CONTINUITY IN EDUCATION: DEFINITION, ESSENCE AND ANALYSIS OF THE PROBLEM

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Abstract: The article analyzes the scientific approaches to the study of the problem of continuity. The research of theoretical and methodological bases of continuity realization in the "school-university" system is considered and a literature review on this topic is conducted. The continuity of learning, which ensures the interrelationship between the various levels of continuing education, is one of the approaches to solving the problem of increasing efficiency and improving the quality of the teaching and upbringing process. The problem of the continuity of the informatics content in the school and in the higher educational institution is being solved. The author suggests ways of implementing differentiation of the material in the teaching of computer science in conditions of independent educational activity among high school students and first-year students of a higher educational institution.

Keywords: continuity, regularity, methodology, process of instruction, didactics.

1 Introduction

One of the strategic directions of the development of the Republic of Kazakhstan is education and science, from development, which depends crucially on the pace of economic, technical and technological progress, political development, the state of culture and spirituality in society. Over the years of reformation, bold steps have been taken, for the introduction of innovations.

The changes taking place in Kazakhstan, to a large extent, affect the sphere of education. Education provides the individual, society and the state with sustainable development, stability, and security. This is also noted in the state program for the development of education and science in the Republic of Kazakhstan for 2016-2019: "The goal of the program is to increase the competitiveness of education and science, the development of human capital for sustainable economic growth" (29). Therefore, at the present stage of the development of the education system in our country, the task of modernizing it with the aim of achieving a high quality of preparation for the life of the younger generation (1). This is possible only in conditions of regularity and continuity of education, however, the processes taking place in modern education show that the mechanisms of regularity and continuity in it are very weakly expressed.

In the Address of the President of the Republic of Kazakhstan N. Nazarbayev to the people of Kazakhstan dated 18.02.2005. "Kazakhstan on the way of accelerated economic, social and political modernization" focuses on the education of vocational training (18). It states that a country that does not know how to develop knowledge is doomed to failure in the 21st century. Therefore, it is necessary to create a personnel reserve for high-tech and knowledge-intensive industries of the future. Without a modern education system and modern managers who think wide, large, in a new way, we will not be able to create an innovative. economy. It is necessary to take adequate measures aimed at the development of technical and vocational education at all levels. The task of Kazakhstan universities is to provide education at the level of world standards, and the diplomas of leading universities should be recognized in the world (29).

According to the Law of the Republic of Kazakhstan "On Education" of July 27, 2007, No. 319-III, education system includes the following levels of education:

- Pre-school education and training;
- Primary education;
- Basic secondary education;
- Secondary education (general secondary education, technical and vocational education);
- Post-secondary education;
- Higher education;
- A postgraduate education.

The need to introduce the principles of continuity at all stages of continuing education is one of the most important areas of modern educational policy. Priority and significance of these aspects are defined in paragraph 33 of the State Obligatory Standard of Education of the Republic of Kazakhstan, approved by the Decree of the Government of the Republic of Kazakhstan of August 23, 2012 No. 1080: "Continuity of the content of basic secondary education and technical and vocational education is realized through in-depth study of individual and related subjects, including subjects of technological direction, within the framework of pre-profile training. The continuity of the content of general secondary education and higher education is realized through in-depth study of individual and related subjects in the framework of profile education" (6).

Continuity of school and university education, the problem is far from new to pedagogy and it would seem to be well researched on many aspects. However, in practice, many school leavers who find themselves on student bench experience difficulties in their educational activities - they find it difficult to adapt to new forms of the organization of the educational process and methods of teaching, the requirements for learning outcomes. In other words, there is an inconsistency in the content, methods, and means of education in schools and universities. The nature and methods of the schoolchildren's and student's educational activities differ substantially (9).

Today we need a teacher with an innovative type of thinking, with a developed worldview culture and a multicultural consciousness. In the modern socio-economic situation, the role of the education system is growing. The education of society is the main, the main one for solving social, economic, ethnic problems (20). Therefore, improving teacher training is always relevant, as the socio-economic tasks of society are changing; new requirements for the professional training of teachers arise. The issues of teacher training are reflected in government regulations. The state program of education in the Republic of Kazakhstan for 2005-2010, dated October 11, 2004, developed on the basis of the Message of the President of the Republic of Kazakhstan dated March 19, 2004 "To competitive Kazakhstan, competitive economy, and competitive nation", and one of the tasks is improving the quality of training specialists. To solve this problem, it is necessary to create an effective education management system that will ensure the formation of a competitive specialist capable of independently and creatively solving professional tasks, to realize the personal and social importance of professional activity, to be responsible for its results (24).

Modern transformations in society have changed the requirements for education and require it to be mobile and meet the needs of development and the economy.

In modern society, a system of social institutions has been created for normal life, development, and progressiveness. The school is one of them, differing in that it is in its purpose that should ensure the future of society, its development, progress, for this it must go ahead of society, focusing on the future.

Its life and activities must be built according to the laws of the norms, which today are represented in potential, and tomorrow will acquire real strength. To this end, it is necessary to purposefully educate the younger generation as deeply educated, cultured, moral, and creatively active and socially mature individuals.

The study of the basic ideas of the professional training of the future teacher based on the features of the object of his activity- a holistic pedagogical process is proposed in the "Concept of Pedagogical Education" (20). The concept stipulates the essence of vocational education reform, which should be considered from the point of view of forming a future specialist (personal aspect), introduction of changes in the content and structure of acquired knowledge (content aspect), training in ways of self-regulation of behavior and use of acquired knowledge for transformation into practical actions in solving standard creative professional tasks (technological aspect). Therefore, for effective pedagogical activity in modern conditions, the system of training pedagogical personnel must change the goals of pedagogical education, its content, and technology in accordance with the social order of modern society for teachers. The existing structure of pedagogical education as a whole reflects the idea of what it is necessary to teach the future teacher to give serious general theoretical training, to form the foundation of knowledge (20).

Based on all of the above, we can say that in the Republic of Kazakhstan there have been certain trends aimed at improving the quality of vocational education in higher education institutions, and the main tasks of training professional and competent specialists have been determined. It should be noted that the problem of training pedagogical personnel really exists, but it is being solved. The task of higher education institutions is their practical implementation.

The work of the school includes training and education of the individual, as well as working with parents. This direction is called "interaction", "cooperation", and "joint work".

The interaction between school and family is one of the necessary conditions in the whole pedagogical process (8).

The problems of establishing constructive relationships with the parental community, providing them with pedagogical, psychological support, the family as a social institution, including parents in the whole pedagogical process, are studied in the works of the scientists of Kazakhstan G.A. Umanov, N.D. Hops, S.A. Uzakbayeva, G.K. Baydeldinova, and R.M. Koyanbaeva.

The family in the new socio-economic conditions continues to be the main institution of socialization, but it is difficult to fulfill this function (5). This is due primarily to abrupt changes in the social background in which the family lives and its slow adaptation to new conditions.

At the present time, many sciences are studying the problems of the family: economics, law, sociology, demography, psychology, pedagogy, etc. Each of these sciences in accordance with its subject identifies certain aspects of its functioning and development. Pedagogy considers the educational function of the family of modern society in terms of goals and means, the rights and duties of parents, the interaction of parents in the process of raising children with the school and other children's institutions, reveals the reserves and costs of family educational impact (24).

It should be noted that today the interaction between the school and the family is one of the topical issues since the future teacher needs to know the problems of family upbringing, be able to cooperate with parents in the upbringing of the future generation.

Family and school are the main participants in the upbringing of the younger generation. The influence of the family on children is due to family ties. The role of the school is determined by its official status.

Family and school are two public institutions that are at the source of our future (9). The process of interaction between the family and the school should be aimed at the active inclusion of parents in the educational process, in extra-curricular activities, cooperation with children and teachers.

The family in pedagogy is regarded as one of the spheres of the child's living space. Studies confirm that in the life of a child the family has the strongest influence on its development. Philosophy, sociology, psychology, and pedagogy study the family as a unique phenomenon. It is associated with the concept of "sociocultural environment" - a socio-ethical characteristic, a typology, a characteristic of the everyday, objective world of the family, customs, and traditions (2).

The socio-cultural family reproduces from the generation to the generation universal values and on this the viability of the society depends.

Factors that affect the impact of the family on the child are different: the status of the family, the level of the social culture of the society, the typology, its microclimate,

According to Mudric (16), the factors of the life of the family are divided into the following types:

- Socio-cultural;
- Socio-economic;
- Technic-hygienic;
- Demographic.

With the advent of children in the family, parents must be psychologically ready to change their responsibilities and change in the socio-cultural environment. Modern parents need psychological and pedagogical knowledge. They are not only necessary for the successful education of children within the family, but also contribute to uniting the efforts of parents and educators (13).

Modern pedagogy emphasizes the priority of the family in the upbringing of the child, manifested in the diversity of forms of interaction, in the range of values that the child learns.

However, not all families fully realize the whole complex of interaction with the child. The reasons are different: one family does not want to raise a child, another does not know how to do it, and others do not understand why it is necessary.

Therefore, today qualified specialists are needed who can come to the aid of the family. The initiator of the establishment of cooperation should be teachers who are professionally trained for educational work and understand that its success depends on coherence, continuity in the upbringing of the younger generation.

The success of cooperation largely depends on the mutual attitudes of the family and the school. The best way is if both parties realize the need for a targeted impact on the child and trust each other. World statistics convince that modern family education is not as effective as it should be. Therefore, innovative programs are currently being developed to improve the pedagogical culture of the family (7).

Innovation is a purposeful change that brings to the educational space stable elements (innovations) that improve the characteristics of individual parts of the system, its components, and the whole.

There is a certain classification of innovations:

1) By type of activity;
2) By the nature of the changes introduced;
3) By the scale of the changes introduced;
4) By the scale of use;
5) By the source of occurrence;
6) By the subject of renewal.

The innovation process is "a complex activity for the creation, mastering, use, and dissemination of innovations" (21).

Thus, the innovation is regarded as a development process innovation (means, method, technique, technology, programs), their introduction into the education process and creative interpretation.

The urgency of considering this problem, first of all, is connected with the violation of successive links in the system of continuous education. Computer science, computer technology, computer programs, information and communication technologies have been developing so rapidly in recent years that the school and university content of educational disciplines in computer science will always lag behind them.

A specialist for successful professional and life activity in modern conditions needs to have a high level of information and communication competence, namely: to have deep fundamental theoretical knowledge, technological and practical experience with information and communication technologies (11). In order to effectively create and improve the level of information and communication competence of schoolchildren and students, it is necessary to pursue continuity in teaching computer science in schools and universities. In the context of the concept of lifelong education, great importance should be given to the continuity of education, and not only within one level but also at the junctions between different levels of education. High school is very often forced to solve the problem of the insufficient level of knowledge due to the lack of a single standard of general secondary education in informatics and differences in the material and technical equipment of the educational process in schools. This hampers the progressive development of the personality from one level of education to the next. Therefore, continuity must necessarily be present at all stages of training, in order to ensure the interrelationship between the various levels of continuing education (11).

At the present stage, the education system is one of the main factors ensuring sustainable growth and development of the economy and society of any country. Having completed the preparatory stage, Kazakhstan is ready to be quickly ready to enter the process of the political, economic and educational world community.

Integration of Kazakhstan into the world educational space, the change of the education paradigm, the formation of its new national model do not leave out the quality of training of pedagogical personnel.

Modern society needs a teacher capable of perceiving new ideas, adopting unusual solutions, actively participating in innovative processes, ready to solve stably and competently existing and emerging professional tasks (23).

In the implementation of innovative pedagogical ideas, constraints are always observed in the school's practice, including inertia of school principals, ill-considered implementation plan, lack of propaedeutic work with school personnel, the insufficient theoretical base of subjects of education (5).

One of the features of the reform of the school system in recent years is the introduction of the Level programs for the development of pedagogical workers developed by the Center for Pedagogical Excellence in conjunction with the Faculty of Education of Cambridge University.

Along with this program, designed to train teachers at the first, second and third levels, starting in 2012, a program was developed to improve the skills of heads of general education organizations of the Republic of Kazakhstan, aimed at transforming the school with the ideas of the school's collaborative development 28). And since 2014 the Program of additional professional education of students of graduate courses of higher educational institutions, which train teachers has been developed 27).

For the conduct of these courses, the center of pedagogical skill has trained trainers from among experienced teachers who have been certified by the International Cambridge Examination Board. The multidimensionality of the structure of the system of education dictated the need for retraining also of methodologists in the program of advanced training of specialists in the provinces, cities of Almaty, Astana, departments, district (city)

departments of education and methodical offices. That is, large-scale work is being done to reform the school system, where the leaders of general education organizations are given a key role.

A distinctive feature of the courses of managers is related to the duration of their retraining. So, in the centers of pedagogical skill, the course of school principals is designed for 9 months, consisting of two 4-week audit stages. After the first auditor phase, the leaders go through a 4-week practice and study problems in their schools. Then they come to the second 4-week audit stage and, along with studying advanced international experience, make a detailed program of school development on the basis of the school's priorities identified by them.

After the second auditor phase, the leaders pass a 6-month pedagogical practice in their schools, under the guidance of their trainers. Trainers give them continuous support in online mode; the network community leaders share their achievements and best practices. After the first three months of the second practice, trainers visit their students' schools to formally evaluate their research practice (5).

Formative assessment is a key element of the entire 9-month course of study since real practice is a criterion of the truth of professional achievements and leadership qualities of heads of general education organizations. The advantage of formative evaluation is that it allows in real conditions of the school to check the professional skills of managers and the skills of projecting theoretical knowledge and innovative ideas into the plane of practical activity (12).

In schools, for the interchange of experience, there is a tendency to increase the number of creations of in-school communities, the number of which far exceeds the number of inter-school professional communities. But the fact of increasing their number shows the interest of teachers in professional self-development and self-improvement (5).

Since the idea of professional communities is relatively new in Kazakh schools, it is necessary to strengthen the cognitive aspect of this topic during classroom sessions with the directors so that they can not only create their structural model but also be able to manage their functioning. The focus of school principals should be the continuous professional development of teachers.

It will be necessary to think and suggest to the director's specific mechanisms that can be used to monitor teachers' abilities to introduce theoretical knowledge acquired in coaching into the practice of teaching. It is necessary to involve all members of the development team and teachers in the collaborative and reflective process of professional development (17).

Formative evaluation during post-course support shows that the activities of managers are not entirely oriented towards the needs of the real practice. Therefore, it becomes relevant to monitor the orientation of the school development plan for specific requests of subjects of education.

Teachers in school are important feedback. The Directorate Corps should use feedback as one of the mechanisms for motivating and encouraging teachers to succeed in their professional activities. Strengthen the work of networked communities, which will affect the favorable relations between teachers, teachers with students, teachers with parents.

Strengthen the trust of school leaders for their colleagues, members of the development team. Members of the development team must create their own communities (14). Leadership authorities should be delegated by teachers within the framework of an effective system of organizational management and a positive working atmosphere.

School and university, working in a single key, can become the main lever for reforming and introducing pedagogical innovations in the development of the system of national education. Only close cooperation of the "school-university" system will help raise the education system to a better level, as

their functions are interrelated and interdependent (15). Therefore, universities are currently coordinating their activities with centers of pedagogical skill, emphasizing a special focus on the realization of a person-oriented and constructive approach in the training of future teachers.

The review and analysis of scientific sources on the research topic led to the fact that many scientists in their studies covered various problems of teaching computer science: the methodology and rationale of the scientific conceptual apparatus of informatics; the content and methodological foundations of teaching computer science in the school and university; development and use of electronic educational tools, social aspects of computer science, the use of automated learning systems in the teaching and educational process of the university.

In modern studies of the problem of continuity in teaching and upbringing, several directions have emerged (Table 1).

Table 1. Directions in research on the continuity problem

№	The direction in research of the problem of continuity in teaching and upbringing	Researchers
1.	Studying the role of continuity in the holistic pedagogical process	A.Ya. Blaus, Sh.I. Ganelin, S.M. Godnik, B.S. Gershunsky, A.A. Kyveralg, A.A. Lublin and others.
2.	The study of continuity between preschool and educational institutions	O.A. Anishchenko, I. Shabalin and others.
3.	The study of the subject continuity between the various links of general education, including general education and vocational school	A.V. Batarshev, A.F. Basharin, Yu.A. Kustov, A.A. Kyveralg, and others.
4.	The study of continuity between secondary school and university	C.M. Godnik, Yu.A. Kustov, D.Sh. Sitdikova, A.P. Smantser, Mubarakov A.M., and others.

The results of the studies presented in Table 1 are general conceptual positions for the organization of continuity at various stages of continuing education.

The works listed in Table 2 do not consider the features of teaching computer science and ensuring continuity in pedagogical universities in the structural-content and educational-methodological aspects.

Table 2. Research results

№	Resources	Investigated
1.	A.P. Dekina, (2004). Methodical approaches to ensuring continuity in the informational training of students of pedagogical universities: On the example of the general educational course in computer science. Moscow.	The existing successive links between the content of education in informatics in the general education school and at various faculties of a pedagogical university are revealed. The methodological requirements for ensuring the continuity of teaching computer science in a pedagogical university have been formulated and scientifically substantiated. The interrelation of the factors that have a significant influence on the process of informational preparation of the future teacher has been revealed. Methodical approaches to ensuring continuity in informational preparation of students of pedagogical universities, which consider significant differences in the degree of pre-university teaching in computer science, have been developed and scientifically substantiated
2.	I.A. Zhuravleva, (2001). Scientific and methodological support of continuity of school and university computer science courses oriented to humanitarian applications. Stavropol.	The issues of establishment of successive links in the teaching of computer science at the school-university stage for computer science courses aimed at humanitarian applications
3.	S.N. Ryagin, (2010). Continuity of secondary general and higher vocational education in the context of their systemic changes. Moscow.	The results of studying the methodological foundations of the continuity of secondary general and higher professional education in the context of their systemic changes are presented. The results of a theoretical analysis substantiating the need and revealing the essence of a comprehensive study of the continuity of secondary general and higher professional education as a process was ensuring the development of high school students and students.
4.	G.A. Sumina, (2001). Continuity of computer training in the open model of education: Based on the synergistic approach. Saratov.	In the open model of education on the basis of the synergetic approach. Synergetic forms a special approach to the design of innovative activities in the field of education. A fundamentally different view of the education system and the process of education itself make it possible to predict significant results from scientific and practical activities in education built on the basis of synergetic.

To implement the principle of continuity in the teaching of informatics in schools and universities, it is necessary to consider the individual characteristics of students, their interests, the level of training, the pace of learning more fully. It is most convenient to organize the promotion of trainees to the goals of training on the lines of varying degrees of complexity of the content of education by means of level differentiation of training while ensuring constant diagnosis and correction of the learning process. A differentiated approach is one of the ways to optimize the learning process. When using such a technology at different levels, the tasks performed by the trainee in practical and laboratory work are differentiated; the requirements and

criteria for evaluating the results of such works are differentiated.

2 Materials and Methods

2.1 The concept of continuity in education

Scientists, philosophers, statesmen of different historical periods, considering the problems of continuity in social development, organically switched to talking about the problems of the upbringing of the younger generation.

Socrates (469-399 BC) considered continuity as the basis for building an integrated system of education. He believed that the education system should fall into two interrelated stages: the first step - the defining and the second - the basic, which is designed to study life issues (22).

I.G. Pestalozzi (1746-1827) believed that the main task of the art of teaching is to help the man's natural desire for development. Therefore, Pestalozzi deduced continuity from the inner nature of man and believed that continuity is the continuous and gradual movement in knowledge from elements to the whole on the basis of the natural elements of this process, number, form, and word. He made the first attempt to build the learning process in accordance with the laws of the mental development of children, suggested moving in the process of learning and education from the elements to the whole, while observing continuity and consistency (22).

Continuity in education is reflected in numerous works of scientists as G.Gegel, E.A. Baller, B.C. Baturin, B.G. Ananiev, A.G. Asmolov, L.S. Vygotsky, V.V. Davydov, B.C. Lednev, A.B. Batarshov, Sh.I. Ganelin, S.M. Godnik, Yu.A. Kustov, A.A. Kyveryal, L.Yu. Orlov, K.K. Babansky, Sh.I. Ganelin, Yu.A. Kustov, A.G. Moroz, D.B. El'konin, Filatova L.O., and others.

Among Western scholars, the most significant in matters of continuity were the works of P. Woods, A. Green, A. Pollard, D. Hargreaves, R. Sharpe, and others (3).

In his definition of continuity, E.A. Baller focuses attention on reflecting the essence of the process of the formation of this "inherited". He writes that "continuity is a link between different stages or levels of development, the essence of which is the preservation of certain aspects of its organization when the whole is changed as a system. He emphasizes that continuity, connecting the present with the past and the future, determines the stability of the whole" (4).

The concept of "continuity" is ambiguously treated in pedagogical scientific literature. In accordance with this fact, Ganelin Sh. I. in his article "Pedagogical bases of continuity of teaching and educational work in the IV-V classes" defines continuity as follows. "Continuity is such a reliance on the past, such use and further development of the students' knowledge, skills and abilities, in which students create a variety of connections, reveal the main ideas of the course, interact with old and new knowledge, resulting in the formation of a system of strong and deep knowledge" (10).

The term continuity denotes the connection between phenomena and the development process in nature, society, and cognition, when a new, replace the old, preserves some of its elements.

And society means the transfer and assimilation of social and cultural values from generation to generation, from formation to formation. In the philosophical encyclopedic dictionary, the following definition of continuity is given: it is an objective necessary link between the new and the old in the development process, the preservation and further development of that progressive rational that was achieved at the previous stages. This definition is capacious and concise. However, it reflects the most common features of continuity.

In philosophy, there are two main types of continuity - "horizontal" and "vertical".

"Horizontal" continuity involves the process of quantitative changes occurring within the same level. "Vertical" continuity is a process of qualitative changes at different levels. From the perspective of the pedagogical approach, continuity is defined as a general pedagogical principle that acts as a condition and mechanism for implementing other principles (scientific, accessible, consistent, and systematic) of the educational process.

Traditionally in pedagogy continuity is considered on horizontal and vertical levels (19). The result of horizontal continuity is a sequence in the study of the material, the formation of a holistic knowledge, the unity of educational technologies, and the similarity of teaching methods. The result of vertical continuity is the preparation for learning at the next level of education.

Levels of education (preschool, school, primary vocational, secondary vocational, higher, and postgraduate) exist virtually independently of each other. This puts trainees in an inadequate position when training at each level of education is forced to begin from the beginning, at a certain level (23).

In much pedagogical literature, greater attention is paid to continuity in social development, building a system of public education, and in the West, continuity in the development of the child.

3 Results

3.1 The essence of the problem of continuity in education

The difference in positions on the problem of continuity in the pedagogical literature causes different points of view on the essence of the phenomenon being studied.

Continuity is regarded as the law of the functioning of all specially organized, controlled processes, for without progressive continuity progressive translational is impossible.

The essence of continuity in learning lies in the continuous transition of quantitative changes (information) to qualitative

(mental development), ensuring a regular and smooth change in the areas of development of schoolchildren and students, which is expressed in the successive complication of learning tasks and the purposeful change in the measure of each level of study. Simultaneously, the replacement of these zones is also a change in the stages of the development of the personality and serves as a prerequisite for its more active inclusion in the pedagogical process of the next stage (25, 26).

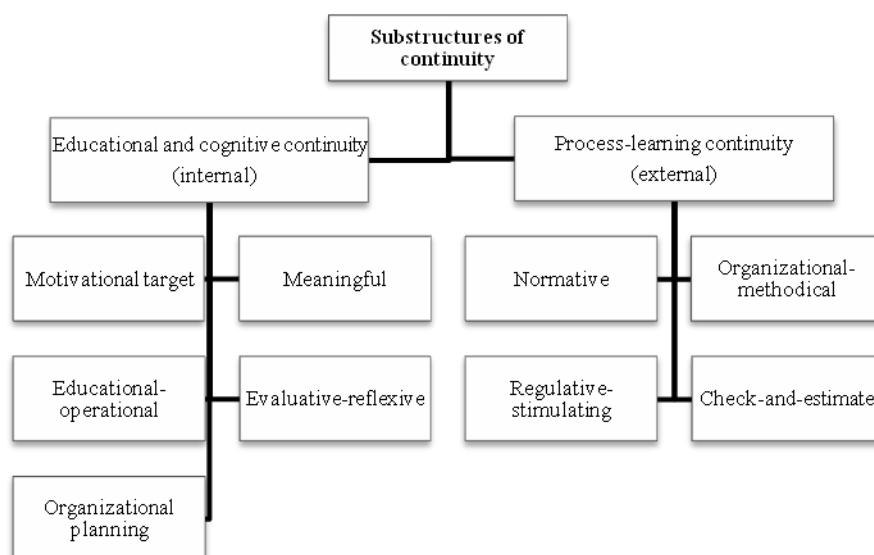Continuity as a complex system consists of two substructures (Figure 1):

Figure 1. Substructures of continuity

Each of these components includes a number of elements.

In this case, the content side of the components of educational and cognitive continuity has interrelated components (Table 3):

Table 3. Components of educational-cognitive continuity (internal)

Motivational target	In the interrelation of motivation and goal-setting of the development of interest and professional orientation, studying at all levels of continuing education.
Meaningful	In the consistent and gradual mastery of knowledge, skill, and ability to link old and new information.
Educational-operational	Providing the development of general and special skills and abilities, the development of mental operations and in the selection of the necessary information.
Evaluative-reflexive	In the formation of schoolchildren' and students' skills in assessment and self-assessment, control and self-control, analysis and introspection, a reflection of their educational activities, self-knowledge of themselves as individuals.
Organizational planning	In the development of students' abilities and skills in organizing and planning educational activities, in creating favorable conditions for it at all levels of the system of continuous education.

The structural components of the educational-cognitive continuity are in dynamic interaction and close interconnection. There is a fairly close connection between the motivationally-targeted component with the meaningful and the educational-operational component, as well as between the meaningful and the educational-operational component. Significantly lower correlation links between other components of educational and cognitive continuity. The weakening, and often the disruption of the links between the components of continuity that is taking place in the "kindergarten-school-university" system, is one of the reasons for the difficulties in the teaching of students in the university.

In the structure of educational-cognitive continuity at each stage of education, one of its components is system-forming (Figure 2):
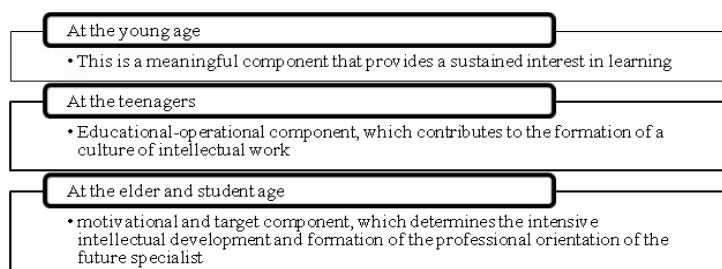

Figure 2. Hierarchy of the components of educational and cognitive continuity

Continuity in didactics is characterized by certain features (integrity, progressiveness, perspective) and performs a number of basic functions (socializing, directing, integral, heuristic, stimulating and control). It is implemented on three levels (high, medium and low).

Continuity satisfies individual requests and interests, promotes the development of creative abilities of schoolchildren and students, and provides a choice of own pace of learning, the level of mastering knowledge, mastering skills and abilities. This manifests the personal aspect of continuity in learning.

4 Discussion

Diagnosis of educational and cognitive continuity gives an opportunity for the teacher to receive full information about the readiness of schoolchildren to study at the university (27) and, on the basis of this, to build individual work with them, and to the schoolchildren to relate the experience of the educational and cognitive orientation, the essence of which is to know the stages of activity, awareness of the prerequisites, processes and the results of each stage, with the requirements set in the university.

The substructure of the system of process-learning continuity, it should be noted that it has a number of components that allow implementing continuity in training:

▪ The teacher's knowledge of the psychological and pedagogical characteristics of students;
▪ The establishment of a relationship in the content of education at all levels of the continuous learning process, the coherence of the curricula and programs of the primary and secondary schools. He directs high school students to the need to raise their level of preparation to the required in the 10-11 grades;
▪ Ensuring interrelation in the forms of the organization of the pedagogical process, the types and methods of instruction at all levels of the continuous education system, considering account the specific features of student learning activities at various levels of the continuing education system;
▪ Regulation of the learning process at various levels, with the harmonization of all components of educational and cognitive activities, which ensures consistency in the ways and methods of stimulating learning activities, determines the appropriate level of communication;
▪ Teaching schoolchildren to the methods and methods of learning cognition, and in the senior classes of the school, involving students in the methods of university education.

All the components of the educational-cognitive and process-learning continuity are interrelated.

Continuity is needed to implement the logic of the learning and upbringing processes in their interrelations. Long before the emergence of ideas of continuity in pedagogy, the experience of previous generations was transmitted by the early inclusion of young people in general labor activity, with the observance of the unity of requirements and a certain sequence of mastering the techniques and skills that were to be mastered.

Pedagogical continuity is necessary for connection with the fact that the process of educational development and formation of young people is dismembered and discreteness acts as a basis for the functioning of continuity, while continuity and integrity are the results of its implementation.

In everyday practice, when continuity in the dynamics of the pedagogical process is observed, manifestations of continuity are not replaced and the question of its implementation is not raised. The need for continuity arises in circumstances where events occur that disrupt the habitual consistency and continuity of the learning process.

In general, the continuity plan is designed to resolve the contradictions between the need to ensure the continuity and integrity of the pedagogical process and its results and not favorable circumstances. In these or those specific processes, these contradictions take on various forms.

The regularity of resolving the contradiction between the discrete character of instruction and the need to ensure the integrity of the pedagogical process and its results is the basis for the content of the concept and suitability of continuity in pedagogy (28).

Based on the consideration of continuity as an effective system-forming factor that contributes to the creation of pedagogical conditions for the implementation of an integrative nature, the integrity of the process and learning outcomes, it is possible to

propose the following: continuity is a category of didactics that reflects the patterns of restructuring the content structure of educational material and optimization of teaching methods aimed at overcoming contradictions linear-discrete nature of the learning process, and characterizes the changes in the methods of realization of these laws depending on the purpose of training, development and education of students (13).

The continuity of the school and university stages of education includes the content of education, the forms, methods and means of education, the socio-psychological aspects of the moral development of the personality, the psychological and pedagogical conditions for the formation of an active creative personality, the objectivity in assessing the quality of knowledge of graduates of secondary schools, and the compatibility of school and university educational literature.

Under the continuity of school and university education is understood the consistent development of the university system of the educational process in close connection with the system of activity of the general education school. The realization of the principle of continuity on the basis of a modern personality-oriented approach in teaching involves a revision of the content of education, teaching methods and the system of interaction between the school and the university.

Many school leavers do not adapt well to the system of education in the university (30), which is associated with both a low level of their general education and insufficient skills of independent work and the activity of their cognitive activity.

If the main form of schooling is a lesson that can include the study of new material, its consolidation, and control, the basic system of study at the university is a lecture-seminar that presupposes a clear division: the study of new material in lecture classes and its consolidation on practical exercises. Such a change in load distribution causes great difficulty for students, most of who are not accustomed to working independently. Therefore, one of the tasks of the university teacher is to teach students independent work with lecture notes in preparation for practical classes (13).

For the realization of continuity, it is necessary not only the consistency of programs, textbooks of the school and university courses of informatics but also the main, specific feature of informatics - abstractness.

The first direction of succession is the elimination of gaps in school knowledge, abilities, and skills, the development of meaningful lines of the school course.

To establish the second type of communication, it is necessary to systematically compare certain concepts, definitions and theories of university informatics, the analysis of school definitions, and formulations.

The second direction of the continuity of learning computer science is the actualization of school and university knowledge.

Continuity in the methods and forms of the organization of the educational process presupposes the preservation of the best, further development in the subsequent stage. Therefore, active forms and methods should be used not only in secondary school but also in higher education.

The third direction of succession in teaching at the rate of informatics consists in the use of active forms and methods of organizing the educational process at the junior courses of the teacher training university.

These three areas of the continuity of the teaching of computer science require the consideration of the "school-teacher training" system as a single whole. The secondary school directly carries out the process of education and upbringing of the younger generation; the university prepares the cadres, equips them with the necessary abilities, knowledge, skills.

Continuity in the teaching of computer science implies ensuring an inseparable connection between the knowledge received by first-year students at school and at a university. As a result, knowledge, abilities, skills obtained earlier should expand and deepen, and individual ideas and concepts should be further developed. Continuity implies observance of scientific character, consistency, regularity, interconnectedness, and coherence, not only in content but also in forms and methods of instruction, which should ensure, as soon as possible, a faster and more positive learning of information and communication technologies in the university.

In conclusion, we note that the study of the system of continuous education as a special pedagogical object makes it possible to identify its most general characteristics: this system is discrete, from the point of view of pedagogical expediency, a single and integral one. Since subsystems of continuous education interact, at their joints, didactic contradictions inevitably arise. The succession of subsystems of continuous education is socially determined, and their actual continuity depends on the optimality of the conditions for resolving contradictions at the junctions of different subsystems. The continuity between the various links is the main condition for the creation of a holistic system of continuous education, encompassing all types of educational institutions, process.

5 Conclusion

In conclusion of the article, we want to emphasize that for the practical solution of questions of continuity of state compulsory standards of school and university education, it is necessary to conduct a scientific examination of secondary school curricula, based on the structure and content of educational and professional higher education programs.

The continuity of school and university education concerns not only the content of education but also the forms, methods, and means of education, including the socio-psychological conditions of moral development and the psychological and pedagogical conditions for the formation of the creative personality.

The application of the general education courses in informatics at the University for Tier Differentiation of education based on the diagnosis of students' readiness for training makes it possible to improve the quality of education and thereby significantly improve the level of knowledge, abilities and skills students need to live in the information society.

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