IMPLEMENTATION OF THE LEARNING MODEL BASED ON THE RESULTS OF FUTURE VOCATIONAL TEACHERS' PROFESSIONAL TRAINING

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Abstract: The article defines and substantiates the model of education based on the results in the professional training of future teachers based on individual approaches. It was found out that individual-typological features of the student influence the style of his activity and style features. It is necessary to have four skills: maximum immersion in the learning process, a person must be free from prejudice and open to new experiences: real experience; response and observation of the gained experience from different angles: effective (reflective) observation; creation of concepts that would unite all observations into logical, sequential theories: abstract formation of concepts (abstract conceptualization); using this theory to make decisions and solve problems: active experimentation. The peculiarity of the implementation of the model is that, for each level of development of mental skills, it is necessary to provide more complex learning and experience in the process of student transition from knowledge/awareness to the application of knowledge and thinking of the highest order. Each level involves the acquisition of knowledge. There are four styles of student learning: "activists", "thinkers", "theorists", and "pragmatists". The characteristics of each style have been generalized. The results can be cognitive, psychomotor, or affective in nature. The authors used a table of Bloom's verbs to formulate learning outcomes and tasks. The learning model based on results and components of students' professional development of each style during the study of the course "Methods of teaching special disciplines" was experimentally tested.

Keywords: Learning based on results, Learning outcomes, Preparation, Teacher of professional training, Training.

1 Introduction

Socio-economic changes taking place at the beginning of the 21st century in Ukraine demands from the organization of the educational process in institutions of higher education to form general and professional competencies in students, which is adequate to the requirements of the modern labor market [6].

Ukraine' integration into the international economic and educational space requires from the national higher education system to train competent specialists who are able to apply in practice the latest achievements of the modern science, creatively use innovations and technologies, and respond flexibly to market economy demands. European standards for the training of future professional leaders – engineers, teachers, officers, doctors and many other professionals - are focused not only on mastering the subject area, but also on the personal development of the specialist [3].

Updating of legislation in the field of education is identified as one of the main directions of implementation of the National Strategy for Education Development in Ukraine until 2021, which should be aimed at determining of the legal, organizational, financial foundations of innovative development of the national education system in the context of globalization trends and challenges [5].

Reformation of the higher education in Ukraine, transition to a new personality-oriented approach to teaching and education is impossible without creating the necessary conditions to ensure sustainable development of the teacher. In the process of finding a new educational paradigm, various types and forms of professional education are becoming widespread. In turn, such professional education is a principal condition for comprehensive personal development, enrichment of the individuals' creative potential, means of realization of abilities, as well as growth of professional competence, improvement of previously acquired knowledge, skills and abilities [7].

Continuous development of a modern teacher, his formation as a person of culture, an agent of change, an innovative personality involves the creation of effective conditions for professional growth, personal self-development through the use of potential opportunities of the modern information society [11].

The rapid development of information technologies and the growing role of innovation in ensuring economic progress create new challenges in the educational training of future professionals. Education as one of the key components of social development, on the one hand, is influenced by the processes that take place in it, on the other one – affects all the components of the social life, and, therefore, must adapt dynamically to the current state of the scientific and technological progress. Thus, there is a need to train specialists who not only have perfect theoretical knowledge, but can also use them successfully to solve various practical problems [10].

Recognition of training facts – both formal and non-formal/informal – can potentially give more importance to individual achievements and contribution to society [14].

The individualization of educational process, as a main component of the modern educational system, contributes to the formation of the qualities needed by a modern student -a future competitive specialist. The ideas of individualization are implemented by various methods and means, the main of them are the usage of information and communication technologies (ICT) in the learning process, personal learning environment, information and communication educational environment. A system of scientific knowledge and practical skills that influence the formation of learning outcomes is the sense of personality-oriented education [8, 9].

The ability of an individual to select, process, assimilate, and then reproduce and have the ability to use information in life and work is very important nowadays. The challenges that the society meets with reflect the need to create a model and special conditions for learning in higher education, in order to optimize the educational and professional processes of students [13].

Students understand their role in educational process in different ways, have different attitudes to certain aspects of learning, and put different emphasis on the educational process. This is due to their psychological preferences, which are determined by the type of personality. The type of personality is manifested in the usual and convenient for him way of action, which is at the same time similar to others. Individual-typological features of the student affect the style of his activity and his stylistic features which, in turn, leads to the formation of certain learning outcomes.

2 Literature Review

The analysis of the literature on the assessment of learning outcomes in the context of the competence approach, measuring educational outcomes showed that this issue is thoroughly studied mostly by foreign educators and psychologists, including the following: Adam S. (UK), Rogers G. (USA), Vaughan D. (Great Britain), Walsh A., Webb M. (Kingston University, Great Britain), Biggs J. (University of Queensland, Australia), Zvonnikov V.I (Russia).

The studies of the stylistic organization of students' educational activities are popular nowadays. The problem of styles is widely considered (general concept, concept of individual style of activity, features of stylistic sphere of personality), in the line of which the problems of individual style of learning are singled out. The experience of the following Ukrainian researchers is studied by M. K. Akimova, A. K. Baymetov, A. O. Volkov, L. A. Vyatkina, I. O. Zuyev, O. YE. Klimov, V. T. Kozlova, V. S. Merlin, YE. H. Taryeva, M. O. Kholodna, and others.

Among the adult's educational models, the most popular one is the four-step experiential learning model (Experiential Learning Model), developed by David A. Kolb and his colleagues from Case Western Reserve University. According to the Kolb's

theory, the learning cycle basically involves four stages, namely: concrete learning, reflective observation, abstract conceptualization, and active experimentation. The learning consists of stages of "implementation" and "thinking" [1].

The adapted learning styles according to David Kolb are presented in the works of V.I. Kovalchuk. The author identifies four main styles of students: activists, reflectors, theorist, and pragmatists, so every learner chooses the appropriate learning style [7].

However, despite the research`s achievement, the model has mostly theoretical characteristics and does not provide the practical way of usage the active learning methods that are effective for each style and the formation of learning outcomes.

3 Materials and Methods

The main research methods were aimed to create a favorable educational environment in higher education institutions of Ukraine in four aspects: a favorable psychological climate; a content of education, training technologies; spatial environment; development opportunities, namely:

- Theoretical: analysis, synthesis, comparison, generalization of scientific and educational literature on the research problem, which allowed determining the degree of its scientific development, directions of pedagogical ideas development in this field, determining the methodological principles of the research problem; modeling in order to develop a model of a favorable educational environment for professional training of future teachers of vocational education;
- Empirical: observational (direct and indirect observation), diagnostic (an interview, a survey, a questionnaire, diagnostic methods, a rating, a method of analysis of the performance), which allowed summarizing the analytical material on the availability of a favorable educational environment in the training of future teachers of vocational education;
- Graphic to illustrate visually and compare the results of the experimental work in graphic images and tabular forms.

4 Results and Discussion

Learning focused on personal needs helps students to improve and systematize their own knowledge and professional skills, activate their own experience, develop thinking, memory, attention and imagination, develop a positive attitude to the educational process. That is why the educationist of professional teaching needs to have the experience of active personality-oriented learning. The main reason is the educational approach which is based on outdated traditional styles and teaching methods that do not allow students to develop their abilities. The only way to solve this problem is the teacher`s ability to select and apply such teaching styles and methods that will promote the acquisition of knowledge and the development of general ability to think creatively and actively [7].

Taking into the account the concept of individual style of activity by I.A. Tolochek, we will focus on the definition of style. The researcher uses the term "style" to denote the relationship between the objective requirements of the activity and the properties of the individual. However, objective requirements may not be the same for different activities or for the same activity taking place in different conditions [15].

According to David Kolb, if a person wants to achieve effective learning outcomes, it is necessary to have four skills: 1) the complete immersion in the learning process, a person must be free from prejudice and be willing to be actively involved in the experience: real experience; 2) reflect and observe on the experience from different sides: effective (reflective) observation; 3) create concepts that would combine all observations into the logical sequential theories: the abstract concepts` formation (abstract conceptualization); 4) using this theory to make decisions and solve problems: active experimentation. So, the learning process, according to the cycle of Kolb, can be started at any stage of the cycle and continues until a certain skill is acquired [1].

Developing the ideas of Kolb, English psychologists P. Honey and A. Mumford described different styles of learning. Generally, in the usual cycle of education, people begin their learning with the style which they prefer to. Researchers identify the following four learning styles: "activists", "reflectors", "theorists", and "pragmatists". Each of them has its own strengths and weaknesses, its own behavior, requirements for the learning process and other participants. In fact, one person rarely has only one style by which he/she learns, but each has elements of their own styles. However, the dominant tendencies determine the features of the learning process and the human reaction to certain methods and efforts of the teacher [4].

When planning training, it is necessary to take into account that there are no "pure" styles, but there are dominant ones and the group will consist of individuals who tend to different learning styles. That is, each curriculum must contain elements that are attractive to all types of students who are in class [7].

According to Kolb, a complete learning process requires the use of experience, its reflection, the theoretical and practical implementation, in case of focusing only on one, favorite style of learning, it can threaten the so-called "learning paralysis". In addition, according to Kenny and Reid: "It is extremely important for a teacher to understand that he himself prefers his own, given to him by nature, learning style, and that in choosing techniques he must take into account the learning objectives and preferences and learning styles of all the participants of educational process" [1].

The best way of implementation of the learning process is to involve all the students with a variety of approaches to learning. In addition, it makes it possible to open and expand other ways of getting the information, rather than learning only the method that is most acceptable to the listener. The teacher should build the lessons in a way to involve and get interest all students to cover all four stages, which together will make up the cycle of learning from practice to practice. A well-designed course leads to the acquisition of knowledge and skills by participants. One should remember that skills are forgotten without repetition [1]. We sum up the characteristics of each style in the tables below (Table 1, 2, 3, 4).

Table 1: The characteristic of activists

Strong skill:	Innovation and creativity
Work through:	Focusing on the importance of learning
Aim:	To be involved into the solving important questions and to achieve harmony
Favorite question:	Why?
How to be a leader for others:	To focus on their feelings, create the team, search for harmony, sense of purpose
How to educate:	To be a facilitator, create discussions, group work

Table 2: The characteristic of reflectors

Strong skill:	Innovation and creativity
Work through:	Focusing on the importance of learning
Aim:	To be involved into the solving important questions and to achieve harmony
Favorite question:	Why?
How to be a leader for others:	To focus on their feelings, create the team, search for harmony, sense of purpose
How to educate:	To be a facilitator, create discussions, group work

Table 3: The characteristic of theorists

Strong skill:	The practical implementation of ideas
Work through:	Using of fact data, from their own experience
Aim:	Connect their present with their safe future
Favorite question:	How?
How to be a leader for others:	Plans and graphics, choosing the level of productivity, the knowledge exchange
How to educate:	To set the program course with the pragmatic expediency, demonstrate detailed practical processes

Table 4: The characteristic of pragmatists

Strong skill:	Active integration, performing tasks
Work through:	Activity and usage the new ideas gained from the experience
Aim:	To transform the ideas into actions
Favorite question:	What if…?
How to be a leader for others:	To suggest the crisis situations and challenge; they are looking for solutions themselves
How to educate:	Illustrations to encourage the use of alternatives, providing choice

According to the questionnaire of style-learning definition, we conducted a survey among students. We found among 120 participants 21% are activists, 29% – reflectors, 35% – theorists, 15% – pragmatists.

As there are no pure styles, the task of the teacher is to develop other styles, but at the same time, but to use the benefits of each style as a resource for effective communication.

The teacher's knowledge of the students' personal characteristics will affect the effectiveness of learning. At the same time, students have the right to know what knowledge, skills and attitudes are required of them in the course, and at what level their skills should be presented. One method that a teacher can use to convey this information is a list of detailed learning outcomes and tasks. Each task depicts a hint to students to help them achieve or exceed what is expected of them in the course.

Learning outcomes describe as accurately as possible what will happen after passing a particular training unit. The description of the result may include a definition of the skills acquired, the conditions under which the task will be performed, and the level at which the task will be performed. In education, goals are often described by five definitions, including the following information: who (the executer), where (the circumstances), how (the way), what (the learner must show a high degree of mastery of the subject), in what criteria.

In each case, the learning outcome reflects new knowledge or understanding in an observable form. For example, a master of industrial training wants a student to be able to perform a certain operation. Teaching this psychomotor skill includes demonstration or modeling, discussion of biomechanics or psychology, imaginary repetition, and guiding practice. What is the expected learning outcome?

Learning outcome is a general (broad) statement that determines that a student will be able to perform (in visible activity or behavior) at the end of learning. The wording of the learning outcome contains one or two verbs connected by the conjunction "and". We call these verbs "competencies" or "skills."

The formation of the learning outcome is structured if it is contained in the same form in different parts of the course.

We form tasks according to the results. A learning task (step) is a more detailed statement that determines what a student will be able to accomplish after completing a stage or segment of study, such as a lesson. Often, when constructing the content of a program that students should master, it is necessary to identify smaller steps to achieve the ultimate goal. Usually, these smaller components of the learning process (lesson) or event are called Learning Tasks. Thus, we call "tasks" smaller steps towards achieving the goal of learning [2, 7, 13].

The formation of the learning outcome implies that the student will be able to demonstrate mastery of more general competence [2]. In the formulation of the educational task, it is implied that the student must master a more specific competence. It allows the teacher to have several tasks, and to achieve competence at the level of learning outcomes, the student must fully complete only one of them. It also suggests that the student will not have the ability or time to master each competence within the learning outcome. The use of the word "must" suggests that although a student may not complete all tasks, he will still achieve an overall learning outcome.

Outcomes can be cognitive (knowledge and development of intellectual skills/attitudes), psychomotor (feelings, values, evaluation, enthusiasm, motivation) or affective in nature (kinetic field, applied or physical skills).

In the cognitive sphere, learning is described as a change in the knowledge stored in memory. The basic principle of the theory is that behavior is mostly controlled by the processes of internal memory, rather than external circumstances [7].

In the psychomotor sphere, learning takes physical form. "Psycho" in psychomotor theory confirms that in the teaching of physical skill, there is a cognitive aspect. For example, while learning to write a handwritten text, the student needs to understand how handwritten letters are related to printed ones, and how letters are joined together to form words and so on.

The affective sphere concerns the field of emotional learning. Affective outcomes may include changing the student's value system. For example, one can consider online group discussions in which participants have to adopt a different point of view to effectively persuade the other party.

Our idea was to check how the results-based learning model affects the components of professional development (motivation, cognitive, operational, reflexion) in students of each style. To implement it at the beginning of the course "Methods of teaching special disciplines", we conducted a study of the initial level of development of each component using methods:

- Motivational component – the methods of T. Illin "Motivation of higher education", the methods of diagnosis of personal motivation to succeed (according to T. Ehlers);
- Cognitive component – the method of expert assessments, testing;
- Operational component – tasks for testing technological and methodological skills and abilities;
- Reflective component – tasks for the assessment of pedagogical situations and the implementation of a creative project carrying out self-assessment of own activities.

According to the study results of the levels of formation of the professional development's components, we got the following results, which are presented in the Figure 1.

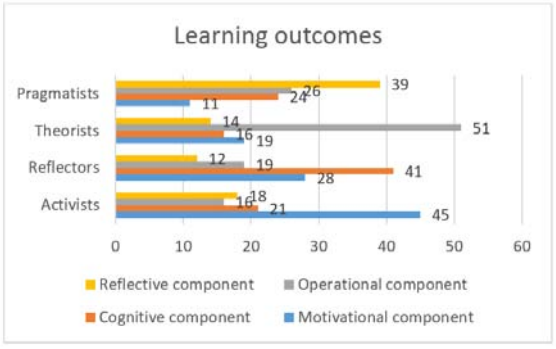

Figure 1 – Learning outcomes according to the components and levels before the experiment

According to the results of the experiment, activists have a motivational component formed by 45%, cognitive – 21%, operational – 16%, and reflective – 18%. Reflectors have a little bit another trend, which shows the formation of the motivational component by 28%, cognitive –- 41%, operational – 19% and reflective – 12%. Theorists are characterized by the formation of motivational criteria by 19%, cognitive – 16%, operational – 51%, reflective – 14%. For pragmatists, the motivational criterion is formed by 4%, cognitive – 24%, operational – 26%, and the reflective criteria – 39%.

During determining the learning objectives, we took into account six levels of development of thinking skills according to Bloom's taxonomy [17, 18, 20] (Table 5).

Table 5: The formation of mental skills

Competence	Component	Result
Motivation	Motivation	Motivation to do something
Knowledge	Cognitive component	Knowledge Understanding
Understanding		
Application	Active component	Applying
Analysis	Reflection	High order thinking skills
Synthesis		
Evaluation		

The peculiarity of the model is that, for each level of development of mental skills, it is necessary to provide more complex learning and experience in the process of student's transition from knowledge/awareness to the application and high order thinking skills. Each level shows that before applying the skills, one should have some knowledge. Categories can be considered as degrees or complexities. In other words, each category must be completed before the next can be implemented.

To assess the achievement of cognitive goals, one can ask students to present, describe, or list information or choose from a number of possible answers. Relevant assessments may include the following: tests with multiple choice answers; transfer tasks; choice of several options (similar to the test with several answer options); task performance; filling in the table; compliance questions.

Assessment of mental skills at the level of conceptual learning is similar. These elements can be performed visually or aurally: answer the question; simulations. Problem solving can be assessed by: performing tasks; analysis of specific examples; problem-based learning.

Psychomotor assessment skills include: real or mental characteristics; evaluation of final products; performance appraisal.

To assess a student's attitude to a problem, first of all, we determine if the student has his own opinion, and then find out if he or she wants to express it. To evaluate this attitude, it is necessary to describe to the student the situation in which his position or behavior will be appropriately reflected, or evaluate the student's attitude using a cognitive approach; for example, can he describe a productive method of work and how it will change the overall (group) productivity? To form the learning outcomes and tasks, we used Bloom's verb table [2, 4, 12]. The structure of the lesson was as follows (Table 6).

Table 6: Approximate lesson structure

Activity	Description	Example
Connecting parts (concentration)	Used to combine a student's previous experience with new skills. Also used to stimulate or motivate students to learn new skills.	
Cognitive (presentation)	The presentation of new information for each task. Use a whiteboard, flip chart, or computer presentation. Handouts or visuals.	The model of experiential learning – Module 3
Empirical (practical task)	Gives a student the opportunity to practice under the guidance of a teacher. Written assignments or demonstration.	Set the activity components – Module 2
Practical application (result)	Determines whether the student got the following competence. Checking the written assignment. Ask students for their opinion. Set a new homework	Prepare the lesson plan – Module 3,

The positive learning motivation is extremely important for active learners.

Explanation, actualization and formation of motivation represent the initial stage of the organization of students' educational process, because motivation involves them to the learning process.

The learning motivation depends on the effectiveness of all educational activities, and hence the further direction of behavior. The choice of behavior is determined by reasons - motives. Motives are usually external and internal. Internal motives are connected with self-consciousness of the educationist of professional teaching, points of view. The more the student understands the role in the professional development, the more conscious is his desire to participate in educational process, and the stronger he will identify the cognitive needs in it. Under the condition of effective implementation of the educational process, internal motivation turns into spiritual satisfaction and new phases of its development. External motives appear when learning becomes a mean to achieve higher goals (creating a positive professional image, maintaining competitiveness, improving efficiency and stabilizing psychological relationships) [16].

The lack of motivation is one of the main reasons for learning failure. A key element of motivation is the participants' self-respect, so it is important to look for ways to develop these feelings. One of the practical ways to achieve the result is to stimulate active learners to present their own experience, specific knowledge and skills [1].

As a rule, the level of competence is determined before the learning process and in the first lesson with the help of questionnaires, tests, presentation, interviews. At this time, the team building process is happening here and the set of behavior rules are established.

Students who belong to reflectors type prefer to study during listening to different opinions, they observe, develop their own points of view. Such students do not like to participate in practical exercises. Therefore, it is important for reflectors to form a cognitive component. This is possible due to communication and the exchange of information.

The level of effective communication depends not only on the choice of appropriate exercises and methods – for example, if the teacher decides to provide theoretical information. The next step is to make sure that reflectors understand it. If the teacher receives any information from reflectors, he must make sure that he correctly understands what the students wanted to say and be sure to use this information in further work with them. Theorists tend to act, that is why they need to form an operational component. The teacher and the group solve the tasks together, moving to the intended goal. Providing feedback is a component of the learning process that leads participants to introspection, it is a powerful tool for learning new experiences. The teacher must be perceptive enough to notice changes in practitioners' behavior and respond to those changes at the appropriate time, which is the best "teacher-participant" feedback strategy in this case. The recipient makes his own decisions and is responsible for the consequences. Feedback is aimed at behavior or situation, at finding a solution; it is specific (not general). The collaboration and making changes are the result of the feedback.

The next stage is the lesson and the assessment of acquired knowledge and skills. After it, the students are ready for setting the new tasks and solving them in the learning process.

After completing the course "Methods of teaching special subjects" and the introduction of a model of learning based on results, we studied the levels of development of thinking skills one more time. We offer to increase the students' level of formation of each component with their own learning styles as follows.

We suggest increasing the motivational component using the following techniques and methods: the coaching method the usage of a methodological system. It is based on methods of activating learning, providing the formation of professional and important social skills of future educationist of professional teaching. Coaching includes scientifically based comprehensive programs of interaction between the teacher and the students in the educational process (analysis of the problem situation, the method of emotional stimulation of learning, the method of creating a situation of cognitive dispute using the method of "brainstorming", educational activities).

The level of the cognitive component is realized through the introduction of interactive methods ("work in pairs", "carousel", "work in small groups", "aquarium", "circle of ideas", "microphone", "brainstorming", "the analysis of dilemma", "jigsaw technique", "learning to learn").

Creative projects were offered to perform for future educationist of professional teaching to increase the level of formation of the operational component.

We suggest forming an effective criterion by students' synthesis, analysis, and evaluation of their own activities through the reconstruction of a certain method created for them by applying it in practice. In order to master the assessment skills in different ways, it is better to offer students to prove, discuss, judge, criticize, persuade or evaluate information or the point of view [19]. The results are presented in Figure 2.

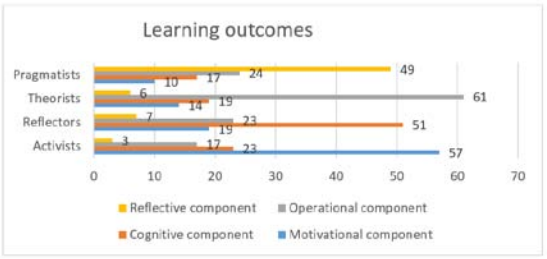

Figure 2 – Learning outcomes by components and levels

According to the results of the experiment, it was found that the motivational criteria of activists is increased by 57%, cognitive – 23%, operational – 17%, and reflective – 3%. Reflectors can be traced in the formation of the motivational component by 19%, the level of cognitive has increased and is 51%, operational – 23% and reflective – 7%. Theorists are characterized by the formation of motivational criteria by 14%, cognitive – 19%, the level of operational component increased slightly – 61%, reflective – 6%. In pragmatists, the motivational criterion was formed by 10%, the cognitive criterion – 17%, the operational criterion – 24%, the reflective one – 49%.

Thus, based on the data obtained, we can say that our proposed model of learning i based on the results is effective and allows meeting the personal needs of each student.

5 Conclusion

The paradigm of Ukrainian education requires the improving of the learning outcomes of future of educationists of professional teaching by means of all disciplines of the curriculum, in particular, "Methods of teaching special disciplines". Learning through results contributes to the creation of an educational environment in each class, which encourages reflection, discussion, independent research of students.

Such an environment is designed and implemented through questions, cognitive oral and written tasks, educational projects based on the promotion of students to learning outcomes at the levels of Bloom`s taxonomy. The authors are convinced that there is a need for additional research in the development of critical thinking in the process of forming learning outcomes based on the application of Bloom's taxonomy. More detailed research is also required for studying the relationship between student's active learning and the development of critical thinking, as well as the implementation of experiential learning study of the relationship between the various stylistic components of student`s educational process.

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