

## **Formation of professional skills of future physicians in the process of professional training**

### **Formación de las competencias profesionales de los futuros médicos en el proceso de formación profesional**

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### **Abstract**

In the article are grounded and experimentally tested organizational-pedagogical conditions of the formation process of professionalism of future medics. The aim is to

show the ways of educational environment modernization by adapting them to modern requirements for professional activity. The methods included an experiment – the updating of preparation of the future medical workers by the introduction of innovative educational technologies and interactive methods of training. The results showed an improvement of pedagogical skill of teachers of medical institutions using scientific and methodical work; activation of formation of practical abilities and skills of medical workers through simulation modeling in quasi-professional activity.

**Keywords:** professional excellence, future physicians, professional training, means of scientific and methodological work, organizational and pedagogical conditions.

## Resumen

En el artículo se fundamentan y prueban experimentalmente las condiciones organizativas-pedagógicas del proceso de formación del profesionalismo de los futuros médicos. Los métodos incluyeron un experimento: la actualización de la preparación de los futuros trabajadores médicos mediante la introducción de tecnologías educativas innovadoras y métodos interactivos de capacitación. Los resultados mostraron una mejora de la habilidad pedagógica de los docentes de las instituciones médicas mediante el trabajo científico y metódico; activación de la formación de habilidades prácticas y habilidades de los trabajadores médicos a través de modelos de simulación en la actividad cuasi-profesional.

**Palabras clave:** excelencia profesional, futuros médicos, formación profesional, medios de trabajo científico y metodológico, condiciones organizativas y pedagógicas.

## 1. Introduction

The formation of professional competence in the context of the psychology of personal development of the future doctor requires substantiation of the integrated model and improvement of the content, structure, forms and methods of professional training of medical staff to perform medical activities, determination of psychological and pedagogical conditions for increasing professional competence. Higher professional education changes accordingly to the requirements of modern society and the labor market, which need the most adapted, efficient, competitive specialists. The problem formation of the specialist's professional competence in any field is in the field of view of many disciplines (Lugovyi, 2009, p.1).

The result of assimilation of the educational material depends on the effectiveness of the interaction of the participants in the pedagogical process, the ultimate goal of which is the acquisition of competencies that, in the independent professional activity of a specialist, ensure further self-improvement. The result depends on the pedagogical technology, but it is clear that the choice of priority pedagogical technology depends on the field of education. This especially applies to medical education, as it is characterized by the

specifics of teaching, which is a combination of theoretical and practical components of the educational process (Zakusylova, 2016, p. 407-410).

As noted in the Law of Ukraine “Fundamentals of Health Care Legislation”, the professional training of future medics should be focused not only on the formation of medical competence but also the readiness of graduates of medical institutions to participate in ensuring the harmonious development of physical and spiritual strength, high work capacity. The long-term active life of citizens, elimination of factors harmful to their health.

As the student begins with the teacher, the medical worker begins with the teacher-mentor, especially in clinical disciplines. The success of productive professional activity of future medical workers largely depends on the teacher's personality and skills. Finding ways to improve the pedagogical skills of teachers of medical institutions is an urgent problem because a teacher-innovator is able to ensure the effectiveness and efficiency of the educational professionally-oriented process (Martyniuk, O. (2019). Nowadays in the world, the profession of a medical worker, in particular a physician, acquires new heights, new development.

Today, unfortunately, we have to state that many teachers of medical education institutions are focused mainly on the traditional approach, but now we also need a different attitude towards the educational process. It is an organic combination of classical and innovative methods, introduction of innovative forms and methods of teaching, new educational and information technologies to attract students' independence, initiative, activity in learning. Before such skills can be discovered, taught, and instilled in students, it is necessary to develop them in the teachers themselves, including those who work in medical institutions.

## 2. Literature review

Modern society considers a specialist not only as a person who possesses knowledge, abilities and skills in the professional sphere, but also as a person who is able to act effectively in complex, non-standard situations, make decisions independently, develop creatively and improve oneself, practice a tolerant attitude towards others, know how to communicate with people. These and others are professionally important properties and personal qualities determine the specialist's professional competence. According to (Tsekhmister, et al., 2021c), professional competence is the possession of a system of knowledge, abilities and skills, sufficient for the successful solution of the range of work tasks that corresponds to the current and expected functional duties in the near future employee. Taking into account the specifics of physician's professional activity, his professional competence is based on key skills, namely: professional, communicative, research and scientific.

Currently, the quality of training of a graduate of a medical university depends on many factors. These are the professionalism of teachers, the conditions and security of the

educational process, the composition of elements in the educational process, the motivation of learning, modern learning technologies, knowledge control systems, the motivation of pedagogical work, the organization of educational and research work of intern doctors as an integral part educational process, performance of individual tasks and scientific projects with elements of research, participation in the modernization of the educational and laboratory base medical university, methodological support educational process. In this context Griffith University (2019) could be taken for an example, one created there the first human health department based on innovative curricula to improve interdisciplinary teaching and research in Australia. Unfortunately, not all the countries have this possibility. (Jibladze, 2017), argues that the development of institutional transformation has been suspended and improvements in higher education in post-revolutionary Georgia are lacking. Koshy (2018) briefly states student participation in higher education in Australia from 2012-2017 to create the National Center for Student Equity in Higher Education. Kottmann et al., (2016) in their writings addresses the challenges of creating a culture to enhance educational excellence. The Australian Government Department of Health in the WSIPP CBA projects... (2018), (Wang & Sun, 2018) conducted a cost-benefit analysis of models of care for health professionals (qualitative and quantitative dimensions of health professional education) (p. 196-200). Kremen (2009) highlights the President of the Academy of Pedagogical Sciences of Ukraine's own Introductory Statement on the implementation of the European experience of the competence approach in higher education in Ukraine. Gorb (2018) proposes the competence approach in higher education according to the standards and recommendations to ensure its quality in the European Higher Education Area. Martyniuk (2019) analyzes the European concept of a competency-based approach in higher education and the problems of implementation in Ukraine. Mckenna et al., (2019) analyzes the field of practice and workforce challenges faced by the Australian health workforce from a quality change perspective (p. 80-85). Mitchell (2019) argues that hundreds of Washington State health care workers are leaving for the UK to find jobs under the Department of Health agreement. The National Council of State Boards of Nursing develops NCLEX final exams for them to highlight the objectivity of their knowledge (Heckman, Holland, Makino, Pinto & Rosales-Rueda, (2017). Specific fact sheets are used to use common names and nomenclatures in the competency aspect of physician competency. Scherer, Herrick, & Leeseberg Stamler (2019) have experience teaching immigrant graduates of an entry-level baccalaureate nursing program about hermeneutic phenomenological research in nursing practice (p. 185-191). Semenikhina et. al, (2020) created open-ended digital educational resources in the area of innovative technology in the aspect of quantitative analysis and modes of learning to enhance nursing skills. A list of IQ skills according to the nursing reference committee standard is presented. The Curtin University undergraduate nursing education industry curriculum guide is also created (The good universities guide, 2019). A list of educational and professional settings at the University of Queensland for prospective pre-med baccalaureate level applicants and students is proposed Viznyuk (2015) offers the newest approach in the professional organization of the mentor teacher's personality in a

sociological context regarding the problem and prospects of forming a national humanities-technical elite (Heckman, Holland, Makino, Pinto & Rosales-Rueda, (2017).

In this context the goal of the article is to propose possible tools of professional skills formation of future medics in the process of professional training. The main tasks of the study are to develop scientific and methodological support and a model for the formation of professionalism of future medics in the process of professional training and experimentally verify their effectiveness; to formulate a hypothesis of the research.

One should mention that the level of modern professional training does not contribute to the development of professional mastery within the framework of classical approaches, which does not exhaust all aspects of the problem posed and requires special additional techniques (Gorb, V. G. (2018). Thus, it is necessary to create methodological support for the exchange of best pedagogical practices of medical HEI teachers; to conduct thematic pedagogical councils on the development and enrichment of the skills of teachers, including - clinicians; to implement empowerment policies; to develop international cooperation on the implementation of innovative technologies to improve the pedagogical skills of clinical teachers; to create interactive networks, ensure the academic mobility of students.

### 3. Methods

A scientific and methodological seminar for the teachers at the medical university, a questionnaire survey was conducted, which showed positive feedback of mentor teachers, who expressed their opinion on the effectiveness of the implementation of innovative pedagogical technologies in the practice of professional medical training.

The plan and features of the organization of the pedagogical experiment on the formation of professionalism of future medical workers are also reflected; a comparative analysis of the results of the control and the control stages of the pedagogical experiment regarding the effectiveness of the proposed model, Tsekhmister et.al. (2021a) certain organizational and pedagogical conditions and scientific and methodological support of the formation of professionalism of future medics in the process of professional training is carried out.

The pedagogical experiment was carried out based on D.K. Zabolotny Vinnytsia Medical College and Vinnytsia Pirogov National Medical University. Experimental-experimental work continued throughout 2019-2021 specialty 223 "Nursing" (until April 29, 2019 - knowledge area 1201 "Medicine" specialty 6.120101 "Nursing", 222 "Medical Psychology") and 57 teachers. The essence of the experiment was a special organization of the educational process by the developed organizational and pedagogical conditions of the formation of professionalism of future medical workers. The study was conducted in the natural conditions of the educational process of institutions with the provision of general conditions of participation in the experiment: the same time and duration of the training, the same measuring materials, allowing to diagnose the level of formation of

professionalism of future health workers due to the introduction of formative activities in the process of pedagogical experiment.

At the ascertaining stage of the pedagogical experiment to find out the degree of knowledge of professionalism, testing was carried out according to the methodology determining the life values of medical professionals. To find out the level of formation of professionalism components of future employees the following trainings were conducted:

- 1) development of clinical and creative thinking (exercises “Clinical Situations”, “Associations”, “Causes and Consequences”);
- 2) teamwork (student projects, presentations, discussions, consultations);
- 3) creative problem solving (exercises “Positive Predictions,” “Healing with an Empathic Attitude”);
- 4) creative components of nursing professionalism (exercises “Dialogue”, “Make the Right Decision”). The main means of assessing the formation of the components of professionalism was to determine the level of students' success in mastering the content of professionally oriented disciplines.

To measure the indicators of motivational-value component of professionalism of future medical workers the diagnostics of motivation of professional activity (methodology of K. Zamfir in modification of A. Rean), (Wang, 2022) and motivation of success and avoidance of failures (methodology of T. Ehlers) were conducted. For the formation of this component were directed trainings on the development of professional speech; dispute “Medical nurse: profession or vocation?”; conference “Life under the sign of mercy” (dedicated to Sister of Mercy F. Nightingale); round table “To be happy with the happiness of others” (dedicated to the professional feat of doctor N. I. Pirogov).

To measure the indicators of cognitive-professional component of professionalism of future medical workers a questionnaire to determine the types of thinking and level of creativity (method of J. Bruner adapted by us) and diagnostics of self-development needs realization (method of E. Rogov) were applied. For the formation of cognitive-professional component of professionalism of future medical workers, the following was introduced: special course “Fundamentals of professionalism of future medical specialist”; innovative educational technologies (formation of clinical thinking, creation of success situation, medical professional speech); interactive, situational, research, heuristic, diagnostic, project-based teaching methods; method of clinical scenarios, etc.

To measure the indicators of operational and activity component of professionalism of future medics we carried out diagnostics of strategy in a conflict situation (K. Thomas methodology), (Thomas, Ellis, Konrad, Holzer, & Morrissey, 2009), test on revealing the level of communicability of medics (L. Svitich methodology, modified by us), (Svitich, Smirnova, Shiriaeva, & Shkondin, 2016), test “Assessment of communicative and organizational abilities” (B. Fedoryshyn methodology), (Kozyr, Fedoryshyn, Khoruzha, Chyncheva, & Gusachenko, 2021).

For the formation of operational-activity component of professionalism of future medical workers was aimed at the implementation of: special course “Mastery and Karpov professional inspiration of medics”; simulation modeling in practical classes using training moulages; quasi-professional activity; patient care and performance of pre-hospital procedures and manipulations in the conditions of the hospital in medical treatment facilities; coaching based on medical institutions; practical seminars: “Mastery of Medical Communication”, “Professional Ethics and Nursing Deontology”. The results of medical professionalism competition among students of graduate groups of “Nursing” specialty (on nursing in therapy and basics of nursing) “Best in Specialty” - on assessment of practical skills of future physicians were taken into account.

Measurement of indicators of performance-reflexive component of professionalism of future medical workers was carried out according to the method of diagnostics of personality reflexivity (author: A. Karpov) (Karpov, 2016) and according to the method of L. Stoliarenko (adapted by us) (Stoliarenko, & Stoliarenko, 2019), self-assessment of future medical workers. For the formation of performance-reflexive component of professionalism competitions of pre-hospital skill; filling by future doctors of the diary of personal and professional growth; debates, discussions, councils, master-classes.

#### 4. Results

The model of formation of future medics' professionalism in the process of professional training includes four stages (motivational-adaptation, educational-formative, organizational-active, professional-directed), organizational-pedagogical conditions, and scientific-methodical support of the studied process (educational technologies, methods and forms of educational activities and extracurricular work), components, criteria, levels of formation of future medics' professionalism, crossing out the pedagogical conditions of development of future specialists' professionalism formation as a result of the implementation of formative activities in the process of the pedagogical experiment (organizational-pedagogical condition). The model outlines: scientific approaches (competency-based, systemic, culturological, activity-based, axiological, personality-oriented, areological) and principles (humanism, interdisciplinary integration, visualization, individualization, practical orientation) of forming professionalism of future medical workers.

Seminar topics “Pedagogical technologies of formation of professionalism bases of future medical workers”: “Pedagogical technology as a content technique for realization of the modern educational process”; “Technological approach to the formation of professionalism of future medical workers: theory and practice”; “Features of introduction in the educational process of the medical institution of new pedagogical technologies, active forms and methods of teaching”; “Preliminary design of educational process with the help of pedagogical”.

After the scientific and methodological seminar for the teachers at the medical university, a questionnaire survey was conducted, which showed positive feedback of mentor

teachers, who expressed their opinion on the effectiveness of the implementation of innovative pedagogical technologies in the practice of professional medical training.

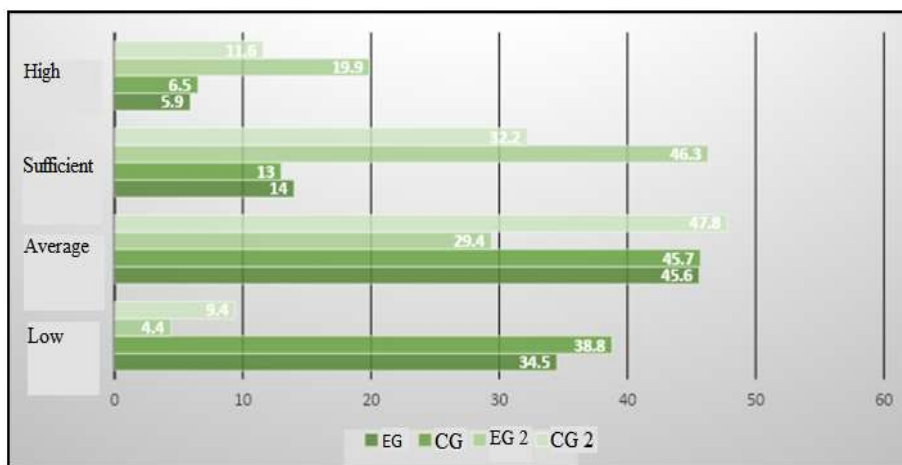
The plan and features of the organization of the pedagogical experiment on the formation of professionalism of future medical workers are also reflected; a comparative analysis of the results of the control and the control stages of the pedagogical experiment regarding the effectiveness of the proposed model, Tsekhmister et.al. (2021a) certain organizational and pedagogical conditions and scientific and methodological support of the formation of professionalism of future medics in the process of professional training is carried out.

The positive dynamics in determining the levels of formation of professionalism of future medics due to the introduction of formative activities in the process of the pedagogical experiment was established (Table 1, Fig. 1).

**Table 1**

*Results of the formation of professionalism of future physicians.*

Levels	Stages of the pedagogical experiment			
	2		3	
	Contesting stage		Forming stage	
	EG (persons; %)	CG (persons; %)	EG (persons; %)	CG (persons; %)
<b>Low</b>	47 (34,5)	48 (38,8)	6 (4,4)	13 (9,4)
<b>Middle</b>	62 (45,6)	63 (45,7)	40 (29,4)	66 (47,8)
<b>Sufficient</b>	19 (14,0)	18 (13,0)	63 (46,3)	43 (31,2)
<b>High</b>	8 (5,9)	9 (6,5)	27 (19,9)	16 (11,6)
<b>Total</b>	136 (100,0)	138 (100,0)	136 (100,0)	138 (100,0)



**Fig. 1.** The results of the implementation of formative activities in the course of the pedagogical experiment



Thus, the use of diagnostic complex confirmed that as a result of the pedagogical experiment there were quantitative changes in the indicators reflecting significant qualitative changes in the consciousness and behavior of future nurses, which testified to significant positive dynamics in the formation of their professionalism and readiness for professional activity in the field of medicine (Tsekhmister et al., 2021b). This was statistically confirmed by the quantitative indicators of the experimental groups: the number of future nurses with a high level of professionalism formation increased from 5.9% to 19.9% (the increase was 14.0%); the index of sufficient level of professionalism formation of future teachers increased by 32.3% (from 14% to 46.3%); the number of students with a low level of professionalism formation decreased by 30.1% (from 34.5% to 4.4%). The rates of changes in the corresponding indicators in the control groups are much lower, which indicates the effectiveness of the formative activities.

The quantitative indexes of the experimental groups became the statistical confirmation: the number of the future medical workers with a high level of formation of professionalism increased from 5,9% to 19,9% (the increase made 14,0%); the index of sufficient level of formation of professionalism of the future teachers increased by 32,3% (from 14% to 46,3%); the number of students with a low level of formation of professionalism decreased by 30,1% (from 34,5% to 4,4%). The rates of changes in the corresponding indicators in the control groups are much lower, which indicates the effectiveness of the formative activities. Comparison of the EG and CG results using statistical hypothesis testing methods (Pearson and Kolmogorov-Smirnov), (Jantschi, & Bolboaca, 2009), allowed us to establish significant differences between them at the formative stage of the experiment, which is due to the provision of organizational and pedagogical conditions.

It is proved that the increase of efficiency of the formation of professionalism of future medics in the process of professional training is promoted by organizational and pedagogical conditions: modernization of educational environment by adapting it to modern requirements for professional activity of medical workers according to world standards; updating the training of future medics by implementing innovative educational technologies and interactive teaching methods; improvement of pedagogical skills of pre-service teachers. The model of future nurses' professionalism formation in the process of professional training, which includes the following stages: motivational-adaptational, educational-formative, organizational-active, professionally directed, has been developed.

Consequently, the objectives of the study have been achieved, and the expected results of the pedagogical experiment confirmed the validity of the hypothesis and give grounds for the formulation of general conclusions.

## 5. Discussion

The current state of professional training of future medical workers in Ukraine, European states, the United States, and Canada determines the prospects for solving the problem of forming professionalism of future medical workers. Professional mastery, according to

Viznyuk (2015), is a good command of the basics of the profession, the successful application of techniques known in science and practice. Mastery means a teacher's good knowledge of his or her subject matter, achieving consistently high results in learning, mainly in the knowledge of education applicants. Every teacher can become a master of his or her profession if he or she wants to and persists.

Since the educational process is a two-way process, close cooperation and friendly relations between students and faculty is a prerequisite for the success and quality of the educational process. Very relevant in this context is Viznyuk's (2015) opinion that the subject-subject relationship between a teacher and a student provides the need for a special "technology of touching" the student's personality and gives the pedagogical process the features that unite pedagogy and art. One agrees that the teacher's code of professional ethics reflects ethical standards and values, ensures stability and quality of the educational process. Ethical standards in the education system are impossible without the rule of law, democratic procedures, and standards, which should certainly be respected and reflected in the International Code. The main objective of the Code of Professional Ethics is to promote and maintain high ethical standards of professional activity, conduct, and relations in the academic community. It defines the principles of activity, standards of professional conduct, and business ethics of a teacher in his relations with his colleagues, students, and governing bodies of an educational establishment.

The pedagogical excellence of the teacher should be manifested constantly: during classes (both lectures and practical, seminar, laboratory) and in the process of extracurricular work (Androsovykh, Rudyk, Melnyk, Kovalova, & Yakymova, 2021). The teacher by his own example should show the example of compliance with the moral code (Elene, 2017, p. 7-27).

The integral characteristic of professional activity of any representative of scientific and pedagogical staff of medical universities is that both are called to fulfill the social order of the state for training a highly educated, comprehensively developed, qualified, competitive medical worker by normative industry documents: programs and educational and qualification features (Zakusylova, 2016).

However, it should be noted that in recent years there has been a change in society's perception of morality, a loss of capacity for emotional empathy, a "mechanistic" attitude toward patients. To make sure of this, you need to visit any state outpatient clinic or hospital, at least in most of them you can observe phenomena of low emotional sympathy and other phenomena. If for medical workers with a considerable period of work it can be explained by "burnout" syndrome or disappointment in social guarantees of the state, then for young specialists, who have just started their work, the roots of such behavior should be looked for in the system of professional medical education.

Despite the development of the scientific-theoretical basis of professional education of future specialists in the specialty “Nursing”, the industry standards still do not pay enough attention to the formation of professionalism of future medical workers. Today, the professional functions of medical professionals are somewhat expanding, which requires new approaches to their professional training.

The reform of the health care system in Ukraine, the transition to the principles of primary health care to the population and budget-insurance medicine, the establishment of market relations, the development of scientific and professional relations with other states, require the improvement of the existing system of training medical workers at the level of world standards. The requirements for the quality of specialists' training increase, prompting the improvement of teaching methods and the technical support of visibility.

In a number of well-known medical educational institutions of Ukraine in Vinnytsia Medical College. The number of famous medical educational institutions in Ukraine. The creative work of all the members of the teaching staff and auxiliary personnel as well as historical traditions allowed to create a good educational and material and scientific base for training high-quality specialists for practical medicine. During the 100 years of the educational institutions' existence, the managerial staff and teaching staff changed, but they tried to improve conditions for training, development of each personality in getting the most humane medical profession for thousands of students and modern graduates, to adapt them to new requirements of modern post-modern society.

Separate attention to the formation of the listed scientific achievements should be paid, in our opinion, at the third educational-scientific level of higher education, which is characterized by a combination of educational and research work in the training process. Scientific work at this stage is a subject of activity and requires new approaches to its organization. Thus, it is important to familiarize graduate students with the basics of working with Google Scholar, the international multidisciplinary abstracting platform Web of Science, Mendeley program, GenBank database, the world archive of nucleic acid sequences Protein Data Bank, electronic search system PubMed, database. The need to use the above resources is due to the need to find information to prepare for practical exercises, work on individual tasks. Awareness of the importance of using these resources in training is transformed into a sustainable motivation, and then conviction through their use for their own scientific search.

## **6. Conclusions**

The professionalism of medical professionals should be understood as an integrative attribute that combines a high level of professional competence and technique of pre-hospital procedures and manipulations; culture of communication, responsibility, reliability, tolerance, empathy; the ability to navigate and perceive decisions in extreme clinical situations.

The criteria of the formation of the components of medical professionalism have been determined: motivational-valuable (self-motivation of professionally-oriented learning activities; formation of internal motives for achieving success in future nursing activities; availability of a system of vital and professional values of a medical worker); cognitive-professional (formed a system of theoretical and technological knowledge of nursing; knowledge of treatment methods and the role of medical workers in conducting them; willingness to optimize

Thus, the application of diagnostic complex confirmed that as a result of the pedagogical experiment there were quantitative changes in the indicators reflecting significant qualitative transformations in the consciousness and behavior of future medical workers, which testified to a significant positive dynamic of the formation of their professionalism and readiness for professional activity in the field of medicine.

Thus, the obtained results confirm the hypothesis of the study, however, it does not exhaust all aspects of the problem. The subject of further scientific research may be the theoretical and methodological foundations of pedagogical training of clinical teachers in medical colleges and institutions of higher education.

## 7. Bibliographic references

- Androsovykh, K. A., Rudyk, Y. M., Melnyk, M. Y., Kovalova, O. A., & Yakymova, I. O. (2021). Psychological Guidance of the Socialisation Process of Gifted Students using Information and Communications Technology Means. *Journal of Intellectual Disability-Diagnosis and Treatment*, 9(2), 236-246. <https://lifescienceglobal.com/pms/index.php/jiddt/article/view/7554>
- Campos, O., & Méndez, G. (2013). La enseñanza del emprendimiento a partir del aprendizaje basado en problemas (ABP) en la educación media técnica. *Amazonia Investiga*, 2(2), 46-70. Retrieved from <https://amazoniainvestiga.info/index.php/amazonia/article/view/639>
- Elene, J. (2017). Reforms for the external legitimacy in the post Rose Revolution Georgia. Case of university autonomy. *Hungarian Educational Research Journal*, 1(2017), 7–27. 10.14413/herj.2017.01.02.
- Gorb, V. G. (2018). Competence approach in higher education: problems and solutions. *Management Issues*, 1(6), 216–223. <https://doi.org/10.22394/2304-3369-2018-6-216-223>
- Griffith University (2019). First people's health unit. Retrieved June 28, 2022, from <https://www.griffith.edu.au/griffith-health/first-peoples-health-unit>
- Heckman, J. J., Holland, M. L., Makino, K. K., Pinto, R., & Rosales-Rueda, M. (2017). An analysis of the Memphis nurse-family partnership program (No. w23610). National Bureau of Economic Research. <https://www.nber.org/papers/w23610>
- Jantschi, L., & Bolboaca, S. D. (2009). Distribution fitting 2. pearson-fisher, kolmogorov-smirnov, anderson-darling, wilks-shapiro, cramer-von-misses and jarque-bera statistics. arXiv preprint arXiv:0907.2832. <https://arxiv.org/abs/0907.2832>

- Jibladze, E. (2017). Reforms for the external legitimacy in the post Rose Revolution Georgia. Case of university autonomy. *HERJ Hungarian Educational Research Journal*, 7(1), 7-27. <https://www.ceeol.com/search/article-detail?id=547044>
- Karpov, A. O. (2016). Generative learning in research education for the knowledge society. *International Electronic Journal of Mathematics Education*, 11(6), 1621-1633. <https://www.iejme.com/article/generative-learning-in-research-education-for-the-knowledge-society>
- Koshy, P. (13 Dec. 2018). Briefing Note — Equity Student Participation in Australian Higher Education: 2012 to 2017. NCSEHE. Retrieved June 28, 2022, from <https://www.ncsehe.edu.au/briefing-note-equity-student-participation-in-australian-higher-education-2012-to-2017/>
- Kottmann, A. et al. (Oct. 2016). How Can One Create a Culture for Quality Enhancement? Center for Higher Education Policy Studies (CHEPS), University of Twente, the Netherlands and Center for Higher Education Governance Ghent (CHEGG), Ghent University, Belgium Oct. 2016. Retrieved June 28, 2022, from [https://www.nokut.no/globalassets/nokut/rapporter/ua/2016/how\\_can\\_one\\_create\\_a\\_culture\\_for\\_quality\\_enhancement.pdf](https://www.nokut.no/globalassets/nokut/rapporter/ua/2016/how_can_one_create_a_culture_for_quality_enhancement.pdf)
- Kozyr, A. V., Fedoryshyn, V. I., Khoruzha, O. V., Chyncheva, L. V., & Gusachenko, O. P. (2021). The Competence Approach as a Methodological Tool for Shaping the Professional Competence of Future Music Teachers. *Journal of Higher Education Theory and Practice*, 21(14), 67-73 <https://www.proquest.com/openview/bbdf3f3aa048fdf98ba1cd9f3516a696/1?pq-origsite=gscholar&cbl=766331>
- Kremen, V. (2009). Introductory speech by the President of the Academy of Pedagogical Sciences of Ukraine. Implementation of the European experience of the competence approach in the higher school of Ukraine. Kyiv: Pedagogical Thought. Retrieved June 28, 2022, from <https://naps.gov.ua/ua/structure/leadership/president/>
- Lugovyi, V. I. (2009). Competence and competence: conceptual and terminological discourse. *Higher Education of Ukraine*, (3). <https://rm.coe.int/language-education-policy-profile-ukraine-country-report/16807b3b4b>
- Martyniuk, O. (2019). Principle of differentiated learning and its implementation in modern school of Germany by means of textbook. *Problems of Modern Textbook*, 22, 145–152. <https://doi.org/10.32405/2411-1309-2019-22-145-152>
- McKenna, L., Wood, P., Williams, A., O'Connor, M., Moss, C., Griffiths, D., Della, P., Endacott, R., & Cross, W. (2019). Scope of practice and workforce issues confronting Australian Enrolled Nurses: A qualitative analysis. *Collegian (Royal College of Nursing, Australia)*, 26(1), 80–85. <https://doi.org/10.1016/j.colegn.2018.04.001>
- Mitchell, R. (24 Mar. 2019). Hundreds of WA nurses go to Britain to find work under Health Department deal. *The West Australian*. Retrieved June 28, 2022, from <https://bit.ly/3nqYfgl>. Accessed: 8 Mar. 2022.
- Scherer, M. L., Herrick, L. M., & Leeseberg Stamler, L. (2019). The learning experiences of immigrants who are graduates of an entry-level baccalaureate nursing program:

- A hermeneutic phenomenological study. *Nurse Education in Practice*, 34, 185–191. <https://doi.org/10.1016/j.nepr.2018.12.002>
- Semenikhina, O. et al. (2020). Open digital educational resources in the field of IT: quantitative analysis. *Information Technologies and Learning Tools*, 75 (1), 331–348. <https://doi.org/10.33407/itlt.v75i1.3114>
- Stoliarenko, O., & Stoliarenko, O. (2019). *A Student-centered Educational Approach Scientific Reasoning and Empirical Study at the Ukrainian Universities*. Publishing House “Baltija Publishing”.
- Svitich, L. G., Smirnova, O. V., Shiriaeva, A. A., & Shkondin, M. V. (2016). Characteristics of the content of local Russian newspapers. *World of Media. Journal of Russian Media and Journalism Studies*, (6), 13-60. <https://www.elibrary.ru/item.asp?id=25957918>
- The good universities guide (2019). Curtin University. The good universities guide. Bachelor of science nursing, Retrieved June 28, 2022, from <https://www.gooduniversitiesguide.com.au/course-provider/curtin-university/bachelor-of-science-nursing>
- Thomas, K. C., Ellis, A. R., Konrad, T. R., Holzer, C. E., & Morrissey, J. P. (2009). County-level estimates of mental health professional shortage in the United States. *Psychiatric services*, 60(10), 1323-1328. <https://doi.org/10.1176/ps.2009.60.10.1323>
- Tsekhmister, V. Y., Konovalova, T., & Tsekhmister, Y. B. (2021b). Distance learning technologies in online and mixed learning in pre-professional education of medical lyceum students. *Journal Of Advanced Pharmacy Education and Research*, 11(4), 127-135. <https://doi.org/10.51847/ZLy2idWa4f>
- Tsekhmister, Y. V., Konovalova, T., Tsekhmister, B. Y., Agrawal, A., & Ghosh, D. (2021a). Evaluation of Virtual Reality Technology and Online Teaching System for Medical Students in Ukraine During COVID-19 Pandemic. *International Journal of Emerging Technologies in Learning (iJET)*, 16(23), pp. 127–139. <https://doi.org/10.3991/ijet.v16i23.26099>
- Tsekhmister, Y., Konovalova, T., Tsekhmister, B., Agrawal, A., & Ghosh, D. (2021c). Evaluation of virtual reality technology and online teaching system for medical students in Ukraine during COVID-19 pandemic. *International Journal of Emerging Technologies in Learning (iJET)*, 16(23), 127-139. <https://www.learntechlib.org/p/220596/>
- Viznyuk, I. (2015). Professional organization of the teacher's personality in the sociological context. *Problems and prospects of formation of the national humanitarian and technical elite*, 44(48), 188-193. Retrieved June 28, 2022, from <http://repository.kpi.kharkov.ua/handle/KhPI-Press/21764>
- Wang, J., & Sun, J. (2018). Cost Benefit Analysis of First 5 Kern-Funded Programs. Online Submission. <https://eric.ed.gov/?id=ED584348>
- Wang, Y. (2022). Vocal education in higher educational institutions in China: student motivation and creativity. *Interactive Learning Environments*, 1-11. <https://doi.org/10.1080/10494820.2022.2098778>
- Zakusylova, T. (2016). Pedagogical conditions of formation foundations of professionalism in future nurses in the process of professional training. *Young scientist*, 7(34), 407-410, Retrieved June 28, 2022, from [http://nbuv.gov.ua/UJRN/molv\\_2016\\_7\\_98](http://nbuv.gov.ua/UJRN/molv_2016_7_98)