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Individual Educational Trajectory as a Way to Reveal the Potential of a Future Teacher

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Abstract: New social needs in education at the beginning of the XXI century are primarily associated with the peculiarities of the development of higher education, which places high demands on the personality and professional activity of a physical education teacher, in difficult conditions, when the world is at a difficult stage of development, showed by the search for an optimal socio-economic format of coexistence in the global space. The new concept of education requires the improvement of the pedagogical activity of future teachers and their achievement of the development of a high level of personal and professional potential, considering the socio-economic environment in which the national concepts of preparing young people for life in a changing and unpredictable world order to compete, fighting for their right to dominance.
The primary purpose of the article is to form an algorithm for developing an individual educational trajectory, which is decisive in the formation of personal and professional potential of the future physical education teacher. To simplify and systematise this individual trajectory as much as possible, we used the IDEF0 functional modelling methodology, which allows us to see visually the algorithm of functioning of the studied process and the key elements that will be needed. The research results in the article are a theoretical analysis of the existing scientific data.

Keywords: *physical education teacher, higher education, modelling, personal and professional potential, model IDEF0, individual educational trajectory.*

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1. Introduction

The development of higher education is based on a humanist-oriented ideology, declaring personality as the highest value of being, and creating conditions for its self-realisation as an important mission of any state. Therefore, the problem of the organic combination of professional training of future teachers, including physical education teachers, with their professional self-realization in the process of training in higher pedagogical institutions, where the value of professional and personal self-realization of a future teacher remains a declaration at the level of theory, confronting realities practical life of educational systems.

In the process of writing the article, the following methods were used: abstract-generalising, which is used to form conclusions for the study, analysis and synthesis of processed information, which made it possible to carry out a theoretical analysis of the existing literature and synthesize the information below. In addition, a modeling method was used, in particular a functional model IDEF0 of determination of individual educational trajectory of a of a future physical education teacher.

2. Theoretical Background

Theoretical analysis of the problem of personal and professional potential and self-development, study of the experience of practical work of physical culture teachers, professional training of students in higher educational institutions make it possible to determine several contradictions that objectively take place in modern pedagogical theory and practice (Ross et al., 2009; Gudmundsdottir & Hatlevik, 2017):

- between the requirements of society to the personality of a physical education teacher and an insufficient level of development of the theoretical basis for his professional training;

- between the aim growing requirements of pedagogical practice to the level of professional training of a physical education teacher and the ability of graduates of pedagogical higher educational institutions to quickly and effectively adapt to real conditions, to carry out educational and pedagogical activities in the reform regime (Kelchtermans, 2005);

- between the need for constant development, self-development, self-improvement of a future physical culture teacher and insufficient reliance on interactive learning, distance learning, opportunities for organizing and implementing self-educational activities as a condition for achieving a higher

level of personal and professional potential (Seligman & Csikszentmihalyi, 2000).

The philosophical and anthropological concept of personality development has the following main aspects: understanding the personality as an individual, integrating socially significant features of a given society, which are produced in the process of a person's subject-practical activity in specific historical circumstances and certain conditions of human life; reliance on the natural basis of the personality, its specific biologically psychological properties and characteristics, which are necessary by reference to the development of socially significant personality traits in the individual; a look at the personality as a set of unique, purely individual traits that determine the social face of a given person and distinguish it from others (Vlasenko, 2016).

Considering the main components of the structure of the teacher's personality, it is possible to note precisely the pedagogical orientation of his activity, and determines the attitude towards the profession, towards his work as a teacher, and above all towards the child, namely, the focus on accepting the personality of the child (Birgitte, 2009; Barber & Mourshed, 2007). A teacher aimed at the child will always see and recognize the unique uniqueness of each student, take care of the development of his individual abilities, while the absence of this professionally significant personality trait in the teacher will lead to the desolation of the child's individual psychological content (Korkko et al., 2016). The pedagogical (professional) orientation of the teacher's personality is characterized by interests, inclinations, convictions, ideals. Based on their analysis, we can conclude how important the pedagogical activity and its object are for a given teacher, how deeply he realizes the possibility of correctly solving pedagogical problems; how the pedagogical orientation is connected with other types of orientation (science, art, socially useful activity, etc.); how satisfied the teacher is with his work; difficulties occur in his activities and how he overcomes them; how the pedagogical orientation relates to the self-esteem of the individual, the level of aspirations, abilities, character (Drent & Meelissen, 2008).

3. Argument of the paper

In general, the development of personal and professional potential is understood today as the process of socialization, which occurs in human ontogenesis, aimed at assigning them various aspects of the world of work -

professional roles, professional motivation, professional knowledge, skills and abilities. The leading determinant that structures development is the social division of labor inherent in a particular culture. The determination of the development of a personality's personal and professional potential is interpreted by different psychological schools in different ways (Seligman & Csikszentmihalyi, 2000).

Socio-psychological theories consider the development of the personal and professional potential of the future teacher to be the result of social selection and the previous choice of a profession during socialization, while great importance is attached to chance. Psychodynamic theories as determinants of the development of the personal and professional potential of the future people people consider instinctive motives and emotionally colored experience gained in early childhood. An important role is played by the real situation in the world of professions, which is observed by a person in childhood and early adolescence (Djigic, 2018).

The scientist offers a systematization of their own approach in the following provisions:

1. People are characterized by their abilities, interests and personality traits.

2. On this basis, each person is suitable for certain professions, and the profession in a number of individuals.

3. Depending on the time and experience, both the circumstances and the subjective conditions for the development of the personal and professional potential of the future teacher change, causing a large professional choice.

4. The development of the personal and professional potential of the future teacher has a number of successive stages and phases (Farjon et al., 2019).

5. The development of the personal and professional potential of the future visitor begins with the socio-economic level of the parents, the properties of the individual, his professional capabilities, etc.

6. At different stages of development of the personal and professional potential of the future, the reader can be controlled, on the one hand, contributing to the formation of the individual's interests and abilities, and on the other hand, supporting the individual in his desire to "try" real life and in the development of the self-concept.

7. The development of the personal and professional potential of the future teacher consists, in fact, in the development and implementation of the self-concept.

8. The interaction of self-concept and reality takes place in playing and fulfilling professional roles.

In order to visually display and systematize the process of developing an individual educational trajectory, which is decisive in the formation of the personal and professional potential of a future physical education teacher, we used the method of IDEF0 functional modeling (Presley & Liles, 1998).

In world practice, the formalization of the modeling process takes place according to standards. Today, the IDEF0 standard is considered the most common technique. Although in most cases this functional modeling is used to describe business processes in order to bring a part of visibility and systematization into such a subjective process as the development of the personal and professional potential of future physical education teacher, we have chosen this particular type modeling (Sylkin et al., 2019).

IDEF0 is built on the following conceptual foundations:

1. System and model. A model is an artificial object that reflects the components of the system. The system is a collection of interrelated and interacting elements that perform useful work. It reflects what is happening in the system and how it is controlled, which "inputs" it transforms and the means used to perform these functions.

2. Block modeling and its graphical presentation. The basic conceptual principle of the IDEF0 methodology is to represent any system as a set of interconnected blocks reflecting the processes, operations, actions that occur in the system.

3. Rigor and formalism. The development of IDEF0 models requires adherence to formal rules and provides a methodology advantage with respect to the accuracy and integrity of complex layered models.

4. Iterative modeling. Developing IDEF0 models is an iterative procedure. At each stage of the iteration, the developer proposes his own version of the model, which is discussed, reviewed and the cycle repeats. Such an organization of work allows to optimally use the knowledge of a systems analyst, owns the IDEF0 methodology and the knowledge of specialists (James-Wilson, 2001).

The graphical language IDEF0 is simple and harmonious. It is based on the following basic elements: functional block, interface arcs, decomposition. (Serifi et al., 2013).

The process of developing an individual educational trajectory using the functional modeling IDEF0 will consist of a specific set of stages. These steps will be further subdivided into sub-processes, which will be guided by specific directives that are formed in accordance with the stated goal - to

improve the development of the personal and professional potential of future physical education teacher.

At the beginning, for the primary detailing of the tasks we have set, we need to form a high-level functional diagram A-0, which will be primary in the process of building a functional model IDEF0. Using the diagram of this level, which is shown in Figure 1, we have systematized the main and highest components of individual educational trajectory.

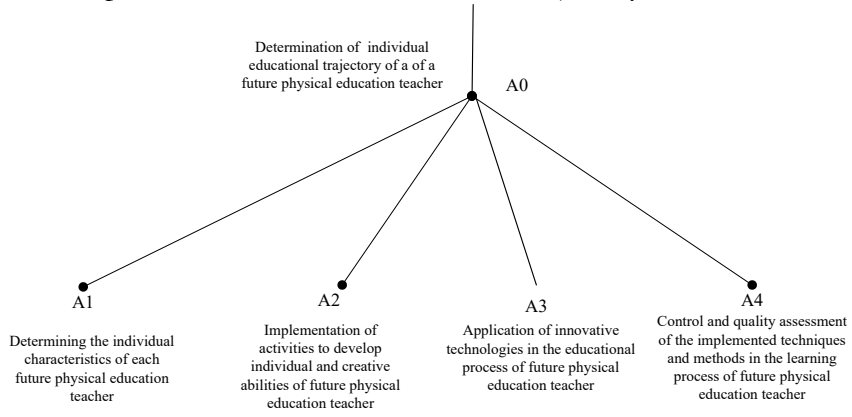


Figure 1. Hierarchical structure of functional model IDEF0 of determination of individual educational trajectory of a future physical education teacher
Source: Authors' own conception

The model we have developed allow us to see a list of the primary stages of determination of individual educational trajectory of a of a future physical education teacher. Such a simplified model using the functional mechanisms of IDEF0 will be further expanded and detailed by the authors in order to fully understand the entire process algorithm of determination of individual educational trajectory of a of a future physical education teacher.

Since a feature of the structural blocks of the IDEF0 model is that each block implements the process of converting inputs into outputs using certain mechanisms and means. Thus, having outlined the major task of our research in the form of A0, it would be advisable to depict the main initial elements necessary to achieve the goal (Fig. 2).

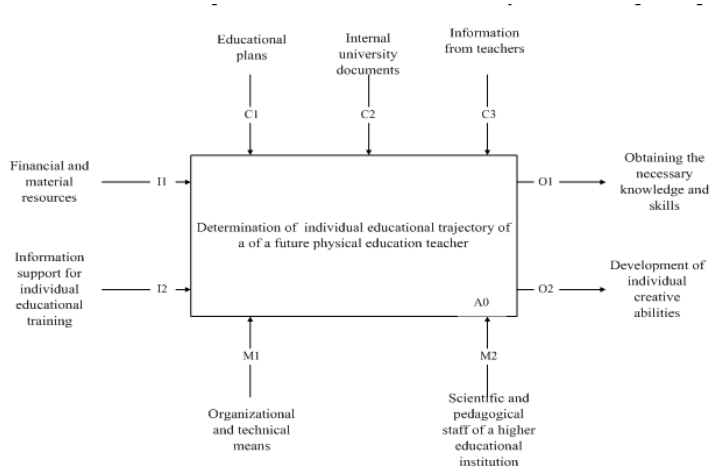


Figure 2. Functional structure of elements of model IDEF0 of determination of individual educational trajectory of a future physical education teacher.

Source: Authors' own conception

For a better understanding of the presented functional model of the formation of an individual educational trajectory of future physical culture teachers, it would be advisable to explain in more detail all the above elements of the IDEF0 model we have built.

Input elements are designated by the symbol "I" and in our case they comprise the following elements:

I1 - financial and material resources.

I2 - information support for individual educational training.

Control objects have been marked with a "C":

C1 - educational plans. This control element forms a set of documents of a higher educational institution, which can be used in the process's implementation of building an individual educational trajectory;

C2 - internal university documents, which include information about the stages and regulation of the educational process in higher education.

C3 - information from teachers. This element provides operational information from the direct implementers of the process of developing personal and professional potential about the process of passing and the success of implementing an individual educational trajectory.

Mechanism objects were designated with the symbol "M":

M1 - organizational and technical means. These measures are aimed at ensuring and optimizing the process;

M2 - Scientific and pedagogical staff of a higher educational institution. This element is one of the most important elements in the process of determining the individual educational trajectory of future physical culture teachers, since they are the direct implementers of this process.

The last elements of our functional model is a set of outputs that are performed with the correct implementation of all the above elements of the functional model IDEF0 and are designated by the symbol "O":

O1 - getting the necessary knowledge and skills. This exit is defined as the process of successful assimilation of the assigned tasks;

O2 - development of individual creative abilities. Ultimately, in case of complete success of this model implementation, future physical culture teachers will be able to fully develop and realize their personal and professional potential.

Having presented all the elements of the IDEF0 model built by us, it would be advisable to get acquainted with the specifications and details of the stages we have formed for determining the individual educational trajectory of future physical education teachers. To do this, we have built a decomposition of the first level of the process of determining the individual educational trajectory of future physical education teachers (Fig. 3).

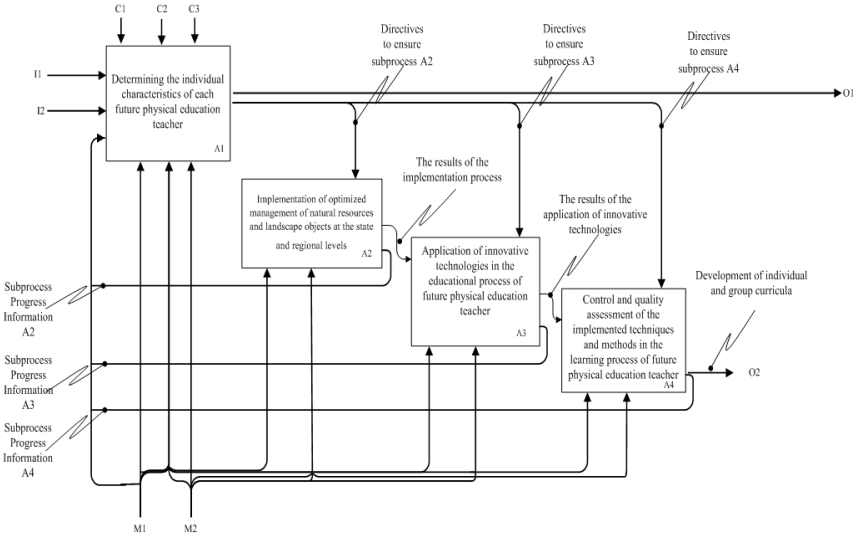


Figure 3. Decompositions of the first level of functional model IDEF0 of determination of individual educational trajectory of a future physical education teacher.
Source: Authors' own conception

According to the decomposition of the first level presented above, it would be advisable to explain in more detail the content of each of the stages:

A1 - determining the individual characteristics of each future physical education teacher. This stage is a sequence of processes during which the definition of the characteristics of the character and educational abilities of the student is seen. This stage can be considered critical, since after passing the latter, it is possible to fully assess the scope of the model implementation and the level of abilities of each of the students.

A2 - Implementation of activities to develop individual and creative abilities of future physical education teacher. During this stage, teachers, assessing the individual characteristics of students, choose the appropriate educational methodology, techniques and programs of their choice, which, in the direction of developing personal and professional potential, should become for each student his individual educational trajectory.

A3 - Application of innovative technologies in the educational process of future physical education teacher. Not a single process of personal and professional potential development can be static, it must constantly go through the process of improvement and improvement. That is why the stage of introducing innovations is important and critical in the process of building an individual educational trajectory for future physical education teachers.

A4 - control and quality assessment of the implemented techniques and methods in the learning process of future physical education teacher.

In addition, it is important to determine the intermediate inputs, outputs, control mechanisms, which are depicted as arrows on the constructed functional model IDEF0. Intermediate inputs (controls) and outputs consist of the following elements:

- directives for the management of processes A2, A3, A4 - these are the results of decision-making by the entities responsible for monitoring and controlling this process;

- output "Information about the progress of the process A2, A3, A4" - this is information that the persons responsible for control receive from each subprocess of the formation of an individual educational trajectory of future physical education teachers. Based on this information, decisions are made on the completion of subprocesses and the transition to the next.

This functional IDEF0 model, which was developed by us in the future, can become a kind of information basis that should contribute to the development of the personal and professional potential of future physical

culture teachers, and the data that performers will receive after passing each of these stages should undergo a clear and comprehensive analysis. Taking into account the analysis, the performers will be able to understand how effectively the individual stages of the decomposition are implemented, in turn will show the effectiveness of the process of developing an individual educational trajectory and, in turn, the development of personal and professional potential. A feature of this model is that if one level of decomposition is not enough, then functional IDEF0 modeling allows the formation of decompositions of the second, third and subsequent levels for greater detail of the selected process.

4. Arguments

Considering all the arguments that go for or against our proposed model for determining the individual educational trajectory of a future physical education teacher, in our opinion, the main ones supporting the model we have built are the following:

Each step of the formation of an individual educational trajectory should be based on the principle of self-development and should determine the ability of the individual to turn his own life activity into an object of practical transformation, leading to the highest form of life activity - creative self-realization (Dohms et al., 2014). For the implementation of this task, it is especially important to take into account the creative abilities of future teachers of physical culture and sports, it is an important element in our model.

As noted by Ivanova and Skara-MincLne (2016), within the temporal approach, professional development almost completely coincides with human ontogenesis, if we consider ontogenesis as the life of an individual from birth to old age. Consequently, there is every reason to consider the formation of the development of the personal and professional potential of the future teacher as a process that permeates the entire human life (Sweeney et al., 2001).

Similar attitudes regarding the early fixation of needs are manifested in Mendes, Aline & Dohms, Karina & Lettnin, Carla & Mosquera, Juan & Stobäus, Claus (2016) theory of professional development. Representatives of developmental psychology consider the preliminary (to the choice of a profession) education and mental development of a child as factors of professional formation.

The most popular among psychologists is the concept of professional development proposed by Zembylas (2003), which examines

the stages and stages of development of the personal and professional potential of the future teacher in the process of ontogenesis.

An important argument asserts the use of the functional model IDEF0 is that this model is flexible and easy to use. This model IDEF0 has been used more than once in building a system for improving the functional activity of people in various spheres of life (Nickinson et al., 2020).

But despite the convenience of the functional model IDEF0, some authors argue that attempts to form a coherent system for the development of such a subjective concept as an individual trajectory is a difficult and sometimes impossible attempt (Johnmarshall & Sung Hyeon, 2021).

But in modern scientific literature there are already examples of using the model IDEF0 in the process of developing students' creativity. And practical evidence of the effectiveness of model IDEF0 confirms the fact of the possibility of using a functional model in the process of developing an individual trajectory (Kryshtanovych et al., 2021).

5. Conclusions

Requirements for continuous personal and professional growth are perhaps the most important for the profession of a teacher, in particular, a teacher of physical education. First of all, this is because of the specifics of teaching and teaching activities, where the main task is to convey to the public the latest achievements in culture, science and technology, social norms and ideals in order to ensure the progressive development of the individual and our country. To implement this most important task, the teacher must himself achieve a high professional and personal level, it becomes possible only through constant and tireless work on himself. And here it is worth noting that tireless work on oneself does not begin and does not end during a student's training at a higher pedagogical educational institution - it is self-education and self-development throughout life, where the teacher's ability to self-development is important, considering the requirements of the profession of a teacher of physical culture and society. The mechanisms of professional self-development of the future teacher, the creation of pedagogical conditions for productive personal and professional growth, with the aim of its quick adaptation, flexibility in the conditions of the transition of each country to the European educational space, require further study.

In order to fully facilitate forming an individual educational trajectory as a way to reveal the personal and professional potential of a future physical education teacher, we have applied the methodology of

IDEF0 functional modeling, which is basically designed to formalize the processes presented in it. Using this model, the authors introduced systematic elements into such a subjective process as the formation of an individual educational trajectory to reveal the personal and professional potential of a future physical education teacher, which will allow teachers in the process of their professional activities to form a powerful backbone and a basis on which they will impose their own scientific prey and educational methods that they use in development process of the personal and professional potential of a future physical education teacher

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