

# Developing Professional Competency in First Aid in Future Coaches in Ukraine

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**Abstract:** The article deals with theoretical and methodical aspects of developing professional competency in first aid in future coaches of Ukraine. It aims to theoretically justify and experimentally verify the methodology for developing professional competency in first aid in future coaches based on simulation learning. The research hypothesis assumes that the level of professional competency in first aid in future coaches will increase if the author's methodology has been implemented in their training based on simulation learning and taking into account neurophysiological factors. The article proves that simulation learning, along with the use of such approaches as "four steps", "positive criticism" and "continuous assessment" in the framework of such components of professional competency as motivation and values, knowledge and practice, personal and psychological aspects, organization and communication, leads to positive changes in the development of professional competence in first aid in future coaches. The international relevance of the article is as follows: for the first time in the post-Soviet space, it has been suggested to improve theoretical and methodological aspects of developing professional competency in first aid in future coaches, taking into account neurophysiological factors and current trends; the author's methodology for developing competency in first aid on the example of Ukraine, which is available for the countries with ongoing reforms education, has been presented.

**Keywords:** *situation of choice, neurophysiological factors, subjectivity, simulation learning, Peyton's 4-steps-approach, positive criticism.*

**How to cite:** Omelchuk, M., Maksymchuk, B., Ihnatenko, S., Navolskyi, N., Kitsak, T., Vitkovskyi, O., Ostrovska, N., Vykhruhch, A., Lukashchuk, M., Lukashchuk, I., Demianchuk, M., Khmeliar, I., Kushnir, L., & Maksymchuk, I. (2022). Developing Professional Competency in First Aid in Future Coaches in Ukraine. *Revista Românească pentru Educație Multidimensională*, 14(3), 392-411. <https://doi.org/10.18662/rrem/14.3/615>

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## Introduction

Professional competency in first aid implies readiness and ability to identify threats to the life of a patient or victim, call an ambulance timely and provide first aid (stop bleeding, put on a bandage or provide medicines within the limits of one's knowledge). Concerning restricted blood flow, one can provide BSL and apply AED.

Recently, the system of medical education in different countries has been focusing on the final result. The latter lies in training specialists with diverse skills and a broad outlook, who can integrate their work into the activities of all health workers and other specialists and make effective professional decisions.

In Ukraine, such training seems to be rather ineffective. Indeed, not all specialists who work with people receive such training. Occasionally, this training is only theoretical, which leads to incompetence, confusion, negative effects and, worst of all, fatal consequences for victims.

An emergency care course, including BLS and skills in using AED, is compulsory for all students in higher education institutions in Poland. It is also quite popular among ordinary citizens. According to certain reports, more than 25% of the adult population in Poland have been trained in BLS using AED (Andres, 2004). This particular issue is extremely relevant since that the main cause of death in Europe, and Ukraine in particular, is sudden cardiac arrest, often being a sign of coronary heart disease and other diseases of the circulatory system. Importantly, ventricular fibrillation may be the primary mechanism of cardiac arrest in 25-50% of cases (Perkins et al., 2015, pp. 81–99). Several European studies on BLS show some increase in cases when a person with cardiac arrest was saved by random witnesses (non-professional rescuers) using AED in the prehospital stage. Thus, depending on the conditions, the effectiveness of defibrillation in the first 3-5 minutes varies from 50 to 70%. If one hesitates with BSL and defibrillation, such inaction significantly impairs the prognosis and effectiveness of BSL (Bakhmat et al., 2019; Bezliudnyi et al., 2019; Halaidiuk et al., 2018; Maksymchuk et al., 2018; Ringh et al., 2015).

The study on a pedagogical theory about the role of a competency-based approach in professional training of physical education specialists demonstrates the effectiveness of learning with innovative technologies and active learning methods (Bakhmat et al., 2019; Bezliudnyi et al., 2019; Halaidiuk et al., 2018; Maksymchuk et al., 2018). However, the implementation of a personality-oriented approach in the development of professional competency in first aid in future coaches in Ukraine has not

been properly studied yet. It is crucial to conduct research on neurophysiological parameters of simulated training in first aid that covers professional choices and actions during an emergency.

Neuroscientists suggest that one should consider methodological problems related to developing professional competency in first aid in the context of actor-centric aspects of personal safety, emotional stability, as well as the ability to make decisions in unusual situations (Kosholap et al., 2021; Demchenko, 2021; Prots, 2021). In the neuropsychological sense, such situations are considered uncertain events (Kahneman & Tversky, 2000). On the other hand, quite noteworthy are those theories that consider safety, first aid, and avoidance of risks with the help of some elements of socio-professional adaptation in the globalization era (Stefanov et al., 2018).

As noted by Léger et al. (2014), laboratory measurements of heart rate variability, electrodermal activity (EDA) and other neurophysiological parameters during simulation learning show that the so-called “cognitive absorption” is significantly related to the training outcome. Teachers can observe psychological states that contribute to simulated-based training only due to psychological and pedagogical methods.

Neurophysiologists have realized the close correlation between simulation technologies and biological, chemical and physiological dynamics of the body. According to Cardoza (2011, p. 1), “the awareness of interconnections between brain circuitry and how biochemical reactions affect cognition and learning can foster the development of simulated patient care scenarios that enhance learning dynamics”.

The relevance of the article is also determined by the negative results of propaedeutic monitoring of future coaches’ readiness to provide first aid. The survey of 386 coaches shows that most of them (95.9%) do not have the knowledge and skills required to provide BSL. At the same time, 60.4% of them choose incorrect tactics in the case of restricted blood flow. Only 11.8% of them can determine the cause of the critical condition and choose the appropriate treatment. Nevertheless, future coaches are rather motivated to learn how to provide first aid. The relevance of the topic consists in the fact that several contradictions are hindering the effective development of professional competency in first aid. They are between the need for effective first aid and a low level of professional training; the need to establish effective communication in cases of emergency, in particular during cardiopulmonary resuscitation, and the lack of appropriate skills to adapt to stressful situations; the need to develop professional competency in providing first aid and the lack of relevant issues in the postgraduate training programme.

*The research aims* to justify, design and experimentally verify the methodology for developing professional competency in first aid in future coaches based on simulation learning. Besides, it is essential to consider neurophysiological factors due to the high emotional intensity of decision-making during an emergency.

The initial concept of this research is the following: the process of developing professional competency of future coaches should largely rely on one's activity-related and social components. It is because they contribute to future specialists' psychological resilience, stress resistance, leadership, communication and teamwork skills, as well as the ability to cope with difficult and unusual situations.

The research hypothesis assumes that if one considers neurophysiological mechanisms of perceiving danger and responding to it and follow these factors when using simulation learning along with such approaches as "four steps", "positive criticism" and "continuous assessment, it will become possible to improve professional competency in first aid in future coaches. In particular, the authors of the article suppose that the validation of such components of professional competency in first aid as motivation and values, knowledge and practice, personal and psychological aspects, organization and communication will lead to a positive end result.

**The international significance of the article** lies in the fact that the authors, for the first time in Eastern Europe, offered the author's methodology for the formation and experimental testing of first pre-hospital care coaching skills.

The article confirmed the ideas of Tsekhmister Ya. and Lysenko O. (2018), who revealed the content of professional competence of a medical specialist. The latter is considered as an integral quality of the specialist, reflecting his professional knowledge, abilities and skills, personal qualities, values and behavior characteristics. The latter predetermine the possibility of effective and qualified professional activity and effective provision of the population aimed at preserving and strengthening the health of citizens. In the article, the authors confirmed that the components of professional competence (motivational-axiological, cognitive, professional-activity, social-personal) should be defined. The authors of both articles point out that the formation of competencies necessary for effective professional activity (communicative, psychological competence, professionally-oriented speech competence, diagnostic competence and others) is possible only with a competency-based approach to learning (Tsekhmister & Lysenko, 2018).

The article considers the phenomenon of competencies in a joint discourse with experts of international organizations of the European Union

(ability to apply knowledge and skills, ensuring active application of learning achievements in new situations) Eurydice, (2002); combination of knowledge, skills, values and attitudes applied in daily activities; ability to successfully solve individual and social problems, act and perform tasks (DeSeCo program experts) (Definition and Selection of Competencies, 2001).

The methodology proposed in the article continues the educational intensity of interactive training of future coaches, which contributes to the formation of skills, abilities (both subject and learning), the formation of life values, creating an atmosphere of cooperation, interaction, development of communicative qualities, intensive development of motivation for learning, interest, creative abilities of the student (Maksymchuk et al., 2018; Melnyk et al., 2019; Sheremet et al., 2019; Gerasymova et al., 2019; Nerubasska & Maksymchuk, 2020).

**Ethics of the article.** The process of conducting this study is built on appropriate moral rules. First of all, all moral requirements were reviewed prior to conducting this study. Next, the authors of the study obtained the consent of the moral committees of the educational and training institutions. Participants were then informed of the goals and objectives of the study. They were also informed that participation in the study was voluntary and they had the right to withdraw at any time.

## Material & methods

At the pre-experimental stage, it was decided to use theoretical methods of selection and analysis of relevant literary sources on competency-based, personality-oriented and simulation training of future coaches. It must be noted that the weak areas of such training are related to neurophysiological factors (situation affectivity, extremity, responsibility, actualization/loss of subjectivity, characteristics of educational work in real-life conditions). Such methods as pedagogical modelling and forecasting have made it possible to develop the author's methodology for developing competency in first aid in future coaches. It is based on the principles of simulation learning, taking into account neurophysiological factors accompanying this educational activity.

The formative experiment was conducted at Bohomolets National Medical University, M. P. Drahomanov National Pedagogical University, Bukovinian State Medical University, National University of Life and Environmental Sciences of Ukraine, I. Horbachevskiy Ternopil National Medical University, Ternopil, Municipal Higher Education Institution "Rivne Medical Academy" of Rivne Oblast Council.

The research sample comprised 199 coaches, 95 and 104 of whom were in CG and EG, respectively. In CG, learning was accorded with the standard curriculum. In EG, learning was based on the designed pedagogical methodology for developing professional competency in first aid in future coaches. It implied using the principles of simulation learning.

Classes were conducted in the form of interactive lectures, closed discussions (seminars), open discussions (round table ones), active learning methods (simulation learning) with the use of Peyton's 4-steps-approach, positive criticism and continuous assessment to effectively develop professional competency in first aid in future coaches.

The acquisition of practical skills was enhanced based on Peyton's 4-Steps-Approach, Peyton (1998). The European Resuscitation Council uses such an approach in basic and specialist intensive care training. It provides a clearly defined sequence of interaction between the lecturer and the students (demonstration, deconstruction, comprehension, execution). It means certain stages of implementing the methodology for developing professional competency in first aid based on simulation learning. After completing all the stages, future coaches stop being "consciously incompetent" (when one comprehends something but cannot do it) and become "consciously competent" (when one can do something meaningfully). Only after many repetitions, one will progress to "subconsciously competent".

This approach was adapted to "2-Steps" because of limited time (45 minutes per class) and a great number (10) of coaches in groups (the optimal number is from 6 to 8), Omelchuk (2016). Step 1 (demonstration) and Step 2 (deconstruction) were merged together.

However, Step 1 classes were transformed into discussions addressing certain topical issues. These cover airway obstruction and irregular breathing as the main causes of restricted blood flow; the main methods of restoring airway; the negative role of hypoxia; the importance of high-quality chest compression; the concept of shockable and non-shockable rhythms of blood flow; the importance of rhythm rapid assessment and defibrillation. Step 3 (comprehension) and Step 4 (execution) were included in Step 2. Such a 2-Steps approach has turned out to be an effective method for developing practical skills in future coaches. It was used during all classes (airway management and support, BSL, AED maintenance, methods to stop bleeding).

Positive criticism was employed to improve the interaction among coaches and develop their professional competency in first aid. It is one of the basic principles of simulation learning, allowing one to learn from one's mistakes during the de-briefing of the worked-out scenarios.

Continuous assessment motivated future coaches to participate in the learning process more actively. This approach is rooted in the lecturer's assessing students throughout the entire period of learning (activity, engagement in learning, correct implementation of practical skills) and during the summative assessment. Also, it involves taking practical exams with the demonstration of all recommended interventions mastered during the learning process.

The automatization of manual practical skills in providing first aid, which is essential in stressful situations (life-threatening situations), was possible due to simulation learning, too. It ensures mechanical completion of the necessary manipulations and develops one's ability to make fast and non-standard decisions in extreme situations. Moreover, it enhances leadership, communication and teamwork skills and boosts stress resistance.

During the first preparatory stage (2015-2016), the authors of the article managed to analyze the main forms and methods of teaching and learning in higher education and introduce some ways to optimize the learning process to develop professional competency in first aid in future coaches; to analyze relevant methods of interactive technologies in pedagogical theory and practice; to define and justify the methodology for developing professional competency in first aid in future coaches based on simulation learning; to identify current levels of professional competency in first aid in future coaches.

Also, they developed an anonymous survey to study the current state of first aid training for coaches. It consists of 20 questions, including control and filter, close and semi-close straightforward questions. The survey involved 386 respondents who successfully mastered learning material within the emergency care section (symptoms of anaphylactic shock; asthma attacks; transient ischemic attacks; hypotension; thermal burns, frostbites, drowning, carbon monoxide poisoning; closed and open upper and lower limb fractures; dizziness, sunstrokes). It was divided into three blocks to specify its objectives.

Block 1 questions aimed to clarify future coaches' attitude towards first aid training, identify their understanding of its importance and relevance in the context of professional activities and society's requirements and determine the degree of their satisfaction with teaching methods. Block 2 questions made it possible to assess the level of future coaches' knowledge about BLS during cardiopulmonary resuscitation under international standards of medical care. Block 3 questions sought to test future coaches' skills in providing first aid for injuries and included three situational tasks.

The main (realization) stage involved selecting methods of interactive learning and pedagogical approaches to develop professional competency in first aid in future coaches, as well as verifying the mentioned author's methodology experimentally.

At this stage, it became possible to identify the initial level of components of professional competency in first aid in those who had mastered the material. In CG, future coaches were trained with traditional pedagogical technologies. In EG, it was suggested to use the author's methodology for developing competency in first aid.

The main goal of this stage was to check the state of first aid training for future coaches and justify the relevance and expediency of this research. In this regard, it was vital to identify the initial level of professional competency in first aid in those who had mastered the material typical of a bachelor's degree. For one, 95 coaches (2015 and later years of admission) started their training by the standard curriculum. EG included 104 coaches (admitted in 2016) who were trained based on the author's methodology.

Also, it was essential to conduct a survey to confirm the standard contingent of future coaches included in the experiment. A null hypothesis was formulated to prove that CG and EG were homogeneous in terms of gender, age, academic success at a bachelor's degree, the availability of previous secondary education, work experience and additional courses on emergency care before enrolling in relevant master programmes outside the curriculum.

Further comparison of the obtained results made it possible to verify the null hypothesis, namely, whether the initial levels of professional competency in first aid in EG and CG were the same at the ascertaining stage of the experiment.

Next, these results were analyzed in terms of indicators between EG and CG. The chi-square test did not reveal any significant differences ( $<0.05$ ). It indicates a 95% chance that the difference between CG and EG is statistically non-random. Thus, one can conclude that CG sample is identical to that of EG at the appropriate stage of the experiment conducted at the beginning of the research.

Some specific criteria were designed to identify the levels of components of professional competency in first aid and prove the effectiveness of the author's methodology based on the principles of simulation learning. They were further used to identify the levels of this competency in future coaches who had mastered the material.

Some specific methodologies were selected and modified to verify the development of the components. They include Spirin's assessment of

strong motives' development (Spirin, 1976), Rokeach's value survey (1973), Karamushka's survey "The psychological component of professional competency in first aid in coaches"(2003), independent evaluation, expert assessment, checklists (practical skills).

The tools for assessing professional competency in first aid in future coaches are as follows: surveying, testing, evaluating and analyzing the results of the activity, as well as the method of continuous assessment throughout the entire period of learning.

The correction and generalization stage involved identifying levels of professional competency in first aid in future coaches in EG and CG (summative assessment) and processing the obtained empirical data. Also, it included correlating the results of the experiment with the set goals and objectives, analyzing both the anticipated and obtained data comparatively and establishing causal relationships between the data. Finally, it required the adjustment of the suggested content, forms and methods for developing professional competency in first aid in future coaches under the final results, the description of the process and results of the experiment and the formulation of conclusions.

The null hypothesis (H0) was expected to statistically verify the findings based on Pearson's chi-squared test ( $\chi^2$ ). The hypothesis assumes that the difference between EG indicators during university study based on the author's methodology does not significantly influence changes in the levels of professional competency in first aid in future coaches in comparison with the initial levels.

In contrast to it, an alternative hypothesis (H1) was proposed. It indicates the statistically significant difference between the level-related indicators of this competency due to learning based on the author's methodology. Providing that the probable validity of H0 is less than 5% ( $p < 0.05$ ), the difference between the indicators is considered to be statistically significant. In the case of detecting a statistically significant difference between the initial and final levels, H0 is rejected and H1 is adopted.

(H0) = the initial level (IL) = the final level (FL)

(H1) = IL  $\neq$  FL at  $\alpha \leq 0.05$

The results of the experiment were verified based on Pearson's chi-squared test ( $\chi^2$ ). It reveals a statistically significant difference at the significance level of  $p \leq 0.05$ . It allows one to reject H0 and adopt H1: (H1) = IL  $\neq$  FL at  $\alpha \leq 0.05$ . Besides, it indicates a 95% chance that the difference between IL and FL in EG is statistically non-random.

## Results

Theoretical results of pre-experimental work indicate that the structure of professional competency in first aid consists of such components as motivation and values, knowledge and practice, personal and psychological aspects, organization and communication. They take into account both methodical and neurophysiological aspects of first aid.

Motivation and values determine the level of needs, motives, social norms and values-based orientations which encourage coaches to acquire knowledge and practical skills in first aid. Knowledge and practice reflect the system of professional, interdisciplinary knowledge and practical skills which one needs to perform professional tasks. Personal and psychological aspects reflect the level of creativity, Sysoieva (2015), one's characteristics and abilities to achieve personally important goals, Raven (2002) and psychological readiness to provide first aid. Organization and communication determine the level of organization skills which will lead to the acquisition of knowledge and practical skills, taking into account goals, prior experience and individual needs; effective communication (with a patient/victim, his/her environment, paramedics, doctors). In turn, it will ensure the provision of first aid before the arrival of specialized medical care. Once these components have been implemented, one can effectively develop professional competency in first aid in future coaches during their university study.

Only theoretical training is not enough in this case, though. Interactive learning facilitates the development of personal and psychological aspects of future coaches' professional competency in first aid. After all, it is a form of cognitive activity during which students actively interact with each other and lecturers as well. Interactive methods allow one to establish interdisciplinary relationships, ensure education humanization and promote a competency-based approach. Following an activity-based approach, learning is aimed at acquiring knowledge and developing one's ability to act. The acquired knowledge thus becomes a means of a certain action, Fitsula (2014). Therefore, practical classes should rely on simulation scenarios that are realistic and perceivable for coaches. Besides, it is essential to use dummies so that future coaches can acquire practical skills and take into account theoretical training.

The initial and final levels of the competency's components in CG during the formative experiment, which were identified to verify the validity of  $H_0$  using Pearson's chi-squared test ( $\chi^2$ ), indicate that there is no statistically significant difference (at the significance level  $p \leq 0.05$ ) between

IL and FL in CG. It allows one to confirm H0 and reject H1:  $(H_0) = IL = FL$  at  $\alpha \leq 0.05$ . In turn, it indicates a 95% chance that the difference between IL and FL in CG is statistically insignificant.

A low level of certain components (knowledge and practice, personal and psychological aspects) of professional competency in first aid is insufficient since it does not allow one to provide first aid effectively. Average and high levels were defined as sufficient. Therefore, it is essential to present the conclusions by comparing low (insufficient) and average and high (sufficient) results (see Table 1).

The results of the formative experiment show that the level of motivation and values in EG has increased by 22.8%; the level of knowledge and practice – by 55.5%; personal and psychological aspects – by 50%; organization and communication – by 20.9%. The levels of this competency (sufficient results) have increased from 41.3% (the initial stage) to 78.6% (the final stage) in EG. In CG, such levels have increased minimally (41.3% before and 44.5% after the experiment).

**Table 1.** *The levels of professional competency in first aid by components*

Components	Levels			
	insufficient		sufficient	
	CG (n=95)	EG (n=104)	CG (n=95)	EG (n=104)
Motivation and values	42.1%	18.4%	57.9%	81.6%
Knowledge and practice	71.8%	19%	28.2%	81.0%
Personal and psychological aspects	65.6%	21.2%	34.4%	78.8%
Organization and communication	42.5%	26.9%	57.5%	73.1%

The analysis of future coaches' readiness to provide first aid has confirmed the relevance and expediency of studying how professional competency in first aid can be developed.

The main stage (realization) of pedagogical research has made it possible to prove the hypothesis concerning the expediency and efficiency of the proposed methodology for developing professional competency in first aid and methods of its implementation. The comparison of the initial and final levels of components of professional competency in first aid in CG (traditional methods) and EG (the author's methodology) shows a significant increase in the levels of this competency's components as a result

of the proposed pedagogical methodology and forms and methods of teaching and learning.

At the final stage of the experiment, the level of the motivation and values component in EG has increased from 58.8% to 81.6%; the knowledge and practice component – from 25.5% to 81.0%; the personal and psychological component – from 28.8% to 78.8 %; the organization and communication component – from 52.2% to 73.1%.

The control stage of the pedagogical experiment involved analyzing, systematizing, processing the obtained results statistically, verifying their reliability and formulating relevant conclusions and recommendations. The research proves that the obtained results on the development of professional competency in first aid in EG are not caused by accidental causes. Indeed, they are the result of purposeful activity, i.e., comprehensive implementation of the proposed model for developing the specified competency.

## **Discussion**

The international significance of the article lies in the fact that it complements the methodology of first aid knowledge and skills formation, namely: first aid by unskilled individuals and medical skills formation in the general population (Eisenburger & Safar, 1999); b) first aid and support competencies formation (Ruzek et al., 2007); first aid provision in non-specialized environments and in the open air (Donaldson, & Pearnt, 1996).

This article measured the effectiveness of first aid coaching skills (in the context of university training) for the first time in specific structural components of professional competence. These accomplishments and results add to the overall picture of coaching medical competencies (Post et al., 2019).

Methodical explication of certain components within the author's methodology has confirmed the effectiveness of neuropsychological mechanisms of non-standard decision-making in extreme situations, as well as the perception of social safety as an element of personal safety (Bush, 2007). Kazlauskiene & Barabanova (2020) have been working on the subjective reflection theory, which is a neuropsychological component of the professionalism of coaches, physicians, social workers.

Besides, experimental verification of the proposed components (motivation and values, knowledge and practice, personal and psychological aspects, organization and communication) has found a correlation with the main neuropsychological characteristics of coaches, namely, social and professional adaptability and mobility. As noted by Ivanov, Seryy, Yanitskiy,

(2017), it is the ability to maintain high productivity, adaptability and creativity without being tied to a specific location, usual conveniences, or workplace. At the same time, such aspects as a life strategy, professional tactics, personal and others' safety are synergistic with profound neurophysiological, psychological and social characteristics of a person.

The scientific and theoretical value of the research is as follows: *for the first time*, the structure and components (motivation and values, knowledge and practice, personal and psychological aspects, organization and communication) of professional competency in first aid in future coaches have been justified; the criteria of their development have been determined; the methodology for developing professional competency in first aid in future coaches based on simulation learning at universities has been substantiated (stages: defining goals, approaches and principles of training; determining pedagogical conditions, organizing training, selecting the content, forms and methods for effective development of professional competency in first aid, evaluating results and drawing conclusions); the content for developing professional competency in first aid in future coaches based on simulation learning has been developed; theoretical meanings of such a concept as “coach’s professional competency in first aid” (an integral set of the acquired personal and professional qualities reflecting levels of theoretical knowledge and practical skills, moral and ethical qualities and personality traits required to provide proper first aid to patients and victims before the arrival of specialized medical care) have been clarified; the forms and methods for developing professional competency in first aid in future coaches have been improved; relevant provisions on the development of professional competency in first aid in future coaches (in particular, knowledge, practice, organization and communication) have been further developed.

The practical value of the obtained results lies in the fact that the author’s methodology for developing professional competency in first aid based on simulation learning can be implemented in the professional training of future coaches and improve their professional skills. The developed educational and methodological support for teaching the emergency care section during the initial specialization of coaches will motivate them towards conscious professional development, systematization and enhance their ability to apply practical knowledge.

Nonetheless, the conducted research does not disclose all the aspects of developing professional competency in first aid in future coaches during their university study. Further research should pay attention to the following important aspects: ensuring interdisciplinary integration in postgraduate

training of coaches to optimize the process of developing professional competency in first aid; implementing the principle of continuity while developing and improving professional competency in first aid at under- and postgraduate levels; introducing an effective system of continuing professional development for coaches, in particular in the context of providing first aid.

## Conclusions

Thus, the neurophysiological and neuropsychological aspects of the methodological problem under study are rather twofold. The first one includes subjective measurements of risk perception, behaviour in emergencies, responsibility, stress resistance. The second one is associated with neuropedagogical aspects of simulated learning, which brings the participants in the educational process closer to real conditions of the decision-making process.

The development of the methodology for developing professional competency in first aid based on simulation learning consists of the following stages: the preparation, realization, correction and analysis of the obtained results. The proposed methodology, as well as methods and approaches to its implementation while studying the practical course of emergency care” have been experimentally verified.

The obtained results prove that all the indicators of future coaches’ professional competency in first aid in EG are higher than those in CG. One can conclude about positive qualitative changes in readiness to provide first aid among the coaches involved in the research.

**Limitation of the study.** The performed research, of course, does not exhaust all aspects of the problem of formation of professional competence in first aid in future coaches while studying in higher educational institutions. Further research requires such important aspects of this problem as: providing interdisciplinary integration in the process of training coaches at the postgraduate stage in order to optimize the process of forming professional competence in first aid; implementation of the principle of continuity in the process of formation and improvement of professional competence in first aid at the pre- and postgraduate stages; implementation of an effective system of continuous professional development of trainers, in particular in first aid.

## Acknowledgement

Dear Editors,

Such a number of authors is related to a large number of universities where the research was conducted to ensure the high representativeness of the sample. The formative experiment was conducted at Bohomolets National Medical University, M. P. Drahomanov National Pedagogical University, Bukovinian State Medical University, National University of Life and Environmental Sciences of Ukraine, I. Horbachevskyi Ternopil National Medical University, Ternopil, Municipal Higher Education Institution “Rivne Medical Academy” of Rivne Oblast Council. Each university provided participants for control and/or experimental groups. The research sample comprised 199 coaches, 95 and 104 of whom were in CG and EG, respectively. Each author conducted all the necessary research procedures together with the participants in the experiment. All co-authors participated in the development of materials and research methods and calculated results in their groups. They conducted methodological seminars and round table discussions to address research methodology and its results.

Sincerely,  
Authors

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