

## SHAPING MINDS FOR SECURITY: COGNITIVE RESILIENCE AND THE STRATEGIC ROLE OF UNIVERSITY EDUCATION IN ROMANIA

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**Abstract:** *In the context of hybrid threats, information warfare, and increasing societal polarisation, cognitive resilience has become a critical dimension of national and societal security. This paper explores the role of university-level security studies programs in building cognitive resilience, with a focused case study on Romania. It argues that higher education institutions, particularly those delivering security and defence-related curricula, function not only as professional training environments but also as strategic actors in strengthening society's resistance to disinformation, manipulation, and hostile influence. The study analyses how cognitive resilience is reflected in the structure, content, and learning outcomes of selected Romanian academic programs in security studies, international relations, and defence education. Using qualitative content analysis of curricula, course descriptions, and institutional mission statements, the research identifies the extent to which these programs address critical thinking, media and information literacy, understanding of hybrid threats, strategic communication, and democratic values. Particular attention is paid to the integration of interdisciplinary approaches that connect security studies with education sciences, psychology, communication, and information technology.*

*The findings suggest that while Romanian university programs increasingly incorporate elements related to information security and hybrid threats, cognitive resilience is often addressed indirectly rather than as an explicit educational objective. The paper concludes by proposing a framework for integrating cognitive resilience more systematically into security-related higher education.*

**Keywords:** *cognitive resilience; education; Romania; security studies; undergraduate programs.*

### Introduction

The contemporary security environment expanded beyond traditional military confrontation and includes the cognitive domain as a central arena of strategic competition. Scholars emphasise that cognitive warfare targets perception, decision-making, and collective sense-making, using disinformation, narrative manipulation, and hybrid instruments to exploit cognitive vulnerabilities. In this context, cognitive resilience has emerged as a core component of national and societal security, understood as the capacity of individuals and institutions to critically evaluate information, resist manipulation, and formulate coherent responses to complex threats.

Education is increasingly recognised as a primary mechanism for cultivating this resilience. Universities, particularly those offering programs in security studies, play a strategic role in shaping the analytical, normative, and adaptive capacities of future professionals in the security field. In Romania, the evolution of security studies from a predominantly militarised model to a civilian-

academic framework raises an important question: *to what extent do contemporary university programs actively contribute to the development of cognitive resilience?*

This paper addresses this question through a qualitative content analysis of Romanian undergraduate security studies programs. Operationalising cognitive resilience through four analytical dimensions: critical thinking, media and information literacy, understanding hybrid threats, and strategic analysis capacity, the study evaluates how these competencies are integrated into curricula. The findings suggest that while important foundations exist, the articulation of cognitive resilience remains uneven, highlighting the need for a more explicit and coherent curricular integration.

The paper is structured as follows: first section outlines the theoretical framework on cognitive resilience and its relationship to national and societal security, the second section presents the research design, including case selection and methodological approach and the third section maps the institutional landscape of security studies in Romania and analyses the four analytical dimensions within university curricula. The final section discusses the implications of the findings for higher education policies and cognitive resilience, highlighting limitations and directions for future research.

## 1. Literature review

The contemporary security environment has fundamentally transformed in the last decades. Threats are increasingly targeting the cognitive domain, with all its components – the realm of human perception, decision-making and collective sense-making. Cognitive warfare is seen as “not limited to information operations, social engineering, or a struggle for “hearts and minds”, but it should be extended to all areas of activity of individuals and societies, where ideological attacks are possible” (Reczkowski and Lis 2022, 56). Thus, the human mind itself becomes the battlefield, imposing new approaches to building state resilience against cognitive operations. This conceptualisation has been further developed. Ask et al. (2025, 20), propose a unified definition of cognitive security as “the state of having trusted boundaries protecting cognitive assets against all forms of unauthorised influence or access”, identifying four interdependent cognitive resilience factors: cognitive agility, machine psychology, neurosecurity, and systems engineering.

Cognitive resilience in the context of national security extends beyond individual psychological resilience to encompass collective cognitive capacities that underpin national sovereignty and societal stability. Moleka (2025, 4) introduces the concept of “Metawar” as a new domain of warfare that synergises cyber, information, psychological, and algorithmic operations to dominate cognitive landscapes, arguing that national security must incorporate cognitive sovereignty and mental-informational resiliency to counter these stealthy, pervasive cognitive operations. Similarly, Taranenko (2024, 382) identifies cognitive security as a crucial dimension of the Russia-Ukraine war, where cognitive warfare aims to affect human cognition, critical thinking, and decision-making, with the goal of building resistance to harmful informational and psychological influences.

The integration of cognitive resilience into security frameworks reflects a recognition that contemporary conflicts operate across multiple domains simultaneously. Recent research demonstrates how cognitive warfare infiltrates and shapes mindsets through reflexive control strategies, undermining resilience and resistance by conveying specially prepared information to adversaries to incline them toward predetermined decisions (Tsikhelashvili 2023, 6). This approach exploits cognitive biases and provokes distortions in decision-making processes, operating covertly to cause distrust and fragmented awareness within target populations.

The urgency of addressing cognitive resilience as a security dimension has been amplified by recent geopolitical developments and technological advances. Senčar (2021, 17) emphasises that an effective response to current security challenges requires a mental shift and strengthening cognitive resilience alongside solidarity, noting that information warfare targeting the cognitive sphere poses particular challenges to open, democratic societies. It is argued that strengthening cognitive resilience

involves enhancing societal situational and threat awareness through critical thinking and democratic deliberation, enabling stronger identification with security strategies.

Empirical evidence from conflict zones underlines the practical importance of cognitive resilience. Semenenko, Kin, Remez et al. (2025, 42-44) outline key steps for Ukraine to enhance cognitive resilience within its society and defence sector from 2025-2028, considering threats from the Russian-Ukrainian war, global information confrontation, and economic challenges. Their research establishes a system of military-economic consequences of cognitive influence and describes measures for Ukraine to increase its cognitive resilience while lawfully influencing adversarial consciousness.

The challenge extends beyond traditional warfare contexts. Grahn, Häkkinen and Taipalus (2024, 170) examined citizen perceptions of cognitive security during Finland's NATO joining process, finding that individuals observed increased attempts at malign influence and internet malfunctions alongside a diminished overall sense of security, though trust in Finnish defence forces remained consistently high. The findings highlight the complex interplay between geopolitical events and cognitive security, emphasising the need for nuanced security approaches in an era of what the authors term "gray instability" (Morris, Mazaar, Hornung et. al. 2019, 7-13).

On the other side, cognitive resilience has emerged as a fundamental component of national sovereignty in the 21<sup>st</sup> century. A decision-making model to ensure national resilience in the context of hybrid threats is highlighting that such threats specifically target decision-making mechanisms and defining resilience within national security frameworks (Karpenko, Boniar, Semenchuk et. al 2025, 449-452). Their model addresses current vulnerabilities, hostile actors, and risks to national security, offering policy steps to enhance cognitive resilience through robust decision-making processes.

The concept of cognitive sovereignty has gained particular traction in discussions related to national security. Moleka (2025) argues that "not so traditional" security paradigms focused on cyberspace are insufficient, proposing instead a doctrinal framework with five pillars: anticipation, strategic narrative protection, coordinated counter-influence, cognitive recovery, and interagency integration. This framework includes recommendations for creating specialised *Metawar units* and regional coordination mechanisms, particularly for vulnerable regions like Africa, to strengthen defence architectures against evolving cognitive threats.

A different approach provides theoretical insights into building psychological resilience in smaller nations using Significance Quest Theory, exploring individual psychological motivations and capabilities to strengthen national resilience before, during, and after potential invasions (Houck 2024, 5-10). Using Mongolia as a case study with quantitative survey data, Houck demonstrates how smaller nations can preserve sovereignty against stronger powers through strategic cultivation of psychological and cognitive resilience at the population level.

Military organisations have increasingly recognised cognitive resilience as essential to operational effectiveness. Daskalov (2018, 201-202) highlights that hybrid warfare necessitates mental agility and adaptability, making psychological resilience a critical concept for security policy and advocating for resilience training in the Bulgarian military to foster psychological health. It is emphasised a shift from traditional warrior ethos to a comprehensive approach that includes self-awareness, self-regulation and mental agility, aligning with broader NATO military practices. The pedagogical dimensions of cognitive resilience training have also received attention. Hardy (2024, 84-85) examines wargaming as a pedagogical tool for developing cognitive resilience, finding that wargaming as a co-construction process between designers and players fosters reflexive thinking and adaptation crucial for cognitive security. As such, open game design can explore information analysis, communication, decision-making, and resilience both individually and collectively, offering a ludo-pedagogical and strategic research tool for military and security applications. Ducourneau (2024, 90-91) advocates for a design lab approach to cognitive security based on six principles, emphasising that cognitive operations must be founded on an emic understanding of target populations within constrained timeframes for effective deterrence. The author highlights that cognitive resilience requires robust tools for knowledge, training, and exercise, addressing the multi-scale and

interdisciplinary nature of cognitive warfare through design thinking that emphasises creativity, collective intelligence, and cognitive tools.

At national level, there are several nations that have developed comprehensive frameworks integrating cognitive resilience into national security strategies. Hyvönen & Juntunen (2020, 160-169) trace the evolution from “spiritual defence” to robust resilience in the Finnish comprehensive security model, demonstrating how Finland has systematically integrated cognitive and psychological dimensions into its whole-of-society security approach. This model emphasises the importance of societal cohesion, shared values, and collective will as foundations for national resilience. On the other hand, Keinonen (2023, 567-574) explores the concept of comprehensive security as a tool for cyber deterrence, arguing that cognitive resilience forms a critical component of deterrence strategies in the digital age. The author demonstrates how comprehensive security frameworks that integrate cognitive, cyber, and traditional security dimensions create more robust deterrence postures than approaches focused solely on technical or military capabilities.

Wibisono et al. (2025, 3744) examine Indonesia’s Sishanta (Universal Defense System) as a whole-of-nation defence strategy rooted in collectivist culture, religiosity, and local wisdom, providing a unique psychological foundation for societal resilience and national unity. The study proposes integrating digital literacy into “Bela Negara” (Defend the State) education and leveraging AI for threat detection to cultivate societal resilience against digital threats like disinformation and psychological operations, though it notes challenges including slow regulatory adaptation and weak non-military coordination (Wibisono, Purwantoro, Duarte 2025, 3745).

Cognitive resilience also plays a crucial role in maintaining democratic institutions and processes. The 2023 report on building resilience in the European Union in times of polycrisis emphasises that cognitive domain challenges – including disinformation, perception management, and psychological manipulation – undermine trust in democratic institutions. The report recommends building resilience through education, media literacy, critical thinking, digital competencies, and mental toughness, alongside applying exponential design to strategic thinking and fostering multilateralism and close cooperation with NATO. Senčar (2021, 18) contrasts the Kantian tradition of thought characterising the European post-Cold War order (democracy, human rights, cooperation) with a Hobbesian or realist vision emphasising systemic competition and conflict. Cognitive resilience is identified as the initial resistance to information warfare, strengthened by critical thinking and societal awareness, and argues that informing and involving electorates in security discussions fosters identification with strategies and strengthens domestic resilience and geopolitical solidarity. Also, cognitive security is defined as both a state and process where malign influence or manipulation cannot alter human cognition, including opinion formation and decision-making (Grahn, Häkkinen, Taipalus 2024, 172). Their research on Finnish citizen perceptions highlights psychological information influence as a crucial aspect within the cognitive dimension, aiming to shape attitudes, emotions, opinions, and decision-making processes. The study reveals that while geopolitical changes may temporarily diminish security perceptions, strong institutional trust can buffer these effects.

Cognitive resilience at the societal level depends fundamentally on social cohesion and community bonds. Zarghooni-Hoffmann and Ylönen (2023, 3549-3552) conceptualise societal security as a system-of-systems, examining customs agencies’ cross-sectoral contributions to societal resilience. This systems perspective emphasises the interconnected nature of societal security, where cognitive resilience in one sector can enhance or undermine resilience in others, necessitating coordinated, whole-of-society approaches.

Overall, cognitive resilience has emerged as a critical dimension of both national and societal security in the contemporary threats and vulnerabilities environment. The literature reviewed demonstrates that cognitive resilience operates at multiple levels – individual, community, and national – with each level contributing to overall security capacity. Ultimately, cognitive resilience represents not merely a defensive capability, but a fundamental attribute of healthy, functioning democracies. In an era where the human mind has become a contested domain, cognitive resilience emerges as essential infrastructure for national sovereignty, democratic governance, and social cohesion.

## 2. Research design

This research has a qualitative design based on content analysis and institutional documentary analysis. This methodological choice is appropriate to the normative and multidimensional nature of the concept of cognitive resilience, which has been established in recent literature as an essential component of national and societal security in the context of the expansion of cognitive warfare and hybrid threats.

Given the growing relevance of cognitive resilience in contemporary security architecture, the research aims to answer the following research question: *To what extent do Romanian university programs in the field of security integrate the concept of cognitive resilience?* Based on an analysis of the specialised literature, the concept is operationalised through four analytical dimensions considered relevant for capturing educational expression.

Firstly: (a) critical thinking, understood as the ability to reflectively evaluate information and resist manipulation, is essential. The literature on cognitive security emphasises that contemporary warfare aims to influence perceptions and decision-making processes by exploiting cognitive vulnerabilities, while “cognitive agility” is seen as the ability to adapt flexibly to dynamic information environments, essential for protecting “cognitive frontiers”. In the curricula analysis, this dimension will be quantified by analysing courses that focus on methods and tools for critical analysis and argumentation. Secondly, (b) media and information literacy, which involves the ability to navigate and evaluate the contemporary digital ecosystem. Cognitive warfare uses disinformation and narrative manipulation to fragment social cohesion. Discussions on European resilience highlight media literacy and digital skills as central defence mechanisms in the cognitive domain. This dimension is operationalised by identifying courses or objectives related to strategic communication, combating disinformation, information security, and digital ecosystem analysis. Moving forward, (c) understanding hybrid threats, i.e., knowledge of informational and psychological influence mechanisms, is based on the concept developed by Moleka in the context of the conflict in Ukraine, more specifically that of *Metawar*, which presents a reality of the new type of warfare. More specifically, the authors discuss the fact that contemporary threats combine informational, psychological, and cyber components. In this context, cognitive resilience requires an understanding of the mechanisms of strategic influence and reflexive control. In the analysis, this dimension is reflected in courses dedicated to hybrid warfare, information security, and psychological operations. The final dimension of analysis is (d) strategic analysis capability, reflecting the ability to anticipate, assess risks, and formulate coherent responses in complex security contexts. The comprehensive security models emphasise the integration of the cognitive dimension into decision-making and national security architecture. This dimension is identified through references to strategic planning, public policy analysis, and risk assessment.

The cases were selected through purposive sampling, including higher education institutions in Romania that offer study programs in the field of security, strategic studies, defence, and public order, within civilian universities as well as within military or non-civilian institutions. The choice of this type of sampling is justified by the objective of the research, which does not seek statistical representativeness, but rather the analytical relevance of the selected cases.

Data collection was carried out through documentary analysis of the main curricular instruments that structure the educational process. Thus, the curricula and subject files related to the courses included in the analysed programs were examined. The curricula were used to identify the structure of the programs, the distribution of subjects, and the weight of courses relevant to the dimensions of cognitive resilience. The subject files allowed for a detailed analysis of educational objectives, targeted skills, thematic content, and assessment methods. The analysis focused on explicit formulations regarding the skills developed (e.g., critical thinking, strategic analysis, information assessment), as well as on thematic content associated with hybrid threats, information security, or strategic communication. The use of these official documents ensures access to the formal curriculum

of the programs and allows for a systematic and comparable assessment of how cognitive resilience is integrated at the institutional level.

### **3. The ecosystem of higher education institutions in Romania**

The higher education system in Romania is characterised by significant institutional diversity, structured according to the academic profile and educational mission of each category of institution. This structure reflects both the historical university tradition and the transformations that have taken place since 1990 in the context of educational reforms and alignment with European standards.

Multidisciplinary universities are at the core of the Romanian university system. These institutions have a long academic tradition and a major national impact, offering study programs in a wide range of fields, from social sciences and humanities to exact and technical sciences. They function as centers of advanced research and attract a significant number of students, constituting central landmarks in the national academic architecture. Technical and polytechnical universities specialised in engineering and applied sciences, play an essential role in training specialists in infrastructure development and management, information technology, and industrial systems. In the context of digital transformation and the growing importance of cybersecurity, these institutions also contribute indirectly to strengthening national technological security capabilities. Medical, pharmaceutical, and veterinary universities are centers of training and research in the field of health, integrating teaching with professional practice and biomedical research. Their role is essential for strengthening the national health infrastructure and developing professional expertise in strategic areas. Universities of arts, music, and sports have a specialised profile, focusing on creative and performing arts. Although more limited in terms of disciplinary scope, they contribute to strengthening cultural identity and the symbolic dimension of social cohesion, which are relevant elements in discussions on societal resilience.

A distinct category is represented by institutions focused on governance and public policy, which offer programs in public administration, economics, or political science. These have a narrower profile, but play an important role in training decision-makers and specialists in the public sector.

Private universities, developed mainly after 1990, have contributed to expanding access to higher education and diversifying academic offerings. Although the level of quality varies, they have stimulated institutional competition and are present in many university centers, offering programs in law, management, and finance in particular.

Finally, military higher education institutions occupy a distinct position in the system, being responsible for training personnel in the fields of defence, public order, and national security. Each academy covers a specific operational area, contributing directly to the development of strategic culture and national security architecture. The field of security is approached from both an operational and strategic perspective, integrating components such as information analysis, cybersecurity, and risk assessment.

### **4. Institutionalisation of Security Studies in Romania: From Militarised to Civilian Models**

The evolution of security studies in Romania reflects the broader political and institutional transformations of the Romanian state over the past decades. During the communist period, one could hardly speak of security studies as an autonomous academic field in the Western sense. Security-related knowledge production was highly centralised, ideologised, and institutionally fragmented, with the Department of State Security (*Securitate*) playing the dominant role in the intelligence and internal security domain, while the Ministry of National Defence primarily managed the military dimension.

In the immediate post-1989 period, the dissolution of the *Securitate* and the creation of new intelligence structures (notably the Romanian Intelligence Service) opened the way for the gradual institutionalisation of security and intelligence studies. Early academic efforts in this field were

largely developed within institutions affiliated with the newly created intelligence community, such as the High Institute of Intelligence (1992) and later The Mihai Viteazul National Intelligence Academy (ANIMV), before the progressive expansion of civilian academic programs in the 2000s.

The process of Euro-Atlantic integration has generated significant pressure for conceptual and institutional reform in the field of security. Romania's accession to NATO in 2004 and to the European Union in 2007 required alignment with Western standards on democratic control of the security sector, transparency, and professionalisation of public administration. In this context, it became clear that training was needed not only for military personnel, but also for civilian specialists in fields such as international relations, security policy, defence studies, and strategic analysis. Thus, the first civilian security studies programs appeared at universities such as Babeş-Bolyai University, the University of Bucharest, and the National School of Political and Administrative Studies (SNSPA). The Mihai Viteazul National Intelligence Academy (ANIMV), coordinated by the Romanian Intelligence Service, played a particular role at this stage. Although integrated into an institutional structure specific to the security sector, ANIMV developed programs accredited in the national higher education system, representing a bridge between the traditional militarised model and the emerging academic model.

After joining the European Union, security studies in Romania have gradually gained ground in civilian academia. The topics covered have diversified to include national security, international security studies, cybersecurity, energy security, and societal security.

Universities have become relevant actors in the production of expertise and strategic analysis, and the involvement of civil society and the academic community in the public debate on security has increased significantly. At the same time, the interdisciplinary dimension of the programs has been emphasised by integrating perspectives from political science, law, economics, sociology, and communication sciences. Internationalisation has been another defining feature of this phase, through participation in programmes such as Erasmus and projects funded by the European Union. These processes have contributed to the consolidation of democratic values and the strengthening of the principle of civilian control over the security sector, considered an essential standard of democratic governance.

Overall, the institutionalisation of security studies in Romania highlights a transition from a model focused on operational and doctrinal training to an academic, interdisciplinary model oriented toward critical analysis and integration into the Euro-Atlantic knowledge space.

## **5. Dimensions of cognitive resilience in the curriculum of security programs in Romania**

Security studies programs are offered by a diverse number of higher education institutions in Romania, both public and private, distributed relatively evenly across the country. From an institutional perspective, most programs are hosted by large public universities with a multidisciplinary profile and a strong academic tradition. Relevant examples include Babeş-Bolyai University in Cluj-Napoca, the University of Bucharest, and the West University of Timișoara. These institutions are major university centers with extensive research capacity and a large number of students, which provide security programs with a stable and interdisciplinary academic framework. Alongside these, there are also medium-sized public universities, such as Lucian Blaga University in Sibiu or the University of Oradea, which integrate security studies into faculty structures with a socio-human profile.

Geographically, the programs are distributed across the country's main university centres: Cluj-Napoca (Transylvania), Bucharest (southern region), Timișoara and Arad (west), Sibiu (center), Oradea (northwest), as well as other university cities. This dispersion indicates a relative regional balance in the academic offer in the field of security, avoiding exclusive concentration in the capital. At the same time, the presence of a program in a private university (the "Vasile Goldiș" Western University of Arad) reflects the expansion of the field into the non-public sector.

In terms of institutional framework at faculty level, security studies programs are predominantly placed in faculties specialising in political science, governance sciences, international relations, social sciences and humanities. For example, at Babeş-Bolyai University, the program is integrated into both

the Faculty of History and Philosophy and structures associated with political and administrative sciences. At the University of Bucharest, security studies are associated with the Faculty of Political Sciences, while at other universities they are integrated into faculties of social sciences or governance sciences. This positioning confirms the predominantly civil and analytical nature of the programs, with an emphasis on the political, strategic, and societal dimensions of security.

At the same time, there are also military or non-civilian institutions (such as the *Carol I National Defence University* or the *Mihai Viteazul National Intelligence Academy*) that offer bachelor's degree programs in security or intelligence. However, these operate within a distinct institutional framework, geared towards professional training specific to the defence and security sector.

The broad geographical distribution of security studies programs, their integration into multidisciplinary civilian universities, and their predominant placement in political science and social sciences departments are directly important for strengthening cognitive resilience at the societal level. Firstly, placing these programs in civilian academic environments promotes the development of critical thinking, normative reflection, and democratic debate, which are essential elements for resistance to information manipulation and hostile influence. Second, the interdisciplinary nature of the faculties in which they are integrated, which connects security with political science, communication, sociology, or law, allows hybrid threats to be addressed in a complex, not exclusively operational, manner. Last but not least, the regional distribution of programs helps to avoid the concentration of expertise in the capital alone and supports the formation of a culture of security that extends nationwide. In this sense, the civil-academic institutionalisation of security studies is not only a structural evolution of the university system, but also an indirect mechanism for strengthening cognitive resilience in society.

### ***Critical thinking***

Data analysis indicates that critical thinking is one of the most consistent dimensions present in bachelor's degree programs in the field of security studies. It is present in almost all the institutions and programs analysed. The presence of this dimension is not accidental. Within the national quality assurance standards formulated by Romanian Agency for Quality Assurance in Higher Education (ARACIS)<sup>1</sup>, the development of critical analysis, argumentation, and information evaluation skills is a central criterion for the accreditation of programs in the field of political science and security studies. The evaluation standards emphasise the need to train graduates who are able to critically interpret political and strategic realities, use appropriate theoretical concepts, and formulate reasoned judgments. Thus, critical thinking is not only a pedagogical objective but also a formal indicator of academic quality.

From the perspective of cognitive resilience, the importance of this dimension is fundamental. The literature shows that cognitive warfare and hybrid threats target precisely the vulnerabilities of perception and decision-making processes, exploiting cognitive biases and analytical deficits. The development of critical thinking contributes to an individual's ability to evaluate information sources, identify narrative manipulation, and distinguish between facts, interpretations, and propaganda. In this sense, the skills cultivated in university programs, comparative analysis, logical argumentation, and reflection on the decision-making process become mechanisms of protection against information distortions. One limitation of this is that critical thinking is often approached in a general manner, without a direct connection to the specific issues of information manipulation, cognitive warfare, or strategic influence. From the perspective of cognitive resilience, the simple development of analytical skills is not sufficient; their explicit contextualisation in relation to contemporary information vulnerabilities is necessary.

Therefore, the systematic inclusion of critical thinking in the curriculum of security studies programs is not only a compliance with ARACIS standards, but also a direct contribution to strengthening cognitive resilience at the individual and societal levels. Training graduates who are able to rigorously analyse the security environment and critically evaluate information is becoming

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<sup>1</sup> Romanian Agency for Quality Assurance in Higher Education is an independent Institution who carries out the quality external evaluation of education provided by higher education institutions which operates in Romania.

essential for maintaining decision-making coherence and democratic stability in an increasingly complex information context.

### ***Media literacy***

The second dimension analysed, media and information literacy, understood as the ability to critically evaluate digital sources, understand the mechanisms of information propagation, and identify manipulation techniques, appears in our analysis in a significantly less consolidated form than critical thinking, although the literature considers it one of the most important components of cognitive resilience in the current context of information warfare and hybrid threats.

In some universities, this dimension is explicitly present, through disciplines such as “Disinformation and Propaganda”, “Communication and Public Relations”, “Transparency and Security in the Digital Society”, or courses focusing on intercultural communication and digital environment analysis. For example, Babeş-Bolyai University makes direct references to disinformation and strategic communication, while the University of Bucharest includes topics related to security in the digital society. These examples indicate a certain institutional sensitivity to the issues of the contemporary information environment.

In contrast, at other universities, such as the University of Oradea or Lucian Blaga University in Sibiu, media literacy is taught more indirectly, through general courses on communication or public policy, without an explicit focus on disinformation, algorithmic manipulation, or the digital ecosystem. In these cases, the media dimension does not appear as an autonomous curricular pillar, but as a marginal element integrated into broader disciplines.

This variability suggests that media literacy is not yet a consolidated curricular dimension at the national level in the field of security studies. Unlike critical thinking, media literacy does not enjoy the same normative visibility or clear operationalisation in quality criteria. It is often subsumed under general communication or analysis skills, without being treated as a distinct field. This situation is problematic from the perspective of cognitive resilience. The literature on cognitive security emphasises that the digital information environment is the main space for influence operations, disinformation, and narrative manipulation. Cognitive vulnerabilities are amplified by algorithms, online polarisation, and information overload. In this context, media literacy becomes an essential infrastructure for democratic security.

Compared to critical thinking, media literacy is less developed and less systematically integrated into the curricula of the programs analysed. This discrepancy indicates a potential structural vulnerability: universities develop general analytical skills, but do not always anchor them sufficiently in the reality of the contemporary digital information environment. Therefore, strengthening media literacy should be a strategic priority for security studies programs. The integration of courses dedicated to disinformation, information security, analysis of digital ecosystems, and the impact of emerging technologies would significantly contribute to strengthening cognitive resilience, both at the individual and societal levels. Without such reinforcement, there is a risk that security training will remain partially disconnected from one of the most pressing dimensions of contemporary threats.

### ***Hybrid threats***

The third dimension analysed, understanding hybrid threats, is relatively well represented in bachelor’s degree programs in the field of security studies, but with significant differences in depth and structure between universities.

In several institutions, this dimension is integrated through dedicated disciplines or clear thematic modules. For example, at Babeş-Bolyai University, there are courses such as “Fundamental Problems of the Contemporary World” or “Analysis of Unconventional Risks to Security”. The University of Bucharest includes topics such as “Analysis and Resolution of International Conflicts”, while other universities offer courses on “Conflict Management” or “Introduction to Security

Studies”. These provide a conceptual framework for understanding the interaction between the military, political, economic, and informational dimensions of contemporary conflicts.

In medium-sized universities (e.g., Oradea, Sibiu), hybrid threats are addressed mainly through general security or public policy courses, without necessarily having courses explicitly dedicated to the concept of “hybrid warfare” or “cognitive warfare”. In these cases, the analysis remains predominantly theoretical and less anchored in the concrete instruments of strategic influence or information manipulation.

Militarised institutions or those with a national security profile tend to approach this dimension in a more operational manner, with an emphasis on risk assessment, strategic analysis, and applied national security. In contrast, civilian universities favor an analytical and interdisciplinary approach, focused on international relations, security policies, and conflict dynamics.

From the perspective of ARACIS quality standards, addressing contemporary security issues and developing the ability to analyse the international environment are essential skills for specialisations in this field. However, data analysis suggests that the term “hybrid threats” is not always used explicitly, often being subsumed under more general formulations regarding international security or global conflicts.

This dimension plays a major role in strengthening cognitive resilience. The literature emphasises that hybrid threats combine military, informational, economic, and psychological tools, aiming to influence society’s perceptions and decisions. Understanding the mechanisms by which state and non-state actors use disinformation, economic pressure, social polarisation, or cyber tools contributes to the development of critical awareness of the security environment.

However, the analysis reveals an important limitation: in many programs, hybrid threats are addressed primarily from a geopolitical or strategic perspective, without sufficient integration of the cognitive dimension, i.e., the impact on perceptions, public opinion, and democratic processes. Thus, although the topic is present at the conceptual level, the direct connection with cognitive resilience is not always explicit.

As a preliminary conclusion, the dimension of hybrid threats is relatively well represented in the curriculum, but there are differences in depth and articulation between universities. Strengthening this component through more integrated approaches, connecting strategic analysis with the informational and psychological dimensions, could significantly amplify the contribution of security studies programs to the development of cognitive resilience at the societal level.

### ***Strategic analysis capacity***

The last dimension analysed, strategic analysis capacity, is one of the most consistently represented components in bachelor’s degree programs in the field of security studies. It appears both in dedicated disciplines, such as “Strategic Analysis”, “Introduction to Security Studies”, “Public Policy”, or “Decision-Making Processes”, and in courses that develop risk assessment and public policy option formulation skills.

At large universities, such as Babeş-Bolyai University or the University of Bucharest, strategic analysis is integrated into a solid theoretical framework, associated with international security studies and comparative public policy. Courses such as “Comparative Public Policy” or “Decision-Making Processes” contribute to the formation of a structural understanding of how national and international strategies are developed and implemented. At the West University of Timișoara and other regional universities, strategic analysis is present in disciplines focused on governance, conflict management, and strategic planning.

Military and national security institutions tend to approach this dimension in a more applied and operational manner, with an emphasis on strategic planning, doctrine, and risk assessment. In contrast, civilian universities favor conceptual analysis, comparison between policy models, and reflection on decision-making processes in democratic contexts.

In relation to cognitive resilience, this dimension has structural relevance. If critical thinking protects individuals against manipulation and media literacy helps them navigate the information environment, strategic analysis contributes to the ability to understand the systemic dynamics of threats and formulate coherent responses. It develops the ability to anticipate, evaluate scenarios, and integrate multiple pieces of information into a strategic perspective, reducing the risk of impulsive or fragmented responses to crises.

However, data analysis suggests that, in some programs, strategic analysis is approached predominantly at a theoretical level, without sufficient practical exercises (such as simulations, in-depth case studies, or prospective scenarios). In the absence of a robust practical component, there is a risk that this dimension will remain at a conceptual level, without fully developing the adaptive response capacity needed in a volatile security environment.

In conclusion, strategic analysis skills are one of the best-integrated dimensions in the security studies programs analysed. However, strengthening the applied components and connecting them more explicitly to the cognitive dimension of security could significantly amplify their contribution to the development of cognitive resilience at the individual and societal levels.

## **6. Limitations of the research. Future research directions**

This research has a number of methodological and conceptual limitations that must be taken into account when interpreting the results. First, the analysis was based exclusively on formal curriculum documents (curriculum plans and subject descriptions). This approach captures the stated curriculum, but does not allow for an assessment of the implemented curriculum or actual teaching practices. It is possible that certain competencies associated with cognitive resilience are developed informally, through teaching methods or extracurricular activities, without being explicitly reflected in the documents analysed. Secondly, the research did not assess the actual impact of the programs on students. The presence of a subject or skill in the course description does not guarantee the effective internalisation of critical analysis, media literacy, or strategic evaluation skills. The lack of empirical tools (questionnaires, interviews, competency tests) limits the ability to measure training outcomes in terms of effective cognitive resilience.

Based on these limitations, future research could adopt a mixed methodological design, combining documentary analysis with empirical methods. The use of questionnaires or interviews with students and teachers would allow for the assessment of perceptions of the skills developed and how they effectively contribute to cognitive resilience. Another relevant direction would be to conduct an international comparative analysis to assess the extent to which Romanian programs align with best practices in the Euro-Atlantic area. A comparison of curricula with universities in NATO or EU member states could highlight gaps or innovative models for integrating media literacy and the cognitive dimension of security.

## **Conclusions**

The analysis carried out in this research must be placed in relation to recent theoretical developments that define cognitive resilience as an essential component of national and societal security. The literature highlights the fact that the contemporary security environment has expanded beyond the traditional military dimension to include the cognitive domain as a space for strategic competition. Conceptualisations of cognitive warfare, hybrid threats, and information security emphasise that current vulnerabilities target not only physical or digital infrastructures, but also the processes of perception, interpretation, and decision-making of individuals and communities. In this theoretical framework, cognitive resilience is understood as the set of skills that enable the identification of manipulation, the critical evaluation of information, and the formulation of coherent strategic responses.

Based on this conceptual framework, the research analysed the extent to which Romanian university programs in the field of security integrate dimensions associated with cognitive resilience. The results indicate the existence of solid foundations, particularly in terms of critical thinking and strategic analysis, but also relevant gaps, especially in the field of media literacy and the explicit articulation of the cognitive dimension of hybrid threats. Thus, the conclusions must be interpreted in light of the theoretical framework that asserts that university education is one of the essential infrastructures for strengthening democratic security in an increasingly complex information environment.

An analysis of the four dimensions – critical thinking, media and information literacy, understanding hybrid threats, and strategic analysis – indicates that bachelor's degree programs in security studies in Romania integrate elements relevant to the development of cognitive resilience, but in an uneven manner and, in some cases, implicitly rather than explicitly.

Critical thinking and strategic analysis are the best represented dimensions, supported both by the disciplinary tradition of political science and security studies, and by the formal requirements of ARACIS standards regarding analytical and argumentative skills. However, in many cases, these competences are formulated in generic terms, without a detailed methodological clarification of how they are cultivated and assessed. There is a risk of declarative formalisation, in which objectives are assumed at the curricular level but not always supported by appropriate pedagogical practices.

Understanding hybrid threats is relatively consistent, particularly in the fields of international security, conflict studies, and public policy. However, the concept of “hybridity” and the cognitive dimension of threats are not always explicitly addressed. Analysis often remains at the geopolitical or general strategic level, without sufficiently integrating the impact on perceptions, decision-making processes, and societal cohesion.

The most vulnerable dimension is media and information literacy, which, although essential for cognitive resilience in the digital age, is poorly structured and insufficiently institutionalised in many of the programs analysed. It appears fragmentarily, through communication courses or references to disinformation, but is rarely treated as an autonomous curricular pillar. This gap is significant, given that the information environment is the main arena for contemporary cognitive warfare.

Overall, it can be said that undergraduate security studies in Romania contain important foundations for the development of cognitive resilience, but this is not formulated as a coherent and integrated curricular objective. The dimensions analysed exist, but they are scattered and not articulated within a unified conceptual framework. The explicit consolidation of cognitive resilience as a cross-cutting educational objective, through the clearer integration of media literacy, the cognitive dimension of hybrid threats, and applied pedagogical methods, could transform these programs from mere spaces for analytical training into veritable academic infrastructures for societal security.

In order to strengthen the contribution of security studies programs to the development of cognitive resilience, it is necessary, first of all, to explicitly formulate it as a cross-curricular objective. This would require the coherent integration of the four dimensions analysed into a unified conceptual framework, rather than merely mentioning them fragmentarily in the course descriptions. The introduction of courses dedicated to media literacy and combating disinformation, the development of applied modules on cognitive warfare and hybrid threats, as well as the use of interactive methods (simulations, wargaming exercises, case studies on manipulation and information) would contribute to the transition from a predominantly theoretical model to a formative and adaptive one. In this regard, updating ARACIS standards could include clearer references to digital skills and the cognitive dimension of contemporary security.

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