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PSYCHOLOGICAL MECHANISMS FOR DEVELOPING COGNITIVE RESILIENCE TO INFORMATION MANIPULATION AMONG MILITARY PERSONNEL

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Abstract: This article examines the psychological mechanisms for developing military personnel's cognitive resilience against information manipulation. It highlights the roles of critical thinking, metacognitive monitoring, emotional self-regulation, and psychological inoculation in objective information assessment. A conceptual model for developing cognitive resilience and criteria for its evaluation are proposed.

Keywords: cognitive resilience, information manipulation, military personnel, critical thinking, metacognitive monitoring, psychological inoculation.

Introduction

In the contemporary information environment, disinformation and manipulative messages can influence how individuals receive and evaluate information and make decisions.

Consequently, developing media literacy and critical information assessment skills has become increasingly important. Maintaining cognitive functioning under psychological stress in military personnel also requires particular scientific attention.

Information manipulation refers to the deliberate presentation or alteration of information to influence an individual's or group's opinions, emotional states, interpretations of reality, or behavior. Such practices may include selective presentation of information, removal of information from its original context, the construction of false causal relationships, excessive reliance on emotional appeals, and the use of logical fallacies. However, not every attempt at persuasion or influence should be classified as manipulation. Its defining characteristics are more closely associated with the distortion of information, concealment of essential context, restriction of opportunities for independent evaluation, or exploitation of the psychological vulnerabilities of the recipient.

Cognitive resilience can be understood as the ability to analyses information independently under conditions of information pressure, uncertainty, and emotional influence; monitor one's own thinking processes; distinguish reliable information from unreliable information; and revise one's views in response to new evidence. It does not imply absolute skepticism or the rejection of all information. Rather, cognitive resilience involves a balance between justified confidence, openness to evidence, and willingness to correct errors.

Research by J. Roozenbeek and colleagues indicates that psychological inoculation approaches designed to help individuals recognise manipulative techniques in advance may improve their ability to evaluate information. A scientific review of cognitive functioning under stress in military personnel has also examined the relationships between cognitive processes, psychological strain, and adaptation.

Nevertheless, the comprehensive study of cognitive resilience to information manipulation in relation to the professional and psychological training of military personnel remains an important scientific task.

This article is theoretical and analytical in nature. Its methodological foundation consists of a review of scientific literature on information manipulation, psychological inoculation, cognitive resilience, and cognitive functioning under stress.

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The following research methods were employed:

Scientific literature analysis. Research on resistance to information manipulation, misinformation detection, psychological inoculation, and cognitive resilience was reviewed.

Comparative analysis. Approaches to critical information assessment, the early identification of manipulative influence, and the maintenance of cognitive control under stress were compared to identify their common and distinctive features.

Systems approach. Cognitive, emotional, metacognitive, and socio-psychological factors were interpreted as interconnected elements of a single system.

Conceptual synthesis. A model for developing cognitive resilience among military personnel was proposed by synthesizing theoretical findings from the scientific literature.

The article does not present new empirical data. Accordingly, it does not claim to provide statistical analyses, experimental findings, or empirical confirmation of causal effects. The proposed model is theoretically grounded, and its practical effectiveness must be evaluated through specifically designed empirical research.

Theoretical Foundations of Information Manipulation and Cognitive Resilience

Psychological Characteristics of Information Manipulation

The effects of information manipulation depend not only on the content of a message but also on how it is presented, the emotional state it evokes, and the extent to which it corresponds to an individual's existing beliefs.

Several commonly encountered techniques are characteristic of manipulative information.

Emotional pressure. Intensifying fear, anger, anxiety, or a sense of urgency in order to reduce the time available for analytical thinking.

False dichotomy. Presenting a complex situation as though only two alternative options exist.

Context distortion. Presenting an event or piece of information selectively in a way that changes its meaning.

Repetition effect. Repeated exposure to the same claim may increase the likelihood that it will be perceived as credible.

Ad hominem attacks. Targeting the personal characteristics of an information source instead of examining the evidence presented.

False causal relationships. Incorrectly interpreting events that occur simultaneously as being causally related.

Roozenbeek and colleagues have demonstrated that training individuals to recognise techniques such as emotionally charged language, logical inconsistencies, false dichotomies, scapegoating, and personal attacks may improve their ability to distinguish reliable information from unreliable information [1].

However, an emotionally charged message or frequently repeated claim cannot automatically be classified as false. The validity of information must be assessed on the basis of its source, supporting evidence, context, and potential for independent verification.

The Concept of Cognitive Resilience

Developing cognitive resilience among military personnel requires systematic psychological preparation, the ability to manage thinking under stress, and the consistent verification of information. A 2025 study on the development of cognitive resilience within the Czech military education system also highlights the importance of systematizing this area and integrating it into educational processes.

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Cognitive resilience should not be understood as an absolute resistance to external influence. Rather, it refers to the ability to regulate thinking consciously, maintain analytical functioning under uncertainty, and revise conclusions when new evidence becomes available.

This concept encompasses three principal characteristics.

First, individuals should be able to evaluate information on the basis of its content, source, and supporting evidence rather than relying solely on initial impressions.

Second, even when emotional influence or social pressure intensifies, individuals should be able to control premature conclusions and identify the information necessary for sound decision- making.

Third, cognitively resilient individuals remain willing to consider evidence that contradicts their initial beliefs. When new information is reliable, they are prepared to revise their views.

In this sense, the defining criterion of cognitive resilience is not an unwillingness to change one's opinion, but the ability to regulate and revise one's thinking on the basis of evidence.

Psychological Mechanisms for Developing Cognitive Resilience to Information Manipulation Among Military Personnel

Metacognitive Monitoring

Metacognitive monitoring refers to the ability to observe one's own thinking processes, evaluate their reliability, and modify one's analytical strategy when necessary.

In situations involving information manipulation, individuals may accept their initial impressions as established facts. Metacognitive monitoring encourages them to ask questions such as: "What evidence supports this conclusion?", "Which information have I not verified?", and "What alternative explanations are possible?"

To develop this mechanism among military personnel, training may include breaking down information assessment into distinct stages, verifying evidence before reaching conclusions, and reviewing the reasoning behind decisions after they have been made.

An important function of metacognitive monitoring is to align an individual's level of confidence in their knowledge with the actual strength of the available evidence. Both overconfidence and persistent doubt about well-supported information may undermine the quality of decision-making.

Critical Thinking

Critical thinking is the ability to analyses information logically, evaluate evidence, assess the validity of conclusions, and consider alternative explanations.

Information manipulation often relies on logical fallacies, unsupported generalisations, and the conflation of evidence with personal attitudes. Critical thinking helps individuals distinguish the substantive content of information from its emotional impact.

The following exercises may be used to develop critical thinking among military personnel:

Separating factual statements from the author's interpretations.

Comparing evidence that supports a claim with evidence that contradicts it.

Identifying the original source and checking it against other independent sources.

Determining the conditions under which a conclusion might need to be revised.

Identifying logical fallacies and unsupported generalisations in information.

The purpose of these exercises is not to encourage suspicion towards all information, but to ensure that the degree of confidence placed in a claim corresponds to the quality of the available evidence.

Psychological Inoculation and Advance Warning

Psychological inoculation theory is based on preparing individuals for potential future manipulation by informing them in advance about manipulative techniques and exposing them to simplified examples that illustrate how these techniques operate.

Two processes are particularly important in this approach. The first involves warning individuals about the possibility of manipulation. The second involves demonstrating how a manipulative technique works and teaching strategies for identifying it.

Lewandowsky and van der Linden's review examines the theoretical foundations of preventive approaches to misinformation, including psychological inoculation and advance warning. Roozenbeek and colleagues found that short videos designed to familiarise participants with manipulative techniques could improve their ability to distinguish reliable from unreliable messages.

Psychological inoculation training for military personnel may be organised as follows:

Introducing common information manipulation techniques.

Identifying these techniques through safe educational examples.

Explaining the manipulative features of a message.

Practising alternative analytical and verification strategies.

Assessing the application of these skills to new and previously unseen examples.

The key feature of this mechanism is that its purpose is not merely to refute a particular false message, but to teach individuals to recognise recurring manipulation techniques across different types of content.

Emotional Self-Regulation

Emotional states may influence how information is received and evaluated. When fear, anger, anxiety, or a sense of urgency intensifies, individuals may be more likely to make decisions without fully examining the logical foundations of a message.

For this reason, developing cognitive resilience should not be limited to intellectual exercises. It should also include skills for recognising and regulating emotional states.

The following methods may be used to develop emotional self-regulation:

Identifying and recognising one's emotional reactions.

Delaying decisions, where circumstances permit, when strong emotional pressure is present.

Using breathing regulation and attention-focusing exercises.

Distinguishing emotional impressions from factual information.

Reappraising information and considering alternative explanations.

The purpose of this approach is not to eliminate emotions, but to help individuals recognise and regulate the influence of emotions on information assessment.

Cognitive Flexibility

Cognitive flexibility is the ability to modify one's thinking strategies in response to new information, changing circumstances, and alternative evidence.

When resisting information manipulation, it is insufficient merely to defend an initial position. If individuals consistently accept information that confirms their existing beliefs while dismissing contradictory evidence, they may remain vulnerable to manipulation.

Cognitive flexibility can be developed by encouraging individuals to generate several plausible explanations for an event, reassess their initial conclusions, and practise revising decisions when new evidence becomes available.

This mechanism is an important component of cognitive resilience because resilience does not imply rigid thinking. Rather, it involves maintaining well-supported conclusions while remaining willing to revise them when justified.

Assessing the Reliability of Information Sources

Assessing the reliability of information sources is a practical mechanism for protecting against cognitive manipulation. However, the official appearance of a source, the widespread circulation of a message, or the high reputation of its author does not, by itself, guarantee that the information is accurate.

Information sources should therefore be assessed using the following criteria:

The origin of the information.

The publication date and context of the message.

The availability of evidence supporting the claim.

The presence of references to original sources.

Confirmation by other independent sources.

The distinction between factual statements and the author's interpretations.

The use of emotional pressure or demands for urgent dissemination.

In training military personnel, it is important to practise applying these criteria to both simple and complex information examples and to develop responsible practices for handling unverified information.

Socio-Psychological Monitoring and Collective Verification

Information assessment is not exclusively an individual cognitive process. Trust within a group, the opinions of leaders, colleagues' attitudes, and collective norms may also influence how information is accepted.

For this reason, it is advisable to establish clear and practical procedures for information verification within military units. Such procedures may include checking the origin of information, clarifying suspicious reports through authorised channels, and avoiding the dissemination of unverified claims.

Collective verification does not eliminate individual responsibility. Instead, it serves as an additional monitoring mechanism that complements individual analysis.

In military settings, these processes should comply with established procedures for handling service-related information. Confidential information must not be uploaded to public sources, and authorised channels should be used to verify suspicious reports.

A Conceptual Model for Developing Cognitive Resilience

Based on the mechanisms discussed above, a five-stage conceptual model is proposed for developing military personnel's cognitive resilience to information manipulation.

Stage 1: Initial Assessment

At this stage, personnel are assessed in terms of their information evaluation skills, ability to recognise manipulative techniques, emotional self-regulation, and confidence in their own conclusions.

The purpose of the assessment is not to classify personnel as psychologically strong or weak, but to determine the content and complexity of the training programme.

Stage 2: Developing Cognitive Awareness

At this stage, personnel learn about common information manipulation techniques, logical fallacies, false causal relationships, and strategies involving emotional influence.

The primary objective is to develop their ability to recognise the indicators of manipulative information.

Stage 3: Practical Cognitive Exercises

Personnel are presented with safe educational examples. They practise identifying information sources, distinguishing evidence from interpretation, generating alternative explanations, and detecting manipulative features.

Psychological inoculation, critical thinking, and metacognitive monitoring are applied together at this stage.

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Stage 4: Training Under Stress and Uncertainty

At this stage, personnel evaluate information in safe simulated situations involving time constraints, incomplete information, and conflicting reports.

The purpose of these exercises is not to force personnel into rushed decision-making, but to develop their ability to verify evidence and assess the justification for decisions under pressure.

Stage 5: Evaluation and Reinforcement

At the final stage, the criteria used in the initial assessment are applied again.

Personnel are evaluated on their ability to identify manipulative techniques, assess source reliability, revise conclusions on the basis of evidence, and maintain analytical thinking under emotional pressure.

The assessment should examine not only whether personnel remember the training examples, but also whether they can apply the acquired skills to unfamiliar messages.

Interrelationship Between the Components of the Model

Stage	Main mechanism	Expected outcome
Initial assessment	Psychological and cognitive assessment	Identification of baseline indicators
Cognitive awareness	Information literacy and manipulation recognition	Recognition of manipulative indicators
Practical exercises	Critical thinking and metacognitive monitoring	Evidence-based information assessment
Stress simulation	Emotional regulation and cognitive flexibility	Maintenance of analytical functioning under uncertainty
Final assessment	Skills evaluation and reinforcement	Assessment of changes and planning of further training

The proposed model is a theoretical framework. The effectiveness of all its stages must be verified through empirical research involving an appropriate military sample.

Criteria for Assessing Cognitive Resilience

To determine the practical value of the proposed approach, cognitive resilience should be assessed using several interrelated criteria.

Ability to identify manipulation. The ability to recognise emotional pressure, false dichotomies, unsupported generalisations, and context distortion.

Assessment of source reliability. The ability to verify the origin of information, identify primary sources, and independently corroborate evidence.

Metacognitive accuracy. The degree of correspondence between an individual's confidence in a conclusion and the actual strength of its evidential basis.

Emotional self-regulation. The ability to avoid accepting information hastily and without verification when emotional pressure intensifies.

Cognitive flexibility. The ability to reconsider initial conclusions and take alternative explanations into account when new evidence becomes available.

Responsible information sharing. The ability to avoid disseminating unverified information without checking it and to comply with established procedures when dealing with suspicious reports.

It is advisable to use several complementary methods to assess these criteria. Standardised tests, scenario-based tasks, behavioural observation, and self-assessment instruments may be combined.

It must be recognised that a high self-assessment score does not necessarily indicate a high level of actual cognitive resilience. Therefore, self-assessment results should be compared with objective tasks and behavioural indicators.

Discussion

The analysis suggests that cognitive resilience to information manipulation cannot be adequately explained by a single psychological characteristic or isolated skill. It should be viewed as a complex capacity arising from the interaction of cognitive, metacognitive, emotional, and socio-psychological mechanisms.

The first important conclusion is that effective preparation against information manipulation should focus not only on rejecting false messages but also on recognising manipulative techniques in advance. Research on psychological inoculation indicates that this approach has considerable potential [2; 4].

The second conclusion concerns the relationship between cognitive resilience and emotional self-regulation. Maintaining the time and attention needed to verify information under emotional pressure is important. However, emotional regulation alone cannot establish whether information is accurate. It must therefore be combined with logical analysis and source verification.

The third conclusion relates to cognitive flexibility. Resilience to manipulation is not determined by the ability to preserve previously established beliefs unchanged, but by the ability to evaluate new evidence objectively and revise conclusions when necessary.

The fourth consideration is the need to test cognitive skills under stressful conditions as part of military personnel's psychological preparation. The review by Flood and Keegan on cognitive resilience and psychological stress in military personnel highlights the importance of this area [3]. However, findings concerning cognitive functioning under general stress should not be interpreted as direct evidence of the effectiveness of training against information manipulation.

The scientific and practical contribution of this article lies in synthesising complementary mechanisms of cognitive resilience and proposing a framework for integrating them into systematic psychological training.

First, the article is theoretical and analytical in nature and does not include experimental findings obtained in a particular military unit or military educational institution.

Second, dedicated empirical research is needed to determine the relative effectiveness of the proposed mechanisms and examine their interactions.

Third, assessment instruments for cognitive resilience should be adapted to the age, professional responsibilities, training level, and information environment of military personnel.

Future research should incorporate baseline and follow-up assessments, a control group, tasks designed to identify manipulative messages, and evaluations of whether acquired skills are retained over time. This would make it possible to assess the effectiveness of the proposed model using verifiable empirical indicators rather than theoretical assumptions alone.

Conclusion

Developing cognitive resilience to information manipulation among military personnel is an important aspect of psychological preparedness in the contemporary information environment. Cognitive resilience is characterised by the ability to think independently, verify evidence, and make well-founded decisions under conditions of information pressure, uncertainty, and emotional influence.

The analysis identifies several complementary psychological mechanisms that may contribute to this capacity: metacognitive monitoring, critical thinking, psychological inoculation, emotional self-regulation, cognitive flexibility, source reliability assessment, and collective verification.

The proposed conceptual model integrates these mechanisms into a five-stage process comprising initial assessment, cognitive awareness, practical exercises, training under stress and uncertainty, and final evaluation. Its practical value lies in providing a structured theoretical foundation for developing psychological training programmes for military personnel.

However, the model's effectiveness cannot be considered empirically established until it has been tested using appropriate research designs, validated assessment instruments, and statistical analysis.

Overall, developing cognitive resilience to information manipulation among military personnel requires a systematic approach that integrates individual psychological preparedness, critical thinking, and responsible information-handling practices. The proposed conceptual model may serve as a theoretical foundation for further empirical research and the development of psychological training programmes for military personnel.

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