

## **Das Konzept der Vermittlung spezieller Fächer in der Berufsbildung auf Basis eines integrativ-modularen Ansatzes**

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**Zusammenfassung:** Der Artikel zeigt die Möglichkeiten eines integrativ-modularen Ansatzes im Prozess der inhaltlichen Entwicklung beruflicher Bildung auf. Die Ausbildungsinhalte werden durch mehrere Blöcke dargestellt, wichtige Bestandteile der integrativ-modularen Ausbildung werden offengelegt. Der Inhalt jedes Blocks wird detailliert beschrieben: informativ, durchführend, methodisch, kontrollierend. Das Konzept eines integrativ-modularen Ansatzes wird offengelegt. Die Unterschiede des betrachteten Ansatzes zu anderen Technologien werden hervorgehoben. Der Artikel verweist auf die Vorteile der Variabilität, Flexibilität und Anpassungsfähigkeit des modularen Programms an sich schnell ändernde Bedingungen. Es wird darauf hingewiesen, dass der Kern der modularen Ausbildung darin besteht, dass dem Studierenden die Möglichkeit gegeben wird, im Rahmen des ihm angebotenen individuellen Programms relativ selbstständig zu arbeiten.

**Schlüsselbegriffe:** integrativ-modularer Ansatz, Bildungsinhalte, Berufsbildung, pädagogische Integration, Integration akademischer Disziplinen, integrativer Bildungskomplex.

## **THE CONCEPT OF TEACHING SPECIAL SUBJECTS IN PROFESSIONAL EDUCATION BASED ON AN INTEGRATIVE-MODULAR APPROACH**

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**Abstract:** The article reveals the possibilities of an integrative-modular approach in the process of developing the content of vocational education. The content of training is represented by a set of several blocks, important components of integrative-modular training are disclosed. The content of each block is described in detail: informational, performing, methodical, controlling. The concept of an integrative-modular approach is disclosed. The differences of the considered approach from other technologies are highlighted. The article refers to the advantages of the modular program variability, flexibility, its adaptability to rapidly changing conditions. It is noted that the essence of modular training is that the student is given

the opportunity to work relatively independently within the framework of the individual program offered to him.

**Keywords:** integrative-modular approach, content of education, vocational education, pedagogical integration, integration of academic disciplines, integrative educational complex.

An analytical review of literary sources confirms that pedagogical integration is the leading trend in the development of modern educational theory and practice, and is a complex, multifaceted phenomenon. Attempts to generalize the concept of "pedagogical integration" are disclosed in the works of V.S. Bezrukova, M.N. Berulava, Yu.N. Semin, N.K. Chapaev and other researchers of the problem.

V.S. Bezrukova reveals integration as a pedagogical phenomenon: "Pedagogical integration is the highest form of interconnection, which is characterized by the indissolubility of components, a new objectivity - a single object, a new structure, new functions of the components entering into a connection" [2, p. 14].

The phenomenon of pedagogical integration, its essential-conceptual aspect and functions in the works of N.K. Chapaev [9]. The author argues that the central point of the integration process is the nature of the relationship between the whole and its parts, the priority role of the whole. He notes: "It is the idea of the whole that unites, not the interaction of the parts... The parts, no matter how much they interact by themselves, will not create any whole" [8, p. eleven]. By revealing all the possibilities and potentialities of the whole, its properties "determine the function and significance of a separate part that is part of it" [8, p. 67]. The proposed P.K. Chapaev, an integrative-holistic approach considers pedagogical phenomena as integral formations, characterized by: the unity of the procedural and resulting sides; interaction and mutual transformation of integrated components; combination of the idea of the primacy of the whole with the idea of polycentrism.

In the works of N.K. Chapaev describes didactic means of implementing integrative forms of the pedagogical process: integrative lesson, integrative day, integrative seminar, integrative lecture, integrative exams, questions, situations, exercises [9].

Exploring the didactic foundations of managing educational activities in the field of higher technical education, T.A. Dmitrenko [4] created a functional model of the content of education in technical disciplines, touched upon the issues of relations between various disciplines, integration of the system of engineering knowledge, practical integration of educational and professional activities, purposeful analysis and organization of educational activities. T.A. Dmitrenko notes: "The improvement of the educational activity management system is ensured by the functioning of integration processes associated with understanding the content of education and mastering it. Integration by object, subject, methods, organizational forms is expanded within the framework of a single system, which is educational and cognitive orientation. Integration is manifested in the disclosure of the need to study the material of disciplines, the possibility and technology of assimilation, problem

setting, assimilation and mastery of basic operations and information blocks of various levels, control, correction” [5, p. 10].

M.N.Berulava [3] reveals the issues of integration of general and vocational education, defines pedagogical integration as a process and result of the interaction of structural elements of the content of education, accompanied by an increase in the consistency and density of students' knowledge. The author considers the integration of the content of education at the level of intra- and interdisciplinary connections. He believes that the concept of "integration of the content of education" expresses the unity of two main aspects - content and procedural, and is related to all levels of the content of education - a general theoretical representation, a subject, educational material, educational activities and a student's personality. To the fundamental shortcomings of the existing attempts to integrate various subjects, M.N. Berulava attributes the fact that they were carried out on the basis of the existing nomenclature of subjects, bypassing the level of general theoretical representation of integrative content, which does not allow correcting the nomenclature of educational subjects in order to reduce the teaching load of students.

Yu.N.Semin takes a step forward in comparison with previous researchers of the problem of pedagogical integration. He studies integration processes in the field of pedagogy and education on the basis of a systematic approach, moving away from the identification of pedagogical integration as a whole with the integration of the content of education, which, in turn, is very often identified with the content of the educational material of disciplines. The author notes: “Since the content of education and ... the content of education are the most important components of the pedagogical system “education”, the term “pedagogical integration” is often, but unreasonably, identified with the integration of the content of education. In fact, pedagogical integration is a much broader concept, covering all the main areas of educational theory and practice” [7, p.26].

The author believes that the content of education in the process of learning becomes the content of learning and covers not only the content of educational material, but also the nature of learning activities, technology, methods and forms of learning. And pedagogical integration of the content of education is presented as a process of formation of the didactic integrity of the content of initially disparate disciplines, developing through an increase in the number and intensity of interactions of educational elements of these disciplines, strengthening their mutual connections and reducing relative independence from the stage of simple unification according to some a common feature to the stage of an organic whole [6].

Yu.N. Semin highlights the contradiction between the integrative-disciplinary nature of professional activity and the discrete-disciplinary nature of education. He believes that this contradiction can be resolved by integrating the content of education. However, in the practical part of his research, a technology for intra- and interdisciplinary integration of educational material was developed. Integration of academic disciplines does not conceptually change their content. The result of the study is interdisciplinary educational complexes, which are a coordinated complex of methodological support for integrable disciplines: a course of lectures, a system of

laboratory and practical classes, interdisciplinary educational design, a hypertext computer control and reference knowledge base [6].

Interpreting the concept of “learning content” in different ways, the authors of the above-mentioned works consider the mechanism for integrating the content of individual disciplines, cycles of disciplines at the level of intra- and interdisciplinary connections, combining the former components on the basis of their meaningful integration. A common feature of all these approaches is that the transformation of the content of education occurs without changing the concept of the educational subject. The concept of content formation is built on the remaining discrete-disciplinary basis. The original nomenclature of disciplines is preserved both at the initial and final points of integrative transformations. At the same time, the need to transform the content of education at the level of a general idea is justified by the goals and priorities of the development of vocational education. The approach proposed in this study ensures the overall coordination of the content of educational subjects.

Updating the didactic model of the content of education cannot be done all at once. This process is lengthy and should be carried out in stages and in several directions. One of these areas is the development of new academic disciplines that have no analogues in the standard nomenclature of curriculum disciplines. They are structural units of the integral content of education, based on a new understanding of the unit of knowledge. The creation of such academic disciplines requires further development of the theoretical foundations of didactic integration, their adaptation to the specifics of vocational education, the design of integrative pedagogical technologies and technologies for their design. Existing integrative-pedagogical concepts concentrate a rich set of integrative tools, can be used as methodological and technological tools for integrative-pedagogical activities, can be the basis of integrative-pedagogical technologies [6].

V.S. Bezrukova identifies four characteristics of the degree of integrity of the product of pedagogical integration: generalization, complex, system, synthesis. By generalization it means convergence, correlation, complication, expansion of objects of integration and connections between them. A complex is defined as an ordering of relationships between leading integrable objects. The system is an integral formation with the appearance of fundamentally new qualities. Synthesis is a complete merging of objects that is not divided further [1].

Yu.N. Semin arranges didactic systems in order of increasing integrity as follows:

actualization of educational elements of other disciplines in the study of this discipline;

simple combination of heterogeneous educational elements of two or more disciplines (a conglomerate of educational elements);

logical and associative-heuristic correlation, convergence, generalization and ordering of educational elements of two or more disciplines while maintaining their relative independence (integrative educational complex of educational elements);

absorption by educational elements of one discipline (due to their greater generality) of educational elements of another discipline (sorption of educational elements);

- creation of synthetic educational elements from elements of integrable disciplines with the loss of their independence (didactic synthesis of new educational elements).

Taking into account the foregoing, in this study, the search for reserves for improving the content of training moves to the area of designing the integrative content of professional training based on a systematic, integrative-holistic, activity-based approach to the formation of the content of professional training, systemic structuring of the content of educational disciplines, implementation of interdisciplinary connections (the principle of interdisciplinarity) and the development of an integrative educational complex of related disciplines.

The system approach considers all complex objects as systems, orients the researcher towards revealing the integrity of the object, revealing its composition, structure and diverse types of connections in it, bringing them together into a single theoretical picture. Pedagogical systems are considered at different levels, including at the level of an educational program, an educational process, a complex of disciplines, a separate discipline, etc.

In this study, the content of the professional training of welding production specialists is considered as an integral didactic system, covering not only the content of the educational material, but also the nature of educational activities, technology, methods and forms of education. The process of integrating the content of education is considered as an integral pedagogical system and, in turn, is a component (subsystem) of a higher level system - pedagogical integration.

The holistic approach provides that the properties of an integral pedagogical system are not the sum of the properties of its components. The properties of an integral pedagogical system, its functions and capabilities determine the functions and properties of each individual component. The connections between the components of an integral pedagogical system are stronger than their connections with the environment. Changes in even one component lead to changes in the entire system.

In this study, the content of related disciplines of the integrative educational complex is more tightly interconnected than with the content of other disciplines. The properties and functions of the complex of special disciplines differ from the sum of the properties and functions of the constituent disciplines and determine them. An integrative educational complex represents the content of professional training more fully and diversified than its individual disciplines. Changing the content of any of the disciplines of the educational complex leads to a redistribution of the integral content among the other disciplines.

The integrative-holistic approach considers pedagogical phenomena as holistic formations characterized by the unity of goals, content, process and result [8].

System structuring involves structuring an object on the basis of a system analysis aimed at identifying the components of the system, the relationships and relationships between them (detection of the structure).

Improving the structure of the content of education is possible by eliminating the multi-subject nature in the existing nomenclature of disciplines, eliminating duplication of educational material, creating integrative training courses and complexes [5].

The principle of interdisciplinarity provides for the optimization of the content of training in both qualitative and quantitative aspects. A necessary condition for the implementation of interdisciplinary connections is the unity of the content and procedural aspects of education, as well as:

- unity of the methodological approach;
- unity of goals and objectives of education;
- unity of the conceptual apparatus (basic concepts, terms - thesauri);
- the presence of structural and logical relationships between the elements of disparate related disciplines;
- Continuity in content and time horizontally (between individual disciplines of one level of education, between sections of one discipline) and vertically (contents of different levels (stages) of continuing professional education);
- balance of the total workload of students;
- unity of requirements and criteria;
- a multi-level approach to the formation of the content of training.

An integrative approach to the content of professional training is implemented in the process of its design. V.V. Kraevsky considers the content of education as a pedagogically adapted social experience of mankind in the unity of social essence, pedagogical affiliation and a system-activity approach. The theoretical model of the content of education covers three levels of its formation, which relate to the projected content. These are the levels of the general theoretical presentation, the subject and the educational material. It is implemented at the fourth and fifth levels - at the level of education and at the level of the structure of the student's personality [8].

As stated above, in the learning process, the content of education becomes the content of learning. Thus, the levels of design and implementation of the integrative content of vocational training in this study correspond to the stages of formation of such a model.

At the level of a general theoretical presentation, a theoretical model of the content of professional training is being developed, which should include everything essential for the realization of pedagogical goals. The content of professional training is formed within the framework of the concept, specialist model, educational standard, basic curriculum. Usually goals are set in general terms, structural units of content corresponding to each goal are singled out.

The peculiarity of this study is that the initial stage of integration is the construction of a holistic integrative standard content for professional training of welding specialists and its systematic structuring according to the subject-object basis. That is, integrative transformations of the content of professional training are

carried out at the level of the concept corresponding to the level of the general presentation of the content.

At the level of the subject, the theoretical conception of the content of professional training is concretized. Those areas of social experience that the student must master are indicated. The content of vocational training should not be seen as a simple sum of independently created subjects or curricula. Individual objects should already be oriented at the starting point of their construction to a general idea of the composition and structure of the content.

When constructing an educational subject, its function, which is ultimately determined by educational goals, is of decisive importance. The content of professional training is materialized in normative documents: subject standards (sample programs), work programs, plans, recommendations.

The third stage corresponds to the formation of the content of professional training at the level of educational material.

At this level, those content components that were identified at the first level and presented in a form specific to each subject at the second are filled with specific knowledge, skills, and are also provided with practical tasks and other materials for students and teachers.

The presented theoretical model of the integrative content of the professional training of welding specialists in the college creates an overall picture, provides an overview of the main points, helps to present the relationship between the main stages and components of the process of designing the content in motion from the general to the particular.

The fundamentals of the concept of an integrative approach to the content of professional training of welding production specialists, presented above, substantiate the general directions of projective activity within the framework of the study.

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