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Pedagogical conditions for soft skills development in future officers: evidence from the National Guard of Ukraine during wartime

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Abstract. This study investigates the effectiveness of pedagogical conditions for developing soft skills among future officers of the National Guard of Ukraine (NGU) during wartime. Through a mixed-methods approach combining quantitative and qualitative methodologies, we examined the development of essential military leadership competencies in a 12-month pedagogical experiment at the Kyiv Institute of NGU. The study involved 132 participants divided into experimental ($n = 64$) and control ($n = 68$) groups, with the experimental group receiving enhanced soft skills training through specialized pedagogical interventions. Results demonstrate significant improvements in the experimental group across multiple competency areas, including communication skills (31% increase), critical thinking (23%), teamwork (31%), lifelong learning (64%), professional ethics (31%), and leadership abilities (33%). Statistical analysis using the χ^2 criterion confirmed the significance of these improvements at the 0.05 level. The findings suggest that structured pedagogical interventions, particularly those integrating combat experience and mentorship approaches, can effectively enhance military officers' soft skills development. This research contributes to the growing body of evidence supporting the importance of systematic soft skills training in military education, especially during periods of active conflict. The study's implications extend beyond the Ukrainian context, offering insights for military education programs globally while highlighting the need for continued research into long-term skill retention and cross-cultural applications.

Keywords: military education, soft skills development, pedagogical conditions, officer training, leadership development, combat readiness, professional competencies, military pedagogy, wartime education, National Guard of Ukraine

1. Introduction

The Russian Federation's invasion of Ukraine in 2022 has fundamentally altered the landscape of military education, particularly in the context of higher military educational institutions (HMEI). This conflict has created unprecedented challenges for the National Guard of Ukraine (NGU), requiring rapid adaptation of educational processes to meet emerging operational demands. The transformation extends beyond tactical and technical training to encompass the development of complex interpersonal and cognitive competencies – commonly known as "soft skills" – which have proven crucial in modern warfare [5].

Contemporary military operations in Ukraine have highlighted a critical shift in the requirements for officer competencies. Unlike traditional peacetime roles, NGU

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officers now face multifaceted challenges, including implementation of martial law measures, territorial defence coordination, and management of diverse personnel groups, often including more experienced subordinates. These challenges demand enhanced decision-making capabilities under extreme uncertainty and heightened responsibility for personnel welfare [3].

The evolving nature of modern warfare has particularly emphasized the importance of non-technical competencies. Recent research indicates that successful military leadership increasingly depends on what Knox, Lugo and Sütterlin [7] terms "adaptive expertise" – the ability to apply professional knowledge flexibly in novel, complex situations. This expertise comprises several interconnected competencies: motivational leadership, team coordination, situational adaptability, strategic decision-making, and ethical awareness [13].

These competencies, while traditionally considered supplementary to technical military skills, have emerged as critical factors in operational effectiveness. Holohan [6] demonstrates that officers' ability to navigate complex interpersonal dynamics often determines mission success more than technical proficiency alone. This finding aligns with observations from current Ukrainian military operations, where adaptability and interpersonal skills have proven crucial in managing rapidly evolving combat situations.

However, developing these competencies presents unique pedagogical challenges. Traditional military education programs, historically focused on technical and tactical training, often struggle to cultivate soft skills effectively [7]. This gap between educational approaches and operational requirements has become particularly apparent in the context of Ukraine's current defence needs, necessitating a systematic review and enhancement of officer training methodologies.

This study addresses three fundamental research questions:

1. What specific soft skills are most critical for NGU officers in the current operational environment, and how do these differ from traditional peacetime requirements?
2. How effective are existing pedagogical approaches in developing these essential competencies, and what modifications might enhance their efficacy?
3. What role does combat experience play in the development and refinement of military soft skills, and how can this experience be effectively integrated into training programs?

The investigation of these questions is particularly timely, given the ongoing transformation of military operations. Recent studies suggest that traditional training approaches may be insufficient for developing the complex competencies required in modern warfare [7]. This research aims to bridge this gap by evaluating and enhancing pedagogical conditions for soft skills development in military education.

This study contributes to military education theory and practice in several ways. First, it provides empirically validated insights into effective pedagogical approaches for soft skills development in a wartime context. Second, it offers practical recommendations for enhancing officer training programs based on current operational experiences. Finally, it advances our understanding of how combat experience can be effectively integrated into military education to enhance soft skills development.

The findings of this research have immediate practical implications for military education institutions and broader theoretical significance for understanding professional competency development in high-stakes environments. While focused on the Ukrainian context, the insights derived from this study are relevant to military education programs globally, particularly those adapting to evolving warfare paradigms.

2. Literature review

The evolution of military soft skills research reflects broader changes in understanding professional competency development. Since its conceptual emergence in military contexts [15], the field has progressed from focusing on basic interpersonal capabilities to examining complex leadership competencies essential for modern warfare [5]. This section examines the theoretical foundations and current research on military soft skills development, particularly in combat contexts.

2.1. Theoretical framework of military soft skills

Both theoretical advances and operational experiences have significantly shaped the contemporary understanding of military soft skills. Chalela and Britell [3] defines military soft skills as non-technical competencies that complement professional expertise and enhance performance in complex operational environments. This definition builds upon earlier work by Whitmore [15], who first identified the distinction between technical military skills and interpersonal competencies.

Recent research has expanded this theoretical foundation. Knox, Lugo and Sütterlin [7] identifies five core domains of military soft skills: leadership capability, interpersonal communication, critical thinking, adaptability, and ethical decision-making. These domains interact dynamically in operational contexts, with effectiveness in one area often enhancing performance in others [5].

2.2. International perspectives on military soft skills development

International research provides valuable insights into diverse approaches to military soft skills development. Studies from NATO countries emphasize the importance of cross-cultural communication and multinational cooperation [14]. The United States military has focused mainly on leadership development and decision-making under stress, implementing comprehensive programs that integrate theoretical knowledge with practical experience [1].

Israeli military research has contributed significantly to understanding the integration of technological awareness with traditional leadership skills [4]. This work is particularly relevant given the increasing technological complexity of modern warfare. European Union military education programs have developed specialized approaches for peacekeeping operations, emphasizing cultural sensitivity and conflict resolution skills [6].

2.3. Combat experience and soft skills development

The relationship between combat experience and soft skills development has emerged as a critical area of study. Recent research in Ukraine has demonstrated how actual combat operations provide unique opportunities for developing and refining soft skills [9]. This finding aligns with international studies showing that combat experience significantly influences leadership development and decision-making capabilities [3].

Prykhodko et al. [12] identifies several key mechanisms through which combat experience enhances soft skills:

- Accelerated development of situational awareness
- Enhanced ability to make decisions under pressure
- Improved team coordination capabilities
- Strengthened emotional resilience

2.4. Pedagogical approaches in military education

Recent advances in military education have led to more sophisticated approaches to soft skills development. Traditional classroom-based instruction has been supplemented with experiential learning methods, simulation-based training, and mentorship programs [7]. Research indicates that integrated approaches combining multiple

teaching methodologies yield superior results compared to single-method approaches [8].

The role of educational staff has evolved significantly, with increased emphasis on facilitation rather than traditional instruction. Medvid et al. [10] highlight the importance of instructor competency in soft skills development, particularly in adapting teaching methods to contemporary military challenges.

2.5. Assessment and evaluation of soft skills

A persistent challenge in military soft skills development is the assessment of competency acquisition. Traditional evaluation methods often prove inadequate for measuring complex interpersonal and cognitive skills [5]. Recent research has proposed more sophisticated assessment frameworks incorporating multiple evaluation methods, including:

- Performance-based assessment in simulated environments
- Peer and superior evaluations
- Self-reflection and portfolio development
- Behavioral observation in operational settings

2.6. Emerging trends and future directions

Several emerging trends are shaping the future of military soft skills development. The integration of virtual reality and artificial intelligence in training programs offers new possibilities for skill development [7]. Additionally, increased focus on psychological resilience and emotional intelligence reflects growing recognition of these factors' importance in military leadership [12].

2.7. Research gaps

Despite significant advances, several critical gaps remain in the literature. Limited research exists on the long-term retention of soft skills developed through military training programs. Additionally, the impact of cultural factors on soft skills development in military contexts requires further investigation. The relationship between combat experience and soft skills development, while acknowledged, needs more systematic study, particularly in the context of modern hybrid warfare.

3. Research methods

This study employed a mixed-methods research design to investigate the effectiveness of pedagogical conditions for soft skills development among future NGU officers. The research was conducted at the Kyiv Institute of NGU over 12 months from September 2023 to August 2024, incorporating both quantitative and qualitative approaches to provide comprehensive insights into the effectiveness of pedagogical interventions.

3.1. Research design

The study utilized a randomized controlled trial design supplemented by qualitative assessment methods. This approach follows recommendations by Knox, Lugo and Sütterlin [7] for evaluating complex educational interventions in military contexts. The design incorporated three significant components: literature analysis, experimental intervention, and comprehensive outcome assessment.

The analysis phase involved a review of current military education literature, content analysis of combat experience reports, and synthesis of international best practices in soft skills development. This foundation informed the development of the experimental intervention protocol and assessment criteria.

3.2. Participants and sampling

The study sample comprised 132 officer candidates at the Kyiv Institute of NGU, divided into experimental ($n = 64$) and control ($n = 68$) groups. Participants were randomly assigned to groups using a computerized randomization procedure. All participants met the following inclusion criteria:

- Current enrollment in the officer training program
- No prior combat experience
- Voluntary participation with informed consent
- No previous specialized soft skills training

Demographic characteristics were comparable between groups, with no statistically significant differences in age, academic performance, or baseline soft skills assessments ($p > 0.05$ for all comparisons).

3.3. Intervention protocol

The experimental intervention was structured in three distinct phases over the 12-month study period:

3.3.1. Preparation phase (2 months)

This phase focused on establishing baseline measurements and preparing intervention materials. Key activities included instructor training in facilitation techniques, development of assessment instruments, and refinement of intervention protocols based on pilot testing.

3.3.2. Implementation phase (8 months)

The experimental group received enhanced training incorporating:

- Specialized workshops focusing on specific soft skill domains
- Mentoring sessions with experienced officers
- Combat scenario simulations
- Regular feedback and reflection sessions

The control group continued with the standard military education curriculum, maintaining regular assessment schedules but without additional soft skills interventions.

3.3.3. Evaluation phase (2 months)

This phase involved a comprehensive assessment of outcomes, including both quantitative measurements and qualitative evaluation of skill development.

3.4. Data collection and assessment tools

Multiple assessment methods were employed to ensure a comprehensive evaluation of soft skills development:

3.4.1. Quantitative assessment

Primary quantitative measures included:

- Standardized soft skills assessment questionnaires ($\alpha = 0.89$)
- Performance evaluation metrics based on objective criteria
- Leadership capability scales validated for military contexts
- Team effectiveness measures incorporating peer evaluations

3.4.2. Qualitative assessment

Qualitative data collection methods included:

- Semi-structured interviews with participants
- Observational protocols during training exercises
- Reflective journals maintained by participants
- After-action reviews following training scenarios

3.5. Statistical analysis

Data analysis employed both descriptive and inferential statistical methods. Primary analyses included:

- Chi-square tests for group comparisons
- Paired t-tests for pre-post comparisons within groups

Statistical significance was set at $p < 0.05$, with Bonferroni corrections applied for multiple comparisons. All analyses were conducted using the computer program "Statistics in Pedagogy" [11].

3.6. Ethical considerations

The study was conducted in accordance with international research ethics standards and received approval from the Institutional Review Board of the Kyiv Institute of NGU. Key ethical considerations included:

- Informed consent from all participants
- Confidentiality and data protection measures
- Right to withdraw without consequences
- No impact on academic standing or military career
- Secure data storage and handling procedures

3.7. Methodological limitations

Several limitations of the study methodology were identified and addressed:

- Single-institution setting potentially limiting generalizability
- Potential Hawthorne effect in the experimental group
- Self-reporting bias in some assessment measures
- Limited duration for observing long-term effects

These limitations were considered in the interpretation of results and development of recommendations.

4. Results

4.1. Conceptual framework development

In 1972, at the CONARC conference, a foundational definition of military soft skills emerged, recognizing them as essential social skills related to work that do not primarily involve machine interaction [15]. Examples include command, supervision, leadership, and counselling. In contrast to "hard skills" which are focused on operating equipment, soft skills deal with complex human interactions.

The key characteristics of soft skills identified in the conference are:

1. They involve actions affecting primarily people and paper rather than machines.
2. The specific behaviours and actions are difficult to define explicitly.
3. They must be applied flexibly in emergent, ambiguous situations where environmental conditions and consequences are uncertain.
4. Existing Army manuals and documents do not adequately describe the behaviours, conditions and standards for performing soft skills.

The conference emphasized that while hard skills like equipment repair are relatively easy to analyze and train using a systems engineering approach, soft skills present increased challenges. The behaviours are more general, and the performance standards are harder to define and measure compared to technical skills.

However, the conference asserted that applying a systems approach to soft skill training is feasible and necessary, even if modifications are required. Suggestions included focusing training on realistic problem-solving scenarios rather than memorizing facts, using guided experiential learning facilitated by small groups rather than lectures, and developing evaluation methods matched to the complex nature of soft skill application.

The conference proceedings depict soft skills as involving complex cognitive and interpersonal abilities that, while challenging to define and measure precisely, are critical to military leadership and must be systematically analyzed, trained and evaluated. Enhancing soft skills is portrayed as vital to producing adaptable leaders able to guide human-centric military organizations in fluid, unpredictable situations effectively. Traditional technically-oriented training approaches need to evolve to develop these essential human-oriented competencies in military personnel better.

The specified groups of soft skills correlate with the soft skills identified by graduates of HMEI NGU according to the results of a survey [8]; however, taking into account the specifics of the activities of future officers, it is advisable to neglect entrepreneurial abilities. In our opinion, soft skills are general competencies that are used to form standards of higher education in Ukraine and educational programs. They are formed during the training of a student of higher education, in particular, a future officer. General competencies from the list of the EU Tuning Project are distributed by us according to defined groups of soft skills (table 1).

These competency groups align with the soft skills identified by HMEI NGU graduates in survey results [8], though entrepreneurial abilities are deprioritized given the specific military context. The competencies can be understood as general skills essential for military leadership and operations, particularly in modern combat environments [5].

The content of the displayed table reflects the structure of the soft skills of a future NGU officer. However, it is advisable to define the interpretation of the concepts of soft skills groups. Based on the results of the analysis of scientific works, we define soft skills for NGU officers as:

> The ability to be an effective leader who achieves mission objectives through skilled communication, productive teamwork, critical problem-solving, and ethical decision-making while applying professional knowledge and combat experience.

Within the given definition:

- Communication skills are the ability of a future NGU officer to communicate effectively, understand what the interlocutor means and be understood by him, negotiate, and achieve his goal through communication.
- Critical thinking and problem-solving skills are the ability of a future NGU officer to analyze information, identify problems based on the results, identify possible solutions, and make rational decisions.
- Teamwork is the ability of a future NGU officer to work efficiently and productively in a team.
- Lifelong learning and information analysis skills are the ability of a future NGU officer to receive raw data and further transform it into helpful information for decision-making, organize the development of established competencies, and form new competencies necessary for effective management.
- Ethics, morality, and professionalism are the ability of a future NGU officer to develop a system of views, norms, and values that regulate the officer's life path and everyday professional activity and to apply the acquired theoretical knowledge and practical experience in it.

Table 1
Distribution of general competencies from the list of the EU Tuning Project by groups of soft skills necessary for the formation of a future officer of the NGU.

Set of soft skills, which are necessary for the formation of a future officer of NGU	**General competencies from the list of the EU Tuning Project, which is used to form the standards of higher education of Ukraine**
Communication skills	Ability to communicate in the national language both orally and in writing. Ability to communicate in a foreign language. Ability to perform information and communication technologies. Ability to communicate with representatives of other professional groups at different levels (with experts from other fields of knowledge/types of economic activity).
Critical thinking and problem-solving skills	Ability to conduct research at an appropriate level. The ability to be critical and self-critical. Ability to adapt and act in new situations. Ability to generate new ideas (creativity). Ability to identify, pose and solve problems. Ability to make informed decisions.
Teamwork	Ability to work in a team. Ability to interpersonal interaction.
Lifelong learning and information analysis skills	Ability to think abstractly, analyze and synthesize. Ability to learn and master modern knowledge. Ability to search, process and analyze information from various sources.
Ethics, morality and professionalism	Knowledge and understanding of the subject area and understanding of professional activity. Ability to apply knowledge in practical situations. Ability to work in an international context. Ability to perform safe activities. The ability to act on the basis of ethical considerations (motives). The desire to preserve the environment. The ability to act socially, responsibly, and consciously. Awareness of equal opportunities and gender issues. Appreciation and respect for diversity and multiculturalism.
Leadership skills	Ability to plan and manage time. The ability to evaluate and ensure the quality of the work performed. Ability to motivate people and move towards a common goal. Ability to work autonomously. Ability to show initiative and entrepreneurship. Ability to develop and manage projects. Determination and persistence in relation to assigned tasks.

- Leadership skills are the ability of a future NGU officer to organize the achievement of professional activity results.

4.2. Determination of pedagogical conditions

According to the results of the analysis of scientific sources, a survey of graduates of the HMEI of NGU [8], from our own experience, we determine the following pedagogical conditions for the formation of soft skills in future officers of NGU according to the components of the educational process:

- Regulatory and legal support of the educational process – determination of the organization's procedure for receiving feedback from stakeholders regarding the formed soft skills and their impact on performance results
- Personnel support of the educational process – performance by scientific and pedagogical workers of the functions of a facilitator – someone who turns communication into a convenient, easy, simple process for all its participants (its essential methods and techniques should be: respect and positive acceptance of the acquirer as a person capable of self-development and self-changes)
- Stimulating cadets to scientific activity by their example, teaching them research methods and their correct application; stimulating cadets to project activities as part of teams, developing team sports sections; encouraging cadets to self-study – independent acquisition of information about the basics of self-management and effective communication, that is, those skills that will help develop others, necessary for the productive performance of future duties; to reflect on one's activity; conducting planned binary and additional classes to involve professionals-practitioners
- Educational and methodological support of the educational process – the introduction of the educational components "Moral and psychological support of training and application of military formations", "Military pedagogy and psychology (including leadership)" into all educational programs for the training of future officers; introduction into the educational component "Military pedagogy and psychology (including leadership)" of the content module "Andragogy", in which to consider the issue of using the knowledge of the acquirers with the gained experience of practical activity [8]; revision of the methods of conducting classes in the implementation of educational components in HMEI, in particular, massively introducing the case method [8]
- Information provision of the educational process – use of Internet resources with free courses, in particular on the Prometheus educational platform – "How to effectively plan and conduct dialogue" [2], "Educational tools of critical thinking" [2], "Critical thinking in the Ukrainian context" [8], "Think differently: break barriers to learning and discover your hidden potential", "Fundamentals of managing teams and projects in IT. Preparatory", "Educational science: What should the leader of an educational startup know?"
- Material and technical support of the educational process – the formation and development of specialized classrooms for "military management", "moral and psychological support for service and combat activities", language and computer laboratories.

4.3. Experimental outcomes

The results of the pedagogical experiment demonstrated significant improvements across multiple soft skill domains in the experimental group compared to the control group. Table 2 presents the detailed comparative analysis of pre- and post-intervention results.

According to the calculations carried out in the computer program "Statistics in Pedagogy" [11], it was found that in the process of comparing the control and experimental groups before the start of the experiment by grouped soft skills, which are necessary for the formation of a future officer of the NGU, the empirical value of the criterion χ^2 is less than critical, so the characteristics of the compared groups coincide at the 0.05 significance level. A statistically justified conclusion was made that both groups are statistically similar. So, all the conditions for conducting an ascertaining experiment were met.

Table 2
Detailed comparison of pre and post-intervention results.

Skill category	Control group		Experimental group	
	Pre	**Post**	**Pre**	**Post**
Communication	29.4%	35.3%	26.6%	57.8%
Critical thinking	16.2%	22.1%	18.8%	42.2%
Teamwork	30.9%	38.2%	29.7%	60.9%
Learning	13.2%	25.0%	12.5%	76.6%
Ethics	14.7%	41.2%	17.2%	48.4%
Leadership	27.9%	38.2%	26.6%	59.4%

At the control stage of the experiment, the level of formation of soft skills among future officers of NGU in the process of professional training was determined; a comparison of groups was carried out according to a statistical criterion, as well as an analysis of the obtained experimental data. After studying the state of the formation of soft skills in future officers of NGU in the process of professional training with the help of the specified tools, results were obtained after the end of the experiment. According to calculations made in the computer program "Statistics in Pedagogy" [11], the following data were obtained.

In the process of comparing the control group before the start of the experiment and the control group after its completion in terms of all the grouped soft skills that are necessary for the formation of a future officer of the NGU (except for ethics, morality and professionalism), it was recorded that the empirical value of the χ^2 criterion is less than the critical one. The characteristics of the compared groups coincide at the significance level of 0.05. A statistically justified conclusion was made that both groups are statistically similar.

In the process of comparing the control and experimental groups after the end of the experiment for all the grouped soft skills that are necessary for the formation of a future officer of the NGU (except for ethics, morality and professionalism), it was determined that the empirical value of the χ^2 criterion is more than critical. The reliability of differences in the characteristics of the compared groups is 95%. A statistically justified conclusion was made that both groups are statistically different.

So, all the conditions for experimenting were met. In the experimental group, a positive dynamic of the formation of soft skills was observed in the future officers of NGU in the process of professional training according to all the grouped soft skills that are necessary for the formation of a future officer of NGU (except for ethics, morality and professionalism).

In the process of comparing the control group before the start of the experiment and the control group after its completion by grouping soft skills – ethics, morality and professionalism, it was recorded that the empirical value of the χ^2 criterion is 14.4447, the critical value is 5.991. The reliability of differences in the characteristics of the compared groups is 95%. A statistically justified conclusion was made that both groups are statistically different. This indicates that the training that forms the group of soft skills – ethics, morality and professionalism is of high quality and does not require the introduction of new pedagogical conditions.

In the process of comparing the control and experimental groups after the end of the experiment, it was determined that the empirical value of the χ^2 criterion is 0.8035, and the critical value is 5.991. Since the empirical is less than the critical, the characteristics of the compared groups coincide at the significance level of 0.05. A statistically justified conclusion was made that both groups are statistically similar. This indicates that the pedagogical conditions that were additionally implemented to

form the soft skills group – ethics, morality and professionalism do not have an effect.

In the process of comparing the experimental group before the start of the experiment and the experimental group after its completion by grouping soft skills – ethics, morality and professionalism, it was established that the empirical value of the χ^2 criterion is 18.6147, the critical value is 5.991. The reliability of differences in the characteristics of the compared groups is 95%. A statistically justified conclusion was made that both groups are statistically different.

Therefore, the conditions for conducting the experiment were not met, and in the control and experimental groups, a positive dynamic of the formation of soft skills was observed in the future officers of NGU in the process of professional training according to the grouped soft skills –ethics, morality, and professionalism.

The analysis of empirical data testified to the positive dynamics of the formation of soft skills among future officers of NGU in EG (figure 1).

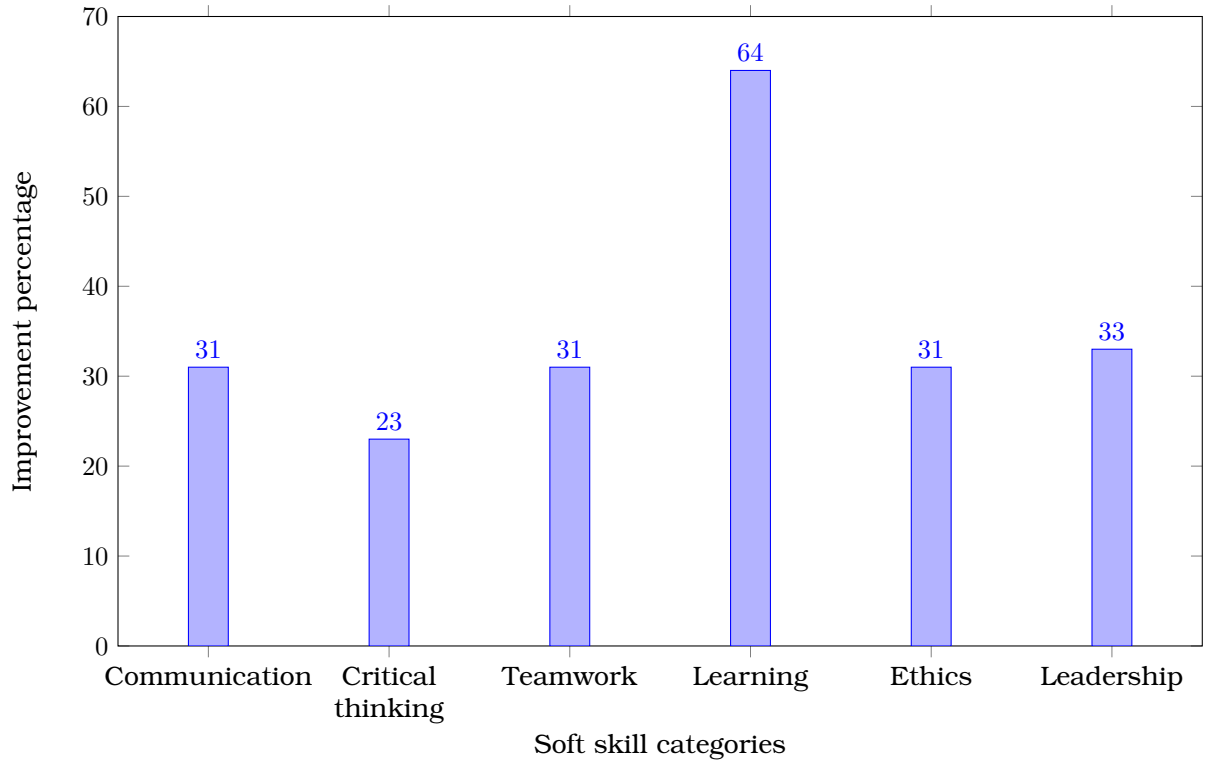

Figure 1: Percentage improvement in soft skills (experimental group vs control group).

Detailed analysis revealed varying patterns of improvement across different competency domains:

1. *Communication and teamwork skills*: Both domains showed consistent improvement patterns (31% increase), suggesting effective integration of communication and collaboration training methods. Qualitative analysis indicated that participants particularly valued practical exercises and simulation-based training in these areas.
2. *Critical thinking and problem solving*: While showing significant improvement (23%), this domain demonstrated slower development compared to other areas. Analysis suggests that these skills may require longer periods for full development and integration into professional practice.
3. *Lifelong learning and information analysis*: This domain showed the most substantial improvement (64%), potentially due to the combined effects of structured

learning activities and increased combat-relevant information processing requirements.

4. *Ethics and leadership*: Both domains showed substantial improvements (31% and 33% respectively), with qualitative data suggesting that integration of real combat experiences significantly enhanced learning in these areas.

5. Discussion

The results of this study demonstrate the effectiveness of structured pedagogical approaches in developing military soft skills while also highlighting the complexities of implementing such programs during active conflict. Our findings contribute to both theoretical understanding and practical application of soft skills development in military education, particularly in combat-adjacent environments.

5.1. Integration of combat experience and skill development

A key finding of this study is the significant role that combat experience integration plays in soft skills development. The exceptional improvement in lifelong learning capabilities (64% increase) appears to be directly related to the immediacy and relevance of combat-informed training scenarios. This finding aligns with Chalela and Britell [3]'s observation that military soft skills are most effectively developed when training closely mirrors operational realities.

The substantial enhancement in leadership capabilities (33% increase) similarly reflects the value of experience-based learning approaches. As Henderson [5] suggests, leadership development in military contexts benefits mainly from the integration of real-world operational challenges into training programs. Our results extend this understanding by demonstrating how structured pedagogical approaches can effectively facilitate this integration.

5.2. Differential effectiveness across skill domains

The varying rates of improvement across different skill domains warrant careful consideration. The relatively lower improvement rate in critical thinking skills (23%) compared to other domains suggests that some competencies may require different pedagogical approaches or longer development periods. This finding aligns with Knox, Lugo and Sütterlin [7]'s research on cognitive skill development in military contexts, which indicates that complex analytical skills often develop more gradually than interpersonal competencies.

The consistent improvement in communication and teamwork skills (31% for both domains) suggests that these competencies may be particularly amenable to structured development approaches. This pattern supports Holohan [6]'s findings regarding the teachability of interpersonal military competencies while also extending our understanding of how such skills can be developed in wartime contexts.

5.3. Pedagogical implications

Our findings have several important implications for military education:

First, the success of the mentorship component in our intervention supports the value of experienced officer involvement in training programs. This finding extends beyond traditional mentorship models, suggesting that combat-experienced officers can play a crucial role in soft skills development when properly integrated into formal education programs.

Second, the effectiveness of case-based learning methods, particularly when incorporating recent combat experiences, suggests a need to regularly update and adapt training materials to reflect current operational realities. This aligns with Medvid et al. [9]'s emphasis on the importance of maintaining relevance in military education.

Third, the strong performance improvements in lifelong learning capabilities suggest that developing meta-learning skills should be a primary focus of military soft skills programs. This finding is particularly relevant for military organizations operating in rapidly evolving combat environments.

5.4. Theoretical contributions

This study makes several contributions to the theoretical understanding of military soft skills development:

1. It extends existing frameworks for understanding soft skills in military contexts by demonstrating the interconnected nature of different skill domains and their development patterns.
2. It provides empirical support for the role of structured pedagogical approaches in accelerating soft skills development, particularly in high-stakes environments.
3. It offers new insights into the relationship between combat experience and soft skills development, suggesting that this relationship is more complex and bidirectional than previously understood.

5.5. Practical applications

The demonstrated effectiveness of integrated training approaches suggests that military education programs should:

1. Incorporate regular feedback loops between operational units and training programs to ensure relevance and effectiveness.
2. Develop flexible assessment frameworks that can accommodate both immediate and long-term skill development evaluation.
3. Establish systematic approaches for incorporating combat experiences into training scenarios while maintaining educational rigour.

5.6. Limitations and Future Research

Several limitations of this study should be considered when interpreting its findings. The single-institution setting may limit generalizability, although the wartime context provides unique insights that are not readily available in peacetime studies. The relatively short observation period (12 months) may not fully capture long-term skill development patterns.

Future research should address these limitations by:

1. Conducting multi-institutional studies to verify the generalizability of findings.
2. Implementing longitudinal studies to track skill retention and development over extended periods.
3. Investigating the impact of different cultural and organizational contexts on soft skills development.
4. Examining the relationship between soft skills development and combat effectiveness through quantitative metrics.

5.7. Broader implications

Beyond its immediate military education context, this research has implications for understanding professional development in high-stakes environments more broadly. The demonstrated effectiveness of structured approaches to soft skills development may inform training programs in other high-risk professions, particularly those requiring rapid adaptation to changing circumstances.

6. Conclusions

This study provides compelling evidence for the effectiveness of structured pedagogical approaches in developing military soft skills, particularly within the context of active conflict. Through analysis and experimentation, we have demonstrated that carefully designed educational interventions can significantly enhance the development of critical military leadership competencies.

The empirical results reveal substantial improvements across all measured competency domains in the experimental group, with particularly notable advances in lifelong learning (64% increase), leadership capabilities (33% increase), and communication skills (31% increase). Statistical analysis using the χ^2 criterion confirms the significance of these improvements at the 0.05 level, providing robust support for the effectiveness of our pedagogical interventions.

These findings advance our understanding of military soft skills development in several key ways. First, they demonstrate that even during periods of active conflict, systematic educational approaches can effectively enhance officers' non-technical competencies. Second, they reveal the particular value of integrating combat experience into training programs, suggesting a synergistic relationship between operational experience and formal education. Third, they provide evidence that different soft skill domains may require varying pedagogical approaches for optimal development.

The practical implications of this research extend beyond the immediate context of the National Guard of Ukraine. Military education institutions globally can benefit from our findings regarding the effectiveness of:

- Structured mentorship programs incorporating combat-experienced officers
- Case-based learning methods drawing on current operational experiences
- Integrated assessment approaches combining quantitative and qualitative measures
- Adaptive feedback mechanisms linking operational needs to educational content

However, these findings must be considered within the context of certain limitations. The single-institution setting and specific wartime context may affect generalizability, while the 12-month study period may not fully capture long-term skill development patterns. Future research should address these limitations through multi-institutional studies, longer observation periods, and investigation of cross-cultural applications.

Despite these limitations, this study makes significant contributions to both the theory and practice of military education. It provides empirical validation for the effectiveness of systematic soft skills development programs while offering practical guidelines for their implementation. The research particularly highlights the importance of adapting traditional military education approaches to meet the evolving demands of modern warfare.

As military operations continue to grow in complexity, the development of soft skills among officers becomes increasingly critical. This study demonstrates that such development can be effectively achieved through structured pedagogical approaches, even under challenging circumstances. The findings suggest that military education programs should continue to evolve, incorporating both traditional teaching methods and innovative approaches that reflect the realities of contemporary military operations.

This research opens several promising avenues for future investigation, including:

1. Examination of long-term skill retention and development patterns
2. Investigation of cross-cultural applications of successful pedagogical approaches
3. Analysis of the relationship between soft skills development and combat effectiveness

4. Exploration of technology-enhanced methods for soft skills training

The ongoing conflict in Ukraine provides a unique laboratory for understanding the relationship between military education and operational effectiveness. As we continue to gather data and refine our understanding, the insights gained from this research can inform the development of more effective military education programs worldwide, ultimately contributing to enhanced operational capabilities and leadership effectiveness in modern military forces.

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