

Original Article

**The introduction of modular training technologies in the process of training future specialists in physical therapy, ergotherapy as a condition for the apprenticeship of professional identity**

YULIIA KOPOCHYNSKA<sup>1</sup>, NATALIA KUKSA<sup>2</sup>, OKSANA GLYNYANA<sup>3</sup>, YULIA KARPENKO<sup>4</sup>, INNA LIAKHOVA<sup>5</sup>.

<sup>1</sup>Candidate of Science in Physical Education and Sports, Associate Professor, Associate Professor of the Department of Biosafety and Human Health National Technical University of Ukraine "I.Sikorsky Kyiv Polytechnic Institute", Kyiv, UKRAINE

<sup>2</sup>Associate professor of the Department of Department of Health, Physical Therapy, Rehabilitation and Occupational Therapy Sumy State Pedagogical Makarenko University, Candidate of pedagogical sciences, Associate professor, Sumy, UKRAINE

<sup>3</sup>Candidate of Science in Physical Education and Sports, Associate Professor, Associate Professor of the Department of Biosafety and Human Health National Technical University of Ukraine "I.Sikorsky Kyiv Polytechnic Institute", Kyiv, UKRAINE

<sup>4</sup>Senior lecturer of the Department of Department of Health, Physical Therapy, Rehabilitation and Occupational Therapy Sumy State Pedagogical Makarenko University, Sumy, UKRAINE

<sup>5</sup>Professor of the Department of Physical Rehabilitation, Sports Medicine, Physical Education and Health Zaporizhzhya State Medical University, Doctor Pedagogical Sciences, Professor, Zaporizhzhya, UKRAINE

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**Abstract:**

The article discusses the representation of modular proc for the apprenticeship of future specialists in physical therapy, ergotherapy on the rank of creation of their professional identity, as well as assessing the impact of this modular apprenticeship proc on the rank of creation of professional identity of future specialists in physical therapy, ergotherapy. Methods such as theoretical assesment of academic and methodological literature, synthesis and generalization were used. The study involved 104 students from Academician Yuriy Bugay International academic and Technical University and National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute". At the first stage of our study, an assesment of the academic methodological literature was conducted regarding the need for the representation of modular tuition proc in the proc of apprenticeship future specialists in physical therapy, ergotherapy to derivation their professional identity. At the second stage, we highlighted the features of introducing modular apprenticeship proc into the proc of apprenticeship future specialists in physical therapy, ergotherapy. The third stage was carried out in order to size upthe impact of the representation of modular proc in the professional readiness of future specialists in physical therapy, ergotherapy on the rank of creation of their professional identity. As aaftermath of the study, an assesment of the data of academic methodological literature regarding the necessity of introducing modular apprenticeship proc into the professional apprenticeship of future specialists in physical therapy, ergotherapy for the creation of their professional identity was carried out, the peculiarities of the representation of modular apprenticeship proc were highlighted, the experiment was used to evaluate the impact of the representation of modular proc in the proc apprenticeship at the rank of professional identitycreation b leading specialists in physical therapy, ergotherapy.

**Key words:** modular proc, pedagogic proc, professional identity, physical therapy, ergotherapy.

**Introduction.**

In Ukraine today, the higher education scheme of specialists in physical therapy, ergotherapy (further PT, ET) wales the task of tuition students standalone practice in the field of PT, ET, taking decisive actions in professional situations, that is, stimulating professional thinking, activating creative potential, and building up a steady interest in education future profession.

Along with this, the need for specialists in PT, ET not only own their profession, but also navigate in related industries, is distinguished by their ability to act quickly, make decisions, work with high productivity and efficiency, solve non-standard professional tasks, and be prepared for constant personal and professional development [7, 14]. Therefore, the matter of finding modern pedagogic proc for the creation of professional identity (further PI) of future specialists in PT, ET is becoming relevant.

Today, leading exploratory and practitioners in the field of higher education in Ukraine, Bazylchuk O., Putrov S., Bazylchuk V., Sushchenko L., Galina I. [3, 22], as well as foreign exploratory [17, 23, 24] have focused on the assessment of various aspects of the apprenticeship of future specialists in PT, ET.

As one of the ways to solve the tasks, in particular the creation of PI, we propose a study of the representation of modular proc for the apprenticeship of future specialists in PT, ET.

The modular scheme for constructing the educational proc in an educational organization is not identical to the derivation of the curriculum: it is rather a derivation of organizing content and practices in apprenticeship, as well as a way to derivation professional and social competencies needful for a graduate [18]. One of the important advantages of modular technology, in the opinion of foreign scientists [1, 16], is that the arrangement of educational disciplines into a meaningful educational path for students creates an alternative to the traditional scheme, in which the principle of organizing disciplines into cycles and blocks would not be matteratic thematic, but in many ways purely derivational and rather abstract and, most importantly, opaque to the student and even the tutor as real subjects of the educational proc. The module affords the student to see by what laws disciplines are combined with each other, and choose the composition of their education freely and consciously. All this creates the conditions for the creation of a flexible individualized derivation of education [9, 20].

The matters of introducing modular tuition proc as a means of improving the quality of apprenticeship of future specialists in PT, ET have been considered in many modern academic publications [8, 19]. From these positions, education is carried out as a proc of subject-subject interaction, based on dialogue, exchange of meanings, cooperation of its participants. The content of the joint activity is not regulated, it is open. A future specialist in PT and ergptherapy is actively involved in the projection of the content of education needful for him to improve himself.

Considering the modular tuition proc in the context of the conception of integrative growing education, we analyze the current situation with the representation of originative proc from the perspective of a subjective approach to the student. In other words, we do not size up this situation from the perspective of what the educational organization brings to the subject of apprenticeship, what conditions it creates, and how it seeks to reveal what the student takes from the offered by the university and how his consciousness proces this content of professional education.

#### **Material & methods.**

At the first stage of our study, an assesment of the academic methodological literature was conducted regarding the need for the representation of modular tuition proc in the proc of apprenticeship future specialists in PT, ET to derivation their PI.

At the second stage, we highlighted the features of introducing modular apprenticeship proc into the proc of apprenticeship future specialists in PT, ET. The third stage was carried out in order to size up the impact of the representation of modular proc in the professional readiness of future specialists in PT, ET on the rank of creation of their PI. To conduct our research, we used methods such as theoretical assesment of academic and methodological literature, synthesis and generalization.

In order to size up the impact of modular proc for the apprenticeship of future specialists in physiotherapy, ET on the rank of creation of their PI, we conducted a survey of 104 students, 58 of whom are studying at Academician Yuriy Bugay International academic and Technical University, and 46 are National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" students.

We divided the future specialists in PT, ET into an experimental and control group. The proc of apprenticeship students from the control group was carried out according to a standard curriculum. At this time, in the proc of occupational apprenticeship of students in the control group, specially elaborated apprenticeship modules for increasing professional prowess were introduced, which were organized in accordance with the provisions of modular tuition proc.

The experimental group consisted of students of the 3 and 4 year of undergraduate Academician Yuriy Bugay International academic and Technical University. The control group consisted of 3 and 4 year undergraduate students at the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute".

The author's questionnaires were sent to students, each containing 40 questions, of which: 15 described the state of the motivational, 15 - the activity and 10 - the cognitive composite elements of PI.

The aim of the research is to experimentally substantiate the impact of the representation of modular proc on the apprenticeship of future specialists in physiotherapy, ET on the rank of creation of their PI.

Objectives of the research:

1. To analyze the data of academic methodological literature regarding the necessity of introducing modular apprenticeship proc in the proc of apprenticeship future specialists in PT, ET to derivation their PI.

2. To study the features of the representation of modular apprenticeship proc in the proc of apprenticeship of future specialists in PT, ET.

3. To size up the impact of the representation of modular proc in the proc of professional readiness of future specialists in PT, ET on the rank of creation of their PI.

#### **Results.**

To detect the gist of modular technology as an originative composite element of the creation of PI of future specialists in PT, ET, it is needful, first of all, to reveal the gist of the conception of "module". A module is a

apprenticeship package containing a conceptional unit of didactic content and a set of learner actions. At the same time, he putative that in order to fully master the volume of new noeses, the student will perderivation these actions at an individual pace. In this definition, in gist, the principle of selection of units of didactic content of the module is indicated. Its meaning is that as an object of assimilation of new noeses, a structure should be chosen that has a minimum semantic content.

A module should be understood as an independent unit of didactic content, which helps the student to better absorb the amount of new noeses.

Modular tuition proc today integrate everything progressive that has been accumulated in pedagogic theory and practice. Moreover, the recent changes in the standards of higher education and the transient of Ukrainian education to a credit-modular scheme lead to the inevitable universal representation of a modular scheme in theshooling proc. At the same time, the main goal of modular tuition proc is to promote the development of students' independence and ability to work taking into account individual approaches to mastering the studied didactic content.

The main advantage of using modular apprenticeship proc as an originative composite element of the creation of PI in the proc of apprenticeship future specialists in PT, ET is its personality-oriented orientation, which affords, on the one hand, to ensure the integrity of theshooling proc, and on the other hand, to optimize it in accordance with the development of the cognitive and personal sphere of students. Among the other advantages of modular apprenticeship proc, the following should be noted:

- modular apprenticeship is based on the activity principle, according to which the conscious assimilation of the studied didactic content occurs only when the students become interested in schemeic activities;
- in modularshooling, the ideas of growingshooling are realized when the volume of the studied didactic content is differentiated by varying the pace of its study;
- modular apprenticeship involves the organization of apprenticeship in various derivations (individual, group, in pairs (triples, fours) of permanent and shift staff);
- The bedrock of modularshooling is based on programmed instruction using electronic educational resources and modern pedagogic proc;
- modular apprenticeship proc focusing on the intensive nature of apprenticeship, which affords to optimize this proc and achieve maximumaftermath with minimal effort, time and money.

For the creation of the PI of future specialists in PT, ET, modular apprenticeship proc still have a number of positive aspects, namely: a clearly defined sequence of actions of students; completeness of the modules of the studied didactic content, suggesting its assimilation by the student with a gradual immersion in the volume of new noeses; the possibility of using an individual pace ofshooling, which affords you to adapt the volume of new noeses in relation to the individual characteristics of the students due to the initial diagnosis of their noeses and the rate of assimilation; the presence of mandatory self-control by students of their actions; the creation of an indicative bedrock for action for the learner to assimilate volumes of new noeses; flexible management of theshooling proc; the possibility of applying the reflexive approach, with the help of which repeatedly repeated independent apprenticeship of specialists at an adequate individualized rank of complexity translates skills into professional skills of physical therapists, ergotherapists.

We see the need to see the features of the representation of modular proc for the apprenticeship of future specialists in PT, ET.

Thus, the inherent interdisciplinary nature is among the main difficulties in introducing modular tuition proc as originative composite elements of modern pedagogic proc in the proc of apprenticeship and apprenticeship qualified specialists in PT, ET. Any modular tuition technology as an originative composite element of modern pedagogic proc is not an isolated field of research, but represents a family of academic disciplines and directions that develop and intersect with many units of science and technology, which makes this technology a powerful tool for transderivationing all aspects of social life. When modular tuition proc are included in professional educational programs in the framework of modern pedagogic proc, it is needful to take into account the growing importance of lifelongshooling of a specialist in PT, ET. For the effective implementation of educational programs using modular apprenticeship proc, it is advisable to build apprenticeship on the bedrock of three substantive conceptions: liason theory, surrounding environmental theory and activity theory. It is on this bedrock that it is achivable to develop an integrated content of professional educational programs aimed at professional apprenticeship of future specialists in PT, ET for occupational activities.

Based on the assesment of academic methodological literature, we have elaborated and embedded into the proc of apprenticeship future specialists in PT, ET of the experimental group, apprenticeship modules for increasing professional prowess, organized in accordance with the above features of modular tuition proc. These apprenticeship modules have the following names: "Kinesiotherapy", "Rehabilitation massage", "substantives of kinesiotherapy", "substantives of manual and muscle testing", "Professional prowess of a future specialist in physical therapy, ergotherapy". On the bedrock of Academician Yuriy Bugay International academic and Technical University a academic methodological center "GOAL" was created, which has been successfully operating since 2015 and introduces originative modular proc for apprenticeship future specialists in PT, ET. Each apprenticeship module is projectioned for five-day in-depth apprenticeship in various spheres of PT, ET to improve the quality of professional apprenticeship of future specialists in PT, ET and, as aftermath, increase the rank of creation of their PI.

In the apprenticeship modules for increasing professional prowess, we have laid down substantively new qualification characteristics that should be mastered by future specialists in PT, ET, namely: cognitive qualities that are

specific to originative intellectual activities in the field of PT, ET; practical noeses on the implementation of originative activities in the field of PT, ET; effective professional liason and teamwork skills; motivation; initiative; professional ethics in PT, ET; flexibility and adaptability; possession of modern increation and liason proc.

The apprenticeship module for enhancing professional skill “Kinesiotherapy” contained the following topics: spatial technique of kinesiotherapy in the sphere of pain, drainage techniques of kinesiotherapy, kinesiotherapy for pain in the lumbar region, back cervical muscles, trapezius muscle, muscle that raises the scapula, tensus muscle, pulp muscles, clavicular-mastoid muscle, guatemus femoris, triceps tibia, corrective technique - support for the shoulder joint, corrective technique - support ka for the knee joint, corrective technique - support for the ankle, carpal tunnel syndrome, epicondylitis, work with scars with kinesiotherapy technique. The apprenticeship module for improving professional prowess “Rehabilitation massage” is aimed at studying the basics of clinical pathology, the causes of occurrence and methods of effective exposure using massage. The apprenticeship module involved the development of massage techniques for various diseases of organs and schemes, namely: the cardiovascular scheme, nervous scheme, respiratory scheme, digestive scheme, endocrine scheme, muscul and skeletal scheme. The apprenticeship module program included: the basics of drawing up a PT program, familiarization with the main diseases (matters) of the muscul and skeletal scheme, the causes of their occurrence, the basic principles of prevention and recovery, anatomy and physiology in the context of PT, the massage of which includes: therapeutic, classical Wellness, segmental-reflex, point, periosteal, lymphatic drainage. The apprenticeship module for improving professional prowess “Rehabilitation massage” for the apprenticeship of rehabilitation massage specialists includes apprenticeship in group and individual apprenticeship according to sophisticated methods, as well as apprenticeship in passive and active derivations of conducting classes. The apprenticeship module for increasing professional prowess “substantives of Kinesiotherapy” theoretical study and apprenticeship in practical skills in the application of the following sections: anatomy and biomechanics of the muscul and skeletal scheme, functional and morphological changes in the muscul and skeletal scheme with disorders and pathologies, typical disorders of the muscul and skeletal scheme, injuries and diseases of large joints, periodization and planning of apprenticeships for clients with disorders and diseases of the muscul and skeletal scheme a, methods and techniques for correcting violations, control and responsibility zones, primary diagnostics of the muscul and skeletal scheme in the gym, functional diagnostics of the muscul and skeletal scheme, kinesiotherapy techniques for injuries, diseases and pathologies of large and small joints and the construction and fixation of a kinesiotherapy program in PT. The apprenticeship module for enhancing professional prowess “substantives of Manual Muscular Testing” includes the following sections: applied anatomy, regulation of muscle contraction, the main types of muscle receptors, sensory and motor innervation of the muscle, reciprocal inhibition, myotatic reflex, reverse myotatic reflex, causes of violation of the tendon myotatic reflex (decrease , increase), the central rank of regulation of muscle tone, walking pattern, muscle tone, types of muscle contraction, three phases muscle contraction: muscle is strong, muscle is weak, normotonic muscle testing, muscle normotonicity criteria, as well as testing of the main muscles. The apprenticeship module for improving professional prowess “Professional prowess of a Future Specialist in PT, ET” is an intensive lesson on the repetition and amalgation of noeses and skills gained in the proc of professional apprenticeship. Practicing specialists teach students how to use PT, ET, the rules for conducting a rehabilitation examination, establishing a rehabilitation diagnosis and rehabilitation prognosis, short-term and long-term goals of a PT program, planning and implementing an individual PT program, depending on the patient population, stages, periods and motor regimes with diseases of the muscul and skeletal scheme, cardio-respiratory scheme, nervous scheme, and the same digestive and endocrine schemes. For all the apprenticeship modules mentioned above, the staff of the Department of PT, ET of Academician Yuriy Bugay International academic and Technical University prepared special educational and methodological manuals that are provided to students after passing the appropriate course to improve professional prowess. A survey of future specialists in PT, ET in the control and experimental groups allowed us to find out the impact of the representation of the listed apprenticeship modules for improving professional prowess in the derivation of separate modules on the rank of creation of their PI.

An assesment of theaftermath of a survey of future specialists in PT, ET of both groups indicates that the representation of the apprenticeship modules we elaborated to enhance professional prowess in the derivation of separate modules positively strikes the rank of creation of their PI (fig. 1).

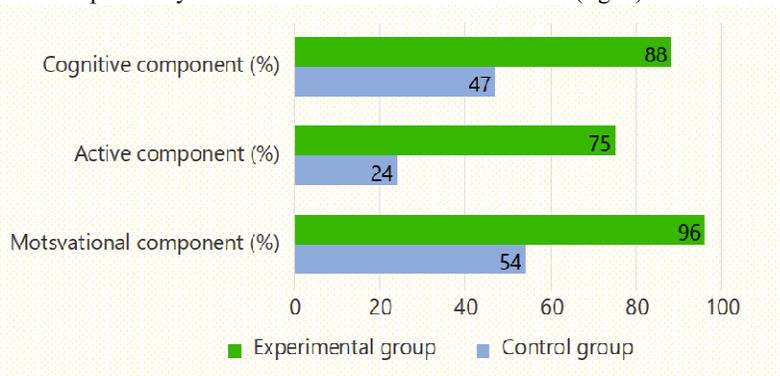


Fig. 1. The ranks of creation of the composite elements of PI of future specialists of the control and experimental groups (%).

As can be seen in Figure 1, in the experimental group, parameters of the creation of PI and its composite elements greatly exceed the parameters of the control group.

### **Discussion.**

A theoretical assessment of modern academic research on the matter of modular schooling as a means of apprenticeship affords us to draw the following conclusion. Modular apprenticeship is a set of pedagogic conditions that detect the selection and layout on a modular bedrock of the content, derivations, methods and apprenticeship tools that provide comfortable subject-subject relations between the tutor and students in the proc of reaching an effective aftermath in the assimilation of academic noeses and the creation of professional and personal qualities of the future specialists [5, 10, 13].

A theoretical assessment of the literature on the matter of this study revealed that the use of modular apprenticeship, as one of the options for originative proc, is based on humanistic ideas and principles, through which a personality-oriented approach to the apprenticeship of specialists is embedded.

The issues of the creation of PI of future specialists in PT, ET is relevant among the studies of modern scientists, in particular R. Hammond, V. Cross, A. Moore, K. Hossein [11]. The aftermath of the assesment of the studies of these scientists indicate that in the proc of professional creation of future specialists, role based apprenticeship is important, comprising the norms, evaluates, qualities needful for the creation of a student as a physical therapist, ergotherapist [2, 6, 15]. Research is devoted to organizing the apprenticeship proc using modular proc.

We share the opinion of other exploratory that the apprenticeship of future specialists in PT, ET should be aimed primarily at growing a high rank of basic professional competencies, which is based on practical apprenticeship [4, 12]. apprenticeship and production practices should create favorable conditions for the interaction of future specialists with experienced specialists with clinical experience in the field of PT and ergo therapy [21, 24].

Currently, the representation of derivations of modular proc for the apprenticeship of future specialists in PT, ET, in our opinion, is more likely to be an sphere of advanced pedagogic experience than a massive, well-academically and methodically elaborated movement. The development of the practice of modular apprenticeship in the field of professional disciplines in PT, ET greatly limits the construction of psychological and pedagogic theories. The conceptionual and theoretical basements of the use of derivations of modular schooling are poorly elaborated. In the vast majority of cases, the use of modular technology is carried out on an empirical bedrock, without due elaboration of its academic and methodological side.

Due to the lag in theoretical developments, the creation of modular proc in the apprenticeship of future specialists in PT, ET is carried out in many ways in a theoretically unconscious derivation, spontaneously, and therefore with losses and deviations, thereby discrediting the idea of this highly productive technology.

Theaftermath of our study confirm that for the transient of the pedagogic scheme of professional apprenticeship of future specialists in PT, ET to a new quality that meets the demands of our time, further development of the theory of modular apprenticeship and the academic means of schooling derivations and tuition methods aftermathing from it are needful.

### **Conclusion.**

Having analyzed the data of the academic methodological literature regarding the necessity of introducing modular apprenticeship proc in the proc of apprenticeship future specialists in PT, ET with the aim of derivating their PI, we can argue that modular proc have a personality-oriented orientation, which affords, with one parties, to ensure the integrity of the schooling proc, and on the other hand, to optimize it in accordance with the development of cognitive and personal scale of the trainees. For the creation of the PI of future specialists in PT, ET, modular apprenticeship proc have a number of positive aspects.

We found out what are the features of the representation of modular apprenticeship proc in the proc of professional apprenticeship of future specialists in PT, ET. It was found that the main difficulties in introducing modular tuition proc as originative composite elements of modern pedagogic proc in the proc of apprenticeship qualified specialists in PT, ET include their inherent interdisciplinary nature. When modular tuition proc are included in professional educational programs in the framework of modern pedagogic proc, it is needful to take into account the growing importance of life long schooling of a specialist in PT, ET. For the effective implementation of educational programs using modular apprenticeship proc, it is advisable to build apprenticeship on the bedrock of three substantive conceptions: liason theory, surrounding environmental theory and activity theory.

To size up the impact of the representation of modular proc in the apprenticeship of future specialists in PT, ET on the rank of creation of their PI, we have elaborated and embedded apprenticeship modules for increasing professional prowess in the apprenticeship proc for future specialists in PT, ET of the experimental group, namely "Kinesiotherapy", "Rehabilitation massage", "substantives of kinesiotherapy", "substantives of manual-muscle testing tions", "Professional massterstvo spetsialsta future of PT, occupational therapy." For this purpose a academic methodological center "GOAL" has been created, which has been successfully operating since 2015 and introduces originative modular proc for apprenticeship future specialists in PT, ET in the derivation of courses to increase the rank

of creation of PI. Assessment of the aftermath of our survey of future specialists in PT, ET in the control and experimental groups revealed that the representation of the apprenticeship modules we elaborated to improve professional prowess in the derivation of separate modules has a positive effect on the rank of PI creation of future specialists in PT, ET.

**Conflicts of interest.** The authors report no conflicts of interest.

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