

ICEST 2021**II International Conference on Economic and Social Trends for Sustainability of Modern Society****DESIGN AND IMPLEMENTATION OF CUSTOMIZED
PROGRAMS IN CONTINUING PROFESSIONAL EDUCATION**

L. A. Didenko (a)*, E. A. Yushipitsyna (b), N. F. Yakovleva (c)

*Corresponding author

(a) Krasnoyarsk State Pedagogical University named after V.P. Astafiev, 89, Ady Lebedevoi street, Krasnoyarsk, Russia, didenko.56@mail.ru

(b) Krasnoyarsk State Pedagogical University named after V.P. Astafiev, Krasnoyarsk, Russia, ushipicina@kspu.ru

(c) Krasnoyarsk State Pedagogical University named after V.P. Astafiev, Krasnoyarsk, Russia, natalia_mclaren@mail.ru

Abstract

The urgency of implementing a customized approach in continuing professional education as a strategy for its modernization to solve the problems of economic and social sustainable development of modern society has been explained. The method of comparative analysis has been used to study various approaches to understanding the term "customization". It is shown that concerning continuing professional education, customization means the compliance of goals, objectives, content and expected results to the current needs of a customer of a continuing professional program, the distinctive feature of which is using a "package" of programs with different "depths" of customization united in one topic. It has been proved that the customized approach fundamentally changes the nature of the interaction between the organization of continuing professional education and a customer of educational services. It has been stated that the use of customized approach in continuing professional education has practically not been studied. The author's algorithm for designing customized continuing professional programs, including four stages, is the following: collaborative customization through dialogical interaction with the customer; determination of the type and depth of customization; content filling, choice of methods and technologies, development of methodological support; approbation; students' reflection and analysis of the training effectiveness.

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1. Introduction

The Presidential Decree "On National Goals and Strategic Objectives of the Development of the Russian Federation for the Period up to 2024" defined the educational objectives which are aimed at ensuring "the modernization of vocational education, including the introduction of adaptive, practice-oriented and flexible educational programs; developing a system in which working citizens can continuously update their professional knowledge and acquire new professional skills, including the competencies in the field of digital economy for those who wish" (Decree of the President of the Russian Federation of May 7, 2018 No. 204, 2018). The vector of education development set by the state emphasizes the search for new approaches and principles in the development of advanced training and retraining programs for teaching staff in accordance with the principles of adaptability, practice-orientation and flexibility. Customized continuing professional education completely corresponds to these requirements. The term "customization" in relation to continuing professional education (hereinafter CPE) means the correspondence of goals, objectives, content and expected results to the real needs of the customer of the continuing professional training. It should be noted that in recent years the system of continuing professional training has been quite successfully coping with the task of developing individual routes and implementing individually-oriented programs. Customization of programs is the next step on the way of developing domestic continuing professional education. The difference between customized programs and individually oriented ones is that a "package" of programs with different levels of customization "depth" is designed for one topic. The first level of depth means zero customization, these are programs to educate a wide range of students, for example, mass open online courses. At the second level, the depths of the first level programs are adapted to the specific consumer of educational services. The third level of customization depth suggests specialized educational solutions, with the content and structure of the program corresponding to the real needs of a limited group of students. Deep customization at the fourth, highest level, involves the design of exclusive programs for a narrow group of students, in which everything is customized - the format of the program, its content, teachers, methods and teaching aids. Thus, a customized approach denotes the change in the nature of interaction between organizing CPE and the customer of educational services in the conditions of growing demand for specific solutions for a certain range of tasks. There is an inverse relationship between the level of customization of the continuing professional education and the number of students: the higher the level of customization, the narrower the group of potential students.

2. Problem Statement

This paper discusses the following aspects of the development and implementation of customized programs. The study of the theoretical and methodological basis of this problem is of great scientific interest concerning the meaning of the basic concepts, principles and approaches to the customization of teaching. It is equally important to study the experience of domestic education in the implementation of the customized approach to teaching. We believe that a significant aspect of the problem of developing and implementing customized additional professional programs is the development of an algorithm for their

design, covering the entire technological chain from studying educational requests to implementing a customized program for a specific customer.

3. Research Questions

Are logically connected with the problem statement of this work. The first question of the research identifies and clarifies the essence and content of the basic concepts of "customization", "customized additional professional education ". The second question touched upon in this study concerns the description of the experience of developing and implementing customized programs in Russian education. The third question involves the argumentation and working out the author's algorithm for designing a customized additional vocational educational program.

4. Purpose of the Study

Is to theoretically prove the relevance of customized programs in AVT, and to develop the author's algorithm for designing a customized additional vocational educational program.

5. Research Methods

In accordance with the stated research questions, a complex of interconnected theoretical and empirical methods was used.

To answer the first question of the research about clarifying the essence and content of such basic concepts as "customization", "customized additional educational program", the method of comparative analysis of various approaches was used. Vapnyarskaya (2014) describes two approaches to the definition of customization - marketing and systemic ones. According to the marketing approach, customization is understood as a set of tactics and tools. The peculiarity of this approach lies in the fact that the subject of customization is the service provider organization that develops solutions based on market segmentation and the study of the individual demands of its consumers. Accordingly, the effectiveness of the decisions made depends entirely on the supplier organization. Customization from the view of a systematic approach goes beyond marketing decisions and presents the basic strategy for the development of the organization and the philosophy of its activities (business, education, production). Within the systematic approach, it is not only the product that is customized, but almost all aspects and directions of the organization's activities: relations with consumers and partners, the process of marketing procedures, design of the product itself, service, maintenance, etc. Obviously, in contrast to marketing approach, in systematic customization, the source of solutions is not only suppliers, but consumers as well. In addition, systematic customization is a source of development of an educational organization, since it requires a consumer-oriented management system and brings to life the search and use of new methods, technologies, means that allow to effectively solve the contradictions between the educational needs of a particular consumer and the growth of the organization's costs. It should be noted that the most semantically close concept to customization is "customer focus", treated as philosophy that penetrates into all organizational processes and is aimed at meeting the needs of customers and their quality service (Yefremova & Chkalova, 2016).

We present the data of a comparative analysis of works devoted to scientific ideas about the evolution of types of customization on various grounds. Customization for changes in the product is presented in the work by Vedernikova, who described its expert, modular and “cosmetic” types (Vedernikova & Vedernikova, 2020). With expert customization, a product for mass consumption is a subject to changes based on the expert opinion of the organization itself about what is necessary and significant for the consumer of the service at the moment. In the case of a customized continuing professional program, this means a complete or significant change in its content based on marketing data, as well as in the case of issuing new educational or professional standards. Obviously, this is the most costly and energy-consuming type of customization, in which the responsibility for the relevance of the program is assigned to the organization of CPE. With modular customization, the program is divided into modules, from which, at the request of the consumer of educational services, the desired configurations are created. This sets the task of developing modules with the content that is relevant and understandable to the consumer for assembling the final program. The advantages of modular customization are efficiency and relative low cost, justified in cases of good awareness and purposefulness of the consumer, who understands his request completely. “Cosmetic” customization, as the name implies, is its simplest form, in which the program does not undergo major revisions, but only minor changes. For example, it adapts to a special category of students - teachers, vocational trainers, etc. This is a low-cost type of customization, which makes it affordable and cheap on the one hand, but does not provide long-term interaction with the consumer, on the other.

Let us turn to the analysis of the types of customization identified by Gilmore and Pine (1997) according to the criterion of the interaction between the supplier and the consumer of a product or service. Actually, here the relationship with a potential client is subjected to customization. With the so-called collaborative (joint) customization, a discussion is held with the future customer of the educational service, in which representatives of the CPE organization identify and help formulate the consumer's needs in order to accurately determine their offer of products meeting these needs. Based on the results of the discussion, a program of a certain depth of customization is created - from zero to deep. Adaptive customization is used in cases when the customer is satisfied with additional professional programs designed for mass training, but needs additional “built-in” functions that he can change himself. Concluding the comparative analysis of works devoted to the phenomenon of customization, we can note the sufficient depth and completeness of its methodological basis.

Let's move on to the second research question set in the work - the analysis of the experience in the development and implementation of customized programs presented in domestic education with the method of descriptive analysis. It should be noted that the customized approach has found the widest use in higher education. The most important features of its use are compiling a list of partners of the university, which includes not only large, but also small enterprises and private business; there is an active search for innovative and effective technologies for the preparation of competitive graduates; the opinions and reactions of partners and future employers are actively monitored; organizational forms of interaction with federal and regional resource centers, centers of competence, centers of collective use and engineering centers, etc. are used. Customization in higher education helps to solve the difficult task of harmonizing the individual interests of graduates, on the one hand, and the needs of employers interested in them, on the

other. According to Leushin and Leushina (2020) the competence-based portrait of a university graduate who has undergone customization will, to a greater extent, possess all the features of competitiveness, will correspond to the social and professional order and be ready for further professional growth. At the same time, the authors describe two strategies of customization - a complex one and complementary advanced professional training of a future specialist adapted for a particular employer and taking into account the interests of the student.

The study revealed the use of a customized approach to the implementation of educational programs in training the engineering personnel through the implementation of the network model "university - enterprise", which provides for the involvement of future employers in educational programs. Future employers are industrial and production, scientific and research organizations, which are partially responsible for the material, technical and staffing aspects of the educational process. Antonenko et al. (2020) believe that the necessity to introduce customization is due, firstly, to the process of merging educational and professional standards, and secondly, to an increase in the activity and interest of employers in the field of vocational education. According to the authors, the customization of professional training is provided by the variability and modularity of the educational process. The obvious advantages of the customized training of future specialists are the low cost of efforts on the part of the university and the ability to provide the educational process with conditions close to the future working conditions in real production. In addition, customization implies development and implementation of joint research and projects, which will contribute to the development of the scientific potential of the university and increase the professional competence of teachers.

Thus, a sufficient introduction of a customized approach to Russian education has been established. However, we were unable to find out studies on the use of a customized approach in additional professional education, neither could we find studies on the development of algorithms for the design of additional professional programs based on customization. Considering the relevance of this issue for solving the problems of continuous education of teachers, it is necessary to present the author's algorithm for designing additional professional programs (Didenko, 2015; Yakovleva & Belova, 2012). The development of the algorithm was carried out using the methods of design and experimental testing.

Here is a complete description of the algorithm for designing a customized additional professional program, developed at the Institute of Continuing Education and Further Education of the Krasnoyarsk State Pedagogical University named after V.P. Astafiev (hereinafter referred to as the Institute). At the first stage of design, collaborative customization is carried out through dialogical interaction between the Institute and the customer. This interaction is aimed at studying the specifics of the activities of the educational organization, the characteristics of the category of students, educational request, conditions of implementation, individual wishes. The specifics of the customer's activities require special attention, since at the moment the Institute's advanced training and retraining programs are in demand among the widest category of students, therefore, among the customers of the Institute there are secondary schools, technical schools, universities, enterprises (for example, Achinsk Alumina Refinery, Achinsk Oil Refinery, Rotex -s enterprise"), social service institutions, penal service institutions, etc. At the second stage of design, the type and depth of customization is determined, content is provided, methods and technologies, teaching aids are selected, teachers are chosen, methodological support is provided. It can be illustrated on the

example of the continuing professional advanced training program "Modern Educational Technologies". If the customer is a secondary school, then this may be the first level of customization depth ("cosmetic" customization). If it is an order from the Mariinsky Women's Gymnasium or from the cadet corps, adaptive customization is required, since these organizations have a number of specific functioning features. For students of middle-level industrial enterprises (masters of industrial training), collaborative customization is applied and programs of the second or third level of depth are designed, which take into account the peculiarities of production technology, qualification characteristics of students, etc. For the staff of the teaching centers of enterprises or for the principals of the enterprise the program "Modern Educational Technologies" is designed at the highest level of depth: the content includes cases that are relevant for a given enterprise, an individual training path is designed in accordance with the student's job description at the workplace, and a training mode is planned. A feature of the customized programs of the fourth level of depth is that the final certification is done with the obligatory presentation of intellectual products developed by the students during the training. At the third stage of the design, the program is tested with the students of the target group, at the fourth stage, the reflection of the students and the analysis of the effectiveness of training are carried out. The reflections of the students include written feedback on the usefulness of the program for professional growth, the availability of didactic and methodological materials, and the correspondence of the training content to a personal educational request. The analysis of the effectiveness of training is carried out according to a set of indicators, including the quality and correctness of the tasks performed, the level of activity, the degree of satisfaction with the training.

6. Findings

The paper explains the relevance of the implementation of a customized approach in additional professional education as a strategy for its modernization for solving the problems of economic and social sustainable development of modern society. The method of comparative analysis has been used to study various approaches to understanding the term "customization". It is shown that in relation to additional vocational education, customization means the compliance of goals, objectives, content and expected results with the real needs of the customer of an additional professional program, the distinctive features of which are that a "package" of programs with different "depth" of customization is designed for one topic. It has been found out that the customized approach fundamentally changes the nature of the interaction between the continuing education organization and the customer of the educational service. The method of descriptive analysis of the experience of developing and implementing customized programs in Russian education has shown that higher education organizations use two customization strategies in teaching - a complex one and complementary advanced professional training of a future specialist for the needs of a particular employer and taking into account the interests of the student. The strategies of customization are implemented by the variability and modularity of the educational process, which do not require large expenses from the university and present an opportunity to provide the educational process with the conditions close to real production conditions.

The study found out that the customized approach in additional professional education has been practically not studied yet: there are no works on the methodological substantiation of its application, technological aspects have not been developed. One of the research results of practical importance is the proposed by the

authors' algorithm for designing additional professional programs, which includes four stages: collaborative customization through dialogical interaction between the Institute and the customer; determining the type and depth of customization, providing the content, choosing methods and technologies, developing methodological support; approbation; reflection of students and analysis of the effectiveness of training.

7. Conclusion

While analyzing the presented data from the view of their scientific novelty and practical significance, it should be mentioned, that the paper emphasizes the relevance of using a customized approach to modernize additional professional education, which represents a certain scientific novelty. Further research should be directed at using the methodological resource of modern science to understand and substantiate the principles, approaches, conditions, and boundaries of the use of customization.

The presented algorithm for the development of customized additional professional programs is of practical importance for CPE organizations. It is necessary to continue the research aimed at the development of technological aspects related to the development and implementation of customized additional professional programs for various categories of customers.

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