the group has an opportunity to do the course in real time, they can join the forum on Coursera and discuss the issues with all the participants of the course. When the students come to the next class, they do some vocabulary work based on the lectures which include typical language exercises like matching, choosing the correct form, filling in the gaps and etc. Every class includes some questions for discussion and problem solving tasks which help students prepare the final project. At the end of the class students are given the home task to watch the next week of lectures and discuss the information in chats and forums. At the end of the course students develop and present the project they have been working on through the course.

During a week of training students watch and analyze on average 40-50 minutes of authentic material. For example, the content of "Design Thinking for Innovation" course is distributed in the following way: 36 minutes of video lectures, plus the same amount of time for independent work at home per week. The teacher motivates students to communicate in chats and forums to discuss the material viewed and the assignments received.

Since this module was introduced into Masters degree programs, all assignments were uploaded to the Internet for the students who are already employed and cannot attend classes. Discussion assignments, questions were brought to the chat or the student discussed them directly with the teacher via Skype. Another advantage of the module is that students can try to get a certificate at the end of the program, if they study the course in real time and successfully cope with the tests.

At the end of the course one of the department professors was invited to assess the knowledge and skills obtained by the students. The professor could speak English fluently so he participated in the discussion of the projects. In future we intend to invite the potential employer to assess the students skills and their perspec-tives to find a job in their field of professional interests.

At the end of the course, 35 graduates were questioned about their course whether the course met their expectations and requirements or not. 95% of respondents find the module useful, effective and interesting and only 5% consider it boring. 81% liked such experience of learning and would like to do some other courses while learning a foreign language, and 19% believe that it was quite difficult for them because of the low level of English. 70% believe that the information obtained will be useful to them in future job or they can use it in the master's thesis, 30% believe that such a course helped them improve their language skills, rather than the professional ones. 85% believe that the skills formed during the discussion of topics in the classroom and the fulfillment of tasks will be useful in the further profession and similar experience of searching and doing online courses is valuable. 95% find such experience of introducing flexible interdisciplinary modules in educational programs positive and effective, and 5% do not have a definite opinion on this matter.

Thus, considering this experience effective, we continued to implement the module in Masters degree programs in different specialties and we are also developing a program of supplementary vocational courses which will be designed for all those willing to change their professional field or improve their qualifications.

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