Safety Culture Development in Future Preschool and Primary Education Specialists in The Conditions of Martial Law in Ukraine

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ABSTRACT

Thesis. The aim of the research is to substantiate and experimentally test the model of safety culture development in future specialists of preschool and primary education in the conditions of martial law in Ukraine.

Concept. The main idea of the experimental model is to explore life safety issues in connection with the reflection of safety and danger issues in the history of Ukraine, oral folk art, literature, art, religion, preschool and primary school pedagogy. Safety culture development is influenced by national, informational, legal, media culture, the culture of peace, health, etc. This process is interconnected and safety culture affects the development of these various cultures.

Results and conclusion. The safety culture structure has been clarified. A diagnostic toolkit for determining its development level in students (future primary school teachers and educators) has been revealed. An experimental model of safety culture development has been formed as an open system, the components of which are the aim; safety culture structure; algorithm of actions; main areas of work; forms and methods of safety culture development, including integrated classes, storytelling on safety and danger topics, game activities; as well as diagnostic toolkit and results. This encompasses integrated classes, storytelling on safety and danger topics, game activities.

Keywords: safety culture, life safety, model of safety culture development, future primary school teachers and educators, preschool education institutions, primary schools

Introduction

In the history of civilisation, some issues have been relevant since the emergence of human society to the present day. Life safety is one of such issues. One of the ways to solve the issue of compliance with safety requirements is the education of children, youth and adults. It is necessary to form life safety competences in children from early years, in preschool and primary school age. Therefore, the demands on future educators of preschool education institutions and primary school teachers are increasing in terms of developing safety culture in them, the ability to form safety behaviour in children.

The specified issue has become particularly relevant in Ukraine. A war is ongoing here, initiated by Russia. In addition to the requirements for safety on roads, at home when using electrical appliances, during recreation near water bodies, etc., there is also the necessity to respond to air alarms, properly handle potentially explosive objects, etc. At the same time, as research indicates, students, despite knowing the rules of life safety, occasionally violate them. Unfortunately, knowledge of requirements does not necessarily imply adherence to them. During empirical research, approximately two-thirds of the respondents — future teachers and educators — violated rules of behaviour during the Air Alarm signal during their non-working hours.

Students often do not connect safety issues with the formation of a general culture, are unaware of the historical aspects and national traditions of safety compliance. It is reasonable to assume that addressing the development of life safety competences in the context of integration with components of national, legal, informational, media, health culture, as well as the culture of peace, will lead to better results in shaping safety culture. At the same time, it is necessary to differentiate the concepts of „life safety competences" and „safety culture", studying them against the background of the leading „safety" concept emergence.

According to the results of the research conducted in Ukraine from September 9 to September 18, 2022, it was found that the most important values for Ukrainians are the state independence of Ukraine, personal safety and the safety of close people (Zhulienova, 2022). The Polish scientist Krzysztof Klimek (2020) rightly notes that the concepts of threat and danger pose a challenge to education. Children, youth and adults should possess knowledge and skills to counter various types of threats. Luidmyla Kalashnikova (2020) emphasises the need to strengthen the role of safety disciplines in the educational process.

The issues of safety culture, as noted by the Polish researcher Andrzej Chodyński (2018), are increasingly being explored within the safety sciences. Luidmyla Romaniv et al. (2017) have reached an important conclusion that safety culture development in higher education institutions involves the formation of student's abilities and skills in scientific research. The scientific work by Feride Olcay et al. (2021) is interesting. The researchers have conducted an analysis of sources that suggest women have a higher level of safety culture than men. However, the scholars themselves have not found such a correlation.

Viktor Pokaliuk (2019) have proved that one of the main tasks is to make future specialists realise the need for self-education in life safety. The content formation of basic life safety course must necessarily be coordinated with the content of special disciplines that solve individual safety issues of workers related to their profession.

However, in the scientific literature, there have been no studies identified regarding safety culture development in future primary school teachers and educators, particularly in the context of contemporary societal challenges, such as war. The need to address this issue has driven *the aim* of the article: to substantiate and experimentally test the model of safety culture development in future specialists of preschool and primary education in the conditions of martial law in Ukraine.

Materials and Methods

Research Hypothesis

In the course of the research, it has been hypothesised that the safety culture of future specialists of preschool and primary education can be developed by implementing an experimental model as an open system, which emphasises the importance of safety culture development in connection with national culture, information culture, media culture, legal culture, culture of peace, health culture, etc. Another objective is to demonstrate the necessity of introducing integrated forms and means of safety culture development in future specialists of preschool and primary education, where life safety would be presented in the context of student's professional training.

Research Participants

The experimental study involved 196 master's students, future specialists of preschool and primary education (102 respondents in the experimental groups; 94 respondents in the control groups) from Ternopil Volodymyr Hnatiuk National Pedagogical University, Khmelnytskyi Humanities and Pedagogical Academy and Drohobych Ivan Franko State Pedagogical University (Lviv region). These universities have concluded cooperation agreements and are partner institutions. All the participants in the experiment were women.

The control groups consisted of 53 students from Ternopil Volodymyr Hnatiuk National Pedagogical University, 21 students from Drohobych Ivan Franko State Pedagogical University and 20 students from Khmelnytskyi Humanities and Pedagogical Academy; the experimental groups were represented by 56 students from Ternopil Volodymyr Hnatiuk National Pedagogical University, 24 students from Drohobych Ivan Franko State Pedagogical University and 22 students from Khmelnytskyi Humanities and Pedagogical Academy.

Research Methods

To test the research hypothesis, a number of methods were used, such as interviews, observations, surveys, modelling (to create a model of safety culture development), and methods of mathematical statistics. Based on discussions with students, observation of the educational process and analysis of diagnostic tools by scientists (Astakhova, 2016; Grote & Künzler, 2008; Jarmoch, 2018), the survey questions were developed to determine the level of student's safety culture development.

The surveys (closed type) were created in Google Forms, allowing for a large number of participants to be involved and for the information to be easily processed later on. In order to take into account all components of the safety culture structure and criteria for its formation in students (motivational-target, personal-behavioural, reflexive-evaluative, informational-cognitive), the survey included 4 blocks of questions that allowed to determine the motivation level for safety culture development, the correspondence of behaviour to the requirements for safe behaviour, the level of awareness of safety culture issues, the legal and regulatory framework for creating a safe environment in preschools and primary schools during martial law; and the ability to reflect on the level of safety culture. A student could get a maximum of 6 points for answering the questions in each block (24 points in total for all blocks).

The obtained results made it possible to determine the levels of safety culture development among our respondents: low, sufficient and high. Students who got 24–22 points were classified as having a high level of safety culture development; 13–21 points – as having a sufficient level; 0–12 points – as having a low level of safety culture development. Mathematical statistics methods were used to determine the reliability of the obtained results *before* and *after* the experimental study. The data were analysed using descriptive statistics and the Student's t-test for dependent samples. Calculations were performed using Microsoft Excel and IBM SPSS Statistics.

Experimental Model of Safety Culture Development

Safety Culture and Life Safety Concepts

To determine the ways of safety culture development, it is important to clarify the terminology. Mariia Chepil (2022) defines the *life safety* concept as a field of knowledge and scientific-practical activity aimed at forming safety and preventing danger by studying the general patterns of emergence of dangers, their properties; the consequences of their impact on the human (child) body; the basics of protecting the human's (child's) health, life and living environment from dangers. Polish research-

ers Małgorzata Kochańska and Cezary Kowalski (2021) perceive the essence of safety culture in the formation and strengthening of the belief that the highest values are health and life, both one's own and those of others.

Tiffany Bisbey et al. (2021) prove, that "safety culture is a relatively stable social construct, gradually shaped over time by multilevel influences" (p. 88). Romaniv et al. (2017) differentiate the concepts of *safety culture* and *life safety*. According to them, life safety is the activity conducted by safety laws (prevention, minimisation, overcoming, elimination of harmful and hazardous factor's consequences). In their opinion, *safety culture* (of an individual) is broader than the concept of *life safety* as it includes additional components. So, the authors consider *safety culture* as a broader concept than *life safety*, as it includes not only activity within the safety laws but also its reflection in art, religion, ideology, etc.

Polish researcher Juliusz Piwowarski (2016b) defines the *safety culture* concept as the set of material and non-material elements of human creation that contribute to the cultivation, restoration (when lost) and elevation of the safety levels for specific subjects. He considers it in an individual dimension: mental-spiritual, social and physical (material) (Piwowarski, 2016b). Also, he notes that martial arts are an important part of the security culture, both on a personal and social scale (Piwowarski, 2016a). For Marian Cieślarczyk et al. (2014), safety culture is a pattern of core principles, values, norms, rules, symbols and distinctive beliefs for a particular subject that influence their perception of challenges, opportunities and/or threats in the environment, as well as their sense of safety and thoughts about it.

The safety culture concept as a process of socialisation and acquisition of certain norms and principles related to safety is reflected by the Polish researcher Marek Górka (2018). He emphasises that after September 11, 2001, due to the threats of international terrorism, approaches to safety culture have changed. Based on the analysis of sources, it is reasonable to conclude that safety culture is a complex phenomenon and, therefore, it is necessary to clarify its structure.

Safety Culture Structure

The issue of categorical-conceptual basis is closely related to the problem of the safety culture structure. Romaniv et al. (2017) in the safety culture structure, apart from knowledge, skills and abilities, highlighted worldview ideas, moral and aesthetic values, intellectual experience in solving safety issues, experience in safe communication in the process of joint survival. According to these scholars, safety culture is not only about life safety but also about motivation, self-improvement experience and readiness for safe life activities. Cieślarczyk et al. (2014) metaphorically depict safety culture in the form of a tree. In their research, safety culture is symbolised by roots and a trunk, while the fruit of this tree represents various safety spheres. The qual-

ity of the fruit largely depends on the roots, trunk and the soil in which the tree is rooted. The background consists of components such as environmental and health culture, economic and political culture, the culture of social life, organisational and legal culture, information-communication culture, and many others. Their quality manifests in different life and safety spheres.

The association of safety culture with a tree is very apt and interesting. However, in our opinion, it is worth adding that in the case of safety culture, there is also a reciprocal process: the tree also influences the soil. Safety culture affects the development of all mentioned cultures. Acquiring knowledge about culture prompts a deeper study of history, art, literature, etc.

After summarising the research by scientists on the safety culture structure, we define the following components in it: value-motivational (awareness of life as the highest value, motivation, self-improvement in the safety sphere), cognitive (availability of knowledge on life safety topics, in particular in history, oral folk art, religion, literature, art), procedural (actions that comply with safety requirements and aim to enhance the cultural level of others), analytical (behaviour analysis).

Determination of the Levels of Safety Culture Development in Future Specialists of Preschool and Primary Education

According to the structural components of safety culture (value-motivational, cognitive, procedural, analytical), we distinguish motivational-target, informational-cognitive, personal-behavioural and reflexive-evaluative criteria for safety culture development. The motivational-target criterion involves the presence of self-development motivation indicators. However, it is important for motivation to logically culminate in defining goals for self-improvement to enhance one's level of safety culture. The future specialist in preschool and primary education should not only possess knowledge of safe practices but also be familiar with the ways to instil safety culture in children. These indicators should be inherent to the informational-cognitive criterion.

Culture is based not only on knowledge but also on concrete actions. Therefore, it is advisable to single out the personal-behavioural criterion, the indicators of which are compliance with safety rules, implementation of forms and methods of safe behaviour for children. Scientists have proven that safety culture involves reflection, analysis and evaluation of one's own and other people's actions and deeds. Therefore, the indicators of the reflexive-evaluative criterion are the analysis of people's activities in dangerous situations and of these situations; reflection on ones level of knowledge and compliance of actions with safety requirements. The structure, criteria, and indicators of safety culture development in future specialists of preschool and primary education are presented in Table 1.

Table 1

The Structure, Criteria and Indicators of Safety Culture Development in Future Specialists of Preschool and Primary Education

Safety culture structure	Criteria of development	Level indicators
Value-motivational component	Motivational-target	– the presence of motivation for self-improvement regarding safety culture; – defining goals for increasing the level of safety culture
Cognitive component	Informational-cognitive	– level of knowledge on the subject of safety culture: the content of concepts, structure, factors, providing assistance to victims; rules of life safety, their reflection in the country's history, art, literature, oral folk art, religion; knowledge of the regulatory framework; – level of knowledge about forms, methods and means of educating safe behaviour in children
Procedural component	Personal-behavioural	– adherence to safety rules – implementation of forms and methods of safe behaviour for children
Analytical component	Reflexive-evaluative	– analysis of people's activities in dangerous situations and of these situations – reflection on one's level of knowledge and compliance of actions with safety requirements

Source. Own research.

Three levels of safety culture development have been identified for future specialists in preschool and primary education: low, sufficient and high. Students with a high level of safety culture development possess motivation for self-improvement, have identified goals for enhancing the researched process, possess thorough knowledge of safety culture topics, forms, methods and means of promoting safe behaviour. They consider safety culture in connection with legal, national, moral and informational culture. They implement forms and methods of safety behaviour for preschool and primary school children, adhere to safety rules, regularly reflect on their level of knowledge and activities in this context.

Students with a sufficient level of safety culture development have motivation for self-improvement but have not defined goals for enhancing the studied process. They possess incomplete knowledge of safety topics, forms, methods and means of fostering safe behaviour or make minor errors. Typically, they do not consider safety culture in connection with legal, national, moral and informational cultures. They implement forms and methods of safety behaviour for preschool and primary school children, adhere to safety rules, with violations being episodic. They reflect on their level of knowledge and activities in this context.

Students with a low level of safety culture development typically lack motivation for self-improvement, do not set goals for enhancing the research process, have a low level of knowledge on safety topics, forms, methods and means of cultivating safe

behaviour. They make significant mistakes, do not consider safety culture in connection with legal, national, moral and informational cultures. Usually, they do not implement forms and methods of safe behaviour for preschool and primary school children, violate safety rules and do not reflect on their level of knowledge and activity in this context.

To determine the level of safety culture development among students, future preschool educators and primary school teachers, we conducted a survey of students from Ternopil Volodymyr Hnatiuk National Pedagogical University, Khmelnytskyi Humanities and Pedagogical Academy and Drohobych Ivan Franko State Pedagogical University in October 2022. A total of 196 students participated in the experiment.

Following the analysis of student's responses to survey questions, it has been determined, according to the defined level indicators, that 10 students (5.1%) have a high level of safety culture, 110 (56.1%)—a sufficient level, 76 (38.8%)—a low level. The obtained results became the basis for creating the model of safety culture development in future specialists of preschool and primary education.

Model of Safety Culture Development

The experimental model is designed as an open system, which includes the aim; safety culture structure; main areas of work; algorithm of actions; forms and methods of safety culture development, including integrated classes, storytelling on safety and danger topics, game activities; as well as diagnostic toolkit and results.

The main idea of the experimental model is to explore life safety issues in connection with the reflection of safety and danger issues in the history of Ukraine, oral folk art, literature, art, preschool and primary school pedagogy, in relation to legal responsibility for violations of established rules. A part of the model consists of the structural components of safety culture (value-motivational, cognitive, procedural, analytical). They determine the forms and methods of work as well as the diagnostic toolkit.

The logic of research (preparation for the experiment, its conduct and analysis of results) attests (anticipates) the expediency of such an algorithm of actions, comprising preparatory (stimulative), main (informational-procedural) and summary (analytical) stages. The main areas of work reflected in the model are: studying safety issues in integrated classes; developing life safety skills in children during pedagogical practice; participating in scientific research on safety topics; self-development in the field of safety culture based on goal setting.

In the context of safety culture, Polish researcher Leszek Korporowicz (2018) emphasises the need for even closer collaboration among representatives of safety studies, social sciences and humanities, which confirms the appropriateness of integrated classes involving lecturers from several disciplines. During the main stage, to increase the level of student's knowledge, it is advisable to conduct integrated classes in several disciplines: methods of basic competences formation in preschoolers; teaching language and literary

education in primary school; teaching the integrated course I Explore the World; methods of social and health conservation, technological and artistic educational branches, etc.

Ternopil Volodymyr Hnatiuk National Pedagogical University has accumulated a lot of experience in conducting integrated classes, for example, in the discipline Education for Sustainable Development and English language using facilitation methods (Chaikovska et al., 2023). The effectiveness of joint classes with Polish students using the Zoom online platform has also been proven (Yankovych et al., 2023).

The components of the experimental model include the following forms of work: integrated classes at higher education institutions, such as Life Safety During War: A Call for Peace, Images of Pek and Baba-Yaha in Fairy Tales, Myths and Works of Art; The Protective Function of Toys: from Ancient Times to the Present, Tales of Danger: Fiction and Reality, etc.; pedagogical practice, during which classes are held in preschools and primary schools on How Fairy-Tale Characters Follow the Rules of Safe Behaviour; scientific activities, participation in scientific-practical conferences, as well as a range of methods, such as conversations on How to Recognise Danger, games, interactive methods such as group work, Take a Position, collective and individual projects, storytelling. The consideration of safety and danger issues during the war, along with the forms and methods of work, is permeated by the idea of achieving peace as the highest value. Without peace, there are constant threats to human life and health.

Safety culture is a component of professional culture. Its development is influenced by the components of national, informational, legal, health culture, etc. At the same time, safety culture influences the development of these cultures, as reflected in the model. Such multi-vector influences actualise the need for their coordination, as suggested by the Polish scientist Wiesław Andrukowicz (2011) in complementary didactics. This idea supports the feasibility of implementing a working system depicted in the model of safety culture development in future specialists of preschool and primary education, as shown in Figure 1. Its result, determined on the basis of the following criteria (motivational-target, informational-cognitive, personal-behavioural and reflexive-evaluative), is the development of safety culture in future specialists of preschool and primary education at high and sufficient levels.

Experimental Verification of the Model of Safety Culture Development

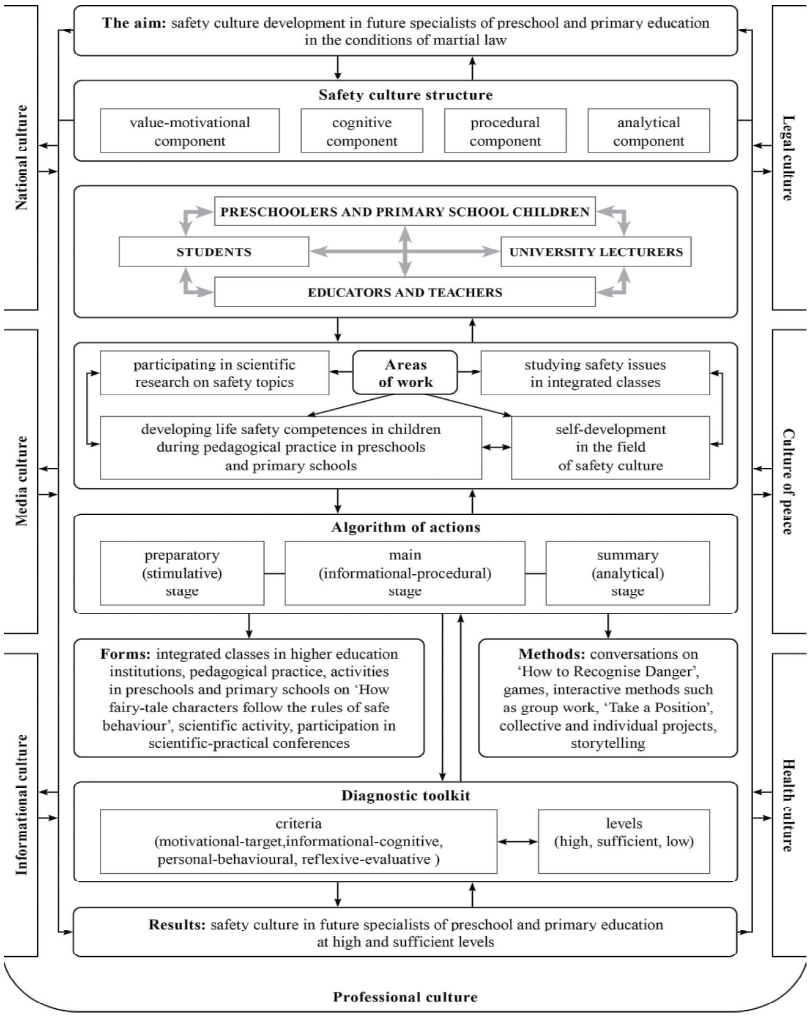
To implement the experimental model, we formed control (94 respondents) and experimental (102 respondents) groups. The experimental model was implemented only in the experimental groups according to the algorithm of actions: preparatory (stimulative), main (informational-procedural) and summary (analytical). During the stimulative stage, students familiarised themselves with the results of surveys, which served as the basis for work during the informational-procedural stage, in par-

ticular, the organisation of classes, which deepened knowledge about compliance with safety requirements during the war, monitored the interrelationships of cultures, etc.

Here are some examples of classes that took place during the experimental work: an integrated class on the methods of language and literature education and art education, focusing on Images of Pek and Baba-Yaha in Fairy Tales, Myths and Works of Art; The Protective Function of Toys: from Ancient Times to the Present, etc.

Figure 1

The Model of Safety Culture Development in Future Specialists of Preschool and Primary Education



Source. Own research.

In the class Images of Pek and Baba-Yaha in Fairy Tales, Myths and Works of Art, students familiarised themselves with the etymology of the concepts of „safety (*bezpeka*)" and „danger (*nebezpeka*)". They explored the work of Vasyl Zaplatynskyi, who examined the conceptual-categorical thesaurus in the field of safety, ancient Slavic origins and symbols of the concepts of „danger" and „safety," as well as mythological images symbolising wars, bloodshed and human quarrels – Chur, Pek, Yaha-Baba (Baba-Yaha), etc. (Zaplatynskyi, 2018).

In the class The Protective Function of Toys: from Ancient Times to the Present, questions about the appearance of the first toys, their protective role, the history of the motanka doll and the use of toys as an educational tool were discussed. A virtual tour of the toy museum was conducted. During the sessions, both collective and individual projects were implemented. For instance, students, using Valentyna Trotska's research, reported that „our ancestors believed in the magical power of whistles… The whistle was used to scare away evil forces, invoke good ones, etc." (Trotska, 2019, p. 102). Another direction of work is the development of life safety competences in primary school children and preschoolers (Yankovych, 2022).

During the pedagogical practice, students conducted discussions on How to Recognise Danger, classes on How Fairy Tale Characters Follow Safety Rules, engaging activities like games, etc. Emphasis was placed on the importance of adhering to safety protocols during wartime and the necessity of establishing peace. Students participated in enhancing shelters by decorating them with national symbols, paintings depicting Ukrainian landscapes, etc. (Yankovych, 2022). The issue of safety culture was explored in scientific works and presented at scientific-practical conferences. During the experiment, significant attention was given to setting self-development goals.

At the analytical stage of the work in November 2023, measurements of safety culture development levels were conducted. Experts noted significant positive changes in the levels of safety culture development. The dynamics of safety culture development levels among students in the control and experimental groups before and after the experiment are reflected in Table 2.

Table 2

Dynamics of Safety Culture Development Levels in Future Specialists of Preschool and Primary Education

Levels	Control group (94)		Experimental group (102)	
	Before the experiment	After the experiment	Before the experiment	After the experiment
High	5 (5,3 %)	6 (6,4 %)	5 (4,9 %)	14 (13,7 %)
Sufficient	53 (56,4 %)	57 (60,6 %)	57 (55,9 %)	69 (67,7%)
Low	36 (38,3 %)	31 (33%)	40 (39,2 %)	19 (18,6%)

Source. Own research.

To verify the statistical significance of differences in the distribution of safety culture level indicators among students „before" and „after" the experimental study, methods of mathematical statistics were used. The results are presented in Table 3.

Table 3

Descriptive Statistics of Safety Culture Levels in the Studied Students

Indicators	Safety Culture (CG before exp.)	Safety Culture (CG after exp.)	Safety Culture (EG before exp.)	Safety Culture (EG after exp.)
Mean	13.415	13.830	12.912	15.471
Standard Error	0.656	0.659	0.680	0.618
Median	14	14.5	14	17
Mode	21	20	21	13
Standard Deviation	6.361	6.385	6.870	6.242
Sample Variance	40.460	40.766	47.190	38.964
Kurtosis	-0.871	-0.854	-1.070	0.382
Skewness	-0.432	-0.479	-0.419	-1.012
Range	24	23	24	24
Minimum	0	1	0	0
Maximum	24	24	24	24
Sum	1261	1300	1317	1578
Count	94	94	102	102

Source. Own research.

The mean values of safety culture formation indicators in the control group did not change significantly after the experiment (13.415 and 13.830, respectively). This is confirmed by the Student's t-test (t=-0.444, at p=0.658) (Table 4).

Table 4

Results of the t-test Calculation for Paired Samples in the Control Group before and after the Experiment

Paired Samples Test (Control group)								
	Paired Differences							
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Safety culture (before) Safety culture (after)	-,415	9,052	,934	-2,269	1,439	-,444	93	,658

Source. Own research.

However, in the experimental group, we observe an increase in the mean value from 12.912 before the experiment to 15.471 after. This increase is statistically significant, as confirmed by the Student's t-test (t = 3.027, at p= 0,003) (Table 5).

Table 5

Results of the t-test Calculation for Paired Samples in the Experimental Group before and after the Experiment

Paired Samples Test (Experimental group)								
	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Safety culture (before) Safety culture (after)	2,559	8,538	,845	4,236	,882	3,027	101	,003

Source. Own research.

We also observe an increase in the median. Specifically, the highest median value is in the experimental group after the experiment (17). In the control group, it remains almost unchanged due to the experiment (14 and 14.5, respectively). Comparing the mean values and the median in both groups before and after the experiment confirms a slight difference between them. This indicates the normality of the indicators distribution in the sample. Evidence of normality is also found in the skewness and kurtosis values, which are within the range of -1 to +1 in both groups. An additional argument for normality is that the skewness and kurtosis values do not exceed three times their standard error.

Discussion

In the context of the research, it is worth paying attention to the works where the diagnostic tools for assessing the development of safety culture and life safety competences are identified. Elviza Abiltarova and Valentyna Radkevych (2022) focus on the personal component of the safety culture of future occupational safety engineers (the personal component reflects professionally important qualities). We consider that this component is indeed important in conjunction with other significant elements of safety culture.

Mariia Astakhova (2016) has distinguished personal, content-functional and analytical-evaluative criteria for life safety competences development in teachers within the postgraduate education system. In our opinion, it is worth differentiating the content-functional component into content and functional, as thorough knowledge

does not necessarily imply correct actions. In our research, students knew how to act correctly, but occasionally violated rules they were well aware of. The same applies to the personal criterion. In our opinion, an awareness of the importance of enhancing the safety culture level will not yield significant results unless clear self-development goals are defined. Hence, both motivational-target and reflexive-evaluative criteria need to be considered.

Feride Olcay et al. (2021) have found that age, gender and educational background do not influence the safety culture level. However, our research revealed that specific indicators of safety culture are influenced by the challenges individuals face in certain territories. In particular, in our work, it is the intensity of shelling during the war.

According to research findings, martial law has led to other issues, such as the psychological state of students. We agree with the conclusions of the authors Halyna Meshko et al. (2023), that students have shown a decrease in learning interest and there is an increase in indicators of emotional tension. Consequently, this negatively affects the development of competences. In this context, the idea of Kalashnikova and Viktoriia Chorna (2019) about the necessity of citizens" participation in the safe functioning of the region remains relevant. Citizens should actively participate in solving problems to ensure the safe functioning and development of a region as well as Ukrainian society as a whole. We agree that all citizens should participate, but a lot in this case depends on teachers.

Khairul Hafezad Abdullah and Fadzli Shah Abd. Aziz (2020) found that knowledge and motivation influence student's safety behaviour in laboratories. This study primarily aimed to examine how safety knowledge and safety motivation directly affect safety behaviour in laboratories among students. At the same time, it is crucial to have, in addition to motivation, defined goals for increasing awareness in the field of safety.

Conclusions

In the conditions of modern social challenges, the problem of safety culture development in society is becoming more urgent. An effective way to solve it is the implementation of the model of safety culture development in future specialists of preschool and primary education in the conditions of martial law in Ukraine as an open system, which reflects the interconnection of cultures: national, information, legal, etc. The components of the experimental model are the aim; safety culture structure; main areas of work; algorithm of actions; forms and methods of safety culture development, including integrated classes, storytelling on safety and danger topics, game activities; as well as diagnostic toolkit and results. Life safety issues are explored in connection with their reflection in the history of Ukraine, oral folk art, literature, art, religion, preschool and primary school pedagogy.

The safety culture structure is represented by value-motivational, cognitive, procedural and analytical components. The model encompasses four areas of work: studying safety issues in integrated classes; developing life safety competences in children during pedagogical practice; participating in scientific research on safety topics; self-development in the field of safety culture based on goal setting. The implementation of the experimental model makes it possible to halve the number of students at a low level of safety culture development and triple the number at a high level. The experimental model demonstrates the need to develop integrated forms and means of safety culture development in future specialists of preschool and primary education, in which life safety would be presented in the context of student's professional training and the diversity of the country's cultures.

Research Limitations and Implications

Three pedagogical universities were selected for the experiment. They are located in the relatively calm rear three regions of Ukraine, in which no active hostilities are taking place, at the same time there have been recorded incidents of missiles and drones hitting objects of critical and residential infrastructure. In the future, it would be advisable to conduct research in higher education institutions in other regions of Ukraine. Comparative pedagogical studies of safety culture development in students of European Union (EU) countries and Ukraine will be effective in the future.

The implementation of the model in universities (at the micro level) will result in an increase in the levels of safety culture development among students. At the same time, the substantiated model highlights the appropriateness of safety culture development in relation to national, informational, media culture, legal culture, culture of peace, health, etc., that should be taken into account at the regional and national (macro) level. It proposes that the process of safety culture development among students should enhance value orientations such as peace, national independence and the art of self-protection. It is important to uphold these values at the international (mezzo) level.

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