



Review

of the Air Force Academy

The Scientific Informative Review, Vol.X, No 1(20)/2012

Configuring a New World of Peace



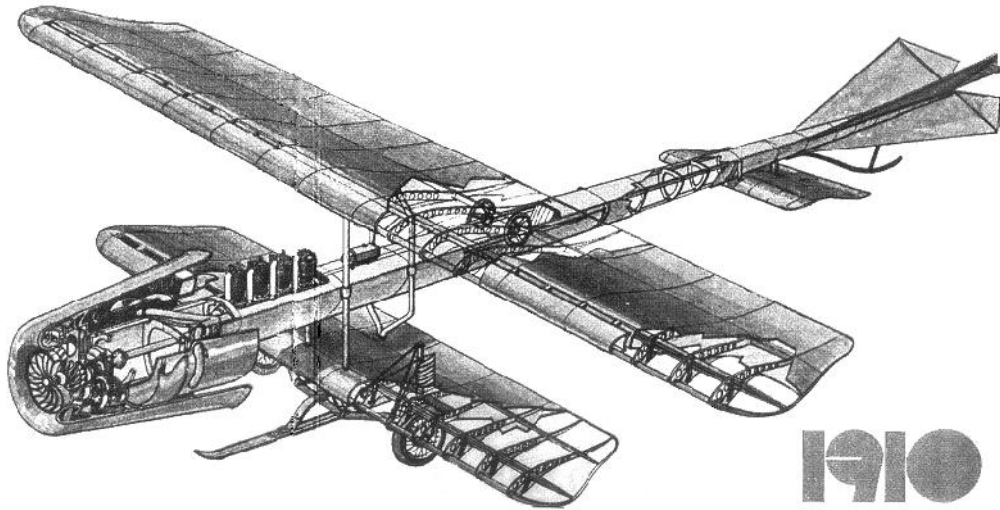
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METHOD OF ASSESSMENT RELIABILITY OF THE BOLTED CONNECTION

Doru LUCULESCU

“Henri Coandă” Air Force Academy, Braşov, Romania

Abstract: The bolted connection are deactivated mainly due to crushing and shearing stresses. Request bolt bending can neglect because of elements of the assembly clearances are generally very small. This paper presents a design variant of this type of assembly, ultimately determining the reliability of the assembly function.

Keywords: bolted connection, crushing stresses, shearing stresses, statistical parameters, percentage reliability, Laplace function.

1. DETERMINATION THE STATISTICAL PARAMETERS OF SHEARING STRESS

The shearing stress of the bolted connection is described by relation [1]:

$$\tau_s = \frac{F}{n \cdot A_1} \quad (1)$$

where: τ_s - tension shear bolt material; F - force applying assembly; A_1 - section shear bolt; n - number of sections of shear (generally $n = 2$).

Considering that the bolt have the nominal diameter d, a_s higher deviation and lower deviation a_i , field size tolerance is considered:

$$T_d = a_s - a_i \quad (2)$$

Considering that the size distribution is where most likely a Normal partition law, then 99.72% of values fall in the variable d:

$$\Delta = 6\sigma_d = (m_d - 3 \cdot \sigma_d; m_d + 3 \cdot \sigma_d) \quad (3)$$

where: m_d - mean random variable d; σ_d - standard deviation of the random variable d.

Mean cross-sectional bolt has the expression:

$$m_{A_1} = \frac{\pi \cdot m_d^2}{4} \quad (4)$$

where: m_d - mean value of the bolt diameter, approaching the average nominal value;

Equation (4) shows that random variable A_1 - cross section bolt, is a function of random variable d - diameter bolt. As a result, cross-sectional standard deviation value is determined by the relation:

$$\sigma_{A_1} = \sqrt{\left(\frac{\partial A_1}{\partial d}\right)^2 \cdot \sigma_d^2} = \frac{\pi}{4} \cdot 2 \cdot m_d \cdot \sigma_d \quad (5)$$

Given the relation (1), the average shear bolt stress is:

$$m_{\tau_s} = \frac{m_F}{2 \cdot m_{A_1}} \quad (6)$$

Standard deviation of the shear bolt stress is calculated with relation:

$$\sigma_{\tau_s} = \sqrt{\left(\frac{\partial \tau_s}{\partial F}\right)^2 \cdot \sigma_F^2 + \left(\frac{\partial \tau_s}{\partial A_1}\right)^2 \cdot \sigma_{A_1}^2} \quad (7)$$

or:

$$\sigma_{\tau_s} = \frac{1}{2} \sqrt{\frac{m_F^2 \cdot \sigma_{A_1}^2 + m_{A_1}^2 \cdot \sigma_F^2}{m_{A_1}^2}} \quad (7')$$

$$\sigma_{\tau_s} = \frac{1}{2m_{A_1}} \sqrt{\sigma_F^2 + \left(\frac{m_F}{m_{A_1}} \cdot \sigma_{A_1}\right)^2} \quad (7'')$$

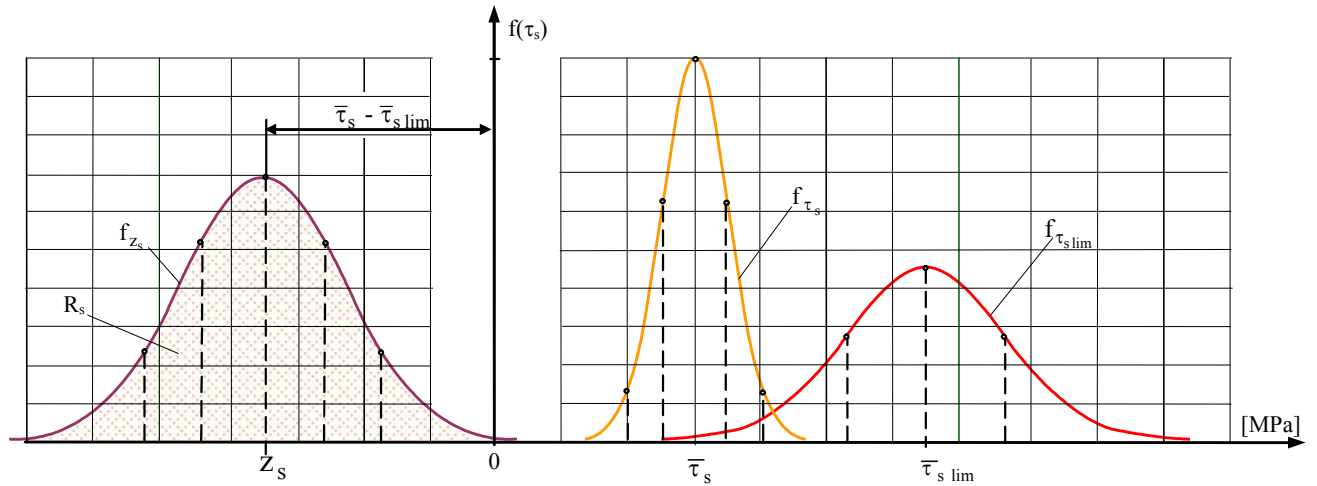


Fig.1 Graphical representation of admissible and effective stress distributions for the application of shear and reliability function for this application

Because the terms of (6) and (7^o) values are known, the bolt shear stresses can be defined as a random variable, namely: $(m_{\tau_s}, \sigma_{\tau_s})$.

Shear stress allowable bolt material is also considered a random variable $(m_{\tau_{sa}}, \sigma_{\tau_{sa}})$, its can determine the statistical parameter of safety at the request of shear bolt, a_{b_s} (Tudor, 1988:138):

$$a_{b_s} = (m_{\tau_{sa}} - m_{\tau_s}) / \sqrt{D_{\tau_{sa}} + D_{\tau_s}} \quad (8)$$

where: $m_{\tau_{sa}}, m_{\tau_s}$ - means of the shear stress admissible and effective; $D_{\tau_{sa}}, D_{\tau_s}$ - dispersions of the shear stress admissible and effective;

Reliability function of the assembly of the bolt resistance provided at the request of shear is determined by the relation:

$$R_{b_s} = \Phi(a_{b_s}) = \frac{\gamma_{b_s}}{100} \quad (9)$$

where: $\Phi(a_{b_s})$ - Laplace function argument a_{b_s} ; γ_{b_s} - reliability percentage for application of shear;

In fig. 1 were represented in the same coordinates system of probability density distributions for the shear stress admissible and effective, the shaded area representing the bolt assembly reliability.

Similarly proceed to determine the reliability and assembly with bolts for requests for crushing material between bolt and hook (if clambolt assembly).

2. DETERMINATION THE STATISTICAL PARAMETERS OF CRUSHING STRESS

The crushing stress of the bolted connection is described by relation (Chişiu, 1981:142):

$$\sigma_c = \frac{F}{n \cdot A_2} = \frac{F}{n \cdot l_1 \cdot d} \quad (10)$$

where: σ_c - the tension of the bolt crushing material; F - force applying assembly; A_2 - crushing section of the bolt; n - number of sections of crushing (generally $n = 2$).

Mean crushing section is expressed as:

$$m_{A_2} = m_{l_1} \cdot m_d \quad (11)$$

From equation (11) that the random variable A_2 - crushing section, is a function of random variables l_1 and d . In this case, the standard deviation of the crushing section is determined by the relation:

$$\sigma_{A_2} = \sqrt{m_{l_1}^2 \cdot \sigma_d^2 + m_d^2 \cdot \sigma_{l_1}^2} \quad (12)$$

Given the relation (10), the mean crushing stress is expressed as:

$$m_{\sigma_c} = \frac{m_F}{2 \cdot m_{A_2}} \quad (13)$$

Standard deviation of the crushing stress relationship is determined by (Martinescu, Popescu, 1995:87):

$$\sigma_{\sigma_c} = \sqrt{\left(\frac{\partial \sigma_c}{\partial F}\right)^2 \cdot \sigma_F^2 + \left(\frac{\partial \sigma_c}{\partial A_2}\right)^2 \cdot \sigma_{A_2}^2} \quad (14)$$

$$\sigma_{\sigma_c} = \sqrt{\frac{m_F^2 \cdot \sigma_{A_2}^2 + m_{A_2}^2 \cdot \sigma_F^2}{m_{A_2}^2}} \quad (14')$$

$$\sigma_{\sigma_c} = \frac{1}{m_{A_2}} \sqrt{\sigma_F^2 + \left(\frac{m_F}{m_{A_2}} \cdot \sigma_{A_2}\right)^2} \quad (14'')$$

Since the terms of relations (13) and (14'') are known values, crushing stress can be defined as a random variable, namely:

$(m_{\sigma_c}, \sigma_{\sigma_c})$.

Crushing admissible stress bolt material is also considered a random variable $(m_{\sigma_{ca}}, \sigma_{\sigma_{ca}})$, we can calculate the statistical parameter of safety at the request of crush a_{b_c} [4]:

$$a_{b_c} = (m_{\sigma_{ca}} - m_{\sigma_c}) / \sqrt{D_{\sigma_{ca}} + D_{\sigma_c}} \quad (15)$$

where: $m_{\sigma_{ca}}, m_{\sigma_c}$ - means crushing stress admissible and effective; $D_{\sigma_{ca}}, D_{\sigma_c}$ - dispersions admissible crushing stress and effective;

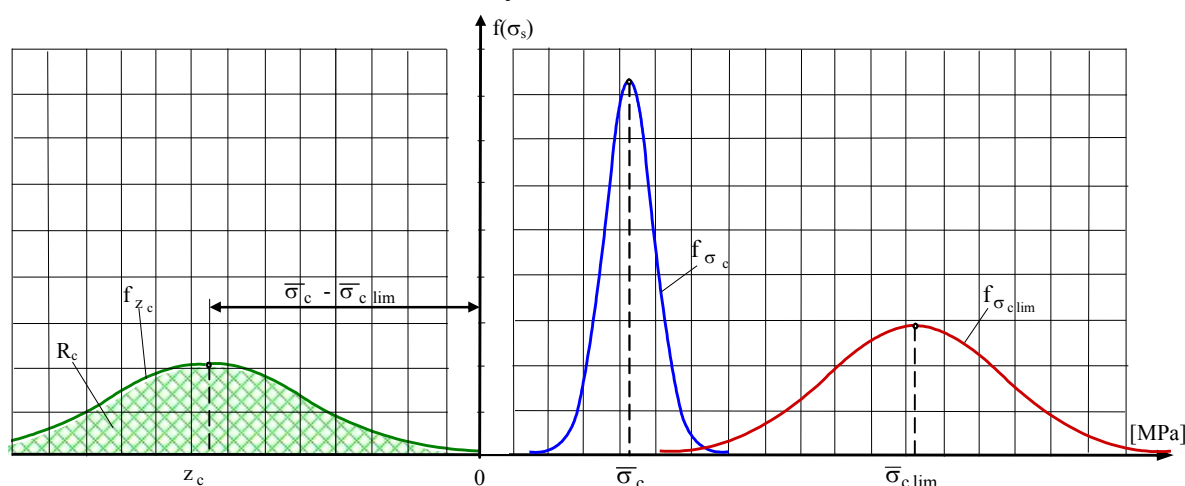


Fig.2 Graphical representation of admissible and effective stress distributions for the application of crush and reliability function for this application

In figure nr. 2 is represented in the same coordinates system of probability density distributions for effective crushing stress and admissible, the shaded area bounded by the graph of the function and reliability being abscises axis assembly with bolts.

Reliability function of the assembly of resistance provided at the request of crushing bolt is determined by the relation:

$$R_{b_c} = \Phi(a_{b_c}) = \frac{\gamma_{b_c}}{100} \quad (16)$$

where:

$\Phi(a_{b_c})$ - Laplace function argument a_{b_c} ;
 γ_{b_c} - Reliability percentage at the request of crushing;

Taking into account the principle that resistance of materials used in theory, the "overlapping effects" case analyzed in this article, the bolt assembly during operation, appear simultaneously both shear stress and the crushing stress.

In this case the overall reliability function of the bolt assembly is expressed as:

$$R_b = R_{b_s} \cdot R_{b_c} \quad (17)$$

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A STUDY OF CONVENTIONAL UPPER SURFACE BLOWN WING CONFIGURATIONS

Valeriu DRĂGAN

“Politehnica” University of Bucharest, Bucharest, Romania

Abstract: *The goal of this paper is to investigate the particularities of Upper Surface Blown (USB) wing aircraft configurations and to establish criteria for their further optimization. The method used is numerical, a series of CFD simulations being carried out and their output parameters compared. It was found that although a low aspect ratio nozzle offers better lift and thrust, it also is prone to asymmetrical loadings on the turbine disk. Therefore, a higher aspect ratio nozzle is safer to use. The work can be used as a starting point in designing a USB aircraft that offers the desired balance of safety and performance.*

Keywords: *Upper Surface Blown wing, Coandă Effect, Computational Fluid Dynamics.*

1. INTRODUCTION

Circulation control has been a popular theme for achieving Short Take-Off and Landing (STOL) aircraft for military transport. Although there is a large number of circulation control methods (Kuethe and Chow, 1998) the Upper Surface Blowing (USB) has the most applications in large transport aircraft: the Boeing YC 14 and the Antonov An-72 series.

In a USB wing configuration, super circulation is achieved by passing the airflow from the fan onto the wing section. There are two reasons why a USB wing achieves more lift:

1. Higher angles of attack are permitted due to the fact that the boundary layer is controlled.

2. Because the airfoil section has a curved upper surface, air accelerates due to the Coandă effect. This leads to a decrease in static pressure – hence lift.

Current USB designs rely on conventional supercritical airfoils, common in high-subsonic aircraft. This means that the curvature of the upper surface is quite low and thus the lift component due to the Coandă effect is low. Design methodologies are described in (Johnson and Phelps 1974) and (Lan and Campbell, 1974).

This study investigates the impact of the aspect ratio of the fan nozzle on the Coandă effect over the conventional airfoil.

2. THE USB TESTING

2.1 Initial conditions and parameters. In this section we will test two existing super circulation configurations. Because the current applications use only low by-pass ratio turbofans, we will have to re-design a USB configuration that accommodates a high by-pass ratio turbofan. This is necessary because these engines offer higher efficiency and lower specific fuel consumption.

All tests are based on the geometry of the General Electric GE 90 turbofan engine. The basic parameters used are:

Maximum Diameter: 3124 mm

By pass ratio: 8.4

Total mass flow: 1350 kg/s

Exhaust Gas Temperature: 1100 K

From which we deduce:

Fan mass flow 1206 kg/s

Core mass flow 143,6 kg/s

The geometry of the nacelle is done in accordance with (Kroo and Alonso, 2000)

The wing airfoil is similar to that of an Airbus A340 airliner (van Dam, 2002).

2.2 Full scale simulation of the high bypass turbofan engine All simulations are made using the k-epsilon Reynolds Averaged Navier Stokes viscosity model, with a cartesian mesh, as seen in Fig.[1]. Because the flow is expected to have a high velocity, in the compressible regime, the boundary conditions were mass flow inlets for the fan and turbine discharges and mass flow outlet for the engine intake.

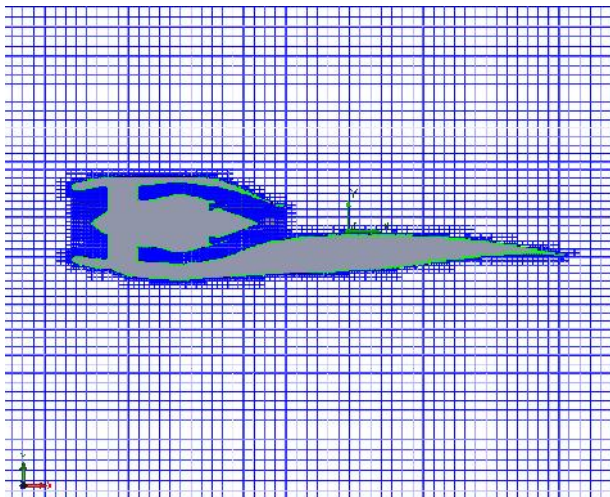


Fig. 1. Geometry and discretisation of the engine considered

Calculated core thrust: 114184.4 N
 Calculated full Thrust: 499261.3 N
 Certified full thrust: 500000 N
 deviation: 0.147746268 %.

2.3 Conventional super-circulation nacelle-wing configurations

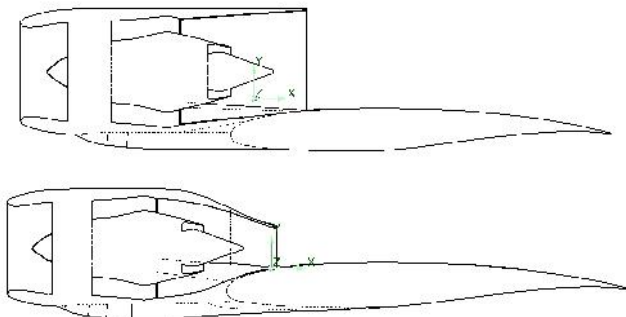


Fig. 2 Conventional super circulation configurations for Upper Surface Blown wings, low aspect ratio (top) and high aspect ratio (bottom)

Two cases were selected:

1. Low aspect ratio exhaust nacelle
2. High aspect ratio exhaust nacelle.

In the first case, the following parameters were obtained through the CFD simulation:

Total engine thrust=480577.5 N

Thrust-Wing Drag = 478836.9 N

Representing: 95.76% of the bare engine thrust

Lift/Thrust ratio = 4.1398

By plotting the static pressure distribution onto the turbine outlet section we obtain the image presented in Fig. 3. It can be easily observed that the presence of the wing near the fan flow influences dramatically the pressure distribution of the engine core. This in its turn will lead to un-even turbine disk loadings and induce mechanical oscillations onto the entire low pressure rotor.

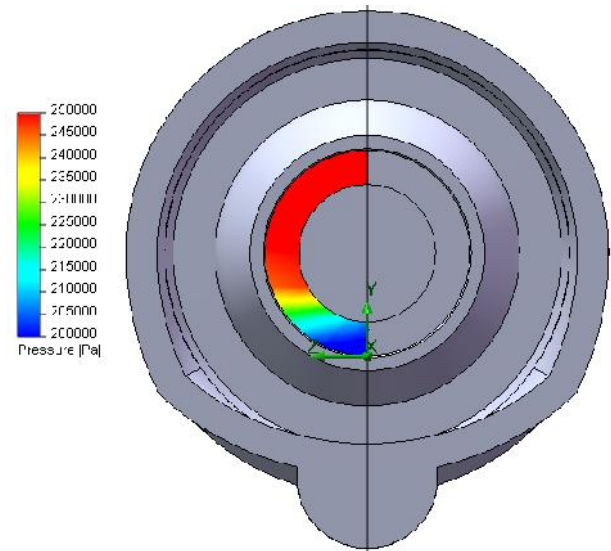


Fig.3 Pressure distribution at the turbine outlet section of the low aspect ratio exhaust nacelle. We can observe the large inhomogeneities induced by the presence of the wing. This in turn can lead to asymmetrical loadings on the low pressure (LP) turbine disk

The plots in Fig. 4 represent the static pressure and velocity distributions across the super circulated wing section. A comment can be made, the pressure drop is localized only in the regions where the fluid is accelerated due to the Coandă effect.

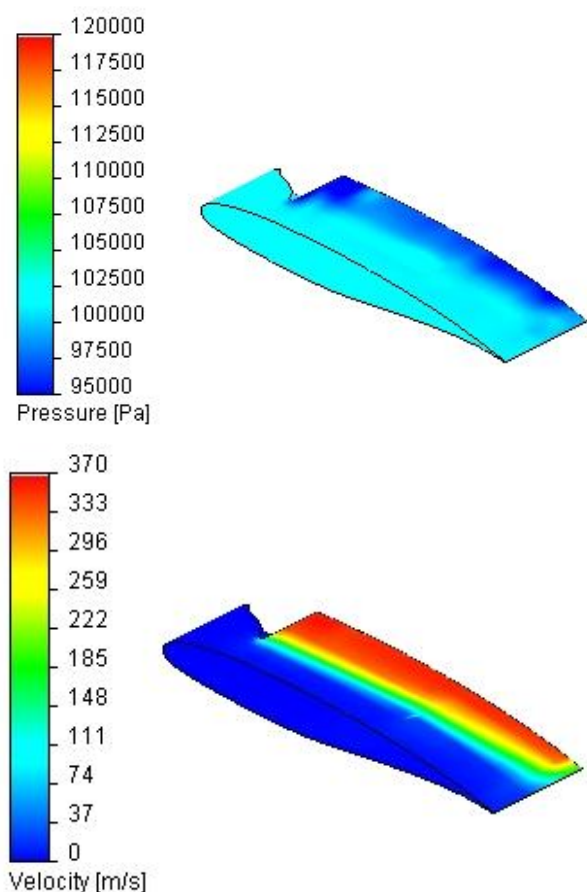


Fig. 4. Static pressure distribution (top) and velocity distribution (bottom) due to the fan flow over the super-circulated wing section in the case of the low aspect ratio exhaust nacelle.

In the second case, the high aspect ratio nacelle, the following parameters were determined:

Total engine thrust-Wing Drag = 397007.9 N Representing 79.4 % of the initial thrust

Super circulation lift = 188356 N

Lift/Thrust = 0.377269

From the above data we can deduce that because of the transition duct of the high aspect ratio nozzle, part of the energy of the flow is lost. Also, because the nozzle does not allow the total expansion of the core flow, its contribution to the total engine thrust is significantly lower. However, from the flight safety stand point, this version is substantially better. This is because the pressure distribution on the core exhaust section is much more even – leading to less vibrations of the LP rotor. Figure 5 shows the pressure distribution on the

turbine exit section. It can be observed that the static pressures are higher than in the first case-due to the fact that the core flow is not allowed to expand fully because of the narrowed nacelle.

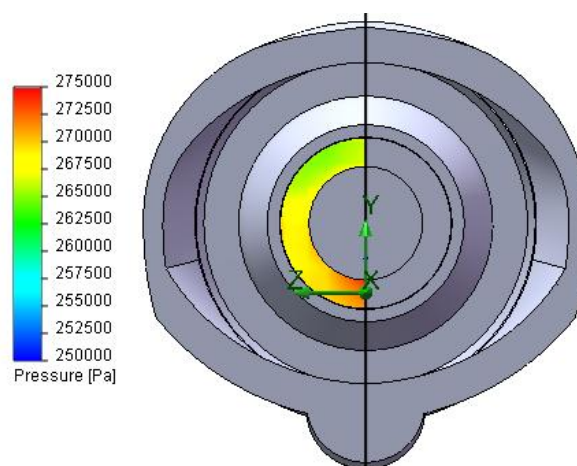


Fig.5 Static pressure distribution over the turbine exhaust section

Figures 6 through 8 depict the pressure, velocity and temperature distributions over the wing in the high aspect ratio nozzle case.

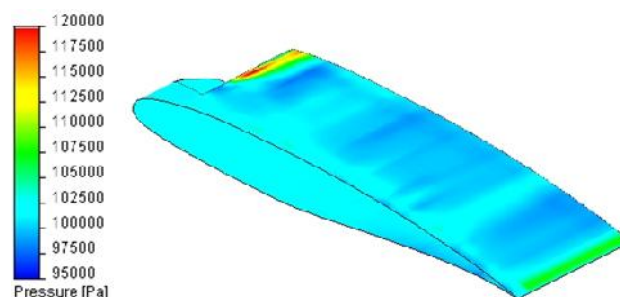


Fig. 6 Static pressure plot over the wing section

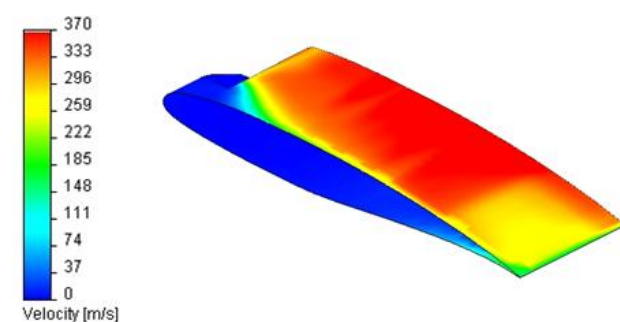


Fig.7 Velocity distribution over the wing section. We can observe the higher spreading of the airflow which leads to a more even pressure drop distribution over the lifting surface.

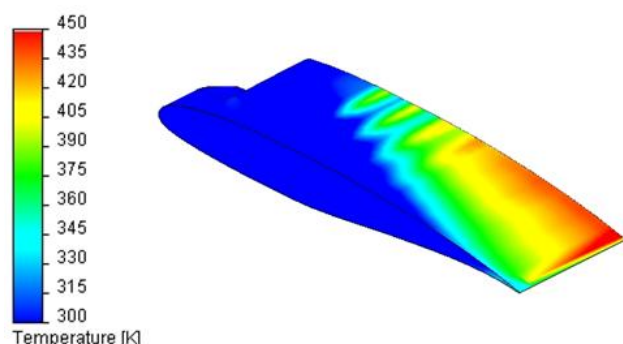


Fig.8 Because in this case the core flow is very close (geometrically) to the wing surface, temperature plots are relevant. It can be seen that the hot exhaust gases do not touch the wing (the temperature increases are not the result of direct contact with the exhaust flow. The temperature rises indirectly because of the fan-core flow mixing near the trailing edge where typically there is no threat to the integrated fuel tanks.

3. CONCLUSIONS & ACKNOWLEDGMENT

Based on the above CFD simulations, the following conclusions can be formulated:

1. In the case of the high aspect ratio nozzle there are significant thrust losses (by comparison to the conventional turbofan engine), Fig. 9 shows a comparison between the three cases studied.

2. Both super-circulation cases present uneven pressure distributions at the turbine. This leads to the conclusion that the shear presence of the wing that close to the engine exhaust will cause an asymmetric loading on the LP turbine disk. Because of this we can state that the durability of the engine will be decreased in the sense of increased bearing wear and vibrations. This tendency however is much lower in the high aspect ratio case, making it preferable for USB super circulation aircraft.

The low aspect ratio case clearly is superior however the pressure field inhomogeneity issue must be addressed in order to make it viable.

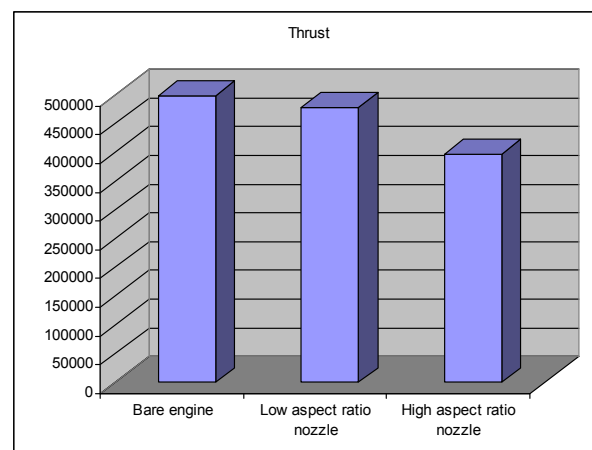


Fig. 9 Relative thrust (as a percent of the initial engine) of the three tested cases

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THE CONCEPT OF MORPHING ADAPTED STRUCTURES TO UAVS

Vasile PRISACARIU*, Cătălin CIOACĂ*, Mircea BOȘCOIANU**

*"Transilvania" University, Brasov, Romania, **"Henri Coandă" Air Force Academy, Brasov, Romania

Abstract: The article is a review of the research concept of UAV morphing covering areas involved in shaping the final product (smart materials, adaptive structures, optimization and control, aerodynamics and flight mechanics). Morphing concept objectives are the development and implementation of advanced technologies, integrating multi-point adaptive structures. This aviation project attracts many risks, so a project risk analysis is developed to identify as many potential risks as possible and to decide how to prevent or mitigate risk impact.

Keywords: morphing, UAV, adaptive structures, smart materials, piezoelectric actuators, risk.

1. INTRODUCTION

An aircraft that has implemented the concept of morphing is defined as an aircraft whose shape changes during flight to optimize its performance. Form changes include scale, chord and volume, bearing surface, thickness profile, elongation and plan shape modification. Morphing can be used as a

control element by changing the aircraft shape for flight dynamics. The morphing project objectives include the development and implementation of advanced technologies, in order to integrate the concept of adaptive multi-point structure. The concept is focused on four directions (figure 1) adaptive structural morphing, adaptive control, and biologically inspired flight system and smart materials.

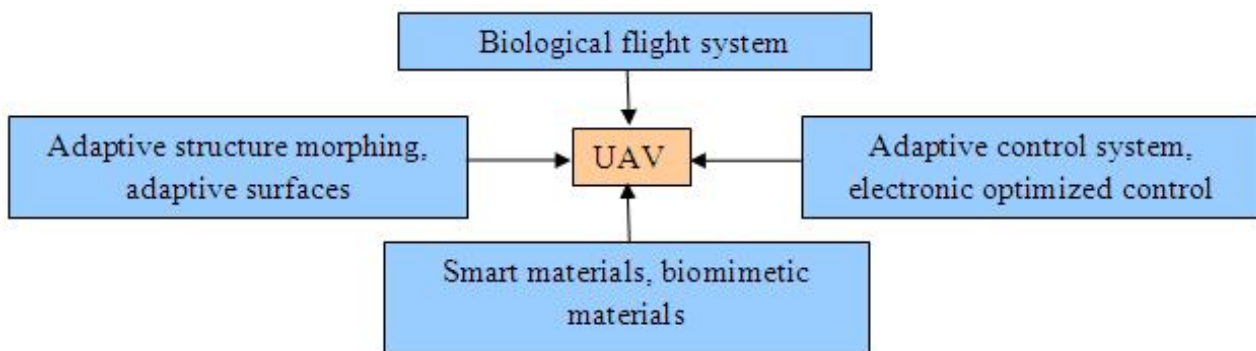


Fig. 1. Morphing structure concept

The project benefits are extended versatility to adapt to multiple in-flight requirements, adaptability to unforeseen safety situations, significant features improvements by reducing weight and drag, the performance of new missions that were previously considered impossible. Morphing software is

applicable to almost all classes and sizes of civil and military UAVs. Complex systems, such as this aviation project, must be designed to remain operational and to be able to adapt-recovery in case of failures (Amin, 2002:28). Thus, systemic risk analysis is present in the systems engineering process at all stages.

2. THE FLIGHT - A BIOLOGICAL INSPIRATION

Birds in flight are able to change and modify wingspan bearing surface, thus changing forward speed. String wing can be modified and wing twist can be transformed in order to alter the aerodynamic performance (figure 2). Nature provides many examples of integrated multifunction systems in optimized design.

These natural systems are optimized for a set of requirements that may be different from engineering needs, so a direct imitation is not always appropriate. However, the concept of morphing vehicles, inspired by a multitude of examples of natural systems, has resulted in biologically inspired research areas. (Evers, 2005:15)



Fig. 2 Biological morphing

3. ADAPTIVE STRUCTURAL MORPHING – ASM

Adaptive Structural Morphing aims at developing, evaluating and demonstrating the multifunctional adaptive wing concepts that can adapt effectively to different flight conditions to improve future versatility, safety, handling and efficiency of airspace vehicles. Research is focused on approaches beyond the conventional control surfaces.

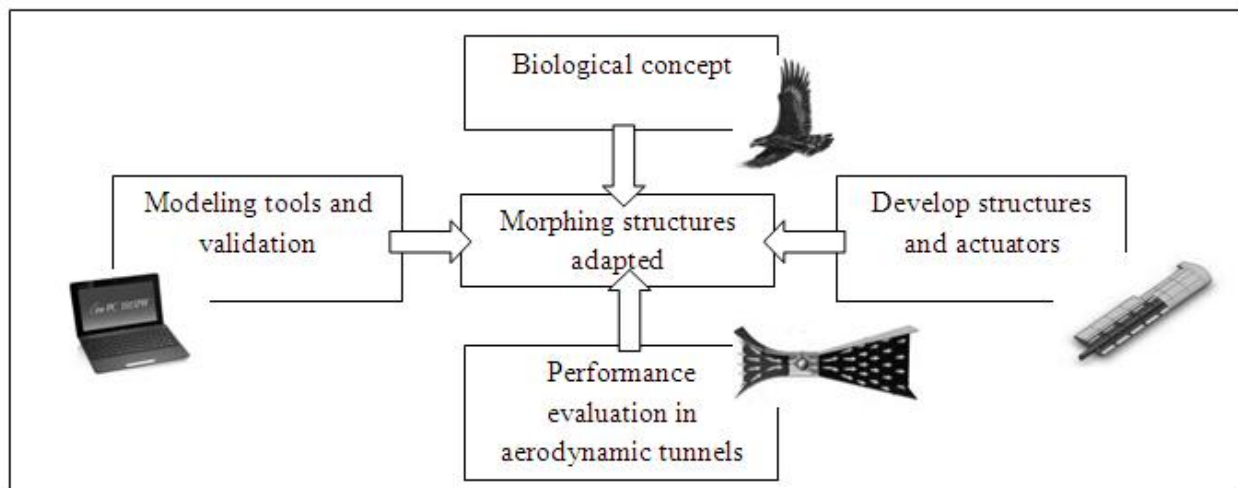


Fig. 3 The main activities at NASA Langley Research Center

Multipurpose adaptive wing concept may enable new surface forms and new types of transportation. (Florance, 2003:3).

NASA Langley Research Center ASM area is divided into four main activities: structural concepts inspired by biology, modeling and data validation tools, development of technology regarding structures and actuators, and evaluation of wind tunnel performance (figure 3). These areas are organized in order to develop technologies from concepts to wind tunnel testing. In the biological field, nature is the provider of guidance for structural concepts and mechanisms for wing structure with a range of movements while supporting

aerodynamic loads. In parallel with the design work, comes the development of structures with shape memory alloy and piezoelectric actuators, sensors, manufacturing and production of components to demonstrate new capabilities of aerospace structures.

To exploit the full potential of these concepts, modeling, validation and design tools are still being developed to be used in designing and engineering technologies to accelerate the migration of applications in this field. As technology evolves, performance evaluations are performed to determine the feasibility and technological differences. (McGowan, 2003:2).

The next step in technology development cycle is the evaluation of system performance under real conditions, both in wind tunnels and in actual flight conditions. Performance evaluation effort is an essential part of the research cycle as they provide vital feedback to other areas of research related to technology integration, feasibility and implementation issues.

4. ADAPTIVE CONTROL SYSTEM

Adaptive control with piezoelectric actuators. NASA Dryden design and testing was done on a wing with piezoelectric actuators to evaluate the phenomenon of fluttering in the equipment and to improve electromechanical coupling effects.

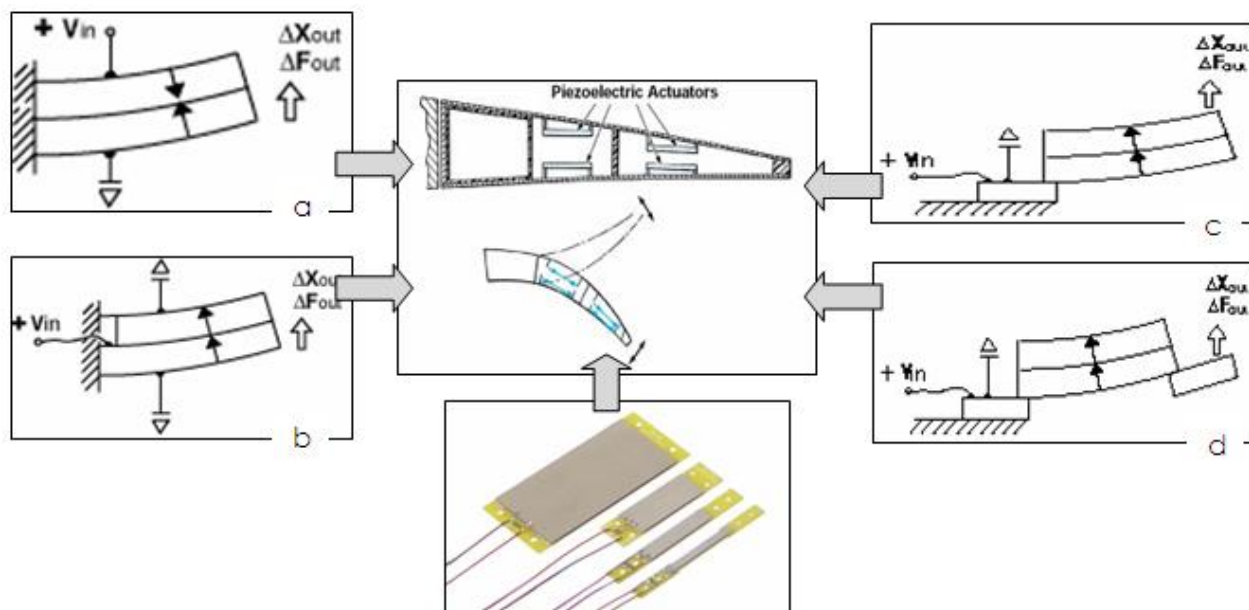


Fig. 4 Piezoelectric Models for controlling strain surfaces (a-2-wire serial, parallel b-3 wire, c-mounted at one end, d-mounted to 2 heads)

Figure 4 illustrates the piezoelectric actuator control models of surface deformation with 2 laminated layers (rectangular or circular). (Roberson 2002/2)

Adaptive control (figure 5) is mainly concentrated in four general areas: development of fundamental tools, improved performance, handling and noise attenuation control.

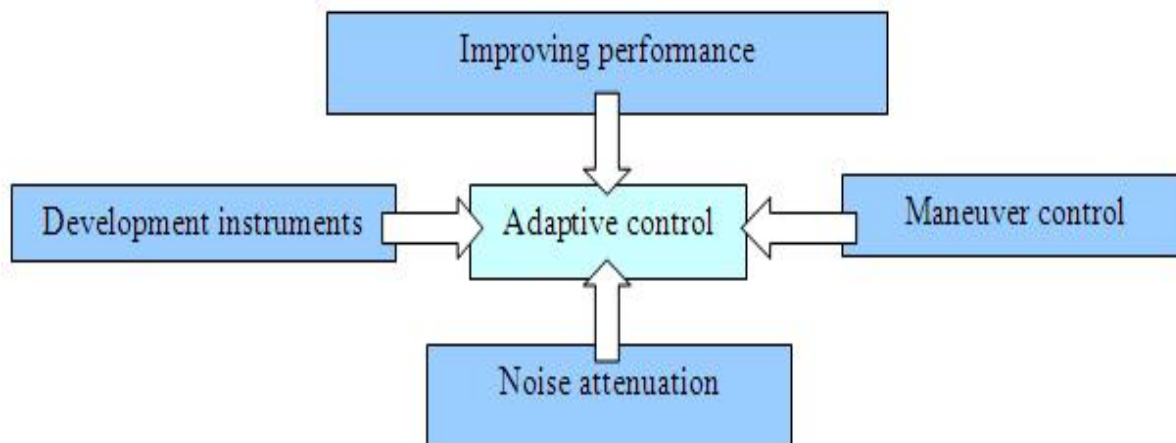


Fig. 5 Adaptive control areas

5. BIOLOGICALLY INSPIRED INTELLIGENT BIO-MIMETIC MATERIALS

Smart materials and actuators. Research of Intelligent materials constituted the starting point for the morphing concept, for a long time. In this context "smart" means the ability to respond to an external stimulus in a predictable and reproducible manner. This class of unspecific materials - Smart materials - is known as adaptive, active and multi-purposes materials. The unique capabilities of these materials inspired many important innovative concepts for adaptive structures for morphing flight and flow control.

Development of active polymers provided new materials with improved levels of deformation energy within an interval of higher temperatures that allows the development of electro-active films. These materials will lead to the development of thin elastic smart surfaces containing sensors and embedded dimensional components in the morphing architecture. (McGowan, 2003:11).

Biologically inspired materials. BIOS Research Area (BIOlogically -Inspired Smart Nanotechnology) was initiated in January 2000. It was designed to cover the research focused on developing materials in bio-mimetics and nanotechnology fields. The purpose of BIOS is to work on the interface of biotechnology and nanotechnology in order to create future revolutionary materials.

Substantial progress has been made in the area of MAV flapping wings which try to decipher the resonant flight dynamics, as part of morphing (Figure 6) (Swanberg, 2008:5).

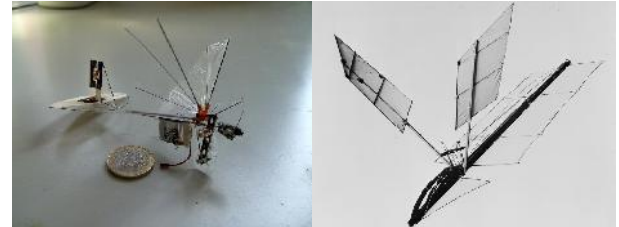


Fig. 6 MAV with flapping wing

BIOS program's contribution was the manufacturing of a lightweight material with tendon-like electro-contractile capacities for command and of a flexible wing material – skin for the dynamic control of the wing (fiber thickness of 200-400 nm). The Tendon was achieved by twisting several fibers, resulting in a material that is responsive to a sinusoidal wave with a certain amount of voltage and frequency.

6. OPTIMIZATION AND CONTROL TECHNOLOGIES

Two important technologies within the morphing concept are the optimization of multidisciplinary design and optimal control (Figure 7).

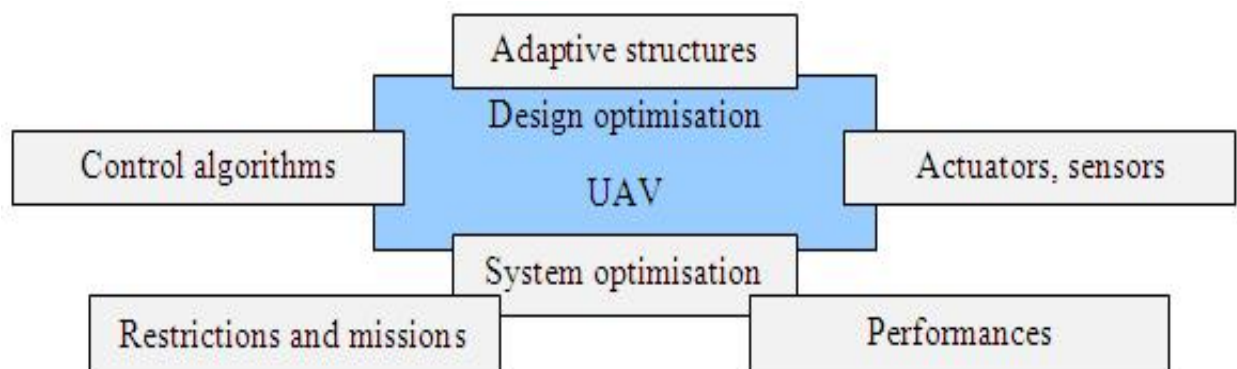


Fig. 7 Design optimization and optimal control

Design optimization is fundamental to the design and operation of future morphing vehicle, for several reasons: 1) during the

conceptual design, the optimization of design requires compromises between different fields and it is crucial for the achievement of

maximum potential in areas such as active flow control structures adaptive and biologically inspired flight, 2) during the preliminary design, optimal placement of numerous actuators and sensors in vehicles provide efficiency in vehicle design and efficiency in operation, and 3) during detailed design, design optimization allows for efficient flight control algorithms determining the best set of sensors and actuators for various vehicle functions. Optimal control using shape change devices in future aerospace vehicles can use hundreds of distributed matrices for stabilization and maneuver control, thus replacing conventional systems (ailerons, rudder, steering). This approach can reduce fuel consumption, improve maneuverability, adaptability and tolerance to failure. (Weisshaar, 2006:18).

7. APPLICATION OF SYSTEMS ENGINEERING IN MITIGATING RISKS PROCESS

Risk management is an ongoing process that provides the basic structure for detection and risk assessment, risk analysis and control

Systems engineering process is essential in the total system life cycle and specific core challenge for the system (Maloş, 2005:47), in a creative way in order to meet the original goal (figure 8).

To perform the analysis it has to identify the risk, including a thorough description of the risk and risk triggers, it can be characterized in terms of probability of occurrence and the consequence if it does occur (Cioacă, 2011:78).

Each stage is a base for the following and it is important to go through each of them before going to the next step. For example, if the risk identification phase is interrupted in order to focus on a specific risk before identifying every possible hazard and other most important dangerous situations may be omitted, the risk management process can be distorted. Until risk identification is complete, it is not possible to rank risks and control measures related to each.

Advantages are not limited to reducing the rate of occurrence of events, but also to

of aviation projects, offering as a result the improvement of the performances and the maximize of the operational capacity of the system.

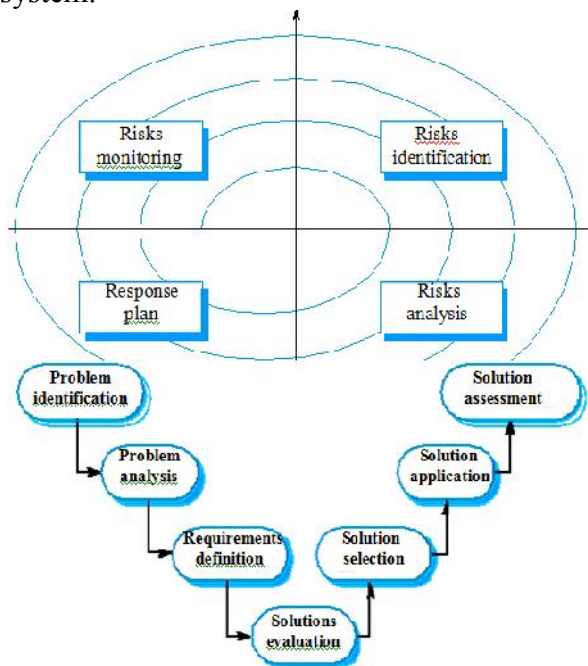


Fig. 8 Engineering systems in risk decision making process

activities must be repeated every time there is a new requirement / increasing the actual effectiveness of the system. Services involving a high degree of risk can be undertaken when the benefits were carefully evaluated versus probability and severity of losses; the analysis of the current practices can reduce the risks currently accepted, decisions are based on a rational and repeatable process rather than intuition; a proper understanding of risks ensures a clear picture of the strengths and weaknesses of the system.

8. CONCLUSIONS & ACKNOWLEDGMENT

Morphing UAV projects are under investigation with regard to a number of technologies that will enable adaptability of aircraft, they are focusing on adaptive smart materials, active control structures and biologically inspired technologies.

Currently there are still barriers in terms of flow control on morphing surfaces from the energy use perspective, energy providing control actuators. Therefore, it is desirable that miniaturized sensors and robust actuators with low energy consumption be used.

Basic principles of structural design must be revised to open new approaches generated by the properties of materials used and the operating capacity of systems within the concept of morphing. In addition there are issues to be considered, such as non-invasive electronics, reliability and maintenance of morphing systems.

Disciplinary interaction of advanced structures, smart materials, flow control and biologically inspired technologies will provide multidisciplinary research approaches, applications of advanced adaptive technologies that lead inevitably to further progress.

Cyclic application of risk management process refers to the supervision and review of the feedback early in the process. It is a cyclical feature that generates a continuous improvement of the process features. When determining that certain risks have been significantly reduced, the hazard identification step is repeated to identify new threats. In this way, risk management process continuously reassesses risks.

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THEORETICAL APPROACH OF CRYPTOGRAPHIC PROTOCOLS

Marian CREȚU

“Politehnica” University, Bucharest, Romania

Abstract: This paper aims to make a brief foray into the field of information protection presenting a theoretical analysis of the most known and used cryptographic protocol types, necessary to change messages encryption and decryption keys, using computer networks as transmission channel. Under continuous development of new ways to exploit infrastructure and means of communications vulnerabilities, sensitive data encryption still remains a viable alternative.

Keywords: cryptography, protocol, symmetric key, public key, quantum

1. INTRODUCTION

Cryptology is defined as the science of secret writing, of its unauthorized decryption, and of the rules which are in turn intended to make that unauthorized decryption more difficult (Bauer, 2006: 21-43). It appeared and developed following the need to protect information with greater sensitivity. The two sides of its, cryptography and cryptanalysis evolved together in the context of the emergence and development of computing machines. If in ancient times, when the first signs of using encryption techniques were hieroglyphic writing or transposition techniques (Scylla or Caesar’s cipher), in the Middle Ages, polyalphabetic ciphers were developed by Vigenere and Battista’s contributions.

The World War II had its contribution in the development of automatic machines for encryption (Enigma, Purple, Poem), and in implementing new cryptanalytic methods. Appearance of the first electronic computer in the 60’ was at the start of explosive growth, both encryption algorithms (DES in the 70’, IDEA, Locki, Skipjak) and cryptanalysis techniques (different test batteries, such as DIEHARD or NIST), leading nowadays to implementations of increasingly more complex algorithms (Rijndael, Twofish, Serpent, RC6).

2. CRYPTOGRAPHIC PROTOCOLS

By a protocol we mean a specific sequence of steps that are carried out in a particular application (Koblitz *et al.*, 2008).

A **cryptographic protocol** is a protocol that uses cryptography in order to transmit data. The parties can be friends and trust each other implicitly or they can be adversaries and not trust one another. A cryptographic protocol involves some cryptographic algorithm, but generally the goal of the protocol is something beyond simple secrecy. The parties participating in the protocol might want to share parts of their secrets to compute a value, jointly generate a random sequence, convince one another of their identity, or simultaneously sign a contract. The whole point of using cryptography in a protocol is to prevent or detect eavesdropping and cheating (Schneier, 1996).

To demonstrate the protocols functionality, we have to agree about several entities:

- A (Alice) is the initiator of the message;
- B (Bob) is the responder;
- E (Eve) is the eavesdropper;
- T (Trent) is the trusted third-party entity.

There are four main components of cryptographic protocols: confidentiality, data

integrity, authentication and non-repudiation (Salomon, 2005: 271-328).

1. *Confidentiality* is ensuring that information is not accessible for those who are not authorized to see it. A synonymous term for confidentiality is secret. There are many approaches to achieve confidentiality, from physical protection to mathematical algorithms that make data unintelligible (messages sent by *A* to *B* must not be readable by *E*) (Menezes, 1996; Paar *et al.*, 2010).

2. *Data integrity* is ensuring that data are not altered in unauthorized manner. To ensure data integrity, we must have the ability to detect all modification of data by unauthorized entities. These modifications on transferred data, include insertion, deletion and data substitution (*B* must be able to detect when data sent by *A* has been altered by *E*) (Salomon, 2005; Paar *et al.*: 2010).

3. *Authentication* is closely linked to identification. They apply to entities and information in the same measure. Two entities involved in a protocol should be identified before making other exchanges messages (*B* should be convinced of the identity of the other communicating entity). Information transmitted through a channel should be identified in connection with the origin, date of creation, content and time it was sent. For these reasons this aspect of information security is divided into two major classes: entity authentication and data origin authentication, the last providing also data integrity (*B* should be able to verify that data purportedly sent by *A* indeed originated with *A*) (Salomon, 2005; Menezes, 1996).

4. *Non-repudiation* is an objective of information security that prevents an entity to deny its previous actions. When controversy arises in connection with certain actions, a trusted third entity is used to resolve the dispute (when *B* receives a message from *A*, not only is *B* convinced that the message originated with *A*, but *B* can convince a neutral third party (*T*) of this; *A* cannot deny having sent the message to *B*) (Koblitz *et al.*, 2008; Hankerson, 2006).

One of the main problems in cryptography remains the key exchange protocol. It is used in all types of encryption techniques:

symmetric key encryption, public-key encryption, one-way hash functions and quantum encryption.

2.1 Symetric key cryptosystems.

Cryptographic systems using identical keys for encryption and decryption processes are also named secret key cryptosystems, because of the *K* key that must be kept secret, and transmitted on secured channels (fig. 1).

$$K_e = K_d = K \quad (1)$$

Encryption (*E*) and decryption (*D*) processes are very easy since the *K* key is known:

$$E_K(M) = C \quad (2)$$

$$D_K(C) = D_K(E_K(M)) = M \quad (3)$$

By the type of used algorithm, symmetric key cryptosystems are classified into two categories:

- **block ciphers**: ciphers acting on a division of clear text, blocks of input being independently computed, with the typical blocks length between 32 and 128 bits. Basic transformations used for encryption and decryption are substitutions and transpositions, iteratively repeated.

- **stream ciphers**: input message is considered as a sequence (string) of symbols. Encryption operates on plain text symbols, one at a time. The *K* key is generated by a shift register with response, having the initial state 0 and controlled by a compact key.

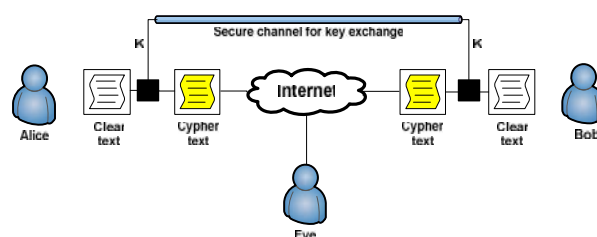


Fig. 1. Symmetric key cryptosystem.

Since the algorithm is valid in both directions, users must have mutual trust. Security of this type of algorithm depends on key length and how can it be kept secret. When communications between many users must be encrypted, there is a big problem of key management, so for *n* users are possible $n(n-1)/2$ bidirectional links, each link using a different encryption key. This generally

involves difficult problems in generation, distribution and key storage. Electronic computers allowed the use of larger keys, thus increasing resistance to cryptanalytic attacks. When the secret key has a convenient size and is changed frequently enough, it becomes virtually impossible to break the cipher, even if encryption algorithm is well known.

There are some disadvantages using the symmetric key cryptography:

1. Key-distribution represents a problem even in the case where only two parties communicate. Within large organizations, where many individuals must have the same key, the use of a public-key cipher is recommended.

2. Even if the number of participants is small, cryptographic key must be replaced very often.

3. Symmetric-keys require large keys in digital signature algorithms.

2.2 Public-key cryptosystems. Instead of one secret key, asymmetric cryptography uses two different keys, one for encryption and the other one for decryption. Since it is impossible to deduce one key from the other, one of the keys (public key) is made public and is available to anyone wishing to send an encrypted message. Only the recipient, which holds the second key (private key), can decipher and use the message. In public key systems, protection and authentication are performed by distinct changes (fig. 2). Because keys are asymmetric, the encryption key is always different from decryption key:

$$K_e \neq K_d \quad (4)$$

Characteristic for these systems is that the encryption and decryption are performed very fast if K_e and K_d are known. For M as clear text and C as cipher text, a public key cryptosystem follows the relations:

$$\begin{cases} E_{K_e}(M) = C \\ D_{K_d}(C) = M \end{cases} \quad (5)$$

For known C and K_e , finding M is computationally unfeasible, making this cryptosystem more attractive than the symmetric one. One of the most famous applications of this type of cryptosystem is the digital signature.

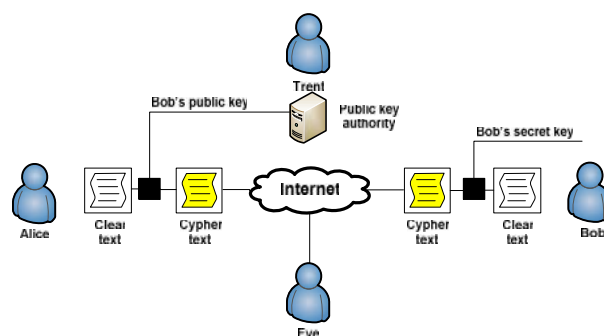


Fig. 2. Public key cryptosystem.

E represents a non-inverting trap-door function. K_d is the necessary trap-door to compute the inverse function D . RSA, Diffie-Hellman, Markle-Hellman are well known algorithms using this type of functions (Salomon, 2005; Menezes, 1996).

Public-key cryptography is not perfect. Here are some of its problems:

1. Time for encryption for this type of algorithm is normally much bigger than the time needed in symmetric-key ciphers.

2. The keys used for encryption and decryption are much longer (about 1000 bits) than those in symmetric-key cryptography (usually in the range 32-128). The increased length is useful to prevent an easy key factorization.

3. The difficulty of factoring large numbers ensures the security, but this difficulty may be temporary once an efficient factoring algorithm will be discovered (Zeng, 2010).

2.3 Quantum cryptosystems. Quantum private communication is an alternative for the classic private communication, and it is able to ensure the four goals of cryptographic protocols. Even more, it is able to detect the eavesdropper operations. Currently, quantum physical laws cannot be broken, making them perfect for a more secure communication channel. Security requirements are satisfied by quantum cryptosystems authentication protocol (fig. 3).

In order to understand how quantum private communication is working, we will consider a communication model where two entities, Alice and Bob, using a communication network want to send a

message using a quantum private communication system. Authentication and confidentiality are two important factors for a strong security via a quantum private communication system (Biham *et al.*, 2000: 715- 724).

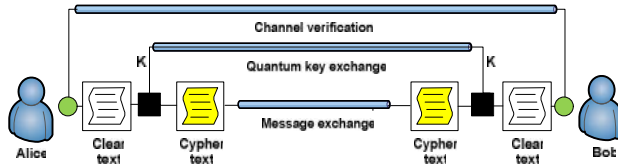


Fig.3. Quantum key cryptosystem.

While the smallest classical information unit is the bit, quantum information unit uses the qubit (a quantum system that lies in a two-dimensional Hilbert space ($dim H = 2$)) (van Assche, 2000: 49-52).

Any two-level quantum system can be represented by states, for phase encoding, photon polarization, or spin $\frac{1}{2}$ systems. The first two linear states corresponds to horizontally (\rightarrow) and vertically (\uparrow) polarized photons, while the last two to polarization angles - 45° (\swarrow) and + 45° (\nearrow) relative to vertical axis. Bit value '0' is represented by the states $|0\rangle$ and $|+\rangle$, while the pair of states $|1\rangle$ and $|-\rangle$ stands for bit value '1'.

Orthonormal and conjugate bases are formed by the pairs $\{|0\rangle, |1\rangle\}$ and $\{|+\rangle, |-\rangle\}$. They are rectilinear (\oplus) and diagonal basis respectively (\otimes) (Zeng, 2010: 135-137).

Bennett and Brassard defined in 1984 the first known protocol, BB84 (table 1), based on four quantum states:

$$\left\{ |0\rangle, |1\rangle, |+\rangle = \frac{1}{\sqrt{2}}(|0\rangle + |1\rangle), |-\rangle = \frac{1}{\sqrt{2}}(|0\rangle - |1\rangle) \right\} \quad (6)$$

Table 1. The BB84 protocol

Alice			Bob		Bases announcement	Shifted key
Random bit sequence	Random basis	Photon polarization	Random measuring basis	Measured polarization		
1	\otimes	\nearrow	\otimes	\nearrow	Confirmed	1
1	\oplus	\rightarrow	\otimes	\swarrow	-	-
0	\oplus	\rightarrow	\oplus	\rightarrow	Confirmed	0
1	\otimes	\swarrow	\oplus	\nearrow	-	-
0	\otimes	\nearrow	\oplus	\rightarrow	-	-
1	\oplus	\swarrow	\oplus	\swarrow	Confirmed	1
1	\oplus	\rightarrow	\otimes	\nearrow	-	-
0	\otimes	\rightarrow	\otimes	\rightarrow	Confirmed	0

B92 is another quantum protocol that can be implemented using a single non-orthogonal basis, or two non-orthogonal states (Bennet, 1992). Bob and Eve are unable to decode all the bits on the quantum channel due to the non-orthogonal states. Bob will use the suitable quantum projection operators in order to perform two separate measurements. Bob's measurements detects if Alice's transmitted bit sequence is correct. The protocol has 3 major phases:

Phase 1: Quantum transmission. Alice generates a random bit string that she wants to transmit. For each bit she chooses a random encoding basis and prepares the states that will be sent to Bob using the quantum channel. For

each received qubit, Bob chooses his measurement basis randomly and independently of Alice. Bob records both measurement bases and the results of measurements.

Phase 2: Bases announcement. Bob send his bases (not the results) to Alice using the public channel. This information will not help Eve to affect Bob's state. Alice and Bob have a previous agree to discard the bits where they used opposite bases. The sequence of bits remaining after bases announcement forms the shifted key.

Phase 3: Error estimation. In this phase, Alice and Bob hold a string which will help them to determine if there was an

eavesdropper connected. The difference between Alice's and Bob's keys can be determined by the error rate. For a calculated error rate higher than admitted threshold value, message sending is stopped. For accepted threshold values, they perform the error correction and privacy amplification in order to generate the final key.

3. KEY EXCHANGE PROTOCOL FOR STORED KEYS USING DATABASES

In order to use a fast and secure algorithm, there are several issues to be solved in a convenient manner. Fast algorithm means symmetric key algorithm, and secure means public key exchange protocol. Thus, we obtain a hybrid algorithm, using both well known techniques.

Practice revealed that an increased number of users in a network, contribute to a low level of network security. Another problem is that every encryption process need a new encryption / decryption key, meaning that there is a large number of keys that must be stored. A good idea is to use a secured database for storage. This database must be installed on every trusted entity computer and it can be transmitted from one trusted entity to another using a quantum channel, a classic encrypted channel, or by storage devices (CD, Memory Stick, Mobile HDD, etc.). We presume that computers in the network use security policies and data stored on their HDD are secured. The algorithm will use a PRNG (Pseudo Random Number Generator) to choose a key ID from those stored in database. The plaintext will be encrypted using the encryption key with that ID.

The decryption process will use the key ID received on a secure channel to access the database and select the proper key.

4. CONCLUSIONS

Symmetric and public key cryptosystems both have strong and weak elements. Their combined use (by sending the secret key using asymmetric protocols and encrypting message using symmetric algorithms) results in hybrid cryptosystems, able to properly respond to

cyber attacks, increasing the level of data protection.

Quantum mechanics, although it is an area that has its origins in the 60', by its applications in the field of cryptography and correlated with current technology, has a decisive role on communication channels checking.

Use of databases instead of sending the encryption key over a common network and changing the key on every encryption / decryption process, will increase the diffusion factor, making cryptanalysis process more difficult.

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THERMAL DIFFUSIVITY AND CONDUCTIVITY AT LAYER ZrO₂/20%Y₂O₃ SPRAYED WITH ATMOSPHERIC PLASMA SPRAY

Geanina Laura PINTILEI, Corneliu MUNTEANU, Gică Narcis BĂSESCU,
Bogdan ISTRATE, Andreea Carmen BĂRBĂNȚĂ

“Gheorghe Asachi” Technical University, Iași, Romania

Abstract: *The method of deposition atmospheric plasma spray (APS) is famous among the methods usually used for coating layer thicknesses on surfaces with different degrees of complexity. One of the most delicate issues in the case of thermal barrier applied to the turbine blades is to determine the causes of exfoliation of the ceramic layer due to the large number of thermal cycles. The present paper presents a new concept of thermal barrier layer. The novelty is delaminating prevention and consists of a sprayed layer adherent Ni Mo Al (05-05-90) filed by electric arc and a layer of ZrO₂/20%Y₂O₃, deposited by plasma spraying specimens of Ni base super alloys, which aircraft turbine blades are manufactured of. Samples were subjected to heat treatment at 1150°C in order to study the behavior of these metal layers during heating. These layers we have chosen to spray induce a low thermal diffusivity and conductivity. The reason for this test is just that, to prove the thermal insulation of the ceramic layer. Scanning electron microscope was used to observe the morphology and microstructure of phases. X-ray diffraction analysis was performed in order to notice the change of diffraction curves, and to observe the new phases obtained after the heat treatment.*

Keywords: SEM, XRD, thermal diffusivity, thermal conductivity

1. INTRODUCTION

The desire to improve the performance of aircraft motors led to the rising temperatures of the hot sources.

By rising the operating temperature can significantly improve performance and other important functional parameters of a heat engine. Turbine blades are the most stressed components of a jet engine both thermo-mechanically and chemically.

Because the steel the turbine blades is made of has maximum operating temperatures near to 1000°C value the idea of using ceramic materials was foreseen.

2. EXPERIMENTAL PROCEDURE SPRAYING EQUIPMENT AND MATERIAL POWDER

Thermal barrier coatings were obtained by atmospheric plasma spraying deposition

(APS). Samples were sprayed with ceramic powder ZrO₂/20%Y₂O₃ using SPRAYWIZARD 9MCE by Sulzer Metco.

The bond coating was sprayed with Ni Mo Al powder on rectangular specimens with electric arc using Sulzer Metco Smart Arc 350, on super alloy specimens of Ni base, cleaned in an ultrasonic bath with acetone and sand blasted with electro corundum. The size of the specimens is 8x30x2 mm.

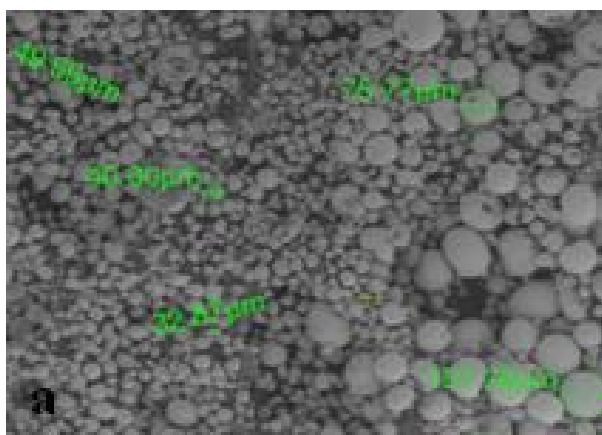
To highlight the results, analysis were performed using electron microscopy with electron microscope QUANTA 200 3D DUAL BEAM. X-Ray diffraction was performed using an X' Pert PRO MRD equipment. Thermo physical properties of materials were analyzed with the device 457 LFA Micro Flash.

Samples were subjected to a heat treatment in furnace Chamber Furnaces with Gas Heating at the temperature of 1150°C.

3. EXPERIMENTAL RESULTS

3.1 Atmospheric plasmaspray (APS).

Thermal spraying is a group of processes designed to achieve thin layers, in which fine powders, metallic or nonmetallic, shall be deposited, melted or semi-melted, to form a coating.



3.2 Particle size distribution.

Particle size is an important variable that influences coverage characteristics. To ensure the powder's melting in the plasma spraying, for a given set of parameters, the spraying powder's size should be checked.

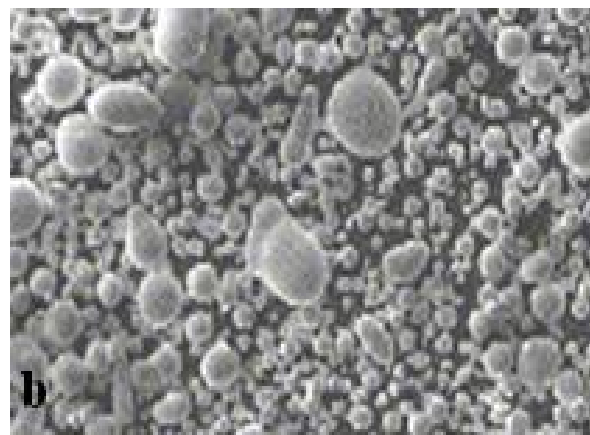


Fig. 1. Powder morphology used in thermal spraying: a) $ZrO_2/20\% Y_2O_3$ and b) Ni5Mo5Al

3.3 Micro structural characteristics.

In SEM images of the surface layer small cracks, with diameter of $200 \mu m$, can be observed (Figure 2.a.).

Heat treatment at a temperature of $1150^\circ C$ for 100 hours, has led to a compaction of layer deposited (Figure 2.b.), only a few separate particles can be seen, resulting in a good compact layer.

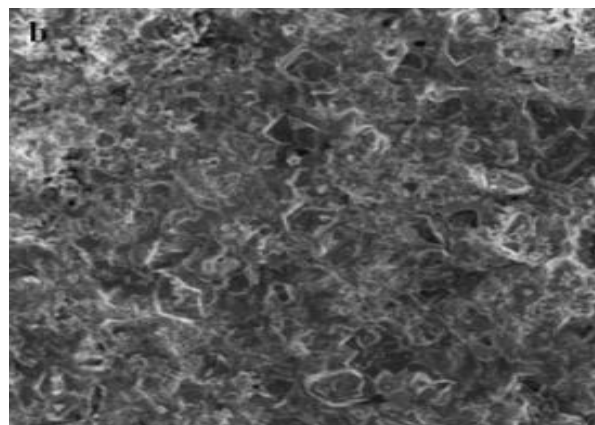
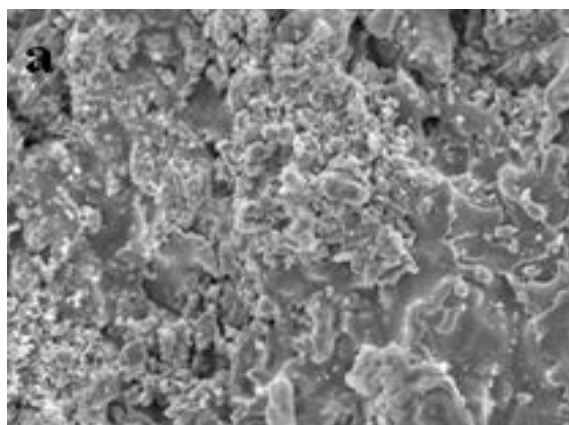


Fig. 2. SEM images of the layer obtained by plasma spray deposition of powder $ZrO_2/20\% Y_2O_3$: a) before heat treatment at 1000X, b) after heat treatment at 1000X

4. X-RAY DIFFRACTION

With XRD analysis observations will be made on constituents and phases of the layer deposited by thermal spraying. With the help

of x-ray diffraction we could see the modification of the diffraction curves before and after thermal treatment, thus highlighting the phases obtained after sintering.

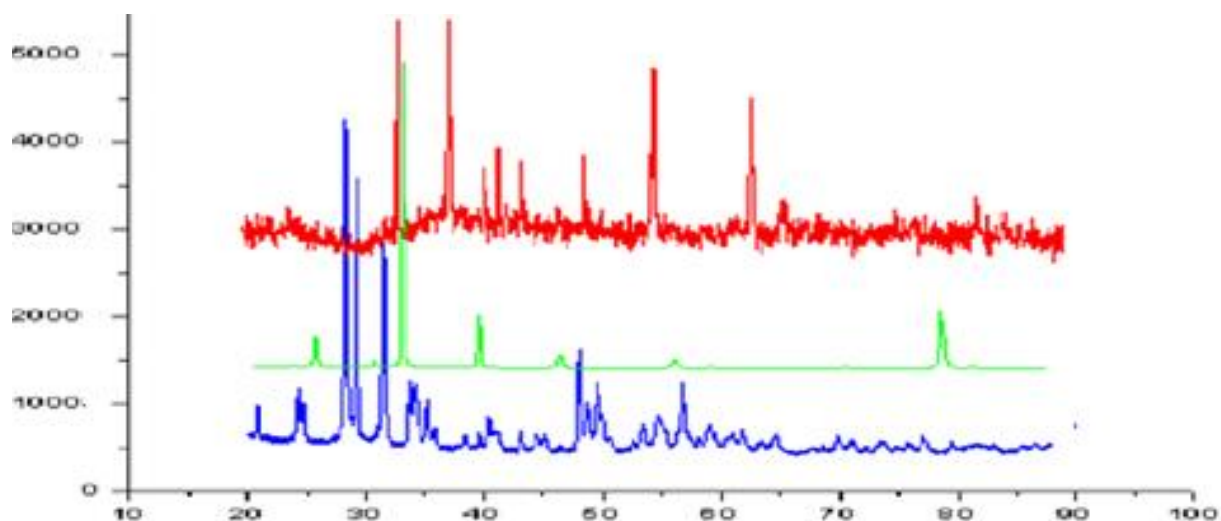
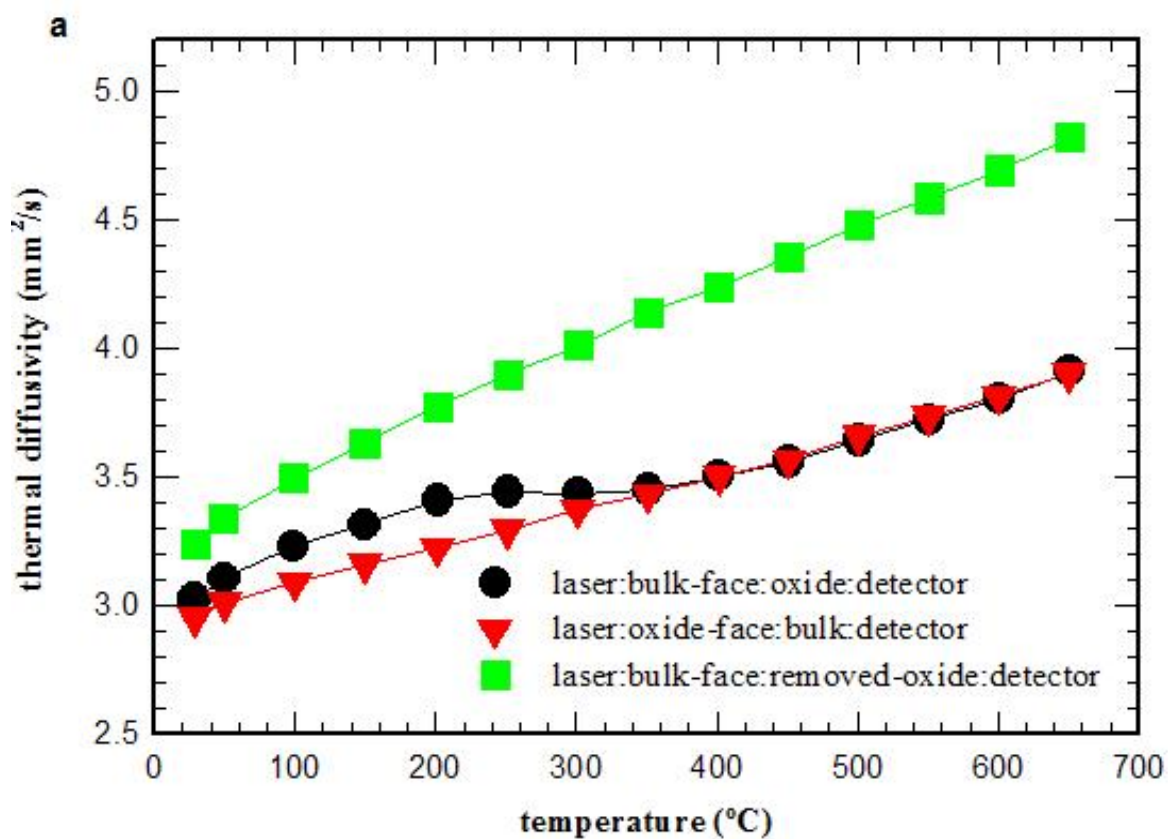


Fig. 3. X-Ray diffraction

5. THERMO PHYSICAL PROPERTIES OF MATERIALS ANALYSIS

This study describes the experimental

results of thermal diffusivity, specific heat at constant pressure, and thermal conductivity of porous 20 mol% yttria-stabilized zirconia (YSZ).



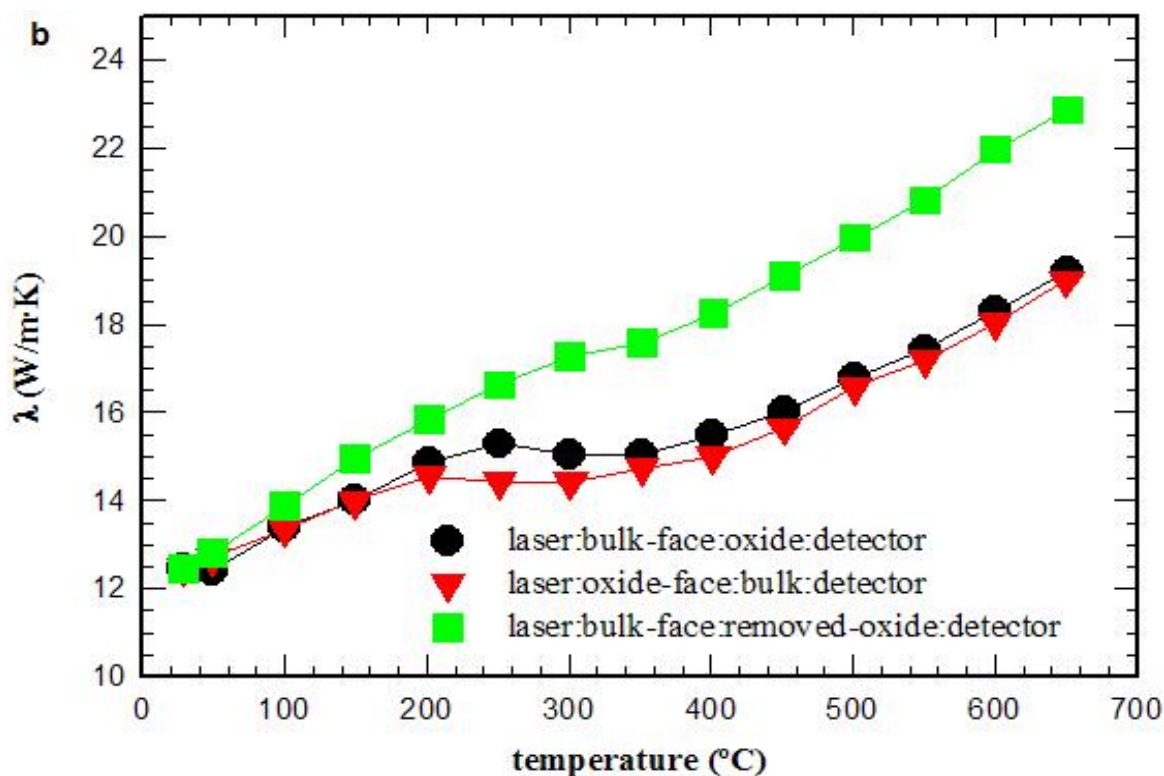


Fig. 4. The thermal diffusivity

5. CONCLUSIONS & ACKNOWLEDGMENT

With this APS technique, almost any material can be deposited, provided it can be melted or become plastic during the spraying process.

Particle size is an important stage in the metallization process that influences coating characteristics. For this reason, in certain sets of parameters the size of the spray powder should be taken into account.

After heat treatment at a temperature of 1150°C for 100 hours deposited layer compaction can be seen. You can see very few separate particles, resulting in a great compact layer.

After X diffraction analysis and heat treatment at 1150 ° C we found areas devoid of peaks characteristic of the solid solution obtained after heat treatment, which shows a very specific complete and ordered structure close to amorphous layers.

Improving the thermal conductivity and diffusivity is possible to increase the entrance

temperature of gas turbines and improve performance.

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DETERMINATION OF ELECTROMAGNETIC FIELD ABSORPTION IN A HUMAN HEAD MODEL PRODUCED BY DIFFERENT TYPES OF ANTENNAS USED IN CELL PHONES

Grigore Eduard JELER

Military Technical Academy, Bucharest, Romania

***Abstract:** The development of recent sources of electromagnetic fields used for individual, industrial, commercial or medical purposes brought with it concerns about the possible health risks associated with their use. The manifestation of these concerns focused on the evaluation of risk associated with using mobile phone, long living in the vicinity of power lines and use of portable installation for police RADARS. To determine the absorption of the electromagnetic field by the human body can use three types of methods of investigation: the experimental, analytical and numerical methods. Experimental methods consume much time and sometimes the results are subject to hazard and do not allow much flexibility in changing parameters. Field evaluation lead to accurate solutions by using analytical methods or to approximate solutions by numerical methods. But to get the correct results these methods should be combined as without experiments we can not validate any theory.*

***Keywords:** human head, SEMCAD, FDTD, mobile phones, SAR..*

1. INTRODUCTION

In order to calculate the dose of electromagnetic field induced by a cell phone in a head model we should consider the following elements: the mathematic method used to perform modeling, depend on the available computing facilities; according to the latter element it is necessary to partition the geometric domain represented by the human skull; the geometry of the emission antenna: monopoly, dipole, helical, internal, or other configurations; the relationship between the skull size and emission frequency of the device; the geometrical characteristics of the human head and the dielectric properties of various fields which compose it.

2. USING FINITE DIFFERENCE TIME DOMAIN METHOD (FDTD) FOR DETERMINING DOSIMETRY

FDTD method was the first time introduced by Yee, and then developed by Taflove and others. Finite difference method

essentially consists of replacing the differential equations in finite difference equations. The method involves the following steps:

- meshing the spatial region in a network of nodes / cells (grid);
- approximating the differential equations with finite difference equations;
- solving the algebraic equations in terms of imposing certain values on the border and / or initial;
- getting the values of variables (unknown) in different network nodes, depending on their values in neighboring points.

To solve the problem we apples Maxwell's theory for linear, homogeneous and isotropic in rest medium. It starts from Maxwell's equations:

$$\begin{cases} \Delta \times \bar{H} = \frac{\partial}{\partial t} \epsilon \bar{E} + \sigma_E \bar{E} \\ \Delta \times \bar{E} = -\frac{\partial}{\partial t} \mu \bar{H} - \sigma_H \bar{H} \end{cases} \quad (1)$$

where: σ_E and σ_H are the electrical and magnetic losses for the chosen configuration in space and time.

Relations linking between the two components of the field are:

$$\begin{cases} \bar{D} = \epsilon_0 \epsilon_r \bar{E} \\ \bar{B} = \mu_0 \mu_r \bar{H} \end{cases} \quad (2)$$

The area / subject of investigation must be a discrete space, and scale must be very small compared to the wavelength (distance $< 0.1 \lambda$) and smaller than the smallest irregularities of the model. The material structure of the field can be very precisely specified at all points, through dielectric and magnetic material parameters.

Yee cell: In the three-dimensional domain the space for a particular object can be decomposed into a sum of cubes:

$$G = \{(x_i, y_j, z_k)\} \quad i = 1 - I, i = 1 - J, k = 1 - K$$

The total number of items is $N = I \times J \times K$. Alongside each edge of the cube a certain potential difference is supposed to act and each side of it is crossed by a magnetic flux (figure no. 1). Each Yee cell will contain six components of the field $E_x, E_y, E_z, H_x, H_y, H_z$. The unit cell has the dimensions $\Delta x, \Delta y, \Delta z$.

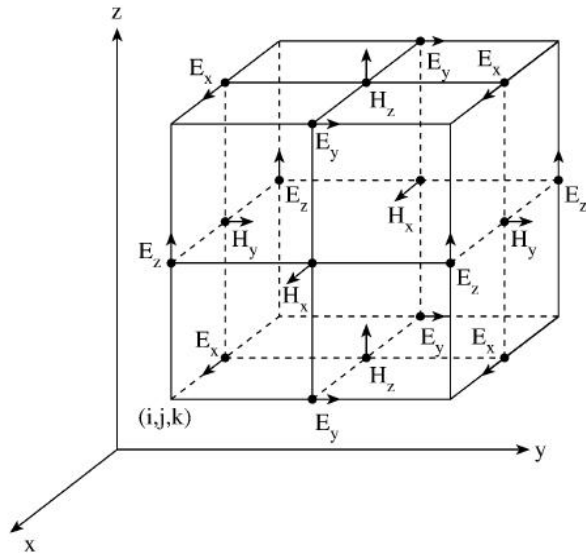


Fig. 1: Yee Cell

The rotational equations of Maxwell's equations system (1) are discretized using finite differences of second order both in space

and time through a balanced spatial network. The first partial derivatives in space and time lead to:

$$\begin{cases} \frac{\partial F(i, j, k, n)}{\partial x} = \frac{F^n(i+1/2, j, k) - F^n(i-1/2, j, k)}{\Delta x} + O[(\Delta \Delta x)^2] \\ \frac{\partial F(i, j, k, n)}{\partial t} = \frac{F^{n+1/2}(i, j, k) - F^{n-1/2}(i, j, k)}{\Delta t} + O[(\Delta \Delta t)^2] \end{cases} \quad (3)$$

Where :

- F-electric field E (magnetic H) at the moment $n\Delta t$;

- i, j, k are indices of spatial network;

- $O[(\Delta \Delta x)^2], O[(\Delta \Delta t)^2]$ are error terms;

Applying equations (1) centered differences, for a proposed allocation of the fields in space and time resulting equation (4) for E_x component:

$$\frac{E_x|_{i,j,k}^{n+1} - E_x|_{i,j,k}^n}{\Delta t} = \left(\frac{H_z|_{i,j+1/2,k}^{n+1/2} - H_z|_{i,j-1/2,k}^{n+1/2}}{\Delta y} - \frac{H_y|_{i,j,k+1/2}^{n+1/2} - H_y|_{i,j,k-1/2}^{n+1/2}}{\Delta y} - \sigma_{i,j,k} E_x|_{i,j,k}^{n+1/2} \right) \epsilon_{i,j,k} \quad (4)$$

Approximation is considered

$$E_x|_{i,j,k}^{n+1/2} = \frac{E_x|_{i,j,k}^{n+1} - E_x|_{i,j,k}^n}{2} \quad (5)$$

Equation (4), applying the (5) approximation, can be reduced to the unknown E_x^{n+1} of the new step in time:

$$E_x|_{i,j,k}^{n+1} = \left(\frac{1 - \frac{\Delta t \sigma_{i,j,k}}{2\epsilon_{i,j,k}}}{1 + \frac{\Delta t \sigma_{i,j,k}}{2\epsilon_{i,j,k}}} \right) E_x|_{i,j,k}^n + \left(\frac{\frac{\Delta t \sigma_{i,j,k}}{\epsilon_{i,j,k}}}{1 + \frac{\Delta t \sigma_{i,j,k}}{\epsilon_{i,j,k}}} \right) \quad (6)$$

$$\left(\frac{H_z|_{i,j+1/2,k}^{n+1/2} - H_z|_{i,j-1/2,k}^{n+1/2}}{\Delta y} - \frac{H_y|_{i,j,k+1/2}^{n+1/2} - H_y|_{i,j,k-1/2}^{n+1/2}}{\Delta z} \right)$$

Following this procedure, the (1) rotational equations can be derived and discretized in explicit expressions for all six field components. Components E and H are calculated for alternative times respectively at intervals $\frac{1}{2}$ of calculation step. Once the subject of study was defined in geometrical and electrical terms, simulation can start by introducing excitation (incident radiation, voltage or current) (A. Taflove and K.R. Umashankar, 1981: 83–113; A. Taflove (1980):191–202; K.S. Yee, (1966): 302–307; Sadiku Matthew N. O., 2000).

3. THE MODELING OF THE ELECTROMAGNETIC ABSORPTION RADIATION EMITTED BY CELL PHONES IN A HUMAN HEAD

To solve the problem stated there is calculated the SAR (Specific Absorption Rate) in a specific anthropomorphic mannequin (SAM), performed according to the requirements of Standards Coordination Committee of the IEEE (SCC34-SC2) and CENELEC, pr.EN50360. SEMCAD programming environment is developed by Schmid & Partner Engineering AG.

Stages of work:

a. The modeling:

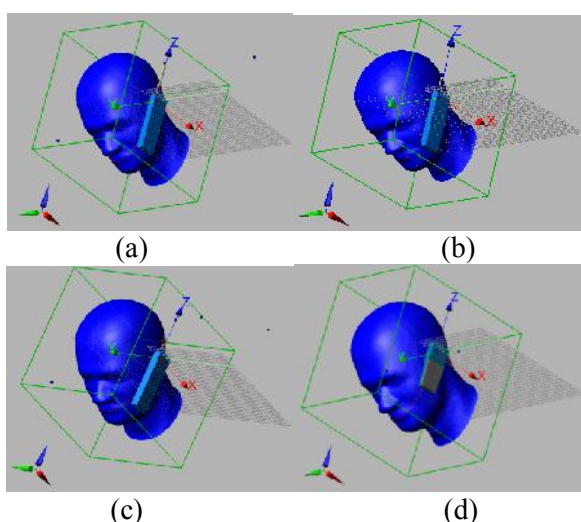


Fig. 2: The phantom of the four phones positioned and with applied sensors for four models of phones

- the modeling of the phone: (the mobile phones with monopole, helical and patch

antenna at 900 MHz frequency and with monopole antenna at 1800 MHz frequency);

- shaping source and adding sensors;
- import the phantom;
- location of phone in call position in contact with the left ear.

Figure 2 shows the human head model (phantom) with four types of phones placed in contact with the left ear and with appropriately placed sensors.

b. Simulation:

- grid generation, grid setting parameters and the type of material for each element solid model;

- setting parameters for simulation using a sine wave with frequency of 900 MHz, 1800 MHz, respectively, during the simulation period =10 at border using Mur absorbing condition of order 2; phone source is a source of sinusoidal voltage, 10V, 50Ω, the material parameters used are the following: the fluid that fills the phantom has $\epsilon_r = 41.5$, $\mu_r = 1$,

$$\sigma_E = 0.97 \left[\frac{1}{\Omega m} \right], \sigma_H = 0 \left[\frac{1}{\Omega m} \right], \rho = 1000 \left[\frac{kg}{m^3} \right]$$

and phantom shell is $\epsilon_r = 4.5$, $\mu_r = 1$,

$$\sigma_E = 0 \left[\frac{1}{\Omega m} \right], \sigma_H = 0 \left[\frac{1}{\Omega m} \right], \text{ and the}$$

environment has $\epsilon_r = 1$, $\mu_r = 1$.

c. Generation network computing

The generated model SEMCAD is not restricted previously defined grid. To generate a clear numerical representation of the model, create a irregular linear network model adapted to the details of model. In SEMCAD network lines are calculated from a set of baseline. These baselines are located on the material discontinuities of model in sensor and source locations. The intervals between the base lines are filled with additional lines, by considering a minimum and maximum step.

Figure 3 shows human head model with four phones in the right ear, with sensors attached of near and far field and with grid computing obtained. It can be seen that grid computing is used symmetrical, more dense in the area where the phone is positioned.

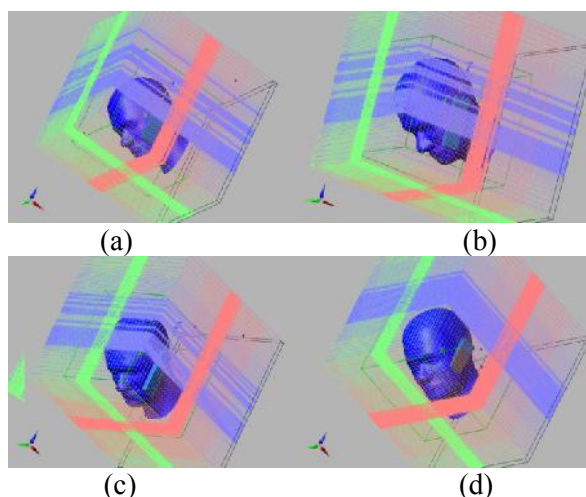


Fig 3: Phantom of the four mobile grid computing applied to four model phones

d. Results obtained:

In Figure 4 is the spatial distribution of far electric field and in Figure 5 is the distribution of SAR (10g) normalized to the maximum value for the four cell phones in the human head model three-dimensional plan for the four mobile phones.

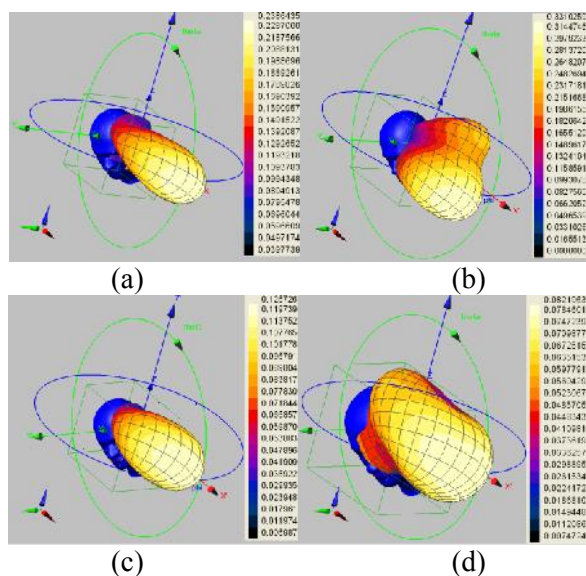


Fig 4: Far electric field for (a) telephone with monopole antenna at 900 MHz, (b) telephone with monopole antenna at 1800 MHz, (c) helical antenna phone at 900 MHz, (d) phone with internal antenna (patch) to 900 MHz

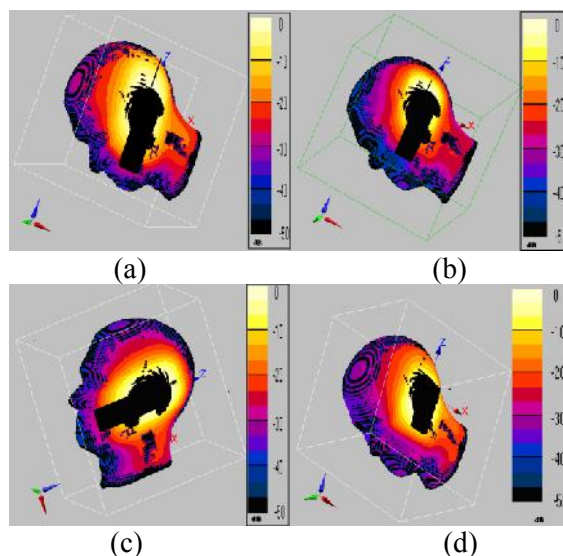


Figure 5: Representation of SAR - normalized to the maximum value for (a) telephone with pole antenna at 900 MHz, (b) telephone with pole antenna at 1800 MHz, (c) helical antenna phone at 900 MHz, (d) telephone with internal antenna (patch) to 900 MHz

In Table 1 are presented the maximum SAR values (10g) obtained from near field sensor in the human head model for the four model phones and in Table 2 are presented the average values of SAR (10g) obtained from near field sensor in the human head model for the four model phones (Jeler Grigore Eduard, 2010).

Table1: Output data for near field sensor for phantom with phone (Jeler Grigore Eduard, 2010)

Output data for near field sensor for phantom with phone	
Type of antenna	Maximum value of SAR mW/g
monopole antenna at 900 MHz	5.503
monopole antenna at 1800 MHz	9.24468
helical antenna at 900 MHz	7.5808
internal antenna la 900 MHz	5.8527

Table 2: Output data for near field sensor for phantom with phone (Jeler Grigore Eduard, 2010)

The output data near field sensor for phantom with telephone			
Type of antenna	Mean SAR's mW/g	Volume up to \pm 3dB %	Volume up to \pm 5dB %
monopole Antenna to 900 MHz	0.15578	8.63	14.9
monopole antenna to 1800 MHz	0.13976	5.68	10.13
Helical Antenna to 900 MHz	0.1798	7.15	12.14
internal antenna to 900 MHz	0.1234	8.407	14.57

4. CONCLUSIONS

From the study of SAR values induced by the four mobile phones, some conclusions are derived, namely:

- induced SAR in human head model is close in value to your rod antenna and helical antenna and the smaller phone with internal antenna (patch). One explanation is the model of antenna used, more powerful, and placing the internal antenna behind the phone. The conclusion is that the new internal antenna models significantly reduce the SAR.

- using helical antenna has not led to lower SAR, but its use was justified in obtaining a more pleasing design and achieve a more compact aspect of the phone, however stick antenna is used because of simplicity and low cost of manufacture;

- the maximum SAR values are very high, respectively: 5.503, 9.24468, 7.5808, 5.8527 mW/g SAR and average values are 0.15578, 0.13976, 0.1798, 0.1234 mW/g. These low average values can be explained as follows: the results and graphs can be seen that the SAR concentration in human head model is grouped around your ears where the phone is positioned, and then falls very much in the rest

of the head. In fact, more than 80% of head SAR is less than 10% of the maximum SAR value for all four cases, because during the propagation of electromagnetic energy is rapidly dissipated;

- average values of SAR (10g) are less than 2mW/g and the same order of magnitude between them, the highest value being for model helical antenna - 0.1798 mW/g, then stick antenna at 900 MHz - 0.15578 mW/g, antenna pole at 1800 MHz - 0.13976 mW/g, the lower the internal antenna - 0.1234 mW/g.

- basing on the obtained results in this study, it can be concluded that the recommended standard values are satisfied (mean values) in all four types of phones.

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AVOIDING A NEW ARMS RACE: WHY MISSILE DEFENSE COOPERATION IS THE BEST ALTERNATIVE TO COMPETITION WITH THE RUSSIAN FEDERATION

Joseph APPLE*, James M. KEAGLE **, Lavinia GAVRILĂ***

*Maxwell Program, Syracuse University, Syracuse, New York, U.S.A., **Institute for National Strategic Studies, National Defense University, Ft. Mc. Nair, Washington D.C., U.S.A., *** “Henri Coandă” Air Force Academy, Braşov, Romania

Abstract: This paper addresses the underlying reasons behind the rise in tensions concerning the plans for the European Phased Adaptive Approach currently being implemented by the NATO countries. This paper will analyze the how the Russian systems could complement the EPAA. The authors of this paper recognize that there will likely be significant opposition from interested parties, and thus a brief part of this paper will address these concerns. The element of cyber security will be briefly touched upon within the framework of BMD and how the evolving cyber-attacks/sabotage can pose a risk to the EPAA. The paper discusses the greater goals of U.S. defense strategy and how ballistic missile defense fits as a deterrent shield strategically poised by the year 2020, which is when the missile shield should cover both the United States and its European Allies.

Keywords: Anti-Ballistic Missile Treaty, arms race, strategic stability, defense, ballistic missile shield, agreement, European Phased Adaptive Approach, U.S.-Russian relations, NATO Missile Defense.

1. INTRODUCTION

The dissolution of the Union of Soviet Socialist Republics in December of 1991 was hailed by the West as a new chapter in East-West relations. The dangerous arms race which placed Europe on the front lines for half a century had come to an end and Russia was expected to become the newest member of the U.S.-dominated liberal-democratic world order. Gone were the days of Strategic Defense Initiative (colloquially and, perhaps pejoratively, known as “Star Wars”) championed for a time by President Ronald Reagan. The world had never looked brighter, or so it was thought. When President George W. Bush came to power in January of 2001, one of his foreign policy goals that sharply distinguished the President from his predecessor was the eventual withdrawal of the United States from the Anti-Ballistic Missile Treaty. This Treaty served to preserve the concept of Mutually Assured Destruction

(MAD), the goal of which was to provide a disincentive for one country to attack another with nuclear weapons (first strike capability), for fear of an overwhelming nuclear retaliation from the attacked country (second strike).

The Russians hold that MAD is the cornerstone of strategic stability primarily for one reason: the nuclear arsenal they possess is the only possible defense against a full-scale thermonuclear attack by the United States. While the United States employs advanced missile defense technologies like the Terminal High-Altitude Area Defense (THAAD) and the Standard Missile family, the Russians rely on Soviet technology dating back decades, which were well-suited to defend against aircraft, but not against high-speed and high-flying ballistic missiles and their associated warheads. In fact, the most advanced Surface-to Air Missile system that the Russian Federation possesses only has a capability slightly better than the PAC-3 Patriot system that the United States and NATO employ in

Europe. The possibility that the Russian nuclear deterrent will be further relegated to a more inferior status than it currently occupies is highly worrisome for the Russian military establishment.

The unilateral U.S. withdrawal from the Anti-Ballistic Missile Treaty sent the wrong signal to Russia. In addition, Russia, in observing the ever-encroaching eastward expansion of NATO and many of the former Soviet republics and satellite states gaining acceptance into the military alliance, is highly skeptical of NATO's supposed "good intentions." In return for Russia's acceptance of the European Phased Adaptive Approach to missile defense, the Kremlin requires some sort of legal guarantee that the system is not and will never be oriented towards the impairment of the Russian strategic deterrent. Without this guarantee, the continent of Europe is likely to be plunged into a renewed arms race, the likes of which it has not seen for some twenty years.

On one side are the technologically advanced United States and its allies in Europe with an umbrella-like missile shield covering virtually two-thirds of Europe. On the other, is a resurgent Russia which, utilizing its newfound wealth from the export of its natural resources develops and deploys new weapons to overcome such a shield. This does not appear to be a cause for alarm, as Russia would never attack Europe (which is arguably Russia's largest customer in energy purchases). However, the recent announcement by President Dmitry Medvedev of the Russian Federation that its early-warning radar station in Kaliningrad Oblast' is being put on "combat alert" status is quite troubling. Even more so is the announcement that unless Russia's concerns about the missile shield are addressed, the new SRBM "Iskander-M" missiles would be deployed to the same region (The Kremlin, 2011), straight in the heart of NATO territory. One might recall the incident in 1983 with KAL 007. At a time when tensions were high between the United States and the Soviet Union, the Soviets mistook the passenger aircraft (which had mistakenly penetrated restricted Soviet air space) for a U.S. spy plane and the aircraft was

subsequently shot down by Soviet interceptor aircraft. Ironically enough, this shoot-down occurred after the U.S. announced its plans for SDI. Given the fact that tensions are rising to this level again, it is not too far-fetched to believe that something similar could happen again if the U.S. and Russia don't come to an agreement on missile defense in Europe.

Although the United States does not need Russia's technical help in establishing a missile defense shield in Europe in order to protect the continent from the ever-increasing ballistic missile threat from rogue nations, most notably Iran, we argue that neither the United States, Europe, nor the Russian Federation have an interest in a renewed and perilous arms race. On the contrary, it is in the interest of all concerned parties to cooperate to the highest extent on developing a joint missile defense shield with redundancies that serve as an "added value" in protecting the continent—and deterring potential aspirants to the nuclear club. *First*, this paper addresses the underlying reasons behind the rise in tensions concerning the plans for the European Phased Adaptive Approach currently being implemented by the NATO countries. *Second*, this paper will analyze the how the Russian systems could complement the EPAA. The authors of this paper recognize that there will likely be significant opposition from interested parties, and thus a brief part of this paper will address these concerns. *Third*, the element of cyber security will be briefly touched upon within the framework of BMD and how the evolving cyber-attacks/sabotage can pose a risk to the EPAA. *Lastly*, the paper discusses the greater goals of U.S. defense strategy and how ballistic missile defense fits as a deterrent shield strategically poised by the year 2020, which is when the missile shield should cover both the United States and its European Allies.

2. RENEWED TENSIONS: THE CURRENT PLAN

U.S.-Russian relations may have reached a new low since the end of the Cold War as evidenced by Russia's veto of a UN Security Council resolution in February 2012 designed

to condemn the Syrian Government's atrocities against its own people. President Obama took office with the assumption that he would be able to "reset" relations with Russia. Russia welcomed the cancellation of George W. Bush's missile defense plans, which was seen as the major obstacle in strong U.S.-Russian relations. The program adopted by the

Bush administration essentially ignored Russian cultural and political sensitivities in a region long-regarded as the "Near Abroad," or, under the Russian sphere of influence since the times of the Russian Empire. Under the Bush Administration's plans, radars and interceptors would be placed in countries such as Poland, Turkey, and the Czech Republic. This "reset" was short-lived when, in 2009, President Obama announced the European Phased Adaptive Approach to missile defense (EPAA). In this program, the ballistic missile shield that has been planned to shield Europe primarily from a rogue Iranian ballistic missile would be introduced in "phases" with the eventual coverage of Europe by 2015 and the entire territory of the United States by 2020.

In *Phase 1*, which was slated to begin in 2011, sees the deployment of the Standard Missile-3 (hereafter referred to as "SM-3") Block IA, which is ship-based. The U.S. Navy is currently in the process of upgrading its Aegis BMD ships to allow for Ballistic Missile Defense capabilities (US House of Representatives, 2010). Mobile and versatile, the system can be placed in the Mediterranean Sea to defend Israel and Europe against the most concerning of potential threats, a nuclear armed Iran.

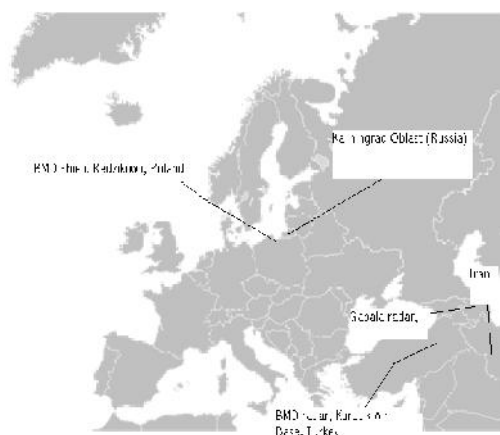


Fig. 1 Ballistic missile defense system

Also, as part of *Phase 1*, an early-warning radar site will be set up in Turkey (www.armscontrol.org, 2011) in order to monitor a possible incoming threat from Iran. On September 2, 2011, Turkey agreed to host a U.S. operated early warning AN/TPY x-band radar system would be part of the EPAA. The proposed location of the radar will be based in Kurecik Air Base, which is northeast of U.S. Air base in Incirlik. Situated about 435 miles from Iran, this system will be linked to U.S. and NATO SM-3 IA missile interceptor vessels in the Mediterranean Sea, and be capable of intercepting a Ballistic missile launched from Iran. If the BMD interceptor system in Poland does get a 'green light', this radar system located in Turkey is strategically sensible because it provides the capability of advanced detection of an incoming missile threat, which can then be communicated to the interceptor systems to take immediate deterrent actions.

The recently agreement between Ankara and Washington to host a missile shield has been the closest cooperation since the Israeli Flotilla incident in 2010 that strained relations between Turkey and the U.S. This recent agreement to host this early warning radar system suggests change in the political culture of Turkey. Previously, Turkey was a mediator between the U.S. and Iran, yet it seems Ankara has become more oriented toward siding with the U.S. This may be due to frictions that evolved between Turkey and Iran via President Assad's ongoing violent and bloody suppression of democratic uprisings in Syria, something Turkey strongly opposes and Iran supports. Turkey shares approximately a 500 mile border with their Syrian neighbors, which has led to thousands of refugees fleeing Syria to cross into Turkey. Further tensions arose when the Chief of Iran's Parliament National Security Committee threatened Turkey with 'retaliatory strikes' if Iran was attacked - specifying the BMD radar based in Kurecik Air Base, would be among the first targets.

In *Phase 2*, which will begin somewhere in the 2015 timeframe, more ship-based deployments of the SM-3 will continue to take place, but one important development will occur; Romania will host land-based SM-3

interceptors. As a former satellite state of the Soviet Union, this is likely to push U.S.-Russian relations to the breaking point as Russia will feel even more cornered by NATO. During this phase, the SM-3 block to be deployed will be the upgraded Block IB (US House of Representatives, 2010). About 180 SM-3 IIB's will be delivered to the Department of Defense during fiscal year 2015 and 324 by fiscal year 2017 (US House of Representatives).

In *Phase 3*, the U.S. Armed Forces will introduce the SM-3 Block IIA to Poland in 2018. Both Poland and Romania will each have 24 SM-3 interceptors. If the United States goes through with deploying these interceptors directly on the border with Russia (Kaliningrad), Russia will most likely immediately deploy Iskander-M missiles, which are the successor to the ageing SCUD missiles. These SRBMs have been specifically developed to counter a BMD and would likely make the Poles very nervous. To make matters worse, the Iskander-M missiles have the capability to deploy either convention or nuclear warheads (*Strategic Weapon System*, 2011).

Phase 3 may be the most controversial, and possibly destabilizing. Russian state leaders repeatedly express concerns about the U.S. missile defenses which 'adversely affects [Russian] strategic capabilities and interests.' Russia has responded by moving mobile short-range ballistic missiles to its exclave Kaliningrad-Oblast territory (formerly East Prussia) which borders Poland, and only a short 150 miles (approximate) from Redzikowo. This move was to counter the US-Polish BMD shield. One of President Obama's top foreign policy priorities upon taking office was to reset relations with Russia. The Moscow Summit in 2009 was a significant U.S. rapprochement with Russia. President Obama and Russian President Medvedev held a joint assessment discussing the ballistic missile threat and how to ensure regional security and cooperation. Currently, President Obama is seeking a broad agenda with respect to Russia about the U.S. Phased Adaptive Approach in Europe. The 4 main principals guiding the PAA are:

1. Shared early warning of missile launches.
2. Possible technical cooperation.
3. Possible operational cooperation.
4. Rejection of any negotiation that seeks to restrain US ballistic missile defense.

In the interest of keeping modest relations with Russia, and addressing the threat of a nuclear Iran, the fourth principal may need to be reconsidered. When U.S. Foreign Policy neglects to treat Russia as a full and equal member, it diminishes the possibility of reaching a regional stability solution. Furthermore, it is unlikely that Russia will allow a something-for-nothing agenda without some kind of repercussion resulting in a quid-pro-quo strategic move against U.S. interests; hence Moscow's mobilization of missiles to Kaliningrad-Oblast territory. According to *Upsetting the Reset: The Technical Basis of Russian Concern Over NATO Missile Defense*, despite U.S. and NATO efforts to persuade Russia that the BMD in Poland is not directed at Russia, there are 'fears among Russian political and military leaders that the U.S. PAA in Europe could cause some attrition of Russian warheads' and pose a threat to Russia's national security. The implications of such skepticism risk reversal of the most recent START treaty, and can possibly escalate issues of strategic destabilization such as a renewed arms buildup.

It might be objected that one solution to solving this and improving U.S. – Russia relations on BMD would be to abandon the plans of a ballistic missile interceptor system in Poland and Romania altogether.

The current plans for the two countries are as follows: The proposed location for the Polish-based BMD shield is based in on the northern coast near Redzikowo. This location has a long history of military bases. It hosted the German Luftwaffe in WWII and then a Soviet Air Base in 1950. It's located about 300 miles from the Polish capital, Warsaw, and about 150 miles from the Russian exclave Kaliningrad-Oblast territory. Emplacing this BMD shield is due to take place in 2018, as part of Phase III in the PAA which will field SM-3 Block IB missiles, additional sensors, and projected numbers of armaments number

500 SM-3 interceptors based on 43 ships and 2 land sites.

Regarding Romania, the BMD shield has been proposed to be emplaced near the southern Romanian city of Caracal, on an abandoned 435 acre airport which is projected to host the U.S. Air Base Deveselu. Romania and the U.S. signed an agreement on September 13, 2011, to host an arsenal of 24 SM-3 IB missile interceptors operated by somewhere between 200-500 U.S. military, support personnel, and contractors. This land-based 'Aegis Ashore' system, is scheduled for deployment in 2015 (Phase II of the EPAA). On December 6, 2011, the Romanian Parliament ratified the agreement to move forward with the Romanian – U.S. BMD shield.

Romania supports the development of a NATO missile defense system grounded on the elements of principle determined at the Bucharest Summit and reiterated at Strasbourg-Kehl and Lisbon, i.e. *indivisibility of Allied security, collective solidarity, and full coverage of the Allied territory*. The involvement in the new project will significantly improve the level of national security of Romania

Furthermore, Romania is an important strategic partner of the United States and a reliable NATO Ally. The invitation extended to Romania can only validate the substantial value of this partnership and the important role of the country plays in the Alliance.

At the same time, Romania's decision to take up the responsibility of hosting this defensive system shows deadfast commitment to the principles of NATO's indivisibility of security and Allied solidarity.



Fig. 2. Romania map

This bilateral project with the US significantly contributes to enhancing the national security of Romania, and also to strengthening the bilateral Strategic Partnership and will prove to be a valuable contribution to NATO's future missile defense program. It is equally significant that the proposal was made and the decision to participate in the system was taken at the beginning of 2010, when Romania and the US celebrated 130 years of bilateral diplomatic relations.

The previous project created, for both Romania and its allies, a situation of vulnerability, as only a small part of the national territory would have been covered. The new approach will provide full coverage of the romanian national territory in case of strikes with ballistic missiles or with middle range missiles. It is well-known, at the international level, that the threat of this kind of weapons is growing. In experts' analysis there are mentions about states or non-state actors who can acquire missile technology and are therefore likely to endanger the security of the Allies, unless proper measures are taken.

Russian concerns over the U.S. led BMD shield in the former Eastern Bloc territories will remain high until the U.S. and NATO policy leaders meet two key Russian terms. First, the BMD operational system should be run jointly between the U.S – NATO and Russia. Second, the U.S. will provide specific, firm, and written guarantees that the BMD system in Romania and Poland are not directed at Russia or geared towards undermining Russia's own nuclear deterrence. The U.S. and NATO have openly been rejected or ignored both terms. Situating the BMD shield in southern Europe (the Romania site), which is closer to the regional threat – Iran, geographically makes some sense. An early warning radar system in Turkey supported by an interceptor system in southern Romania better serves the EPAA and European regional security than would the radar and interceptor systems placed in northern Europe. A BMD shield in Poland or Czech Republic is further away from the regional threat and will only continue to impede progress with the post 2008 U.S. – Russia reset of relations.



Phased Adaptive Approach

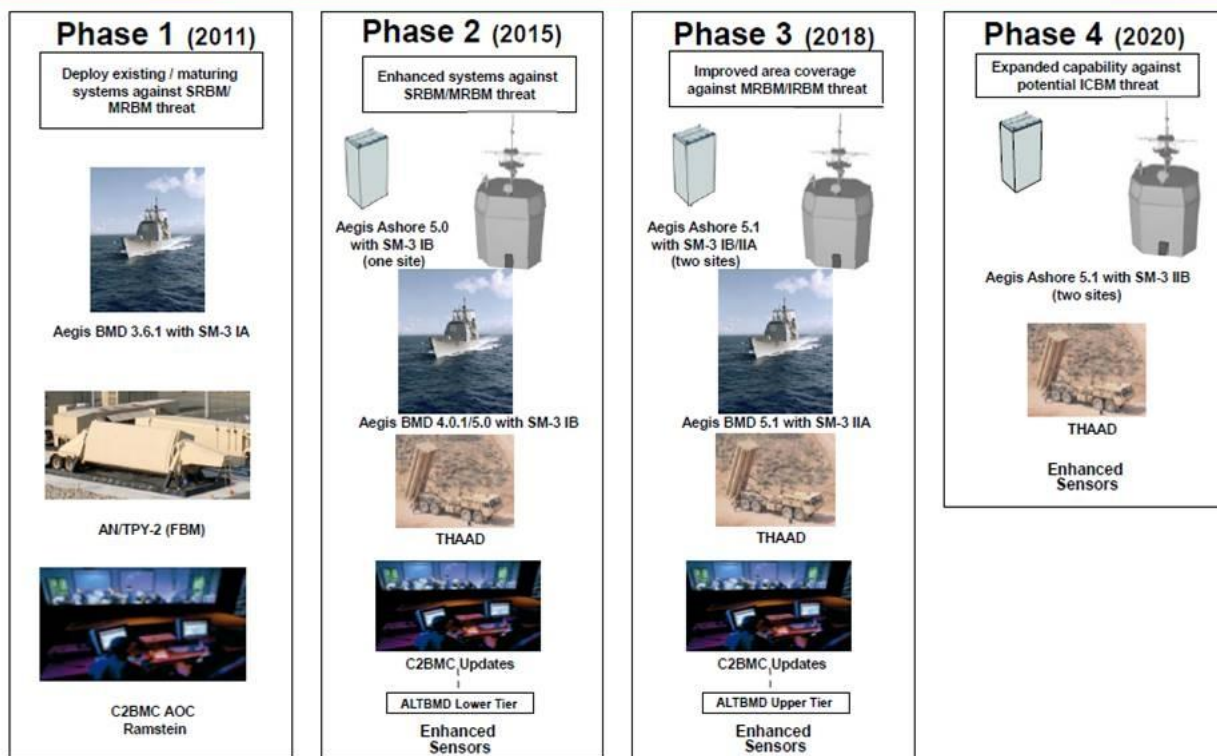


Fig. 3 Phased adoptive approach (Image Source: <http://missiledefenseadvocacy.org/web/page/1089/sectionid/557/pagelevel/2/interior.aspx>)

Recently, radar system emplacements have been agreed on in Turkey. Russian representative to NATO, Dmitri O. Rogozin, announced that Russia has no ‘objections to Turkey’s participation’ and the ‘deployment of a radar in Turkey is not a direct threat to Russia’s strategic nuclear forces.’ U.S. and Russia diplomats should use this agreement as a basis to work off and move forward with establishing an agreement of mutual cooperation between the Russian radar system in Gabala, Azerbaijan and the new radar systems that will go up in Turkey. This policy would align with both of President Obama’s agenda (as well as Russian) aimed at ‘bringing the strategic military postures of the [U.S. and Russia] into alignment with their post –Cold War relationship.’ It would also align to the security burden sharing between NATO allies. As for the interceptor systems, perhaps a shared BMD system based in Sevastopol,

Ukraine could be agreed upon. A BMD shield in the Crimean city is strategically located in the Black Sea, and could serve as a linebacker to the US radar systems in Turkey as well as the Russia radar system in Gabala, Azerbaijan. The base could serve as a confidence building measure between the U.S., NATO, Russia, and the Ukraine.

In *Phase 4*, set to occur in the 2020 timeframe, the Block IIB will be added to the capabilities of the BMD. This interceptor will be able to intercept both IRBMs and MRBMs “from Iran or elsewhere in the Middle East.” (US House of Representatives, 2010). Please see Figure 1 below for a graph outlining each phase of the EPAA. Although President Obama cancelled the third site for basing interceptors (Czech Republic), that has done little to assuage Russian concerns, as the number of interceptors have therefore increased five times the original planned

amount in Poland and Romania (US House of Representatives, 2010).

3. “NO CONSTRAINTS OR LIMITATIONS”

Unfortunately, the Congress and the Administration appear to have taken the opinion that by seeking a joint partnership with Russia regarding ballistic missile defense is akin to being “limited and constrained.” The reality is that the Russians have been more than willing to listen to the concerns of NATO and have even offered some propositions of their own. In a recent address to the Russian people, President Dmitry Medvedev reiterated that after the Lisbon Summit a year ago, the Russian Federation offered an alternative to NATO’s plan, called a “sector-based approach.” In this approach, different countries would be responsible for a particular sector (The Kremlin, 2011). Another plan offered by the Russians involves the creation of a Global Missile and Missile Technology Non-proliferation Control System (GCS), which would operate under the UN and provide incentives for nations not to develop their own ballistic missile technologies (Woolf, 2001:CRS-13). This is consistent with Russia’s view that the primary means of missile defense is via an “umbrella of diplomacy.” (Woolf, 2001:CRS-12).

Perhaps the most direct proposal for a partnership with the United States on ballistic missile defense arose in June 2000, where Russian President Vladimir Putin proposed a “regionally-based missile defense system” that would not require changes to the ABM Treaty.” (Woolf, 2001:CRS-14). According to the proposal, the areas of cooperation would include jointly assessing missile proliferation and threats, the creation of a pan-European missile launch warning center, and the joint development of missile defense systems, among other things (Woolf, 2001:CRS-14). Russia even offered its S-300 and S-400 interceptor systems to contribute to this joint effort (Woolf, 2001:CRS-15). The Clinton administration declined the offer, saying that it “could not serve as a substitute for a U.S. National Missile Defense.” It went further to

state that while the Russian proposal could supplement the U.S. plans, it was unacceptable as a replacement because it would leave the U.S. and Europe vulnerable to attacks by long-range rockets being developed by countries such as Iran and North Korea (Woolf, 2001:CRS-16).

In the rejection of a system based on joint partnership with Russia, the Bush Administration proceeded to reply to Russia’s concerns with a statement along the lines of “this system is not directed at Russia thus Russia should not have any concerns regarding the deployment of the missile shield.” This approach is hardly reassuring to the Russians, who view the West as trying to undermine Russian influence in Europe and the former Soviet republics and satellite states. As a result, tensions continued to rise exponentially.

The Obama administration, although more conciliatory, has taken elements of the Bush Administration’s plans (such as the deployment of interceptors and EWRs in Romania and Poland) and has continued down the path of complete rejection of a joint partnership with Russia. The mantra of “rejecting limitations and constraints” is incredibly irresponsible and is seen by the Russians as proof of what they perceive to be the West’s plans of the relegation of Russia and the neutralization of its strategic nuclear deterrent. As President Dmitry Medvedev recently stated, Russia wants legal guarantees on paper that the system will not be used against Russia and will not be satisfied with simple reassurances (The Kremlin, 2011).

4. COOPERATION IS AN ADDED VALUE

As mentioned in the introduction, the United States does not need Russian help in deploying a BMD in Europe. Russian technical standards are at least two decades behind those of the United States when it comes to anti-ballistic missile capabilities. However, a joint partnership with Russia would mainly serve three purposes. The first is redundancy. If, for some reason, U.S. interceptors or radars were to fail, some Russian systems could serve as a back-up to

intercept an incoming airborne target. Second, the joint partnership would be to reassure Russia that the West looks to it as a partner and not an adversary. Third, Russia is a vast country that still retains many key bases close to Iran (such as in Azerbaijan and Tajikistan).

5. REDUNDANCY: ENGAGING SRBMS

As mentioned above the technical gap between Russian and U.S. SAM systems is vast, however, the one exception being that the SRBM interceptor systems are very close in capabilities. Being that the U.S. generally has stronger capabilities; the first line of defense against an SRBM would be the PAC-3 Patriot missile system. The PAC-3 would be most effective by being deployed in Turkey, as close to Iran as possible, since its range is limited and is most effective against low-flying targets. Its range is only 160 kilometers (double the range of the first Patriot); however it can continually perform 6g maneuvers in order to pursue its target (*MIM-104 Patriot*, 2011). It is able to receive visual support from AWACS aircraft for increased accuracy (*MIM-104 Patriot*, 2011). It is also a fast missile, flying at speeds of up to Mach 5 and is also effective against cruise missiles (*MIM-104 Patriot*, 2011) (which is a concern due to the proliferation of cruise missile technology and their ability to carry tactical nuclear warheads).

To provide for an element of redundancy, this paper suggests that in a joint partnership Russia deploy its S-300 system in Azerbaijan. The S-300 system has a target hit rate between 70-80%, depending on whether the warhead has separated from the rest of the ballistic missile (Brown *et al.*, 2009). This is a very high success rate, given that a 100% hit rate is accepted as virtually impossible to achieve. The 48N6 missiles that can be launched for the S-300 system are quick enough to hit low-flying ballistic missiles, with a maximum speed of 5 kilometers/second (Brown *et al.*, 2009). The S-300 PMU 1/2 version has range that is greater than the maximum PAC-3 range by about 40 kilometers. Like the Patriot, the S-300 system can track up to 100 targets simultaneously (*S-300/Favorit*, 2011).

However, the S-300 can only control up to 6 interceptors (*S-300/Favorit*, 2011) while the Patriot can control up to 9 (*MIM-104 Patriot*, 2011). In situations where those 40 kilometers might make the difference between a successful intercept and failure, the S-300 redundancy is especially important. To further the chance of a successful intercept, both the S-300 and the PAC-3 Patriot systems could engage the target in case one fails.

6. REDUNDANCY: ENGAGING IRBMS AND MRBMS

As the range of the target missiles increases, the greater the disparity is between U.S. and Russian capabilities. The SM-3, which is the “bread and butter” of the U.S. ABM stockpile is also the arguably the most versatile in existence. It is able to be integrated with the Aegis Weapons Control System on board U.S. Navy destroyers and cruisers. The Aegis system employs hit-to-kill technology to intercept MRBMs and, in addition, track ICBMs (Scott, 2011) which would likely be taken out with THAAD during the missile’s descent phase. In addition, the Aegis WCS has the ability to distinguish between the countermeasures and the actually incoming missile (*Aegis Weapon System*, 2011). In order to counter the target, SM-3 interceptors are launched. These missiles are highly accurate, relying on inertia, GPS, and a two-color infrared system for guidance (*RIM-66/-67/-156*, 2011). In order to engage higher-flying targets, the SM-3 Block IB is able to hit targets up to a range of 225 kilometers in altitude and has a maximum range of 1,650 km (*RIM-66/-67/-156*, 2011). The SM-3s most likely to be deployed in Poland and Romania will be launched from the land-based MK-41 vertical launch systems (Brown *et al.*, 2009). Being extremely adaptable to virtually any situation, the SM-2 Block IIA is able to protect against cruise missiles and the SM-3 IA can be used to defend against SRBMs (Scott, 2011).

The SM-3s that Romania will receive are the of Block IB. These missiles were designed to replace the Block IA and were given improved discrimination between warheads and decoys and offer greater maneuverability.

It is, however, limited against ICBM threats (*Standard Missile 1/2/3/5/6*, 2011). The SM-3s that Poland will receive are of the Block IIA, which is currently under development. At the time of this writing, the details regarding the exact capabilities of the Block IIA and IIB are unknown to the general public. When completed, the Block IIA is expected to have an improved range and a more advanced seeker which will be able to distinguish between missiles and decoys. This missile is designed to be more effective against ICBMs (*Standard Missile 1/2/3/5/6*, 2011). This approach stays true to the EPAA in that the amount of BMD against rogue ballistic missiles is increased gradually. To sum up an incredibly complex system: the SM-3 is incredibly versatile and, given its wide range and altitude capabilities, it is able to engage SRBMs, MRBMs, and IRBMs.

The Russian capabilities with regards to IRBMs and MRBMs do not even approach those of the SM-3. The closest SAM that the Russians currently have deployed is the S-400 system, which is based on the S-300 that was mentioned earlier. It has a maximum engagement range of 400 kilometers using the 40N6 missile (*S-400 Triumph*, 2011) and can intercept ballistic missiles traveling up to 5,000 meters/second (*S-400*, 2011). It is currently deployed in the south of Russia to counter rogue North Korean missiles (*S-400*, 2011). The missile is also able to maneuver at an impressive 60g at low-altitude and is able to intercept SRBMs and IRBMs at a range of 5-60 km. In addition, the land-based version can engage ≥ 36 targets and guide ≥ 72 missiles simultaneously. There is a naval-based system installed on the cruiser Peter the Great that can engage 6-8 targets and guide 12-16 missiles simultaneously (*S-400*, 2011).

One can clearly see, based on the differences in technical capabilities, that the only real purpose for which the S-400 system could be used is redundancy. The best deployment would be in the south of Russia and the Ukraine, since both are within intercept range of the likely trajectory of an Iranian IRBM/MRBM. A cruiser like Peter the Great with the sea-based system could supplement U.S. Navy destroyers and cruisers

in the Black Sea, which would be deploying a variation of the SM-3 depending on the type of threat that eventually may emerge from Iran.

The S-500, however, helps to bridge the gap between U.S. and Russian capabilities, but is still by no means a substitute for the SM-3. Currently under development, this missile system is planned to have a range of up to 600 kilometers and be able to engage 10 targets with 10 independently guided submunitions (*S-500*, 2011). The system is expected to be fully deployed within the timeframe of 2015-2016, assuming that production is not delayed, as often is the case when Russia develops a new SAM system.

6. LACK OF REDUNDANCY: ENGAGING LRBMS AND ICBMS

Perhaps the most worrisome for Russia is the deployment of the THAAD system in the EPAA to counter potential rogue ICBMs. This is the only system that would be able to threaten any Russian ICBM, but targeting multiple warheads would prove to be quite cumbersome. The THAAD is designed to intercept and destroy a ballistic missile at a safe altitude in the missile's descent phase. This intercept would occur at an altitude of around 195 kilometers so that the payload, whether it is chemical, biological, or nuclear, can be detonated without causing collateral damage on the ground (*THAAD*, 2011). The THAAD missiles are fast-flying (at speeds of 2.8 kilometers/second) and are guided by both space-based sensors and ground-based radar and can intercept targets greater than 200 kilometers away from the launcher (*THAAD*, 2011). Although in the 1990's the program saw some major reliability issues, THAAD combined with PAC-3 are able to address 76% of existing threat inventory (*THAAD*, 2011). The introduction of the SM-3 is likely to raise that statistic.

No other country in the world, including Russia, has the capability that THAAD possesses. This understandably makes the Russians nervous, which would mean that Russia would require that the United States enter into a legal agreement that would prevent the U.S. from using THAAD against

Russian ICBMs. Under the current policy, the United States would reject such a concept and would again consider it to be a “limitation” on its BMD.

7. ADDRESSING A JOINT PARTNERSHIP

This paper suggests the construction of a joint Ballistic Missile Defense Command (BMDC) via international treaty which would be located in a neutral country such as Switzerland and would serve as the nerve center of the operations. Both Russian and NATO personnel would staff the station, which would facilitate communication between the two sides of the system, both in the field and locally. Important to establish is a formula to assess the threat and to deploy whichever countermeasure (as intimately detailed above) either side can offer depending on the incoming threat type.

Russia is the largest country in the world and as such, possesses perhaps the greatest asset the Russians can offer NATO: access to its Early Warning Radar (EWR) stations. These include a Volga radar station in Belarus, an Okno electro-optical space surveillance facility in Nurek, Tajikistan, the new Voronezh-DM radar stations (which have an impressive range of 6,000 kilometers and can track 500 targets simultaneously) in Kaliningrad and Armavir (*Strategic Weapon System*, 2011). All of these facilities are in the perfect geographic position to keep an eye out for incoming Iranian ballistic missile threats. NATO would thus be saved on having to deploy more resources to set up and maintain their own radar stations.

It is well-known in the field of international security that a way to bolster relations between two countries is what is called “confidence-building measures.” By maintaining the BMDC together, both NATO and Russia would be more trustful of each other. Russia would have legal assurances that the West is not its adversary and the West would have assurances that Russia is a committed partner in the realm of missile defense.

8. PREPARING FOR DOMESTIC AND INTERNATIONAL OPPOSITION

In the case of the United States, opposition to the joint NATO-Russian missile defense shield would come from Republicans and a few conservative Democrats. They would argue that the U.S. was “apologizing” for itself and caving to the demands of Russia. The Republicans in particular, would seek to demonize President Obama as being naïve. The House would likely not approve additional funding for the program unless a Democratic majority is voted in during the 2012 election. However, the Obama Administration could take advantage of funds already allocated to the program to get the system started; the radar stations and interceptors planned for Poland and Romania. After the initial start-up of the operation, President Obama would likely have to actively campaign to explain to both the American people and Congress why this joint system is in the U.S. national interest.

Opposition in the United States would also come from the Military-Industrial Complex. The U.S. would not require as many interceptors and would seek to modify or cancel contracts with private defense contractors. The development and subsequent deployment of the advanced SM-3 interceptor is highly profitable for Raytheon and Lockheed Martin, who are both involved in its development and manufacture. Coincidentally, these companies also have sufficient funds and lobbying power to influence the decisions of both Congress and the President.

Opposition from NATO countries would primarily come from former Warsaw Pact countries that are now in the Alliance. These countries have agreed to host U.S. installations primarily due to the fear of a resurgent imperialistic Russia seeking to dominate them in terms of military, politics, and economy. These countries would seek assurance from the U.S. that Russian interference in their internal affairs not be allowed. In seeking to reassure these countries of their security, in the treaty setting up the BMDC, it should be made clear in writing what the limitations of the BMDC are (such as respect for the host country’s sovereignty). In addition, Russia and NATO

would be required to enter into formal binding treaties which would define which behavior is acceptable for both sides.

Opposition from within the Russian Federation would likely come from the hardliner elite who would argue that, once again, Russia is surrendering its Great Power status to the West. In Russian culture, the concept of *Derzhavnost'* is highly important. This refers to the concept that Russia is and always has been destined to be a powerful state (Russian exceptionalism). The Russian leadership would be required to frame the joint NATO-Russia ballistic missile shield as not surrendering to the West, but doing what is in Russia's best interests and, in doing so, preserving the Great Power status of Russia. This should be relatively easy for Russia, giving the extent of state control of the Media and other sources of information.

9. CYBER SECURITY AND BALLISTIC MISSILE DEFENSE

One doesn't have to look far to understand that cyber security poses a unique challenge to BMD. According to an article in Wired.com (2011), counterfeit electronic chips have "wound up" at the Missile Defense Agency seven times in the past five years. These electronic chips go into such advanced systems as THAAD (see above) and Navy and Air Force planes. Lieutenant General Patrick O'Reilly explained the concern to the Senate Armed Services Committee: "We do not want a \$12 million THAAD interceptor to be destroyed by a \$2 part." An even more frightening scenario is a "Trojan horse" circuit being embedded in parts for the BMD, which would allow (presumably) China to control the interceptor or WCS. This problem needs to be addressed and Congress must increase oversight over the parts which are imported specifically from China, as these counterfeit chips could undermine the whole BMD system.

10. CONCLUSION

Past and present Iranian behavior and political rhetoric indicates the regime's

intentions of using Ballistic Missiles. The Iranian Salvo Launch in 2006 displayed their intention to defeat missile defense systems, thus enabling them to hit their target. Syria, a co-belligerent and ally to Iran, also presents a regional threat to Europe, deployed U.S. forces, and allies. It's all mobile inventory of SCUD-class and SS-21 SRMBs is much smaller than Iran's, but has severe implications; especially with regard to the suspected chemical warheads within its SCUD-class.

Policy priorities two and six in the February 2010 Ballistic Missile Defense Review Report (BMDR) outline regional defense strategy will be reinforcing NATO's central role in missile defense to support and ensure greater security in Europe from short-range and medium-range ballistic missiles. According to the BMDR, the U.S. supports NATO's development of a command and control system for territorial defense, along with NATO allies providing missile defense assets and territory. By forging new alliances and agreements, international efforts of deterrence can move forward in preventing states like Iran from acquiring, developing, or effectively using Ballistic Missiles. This objective is outlined in policy priority six, which states the goal of 'principally eliminating [Iranian] confidence in the effectiveness of [ballistic missile attacks] and thereby devaluing their ballistic missile arsenals.'

Indeed, with the recent sanctions on the Iranian central bank, along with the EU banning oil imports, Iran's aggressive nature has continued to grow.. The regime has threatened to close the Strait of Hormuz, and recently has been conducting naval exercises in the Persian Gulf. The U.S. intelligence community reports that Iran is currently 20% complete on developing enriched uranium which can be used for a nuclear missile. Nuclear development is suspected of taking place in an underground facility near the city of Qom. Should their provocative threat materialize, President Obama, affirmed as recently as Super bowl Sunday in an interview with Matt Lauer that the U.S. would not tolerate a nuclear Iran and is 'leaving all

options on the table' to protect and secure our allies and ensure the Strait of Hormuz remains open. Yet, for president Obama., diplomacy remains the preferred course of action

Iran has the capability to strike deployed US forces and allies in the Middle East and Europe. In the past, they have received missile development support from China, North Korea, and Russia. For example, the Shahab-3 Mid-range ballistic missile (MRBM) is based on the North Korean No-Dong missile. Despite international sanctions, trade embargos, and U.S. diplomatic efforts via the Swiss Embassy, Tehran continues to defy international norms on the development on a nuclear missile. Most of the Iranian ballistic missile inventory consists of mobile Shahab-3 mobile Mid-range ballistic missile, with a capable striking range of 1,300-2,000km. At that range, Greece, Turkey, parts of Romania, Bulgaria, Moldova, and Ukraine are within striking distance. The fact that Iran claims to have the capacity to mass produce these missiles greatly magnifies the threat. Furthermore the BMDR reports that Iran has been actively working towards increasing the accuracy and propellant of its short-range ballistic missile (SRBM) inventory.

NATO and Russia are at a crossroads with regard to BMD and Iran. If NATO chooses one path, it puts itself in a likely arms race and on a collision course with Russia with associated rises in tensions, brinkmanship, and costs, the likes of which have not been seen in twenty years. In this scenario, each side would develop arms to try to counter the other's systems. Russia would seek to develop more advanced ballistic missiles to be able to penetrate the NATO BMD. NATO would seek to adapt its BMD to address the increasing threat that Russian ballistic missiles may pose to it. The result is a never-ending cycle which puts both sides on permanent combat alert and could lead to even larger budgetary problems than are already being experienced. This would distract both sides from the real issue: Iran's continued procurement of ballistic missile and nuclear technology.

If NATO takes the road towards partnership with Russia, costs can be shared and there will be little reason for an arms race

between the two sides. Both NATO and Russia have an interest in preserving the safety of Europe. For Russia, the reasons are mostly economic and for NATO, the reasons are mostly related to the concept of self-preservation. Russia has already taken a step in the right direction by cancelling the sale of its S-300 system to Iran in light of new UN sanctions and would still be open to a joint BMD. As demonstrated above, it is evident that Russian and NATO systems are not mutually exclusive. There may be some technical disparities, but the geographic location of Russia and its radar stations are too perfect to resist. For the sake of both NATO and Russia, hopefully the right decisions are taken.

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INFORMATION LEAKS REDUCES NATIONAL AND INTERNATIONAL SECURITY

Mihail ORZEAȚĂ

„Henri Coanda” Air Force Academy, Brasov, Romania

Abstract: Confidential information leaks means vulnerability and security deficit. Confidential information leaks could be part of a scenario aiming to gain total control over population. States do not have permanent interests but permanent friends. Solidarity between states has limits that are tougher during crisis. Democratic and cross control among institutions is the best way of preventing institutions and public persons' tendencies to use information in their exclusive benefit.

Keywords: information leaks; security; conspiracy; manipulation; population control; secret services.

1. WHAT COULD BE THE OBJECTIVES OF INFORMATION LEAKS?

Although it is almost impossible to prove I do believe that information leaks is part of a global and undeclared confrontation, that has “subversion as primary weapon.” (Muchielli, *apud* Susanu, 2003:225) Many states use double standard in international relations, usually in secret, in order to save the appearances, and this is one argument that supports the above prognosis. International relations consist of a competition named “games” (Schelling, 1999:3-21) by some experts, which is mostly hidden and it is waged through non-military components of the multidimensional and continuous confrontation: “*The essence of foreign affairs is to influence strategies, events or circumstances from other countries. (...) The aim of secret actions is to influence foreign government's actions. (...) These actions aim at the country's government, population as a whole or just a certain part of it.*” (Shulsky, Schmitt, 2008:129). Prudence that springs from history's lessons makes wise men to implement security measures for the situations when their friends and allies change political options and become neutral or even enemies. Thus, John Mearsheimer's opinion that describes diplomacy as “*pitiless and*

dangerous business and has all the chances to remain the same,” (Mearsheimer, 2003:31-23) reflects the truth proved by Wikileaks revelations.

Wisdom that cannot be bought, sold or borrowed (*Juridical and Antique Maxims*, 1992:107) was and still is the foundation rock of any enduring human activity. On the other side, “*Where ignorance is happiness, folly seems to be wisdom*” said Th. Gray (1976:157). Lack or less than necessary wisdom was at the origins of many problems that is why our ancestors use to say “*where is not head then the legs will suffer.*” So that it is necessary to approach information leaks with prudence, patience and wisdom. Wisdom means more than knowledge and skills. It is the result of study as well as experience, comprehensive approach of international security environment and an estimate of the consequences of action that has to be taken.

2. WHO COULD BE AT THE ORIGINS OF THE CONFIDENTIAL INFORMATION LEAKS?

We all know, or should know that in a true democracy nobody is above the law. It means neither persons nor institutions cannot initiate any action they want, unless their actions are legal. In order to respect the principle of

power's separation democratic states established cross control among institutions that aims to keep the balance among legislative, executive and juridical powers. Any accumulation of extra power by one of the main powers of the state is not possible without complicity of the others or as a result of their weaknesses. As a consequence, all the malfunctions that appear into the process of distribution and implementation of the responsibilities by the democratic state may generate a true chain of unpleasant events within the society, including breaking laws and society norms.

Confidential information leaks could be the result of the existing malfunctions within some state's institutions that possess information, which are released to public opinion without authorization. The success of information leaks is not possible without participation of some of those that work within political, informational, informatics and mass-media domains.

Professionals from intelligence organizations have responsibilities for collecting, processing and distributing information. They are the fighters within "silent warfare." (Schulsky, Schmitt, 2008) During the process of collecting and processing information could appear malfunctions, which may or may not depend on those people that collect process and interpret them. Sometimes people make mistakes like: erroneous interpretation; negligence; insufficient experience; hurry; desire to be noticed and rewarded or bad intentions.

Collecting and processing data, the most known missions of the information component, which is part of the multidimensional confrontation, always has been important. "Decision-makers and those that have to implement decisions could take unsuitable measures if they do not have valuable information or because of misperception." (Schneider, 2003:11) There are many facts that confirm this conclusion from 1962 missile crisis to September 11, 2001 terrorist attack against USA, as well as "the facts that proves" nuclear program of Saddam Hussein regime in 2003. According to

Karl W. Deutsch, inaccurate information and wrong perceptions about different events have been the basis for wrong decisions that led to almost 50 % of the 20th century conflicts.(Deutsch, 2006:51-52) One of the relevant cases from this category, which had important consequences over USA as well as over the world politics, was the one consisting in illegal revelation of the real identity of a CIA's agent - Valerie Plame-Wilson – by some senior clerks of George Bush Jr. Administration (Drumheller, Monaghan, 2008:170-172) International consequences were huge because the authors of this action suggested that she was using her official position for backing her husband's declaration that Saddam Hussein does not have any ongoing weapons of mass destruction program. The result of this action was the military attack against Iraq, based on the presumable hypothesis of hidden program for producing nuclear weapons, which were not found until current day. The above mentioned case is one of the most notorious that aimed to manipulate public opinion from USA as well as the most part of the world's one (Isikoff, Corn, 2006) Also, the situation already mentioned reflects convincible Vladimir Volkoff's (2007:29) opinion that "a crowd could be easily laid than an individual or a group of individuals."

Another important case of information leaks is the one consisting in CIA providing regularly information to The Washington Times journal (Laurent, 2005:77), which was considered a true press organ of Republican Party. In exchange for the information provided by the CIA, the journal use to violently attack any individual that was touching embarrassing issues for Bush Jr. Administration.

Political leadership of the states is responsible for the way of using information provided by intelligence organizations. Politicians from intermediate levels and experts may or may not timely and accurately elaborate prognosis about internal and foreign political evolution based on intelligence data. The prognosis could be timely submitted to the top level decision-makers but having a reduced accuracy because of low competence of the

authors or even because of their different interests from state or institution they suppose to honestly serve.

Sometimes, intelligence organizations could be used as lightning rod for politicians' mistakes because people working for secret services do not defend themselves publicly. It is the case of failure to prove the reality of Saddam Hussein regime's WMD program. CIA was publicly blamed by Bush Jr. Administration for this failure and its subsequent consequences (Drumheller, Monaghan, 2008:158-159).

In many situations politicians decide or even lead influencing, manipulation and misinformation of public opinion from the world's states and communities. Eric Laurent said that President Clinton was the target of a negative press campaign led by multimillionaire Scaife Mellon - an important member of the Republican Party - that made a personal business from the destruction of the democrat president (Laurent, 2005:54) International public opinion is permanently considered in order to prevent the allies to change their opinions and to join the neutral states or even to the adversaries. Also, influencing public opinion is meant to increase number of the allies or to persuade some adversaries to join the neutrals' side. This objective is accomplished by manipulation. Usually, successful influence of the public opinion and of the adversaries' is the result of PSYOPS. These kinds of operations sometimes are seen as "black art," practiced by the masters of lies and deception. That is why some decision-makers feel disgust for manipulating people and tend to suppress the psychological dimensions of military operations (Collins, 2004:6-7). Public opinion and adversaries manipulation procedure requires a close correlation between information and misinformation in order to fulfill the established objectives of the PSYOPS. For some experts in this domain "*man has been manipulated in his entire social existence, without technology, without psychology, without advertising. When all this appeared, manipulation had already existed and the principles of doing this had already been accepted both by the subject of*

manipulation and the manipulator." (Hentea, 2008:47).

A former member of the USA's information organization wrote this: "*In peace time the secrets are well hidden (...) buried below many fragmentary information, falsehood and, sometimes, true misinformation (...) some decades after the war ends, the documents come true revealing the hidden origins of celebrated victories and of the suffered defeats.*" (Allen, 2009:5-9) Many historic events can prove this assertion. Right after Russian Bolshevik Revolution from 25 October/07 November 1917, Lenin decided to publish secret treaties signed by France, Great Britain and Russia. Treaties had the goal of sharing among the above mentioned countries Central powers' territories after the end of World War I, and contained provisions to give the neutral states territories and facilities to convince them to join the Antante. First copies of the treaties were published in *Manchester Guardian* journal in 12 December 1917 (Johnson, 2005:29). Lenin wanted to show the world his firmness in promoting the idea of stopping the war, but his hidden goal was to undermine Great Britain and France internal and foreign credibility and to contribute to their defeat. Also, he probably wanted to pay for Germany's administrative, financial and logistic support during his travel from Switzerland to Russia, crossing Central Power's territories (Lecomte, 2010:13). The copies of the treaties published in Great Britain had influenced USA's public opinion. President Wilson made public a peace proposal in 14 points. The proposal was accepted by Germany (Milza, Berstein, 1998:80) although most of its troops were on France and Belgium's territories.

Informatics experts should care about data transmitting using devices that should not be detected or located. Also these experts have to protect the network against any interception or intrusion from hackers and other people seeking for fame.

Mass-media professionals could be part of information leaks having different reasons: desire for fame; the belief that serve a just cause; because they were offered material stimulants; because they were subject of

blackmail, threats and so on. Influencing power hold by mass-media is based on human specific way of reacting to images that catch and keep them “prisoners” to everything is visible and touchable. (Freud, 1992:68-69).

3. WHO MIGHT BE THE SPONSORS OR SUPPORTERS OF INFORMATION LEAKS?

All potential participants to confidential data leaks need to have supporters among employees working for state’s institutions convicted. The employees should have direct access to confidential information or suppose to protect that information. The confidential data leaks initiators are looking for such kind of employees because they are the weak link of the protection information system. If they do not participate, then the leaks are practically impossible. Stealing data about French aircraft Mirage and sending them to the Israelis by an engineer working for the project (Thomas, 2003:79); sending data about American nuclear program to the Israelis by Jonathan Pollard (Thomas, 2003:81-84); sending data about American helicopter that was killing Iraqi civilians to Wikileaks organization by American military analyst Bradley Manning (Domscheit-Berg, Klopp, 2011:175); “The Five from Cambridge” (Parish, 2002:54) that were spying for USSR are just a few examples of “weak links,” from the very many that existed and considerably influenced world’s history.

4. HOW SECRET COULD BE SOME DATA FOR PUBLIC OPINION?

The notion of secret and the access to secret data should be seen through the meaning of “need to know” principle, which reflects the responsibilities and level of the job within the organization’s hierarchy. This principle exemplifies the rule of law within a democratic state. In other words, curiosity - the specific feature of human nature – should be restricted to the necessity to know certain data. It means that secret data have to be protected from people with bad intentions or from adversaries. One of the most secure

methods is the one of restricting access to secret data in order to prevent dissemination to persons like ones mentioned above.

What a pity that those provisions could be used for hiding illegal actions, pretending that security reasons require imposing restrictions for certain activities. This was the case of “Watergate affair,” of secret CIA’s flights, of population overseen and control by the political police from communist states and so on.

5. INFORMATION LEAKS MEANS VULNERABILITY AND SECURITY DEFICIT

Mao’s opinion that “*power springs from rifle’s barrel*” (Meisner, 2008:90) is no longer entirely true. Information had and will continue to have a more and more important role in any decision, from individual to community level. Currently, more than in any other previous historic era, information is a decisive factor in any type of confrontation, especially the political one. The owner of valuable information could influence (manipulate) adversaries’ decisions or, knowing their intentions, strength and even decisions, could take adequate measures for protecting his community and to take an important advantage to win the confrontation.

The Germans and the Japanese as well were defeated on the field of information protection during the Second World War. Their machines for encrypting communications – the Germans’ Enigma (Garlinski, 1979:16) and the Japanese Purple (O’Toole, 1991:384-397) - were no longer encrypted for the Allies as a result of good cooperation among the USA, Great Britain and Resistance fighters from the territories occupied by the Germans. In their turn, the Soviets were successful within information confrontation with the Japanese, especially due to their spy Richard Sorge’s activity (Prange, 1984).

Being well informed means to be better prepared for any situation and to restrict the field of action for unpleasant surprises. Correct and timely information is a mandatory condition for any success. Any plan, program

and strategy do not have chances for fulfilling their objectives if they are not based on correct information and the ways of acting are not adapted to the circumstances of the environment. All great military and political leaders had been wanted to eliminate risks caused by the lack of information or disinformation. Napoleon 1st used to say that the power of the unknown cannot be measured (Mirea, 1973:45), and Chinese Sun Tzu stated that the one who knows the enemy and knows himself will not be in danger during battles, whilst the one who does not know himself or the enemy will be defeated in all battles (Sun Tzu, 1994:179).

This way of thinking is viable inside of economic domain too. The economic competition is tough and businessmen use any type of means, including information leaks, for gaining new markets and defeating their competitors. Also, politicians, leaders of terrorist organizations and organized crime were and will be interested in having secret data for using them at the moments when they presume to gain the best advantages. Many dictators were looking to control public opinion in order to protect themselves against any internal and foreign adversaries. Stalin's spy mania (Soljenitsyn, 1997:176) pushed him to kill all people convicted to spying aiming to catch real spies no matter that most of them were innocent. It is said that Saddam Hussein was close to Stalin way of thinking because, according to the Department of State from USA, he used approximately 25% of the adult population as informers (Salinger, Laurent, 1991:18).

Prior to the "Six Days War" (5 to 11 June 1967) between Israel and Arab states, the Israel's secret service Mossad had one informer within each Egyptian's military base. Also, within Egyptian Central Command from Cairo there were 3 commissioned officers as informers. The information delivered by all its informers helped Israel to know Egyptian's operation plans, details about intimate life of commissioned officers as well as political leaders from Egypt. As a consequence, Israelis were successful to plan and execute combat as well as psychological operations, using

information provided by their informers (Thomas, 2003:51-53).

Inside of each of us there is an angel as well as an evil said Paolo Coelho (2003:45), but it depends on us the way we follow. Vladimir Volkoff (2002:55) believes that "*human nature tends towards envy*" while Aleksandr Soljenitin's (1997:153,196,201) opinion is that "*man is not an evil but he does not let you to live (...) because the one that have eaten with you from the same plate will betray you.*" At his turn, George Orwell considers human being "*a clay easy to model*" (Orwell, 2008:222) quality that might explain why some of our fellow men have attitudes that range from coward and flattering twitter (Soljenitsyn, 1997:247) to the one of fanatic promoter of terror by conviction (Soljenitsyn, 1997:379).

The initiator of Wikileaks – Julian Assange – has declared that he wants to make a more transparent and better world by publishing the secrets that convict banks, states' institutions as well as Nongovernmental Organizations for their illegal practices (Domscheit-Berg, Klopp, 2011:12,28-30,276). Later on was proved that dictum "the road to Hell is paved with good intentions" is perfectly suitable to him. Assange's attitude was resembling to the ones he use to criticize: he was obsessed by having power; he use to consider most of other people as idiots, especially those that have different opinions than his one; he was a dictator with his partners; he does not allow his partners to challenge and control his activity; he was dreaming to become untouchable by gaining enough money and setting up a sophisticated system of companies that cannot be controlled. Being accused of sexual harassment by Sweden authorities he decided to hide and to threaten that he will publish more confidential and more embarrassing information for some certain states, although the accusations were not related to Wikileaks (Domscheit-Berg, Klopp, 2011) Andrei Luca Popescu (2011) wrote that "*Wikileaks looks like a keyhole trough which an initiated eye can understand many things.*" For instance we could understand that anyone and anything has a price that is not assessed only in money and material benefits. The weakness of people is

their interest promoted by all means. People could be convinced to spy or betray by promising to help them to accomplish their goals or by using blackmail or threatening them. Therefore, if a nation has senior officials as well as people in charge with secret data protection that cannot resist to blackmail or threats, or people that are more interested in their personal benefits than in state's security and national interests, then security of the state is in great danger.

6. MASS-MEDIA PART OF SOLUTION OR PART OF THE PROBLEM?

Mass-media are called sometimes "the fourth power of a state," and some other times "watchdog of democracy." No matter the name, mass-media have an important role in informing public opinion and in shaping a trend for supporting a certain decision. Thus mass-media could be resembled to a double cutting edge sword because they have both a positive as well a negative role within each society.

Mass-media facilitate, and sometimes stimulate more or less known authors to write and publish different scenarios about top events that catch public's interest. Some scenarios are meant to test audience reaction in order to envision the necessary elements to decision-makers for choosing the suitable tactics and means for influencing public opinion, while the others are designated to direct influence public opinion. One like these scenarios written by Al Hidell (2006:11) suggests that antiterrorist war is more like a smock curtain that mask USA's interest to control Central Asia and its energetic resources. This scenario and other more released to public opinion by "trustful sources that want to remain anonymous" aim to initiate, infer or stimulate a certain attitude within public opinion.

During "Watergate scandal" written press had a very important role in defending democracy's values by informing American public opinion about abuses produced by some FBI employees under the auspices of some senior officials of Nixon Administration. FBI agents mounted microphones inside Democrat

Party offices from its Headquarters – Watergate building. Illegal activity was known by public opinion through information leaks towards Bob Woodward – a journalist from Washington Post. Leaks' initiator was a mysterious person, nicknamed "Deep Throat," which proved to be Mark Felt (O'Connor, 2005), one of the deputies of recently died FBI director Edgar Hoover. Felt was led by revenge because he was aspiring to the director position after Hoover's death.

Vladimir Volkoff (2010:20) considers mass-media a sort of loudspeaker of misinformation operations within which television is the Olympus and internet is Walhalla. "*Fight for gaining supremacy over internet*" (Dunnigan, 2010:20) is important because this way of communication is used by more and more private companies and organizations, both governmental and nongovernmental ones for their business. According to James Dunnigan (2010:55), one third from USA's economic growth in 2001 was determined by internet. On the other side, using worms and informatics viruses and some other means and methods it is possible to steal information as well as to destruct computer networks, power plants, pipelines network for fossil fuels, communication systems and even command and control systems of the armed forces. Internet allows dissemination of a huge volume of information in a very short time, which is addressed to a huge number of persons, facilitating both information leaks and manipulation of people and communities as well.

Mass-media's employees use manipulation for different reasons. Some of them want their products to be sold easier and the companies they work for to make more money and to be economic viable. The others want to serve certain interests of the political power, and not the least because the authors of media tricks desire celebrity. All those who manipulate do not have morality or regrets for their actions. They are guided by their own interests and for accomplishing this objective they could use all possible means. Their target is celebrity and fortune. The effects of their actions are important only if they bring profit. Hiding beyond of "trustees and well informed

sources” could deceive the uninformed people or the ones too lazy for filtering information provided by mass-media through their minds. The manipulators count on the people’s tendency to trust the mass-media instead of the official agencies. Thus the media could deceive the public opinion by promoting insignificant people to the status of “personality,” including politicians almost overnight. This is a case of the Russian Vladimir Jirinovski and the Italian Silvio Berlusconi. They were promoted in a few weeks from ordinary people to party leaders (Iuncu, 1994:44-45). A similar situation happened in USA where Charles Murray’s case is the one for scholars, wrote Eric Laurent (2005:62-63). According to Alina Mungiu, Romanian literary critic Manolescu was a quite unknown but mass-media helped him to be promoted in the position of party leader (Mungiu, 1995:253).

A minor fact could be perceived as great, depending on the way it was released to the public opinion. In other words, the mass-media could not only make a mountain out of a molehill, but also could diminish the importance of a certain event, work of art, etc. through the way they deliver information and additional comments about them. As C. Hentea said, “*the mass-media are both a mirror of the masses’ will and a propaganda vehicle heading towards masses of people.*” (Hentea, 2008:52-53). Thus, the mass-media could be a subtle instrument for sustaining a dominant ideology of a human society as well for imposing a group’s hegemony over all the others in that society.

7. WHO MAY BENEFIT FROM INFORMATION LEAKS?

Confidential information leaks towards mass-media or even adversaries have been in the past. Also, history registered betrayers of some spies and usage of the same spies by more parts into the same conflict. I envision that similar events will take place in the future too because the information war is continuous and politics of all states aim to promote their own interests. Life is a continuous fight that engages not only declared adversaries but

allies too. According to some sources Saudi Arabia (Laurent, 2005:177), considered the most important ally of the USA from the Middle East, is also one of the main sponsors for the Muslim terrorist organizations that want to recompose the Great Caliphate from Atlantic to Karachi. Any further evolution is possible, including “fratricide fights” among allies. I also envision that the results of information leaks will be fructified not only by the organizers but also by totalitarian regimes; organized crimes; mass-media and possible by some institutions from democratic states, especially those in charge with secret data protection.

Totalitarian regimes will have a new pretext for imposing tougher measures to repress any opposing forces, to intensify censorship and propaganda against all democratic states.

Extremist organizations may pretend, based on information leaks, that they have the best prove of Occident’s guiltiness and of democratic states as a whole because they declare that protect human rights but in practice these rights are disobeyed firstly and repeatedly by the democratic states.

Organized crime can exploit the revealed vulnerabilities through information leaks from any domain of activity, especially from political, diplomatic and military ones. They may intend to use blackmail in order to influence states and institutions leaderships’ decisions, as well as to promote in official positions some people that work for them.

Mass-media’s benefit is that information leaks offers them “hot topics” that help to rising number of radio listeners, to rise rating to televisions as well as to increase number of sold newspapers and journals. Some journalists could identify opportunities for becoming famous and to be rewarded with prizes or to enroll in political parties on top positions.

Democratic states institutions, especially those in charge with protection of secret data could seek and receive political decision-makers and even public opinion for imposing tougher measures for population control. Listening to telephonic conversations, surveillance of all the activities from public

spaces as well as those from production ones might be among the most desired measures that will lead to reduction of citizens' rights.

8. WHO WILL LOOSE OF INFORMATION LEAKS?

First will be democracy because political parties that govern some states could be tempted to impose certain measures to allow them to maintain power for themselves. They may do that through narrowing the possibilities of other political parties to gain political power within their states.

Secondly, states' citizens might be obliged to endure new measures that reduce individual liberties. Those measures will be in addition to disappointment caused by the elected people that deceived citizens' expectations of governing for building a prosper society ruled by the law.

Thirdly, all democratic states could enter into a period of erosion of their credibility as a result of some unlawful practices revealed by information leaks.

Fourthly, there might be possible actions that aim to gain control over some media's concerns by undemocratic forces. Those forces would like to obtain economic and political advantages or even political leadership of the states they are located in. Also, there might be possible censorship measures – direct or hidden ones – over mass-media because they have an important role in influencing public opinion.

Finally, mankind as a whole may confront with a decreased process of international security because of an increased distrust among states and a possible intensification of armed race. Also, globalization process could get into a deadlock as a result of a possible reinforcement of some barriers against free circulation of information, of persons and of products. These measures may diminish international exchanges among states of the world within economic, scientific and cultural domains.

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DECISION-MAKING SUPPORT APPLICATION REDUCING THE MILITARY AIR TRAFFIC CONTROLLER'S ERRORS WHEN DEALING WITH THE AIR THREAT

Pavel NEČAS*, Tomáš SCHÓBER**, Jaroslav UŠIAK***

*Armed Forces Academy of General M. R. Štefánik, Liptovský Mikuláš, Slovak Republic, ** CGCI (Central ground-controlled interception), Operation Centre Zvolen, Slovak Republic, *** The Mathias Bel University in Banská Bystrica, Slovak Republic

***Abstract:** For military air traffic controllers is time always the biggest enemy when solving an extraordinary or threat situation. People need enough time to analyse, decide and to spread important information to another site. The decision process always suffers from lack of time and obviously brings human errors which can lead to accidents or even fatalities. This article deals about human factor and points out that software decision-making support aids are necessary for military controllers and authorities responsible for weighty decisions.*

***Keywords:** error, threat, attribute, decision-making process, military air traffic controller.*

1. HUMAN ERROR

While the number of aviation accidents attributable solely to mechanical failure has decreased markedly over the past decades, those attributable at least in part to human error have declined at a much slower rate. Given such findings, it would appear that interventions aimed at reducing the occurrence or consequences of human error have not been as effective as those directed at mechanical failures. Clearly, more emphasis must be placed on the genesis of human error as it relates to accident causation.

The human-factors programme is a long-term and never ending effort, with the aim of improving safety to higher levels. It is the primary and permanent goal both for civil and military aviation. Human error is a causal or contributing factor in the majority of aviation occurrences. All personnel commit errors, although there is no doubt they did not plan to have an accident. Errors must be accepted as a normal component of any system where humans and technology interact. They are a natural bi-product of virtually all human endeavours. Errors may occur at the planning

stage or during the execution of the plan. Errors lead to mistakes – either the person follows an inappropriate procedure for dealing with a routine problem or builds a plan for an inappropriate course of action to cope with a new situation. Even when the planned action is appropriate, errors may occur in the execution of the plan. On the understanding that errors are normal in human behaviour, the total elimination of human error would be an unrealistic goal. The challenge then is not merely to prevent errors but to learn to safely manage the inevitable errors.

One of the more common error forms, decision errors, represents conscious, goal-intended behavior that proceeds as designed; yet, the plan proves inadequate or inappropriate for the situation. Often referred to as “honest mistakes,” these unsafe acts typically manifest as poorly executed procedures, improper choices, or simply the misinterpretation or misuse of relevant information. In contrast to decision errors, the second error form, skill-based errors, occurs with little or no conscious thought. The difficulty with these highly practiced and seemingly automatic behaviors is that they are

particularly susceptible to attention and/or memory failures. As a result, skill-based errors such as the breakdown in visual scan patterns, inadvertent activation/deactivation of fundamental application, forgotten intentions, and omitted items in checklists often appear. Even the manner (or skill) can affect safety.

2. THE NEED FOR DECISION SUPPORT TOOLS

The performance of the human element cannot be specified as precisely. We should also take into account the fact that incidents rarely, if ever have a single cause. They usually occur as part of a sequence of events in a complex situational context. Even if not altogether avoidable, human errors are manageable through the application of improved technology, relevant training and appropriate regulations and procedures.

Air defence decision making process has severe (possibly catastrophic) consequences for errors. It is a complex task accomplished by a team of highly skilled personnel. It requires mental integration of data from many sources. Air defence personnel is responsible for all aircraft in their surveillance area and must maintain awareness of available resources, monitor audio and verbal messages and prepare situation reports. Although almost all of the control centres has a high tech equipment, critical data are still manually recorded on a desk, whiteboard or notepad. In this environment, it can be difficult to for Air defence team members to notice or identify key pieces of information that may enable them to better understand the tactical situation. Air defence personnel in real-world are working under conditions which comprise dynamic, fluid situation; time pressure; high-risk multiple decision makers; shifting and competing goals; action feedback loops and situations with uncertain and incomplete data.

3. DECISION-MAKING SUPPORT APPLICATION

A Decision-making support application (DMSA) is a computer-based software application for military air traffic controllers

(MATC) that supports and speed-up decision-making activities especially concerning the threat situation. DMSAs can serve on every MATC positions and help to take necessary steps against the menace, which may be rapidly changing and not easily specified in advance. The goal of this support tool is to present decision support information in a format that minimises any mismatches between the cognitive characteristics of the human decision maker and the design and response characteristics of the decision support system. DMSA creates as an outputs transformed data generated by algorithm based on user criteria. DMSA offers focusing attention on high priority contacts (and alerts), as well as on missing data and enabling the decision maker to use more data than are typically used in common systems (compared to normal values). Common systems used by MATC require the user to retain previous contact data in memory to compare with the most recent values for critical parameters. These systems also require the user to rely on recall of vast amount of information from training and experience. Presenting all known data on a contact in a synthesized way should reduce working memory requirements and facilitate recognition. Additional features offered by DMSA include displaying the complete kinematic contact history, presenting graphic displays of location and its prediction, highlighting missing data, providing alerts and providing assessments of current contact identity that go beyond what existing systems now present.

The systems like DMSA are widely used in civilian air transport but in military are missing and desperately necessary. The DMSA should be flexible, easy to operate and with real time dissemination of info. Each MATC position as Tower, Radar, CRC and National authorities should have their own setup focusing on the specific cues.

4. PROCESS

The environment is permanently scanned for attributes relevant to the active template. All data are collected from primary and secondary surveillance radars, intelligence info

and other units contributing to system. The set of available attributes to be evaluated are then selected from the input. Finally, the perceived data are compared to the expected data (e.g. deviance from flight plan).

According to foreign studies and empirical domestic research there were identified up to 15 attributes, but not all of them are described as critical. The list of major of them is following (order is not fixed and can be varied depending on MATC position and location): Country of origin; Intel report; IFF mode; Deviation of Flight Plan; Altitude; Speed; Civilian/Military; Suspicious behaviour of aircraft crew; Radar signature (where primary radar info is available); Number and type of aircraft, ordnance; Maneuverability of aircraft.

Beside these attributes the tool should offer various alert signalisations depending on the unit designation and geographical position and many options concerning safety lines and ranges setting. The most applicable are: Short Term Conflict Alert (STCA); Minimum Sector Altitude Warning (MSAW); (Predicted) Horizontal and vertical violation of prohibited areas; Deviation of flight route / flight plan.

During the DMSA evaluation was observed that:

1. The attributes were weighted differentially depending on each position and evaluator's skills and experiences.

2. Air defence personnel did not rely on all data and was influenced by conflicting data in specific attributes rather than the overall pattern of data.

Overall threat level was not related to the number of attributes that were evaluated during threat assessment, but was related to the degree of fit of observed data to expected data ranges in the evaluator's active template.

5. GRAPHIC INTERFACE

The display is designed to present the relevant data necessary for a commander to evaluate all likely explanations for what a potential target might be and what it might be doing. There are various display modes of DMSA – graphical, numerical, or combination of both. Experiences show that graphical mode was preferred on every tested position, because

number could implied a false sense of accuracy. Its main advantage is that a large amount of parametric data should be portrayed graphically for rapid assimilation by the user. The user can see, at a glance, a synthesized picture of the contact's behaviour. Graphic presentation should reduce the amount of mental computation required to perform tasks and allow users to spend less time searching for needed information. Graphic also allow users to omit steps that are otherwise necessary when performing a task without a graphic. An example of this advantage is that to determine whether the aircraft is within the range to reach the airport, there is no need to recall the specific range values and then compare them with the aircraft's current range. Instead, the user can determine if the aircraft is within its launch range by a quick glance at the display. Generally, graphics help users save time when searching for needed information when several related dimensions of information are encoded in a single graphical object.

6. INTERFACE GUIDELINE SUGGESTIONS

The window should contain an indication of threat rating, threat prediction and history and a comprehensive list of attributes. Users could drag the window anywhere on the screen, but normally it will be hooked close to the track. Each threat evaluator can accommodate the number of displayed attributes, add or remove them according to own discretion. However, the main (critical) attributes will be displayed permanently. Threat ratings should be displayed with verbal descriptors (e.g. high, medium, low) rather the numbers of percentages. The utility showing threat rating history is giving feedback on a proposed threat assessment interface and enables better sense of track history.

Threat assessment window have to provide a list of all relevant attributes. A comprehensive list avoids several biases and is consistent with user preferences regarding verification and confidence. In addition, the full list should help avoid over-reliance on only a few attributes. For some of them, the

corresponding data values (e.g. speed, altitude, distances) should also be displayed. Each attribute should have a graphic frequency indicator that shows how far the data value deviates from the attribute's expected value. This method of display would help avoid familiarity biases, over-reliance on a subset of cues. Displaying attributes in order of preferred use would not overcome user's reliance on the first few ones, or the influence of a change to one of the high-weighted.

7. CONCLUSION

Perhaps because air threats are rare events only few organizations are prepared when one occurs. The situation in the Army, respectively the Air Forces is not an exception. Many organizations, airlines and airports do not have effective plans in place to manage events during or following an emergency or crisis. Managing of a crisis situation depends on successful handling the first few minutes. So errors occurred right in the beginning of the decision making process are then very hard to eliminate and could lead to fatal consequences.

Human is the last, most important, but also generally the weakest element in decision-making process. According to all available and relevant information he must make the final statement and, of course, bear the consequences. Due to the multi-tasking, tempo, integration demands and short term memory requirements, the task of the Air defence decision maker can be characterized as challenging between normal and extreme conditions. That is the reason why automated help tools like the DMSA are now becoming indispensable (neoceniteľnými) in modern air traffic management. The intention is to aid the decision maker by providing information in a way that will minimize the need to maintain information in working memory, reduce information processing demands, help focus attentional resources on the highest priority contacts, help make decisions under stress and support higher levels of situation awareness.

This article discussed about human errors as an irremovable part of air traffic

management and the development of guidelines for displaying threat information to decision makers. The DMSA is set to conform to the expectations of so-called primary decision makers responsible for the first steps of threat recognition and to carry out adequate measures and also for the final (strategic) decision makers (national authorities) to take weighty decisions. It displays the data that they need, in order in which they use it, thereby contributing to their rapid assimilation of the information. All the features of DMSA should help users avoid common decision-making biases and reduce the likelihood of misses and false alarm errors.

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ON SOME SECURITY MEASURES TO PREVENT AND FIGHT AIRCRAFT TERRORISM

Robert MORAR, Cristian-Eduard ȘTEFAN

„Alexandru Ioan Cuza” Police Academy, Bucharest, Romania

***Abstract:** Terrorism is a threat to international security, peaceful relations among states, as well as to the proper development and functioning of democratic institutions. The fight against terrorism is a long-term process, and the challenges it generates are global. Therefore, the international community needs to address this issue globally. This study analyses some security measures taken by states to prevent and fight aircraft terrorism, with a particular focus on the European Passenger Name Record and the access of armed officers on board aircrafts.*

***Keywords:** aircraft, civilian aviation, terrorism, security measures, prevention and combating.*

1. PRELIMINARIES ON CIVILIAN AVIATION SECURITY

Civilian aviation security has been long regulated internationally; the following conventions have been adopted in this respect:

a) The Convention on International Civilian Aviation, open for signature in Chicago, on 7 December 1944¹. As mentioned in the Preamble to the Convention, one of the purposes of its conclusion is avoiding all misunderstandings among nations and among peoples, and the development of their cooperation, essential for world peace.

b) The Convention on Offences and Certain Other Acts Committed On Board Aircraft, concluded in Tokyo on 14 September 1963. This Convention applies to crimes and offences which may or may not be crimes, which may or do compromise aircraft or onboard security, or tamper with onboard order and discipline. This international act provides regulations on the jurisdiction on aircraft crimes and offences, the powers of the aircraft commander, hijacking, the duties and powers of the states.

c) The Convention for the Suppression of Unlawful Seizure of Aircraft, concluded in the Hague, on 16 December 1970². In its preamble, it is provided that unlawful seizure and control of an airborne aircraft compromise the security of people and goods, severely hindering aircraft services, undermining peoples' trust in the security of civilian aviation. The text of the Convention, comprising 14 articles, regulates the criminalization of airborne aircraft crimes, the specific jurisdiction for the crimes, extradition and legal assistance, etc.

d) The Convention on the Repression of Illicit Acts Directed Against Civilian Aviation Security, concluded in Montreal, on 23 September 1971³. The Convention regulates the sanctioning of intentional illicit acts directed against airborne aircrafts, or taxiing aircrafts on land, as well as on land installations and navigation services, which are detrimental to their security.

¹Romania adhered to this Convention in 1965, by adopting the State Council Decree No. 194/1965, published in the Official Gazette No.14/1965.

²Our country ratified the Convention by adopting the State Council Decree No. 143 of 19 April 1972, published in the Official Gazette No. 49/1972.

³Our country signed the text of the Convention on 10 July 1972, ratified it in 1975, together with adopting the State Council Decree No. 66 of 30 May 1975, published in the Official Gazette No.58/1975.

The text of art. 1 of the Convention stipulates that any person commits a crime if they illegally and deliberately inflict violence upon another person onboard an airborne aircraft, destroys or damages an aircraft on duty, place or aid by any means placing devices or substances on an on-duty aircraft, which may deteriorate or damage installations or aerial navigation services or hampers their functioning, communicate information known to be false, and as such jeopardize the security of an airborne aircraft.

The Convention lists the commitment of the states to severely sanction such crimes, to establish their jurisdiction, and set up immediate preliminary investigations to determine the facts, as well as take all measures to enable passengers and crew to continue their journey as soon as possible, returning the aircraft and its cargo to the rightful owners without delay. The Convention also contains regulations on the definition of an airborne aircraft, state jurisdiction in criminal investigations, provisions on extradition and other forms of legal assistance, etc. The Convention applies exclusively to civilian aircrafts, or aircrafts used for civilian purposes. Considering the provisions in their entirety, the Montreal Convention provides a suitable framework for effective international cooperation in the field of crime prevention within civilian aviation work.

The first international aviation security agreement was signed in March 1974, when the International Civilian Aviation Organization (ICAO) adopted Annex 17 of the Chicago Convention, named „International Aviation Security against Illicit Interference Acts”. Annex 17 lists standards, procedures and practical recommendations for the Convention signatory states, mainly focused on the safety of the passengers, crew, land personnel and the public during the enforcement of security against any civilian aviation illicit interference act. Annex 17 was repeatedly amended and reedited to the seventh edition in 2002. The last amendment, Amendment 10 was adopted on 7 December 2001, following propositions derived from the 11 September events, and came into effect on 1 July 2002. Here are some of the most

important amendments introduced by the tenth amendment: the provisions in Annex 17 were extended to cover internal flights, and a new standard was issued to regulate security control of all luggage on all airports starting with 2007 (www.guv.org).

2. SECURITY MEASURES TO PREVENT AND FIGHT AIRCRAFT TERRORISM

2.1. The need for safety measures on board aircrafts. The first worldwide hijacking considered a terrorist act was on 23 July 1968, when three members of the Popular Front for the Liberation of Palestine captured an aircraft of Israeli company El Al, in flight from Roma to Tel Aviv, with the aim of exchanging hostage passengers with Palestinian terrorists held in Israeli prisons.

More recently, on 11 September 2001, local time 8:45 (15:45 – Romanian time), a B-767 American Airlines passenger plane, hijacked by terrorists, hit one of the 110-stories twin towers of World Trade Center (WTC) in New York. At 09:03 (16:03, Romanian time) a second hijacked plane, a United Airlines B-737 hit the other tower. The first tower collapsed at 09:59, and the other at 10:29. Approximately three hours after the attack on the first WTC tower, a United Airlines Boeing crashed in Shanksville, Pennsylvania, after the passengers tried to overpower the terrorists. Another hijacked plane hit the Pentagon building, the headquarters of the Department of Defense, killing 190 people. In total, 3668 people lost their lives on 11 September 2001 (www.scienceonline.ro).

After the nine eleven events, the states tried to find together the most effective methods to prevent and fight terrorism on board aircrafts. To this end, they implemented a series of security measures, such as: complex foreign visitors tracking and identification, body searches executed by security controllers, employing photographic and fingerprinting devices for foreign visitors, employing security officers on board aircrafts, as well as the European Passenger Number Record.

2.2. The European Passenger Number Record. One of the prevention instruments

applicable in the field of aircraft terrorism is the Passenger Number Record (PNR), which ensures high data protection, to prevent, identify and investigate terrorist attacks and serious related crimes, based on impact analysis. In this respect, we could better comprehend the various types of threat and their likelihood, we could anticipate what could happen, ready to face not only the consequences of a threat becoming reality, but also to initiate prevention and identification mechanisms before the commission of such acts.

On 16 January 2003, the European Community Commission published a communication to the Council and Parliament on data transfer from the PNR, entitled „A global approach to the EU”, focused on determining the elements of a global approach to the EU regarding PNR. The communication was an appeal to instituting a legally safe framework for PNR transfers to the US Department of Security, and adopting internal policies on PNR.

PNR data are unchecked information provided by passengers and compiled by airline companies to enable reservations and bookings. They represent a file of the passengers' travel requests, kept by the reservation and booking systems belonging to airline companies. They contain various types of information, for instance travel data and travel route, information on the ticket, contact information, such as the address and telephone number, the tourism agency, information on the payment, seat number, and luggage information. PNR data are different from the information about passengers (Advance Passenger Information - API)⁴; the latter consist of biographic information taken from the passport optical scan, including a person's name, address, place of birth and nationality.

⁴According to the API Directive, API data are made available to border control authorities only for the flights entering the EU, in order to improve border control and combating illegal migration. Even if the directive allows their use in other law enforcement circumstances, this is considered mostly an exception rather than a rule. API data are kept by the member states for 24 hours.

Internationally, PNRs are increasingly seen as a necessary instrument to fight terrorism and serious crimes. Three parameters led to the onset of this trend. First, terrorism and international crimes are a serious threat to society; therefore, measures are necessary to eradicate this problem. Access to and processing PNR data is a necessary measure for law enforcement. Secondly, recent technological advents have made such data access and processing possible, which was inconceivable a few years ago. The latest technological advents are also largely used by criminals to plan, prepare and commit crimes. Finally, the rapid increase in international traffic and the number of passengers employed electronic data processing before the arrival of the passengers, to ease and accelerate border control and security checks, as the risk is assessed prior to arrival. This enables law enforcement officers to focus only on passengers suspected on reasonable grounds to represent a direct threat to security, rather than assess individuals based on instinct, preconceived stereotypes or profiles.

On 11-12 April 2011, the Justice and Internal Affairs Council (JAI) in Luxemburg, examined a European Commission bill on using PNR data for the prevention of terrorism and serious crimes. One of the main aspects discussed debated on the issue of limiting the collection of the so-called PNR data for the flights to and from third countries, and covering the flights within the EU. Most member states were in favor of including at least one option to allow each member state to decide upon collecting such information for some flights within the EU. The aim of the bill is to institute a coherent EU system of flight passengers data, through the implementation of a single EU model for all member states adhering to the new regulations, as well as fostering cooperation among relevant authorities within the EU. As such, all airline transporters operating and identified by the new regulations should send PNR data to law enforcement authorities in the member states. However, these authorities will only be allowed to use the data collected by the airline transporters to prevent, identify and investigate terrorism and serious (cross-border) crimes.

2.3. The access of security officers onboard aircrafts. According to ICAO standards in Annex 17 to the Chicago Convention, as well as the EU legislation in the field of civil aviation security, the access of armed officers on board aircrafts is defined as an additional measure of airline security.

The requests made after 11 September 2001 are notable in the area of deploying armed agents onboard aircrafts, departing from the EU. The implementation of such initiative has been long debated internationally, raising serious concerns about the compliance with certain individual rights and liberties.

On 27 May 2005, the Prüm Treaty was signed by Germany, Austria, Belgium, the Netherlands, France, Luxembourg and Spain, on issues regarding fostering cross-border cooperation, especially in the field of fighting terrorism, cross-border crime and illegal migration. The treaty aims at fostering cooperation between signing countries in their fight against terrorism, cross-border crime and illegal migration, using the data exchange on genetic information (DNA), fingerprints, vehicle registration and other personal information.

A distinct regulatory area within the Treaty is the access of security officers on board aircrafts. According to the Prüm Treaty, armed officers on board aircrafts are specially trained police officers or public authority officers, assigned to maintain security on board aircrafts.

Each Contractual Party to the Treaty decides autonomously according to its own national policy of airline security on the intervention of armed officers on board aircrafts registered by the respective Contractual Party. The intervention of armed officers on board such aircrafts is performed according to the Chicago Convention of 7 December 1944 on International Civilian Aviation and its annexes, especially Annex 17, and other documents regulating its enforcement, also considering the jurisdiction of the aircraft commander, according to the Tokyo Convention, of 14 September 1963 on crimes and offences on board aircrafts, and in line with other relevant International Law

regulations, if they are mandatory for the respective Contractual Parties.

The Contractual Parties of the Prüm Treaty also support one another in providing initial and continuous training for armed officers on board aircrafts, in close cooperation in issues related to the equipment of such officers.

Before joining a flight, the national coordination point of the sending Contractual Party of the Prüm Treaty, indicated by article 19, must inform in writing on this intervention. The written memo is sent to the national coordination point of the other Contractual Party at least three days before the respective flight with the destination or in the direction of an airport of another Contractual Party. If imminent danger is suspected, the written memo is sent without delay, basically before landing.

The written memo, confidentially processed by the Contractual Parties covers the data mentioned in Annex 1 of the Treaty. The Contractual Parties may modify Annex 1, in a distinct agreement. The necessary information, according to article 17, line (5), for the written memo is as follows: response times, describing the convened duration of stay; the flight data (including numbers and timetables); the number of the armed officers on board the aircraft, their names with an indication of the name of their task force commander, passport series, type and series of weapons, quantity and type of ammunition, and the equipment brought in to assist officers in the performance of their duty.

The limitations imposed to the armed security officers when on the territory of another Contractual Party are as follows:

- they shall not leave the aircraft, access airports or their security restricted areas, unless escorted by a representative of the respective authorities;
- weapons and ammunition shall be stored for supervised safekeeping in the areas assigned by the national authority of the other Contractual Party.

Romania signed the Prüm Treaty by adopting the Act No. 146/2008. In line with the provisions of article 2, letter C. b) of Act No. 146/2008, the Romanian Intelligence Service was assigned as authority for contact

and coordination points for aircraft armed security officers, as defined by article 17 in the Prüm Treaty.

At the same time, the enforcement of the Memorandum of Understanding on the work of security officers on board aircrafts, between the Romanian and American governments, assigned the Romanian Intelligence Service as national authority in aircraft security and the information exchange to support this activity. In turn, the Antiterrorist Brigade of the Romanian Intelligence Service created a special task force, made of highly trained personnel, and specially equipped to perform specific missions.

3. CONCLUSIONS

Recent events, such as the terrorist attempt onboard a plane on Christmas Day 2009 and the Times Square event in New York 2010 show that the terrorist threat still exists.

To conclude, we strongly believe that a successful enforcement of the new provisions on preventing terrorism onboard aircrafts in Europe can only be obtained when all EU states have taken in these provisions, as cross-border cooperation of the states is of paramount importance in maintaining security onboard aircrafts and preventing terrorism attacks.

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THE ROLE OF INFORMATION IN IDENTIFYING, INVESTIGATING AND MONITORING CRISES

Ion BĂLĂCEANU

„Hyperion” University, Bucharest, Romania

***Abstract:** Intelligence information is not different from common information. Nevertheless, the effect is that of optimizing state power and international influence at different levels. During crisis times, these two support the efficient use of force. Sometimes, during a crisis situation the effect goes further and it is done most of all in diplomacy in order to implement foreign policy and less in conceiving it. In both times of peace or war the most significant impact of the informative activity is materialized in its cumulative character and in its less surprising contribution in increasing efficiency and its capacity to influence.*

***Keywords:** source of information, informative activity, informative surveillance, spying, international terrorism, battlefield.*

1. INFORMATIVE ACTIVITY

Informative activity needs nowadays a laborious structure and it represents a process which takes place sequentially, between multiple structural elements (agencies). The first stage consists of gathering information and it ends in single source results which are most of the time written memorandums from each of the sources of information. The second stage consists of a multisource review of information based on all available data and it has as purpose development of finite information. Next is a period of dissemination done by beneficiary structures of decision and structures responsible with developing policies called receptors, clients, consumers, users, beneficiaries etc. Between the review stage and the dissemination stage - but not necessarily – there is an intermediary stage during which departments and agencies combine their personal information in order to obtain special interdepartmental “national” evaluations for the highest level of political leadership. One must know that such a division is far from being an exact one but it has the possibility of providing the main framework of the system. The informative activity has an internal and an external part. In

practice, both internal and external activities (in security purposes) overlap. External threats have internal elements and vice versa. Spying is done by external elements but it represents a threat to the internal elements. The border nature of the target represented by AL-QAEDA and its external sources make this international terrorist organization a classic internal and external ensemble. Most of the terrorist actions are openly international and antiterrorism makes the informative activity expand, in purpose of security, its domain of concerns toward its armed forces, ships, aircraft and compatriots from across the border. In other words, a clear distinction does not exist. One of the classifications of the external informative activity has as a criterion the country or “geographic area”. This criterion depends strictly on the political and military realities. For example, if during The Cold War the West’s most important target was the former Soviet Union and the countries which took part at The Treaty of Warsaw after the fall of the Iron Curtain the geographic area of targets consists in countries which support the international terrorist phenomenon. China and the Middle East continue to present a constant similar strategic interest with nuances that are necessary especially in what concerns

the first one. It is certain that today targets consist less in countries and more in specific fields of activity. With all these, geographic targets can provide an approximate kind of sketch of the way of distributing effort in the informative activity domain. Until the terrorist attacks from 9/11 against the USA, in the classification based on the criterion domain the informative activity was classically known by specialists worldwide as “political”, ”military” and ”economical” informative activity. This classification has its own weak points. *Some information systems cover multiple targets* (Gov.Dec. 500, 2009). Satellites can monitor at any time, simultaneously, multiple targets while other systems act as giant vacuum cleaners that gather all types of information from which only those that are important are selected. In essence, the presented domains are not found in pure state, they overlap and duplicate. Regarding the external informative activity mutations are more representative. If before the fall of communism the prior domain was the defense domain, after 1990 the balance has started to tip in favor of the economic domain because after 9/11 the international terrorism domain started to gain an infinitely greater share as before 9/11 maybe even more important than the economical and military domain. It must be specified that these mutations are visible and they continue to produce in both domains of activity, intelligence and counterintelligence – which means “the informative activity performed by other states” meaning the activity of getting information about all informative in nature external threats not only about those specific to spying, born from using all types of means (SIGINT, HUMINT, etc.) Between the categories of targets specific to counterintelligence can be found targets that not necessarily belong to a state. Some of these targets belong to the economic category. The effort from the domain of informative activity cannot be classified strictly. A clarification on the geographic domain and on the domain of action would elude the larger purpose the informative activity has in understanding realities from other areas “as a whole” or all aspects of the alleged problems both local and global.

2. SOURCES OF INFORMATION

The sources of information used for obtaining data and information about terrorists are:

HUMINT Sources are used for designating information obtained from people but also for designating the domain of informative activity which uses mostly the human element in order to obtain information especially from other human subjects. In performing these missions, HUMINT has sources that can be organized to form a pyramid with every day sources at the bottom which are of relatively low interest and which become more and more interesting as we climb to the top of the pyramid. *At the bottom of the pyramid is the information gathering activity from travelers, experts and casual informants who have information about targets abroad etc* (www.interpol.int). This kind of HUMINT collects information in a similar way from refugees and emigrants. HUMINT agencies tend to be a flexible resource category, for a variety of purposes, both in peacetime and in wartime. However, even the sources from the top of the pyramid have distinct limitations. Reports and comments from the memory of the agents are subject to human subjectivity and specific distortions. At one point, they can be so far from reality that their safety becomes unreliable. The advantage is that HUMINT subjects (informants) are almost the only means of penetration of international terrorism and the counterintelligence activity has needed and will always need information to deal with actions and other internal threats. HUMINT agencies represented in the twentieth century a domain with a permanent upward evolution, although at a much lower scale from specific sources which gathered information by technical means.

SIGINT Sources have become the most prolific sources of the twentieth century. The real pulse of the modern SIGINT sector of development consisted at the beginning of this century, in the introduction of radio waves in order to achieve military communications. Its importance increases even more during World War II, with the intensive use of radio waves, radar and beacons. After 1945, the Cold War

had integrated the electronic technology era, which further led to the increase of the importance of the SIGINT domain. A Western study from 1989 noted that "The Soviet Union has by far the most developed domain of SIGINT in the world ". The process of gathering information was dealing with the gathering of information without the knowledge or cooperation of the target. Usually this process takes place through specific undercover means, designed to penetrate the target's organized security measures. However, this process also includes some means with a less obvious character, in particular for collecting information from conflict areas.

IMINT Sources evolved and have become, after 1945, as important as the SIGINT domain. In peacetime a part of the activity of the IMINT domain consists in gathering information from the air. . Images taken from planes, filled with those taken from unmanned aircraft, are currently the primary means of battlefield surveillance during wartime. The satellite branch of the IMINT domain has acquired dimensions which have increased ever since the Cold War. Technical progress has reflected under the aspect of opportunity. Information from photos taken by satellites reflected a "reality" delayed as the photographic film had to be sent periodically on Earth or retained inside the satellites until they were removed from the orbit at the end of the mission. Today, digital images can be instantly transmitted to ground stations directly through a satellite relay. Regarding the value of using information in the IMINT domain there are some inherent limitations. First of all, interpretation of aerial photographs or satellite photographs is a process that takes place more slowly than other processes of operating with information from SIGINT sources. Second, IMINT sources cannot see rather than what can be seen and cannot know what is hidden or what is not yet there (see the Gulf War or Afghanistan). A third limiting factor is the fact that information from the IMINT domain consists of images or sequences of images. This requires the use of satellites that evolve at "low" orbits. Therefore, monitoring changes in the evolution of a specific target depends on the frequency of crossings done by a satellite

and it is estimated that the best prediction of frequency shift during day time, for a single satellite, is considered by experts as one day. During crisis situations, when aviation can be used over the target area, the IMINT satellite domain and the conventional one have a complementary role. But satellite capabilities do not consist only of the extent of areas that can be observed, but also in its own satellite capacity to monitor the territories of other countries during peacetime. Vis-à-vis these aspects should be considered the financial issue involving the use of satellites , which now have become an efficient US-Russian monopoly. Some limited possibilities in this regard have China, France and also Israel since 1995. It is certain that the use of satellites is an element that propels a nation in the first league of informative activity

NUCINT Sources designate the informative activity in the nuclear domain, in which satellites are used to detect nuclear explosions throughout seismological means that record earthquakes caused by underground nuclear explosions, by taking air samples to monitor the level of radioactivity in the atmosphere and with the use of gamma radiation, which reveal the presence of nuclear material within a short distance.

RADINT Sources designate conventional radars which can discover large distances, including those developed for discovering objects evolving in space as well as different types of radar designed for targets evolving beyond the horizon line.

ACOUSINT Sources are sources that designate the gathering process from the aquatic environment throughout sonic methods. Also, one part of the ACOUSTINT informative activity category takes place above the water, given the capability to discover military forces from long ranges with the use of remote devices capable of detecting sound, vibration and the presence of substances with odor properties. Such defensive measures that are adopted to counter the specific actions of the ACOUSTINT and RADINT domains are included in the implementation of technologies used for "footprint reduction" and "satellites" in the production of military equipment.

MASINT Sources represent the technical and scientific information obtained throughout quantitative and qualitative analysis.

PHOTOINT Sources are secret and interpreted photographic materials.

RINT Sources are electromechanical energy sources that are received unintentionally.

FISINT Sources represent the intelligence domain referring to signals used in directing, the SIGINT category.

TELINT Sources represent the intelligence domain of interception and analysis of signals used in telemetry, they are a part of FISINT [3].

OSINT Sources are "open sources" (Open Sources Intelligence) representing informative finished products obtained by processing primary information collected from open sources as well as public documents media, books and magazines, "gray" literature and the Internet.

Regarding open source, there are a growing number of ideas today that highlight the importance which they represent in the economy of the informative activity, importance caused primarily, by today's information explosion. *Much of the Western experts believe that the share of sources in the intelligence activity is "open source"* (Gov.Dec. 2010-2012). The appreciation seems hazardous to a first assessment. Given, however, the particular impact of the media in the contemporary world, the extension of the freedoms of expression and opinion, we can say that we are witnessing a change in the relationship between open sources and covered sources meaning that the last are shrinking, as a coverage area, but also in volume in favor of the first. The problem that arises is however otherwise, namely accuracy. A confidential information can be "dressed" from the perspective of the open sources with a multitude of data and many additional or complementary elements resulting from the journalist in question wish to seem more informed, more prolific and expert in the problem in this case so that the essence and the true information, with an actually confidential character, to escape unnoticed or to be diluted to such an extent that it no longer poses only importance itself. To affirm and support today

that in a modern intelligence service the share is "open source" would be very hazardous, because if something like this would be true that service should have a processing, analyzing and synthesizing, super-sophisticated center, able to filter media and to quickly separate "dead" information from the "relevant", "prestigious" information. But this possibility in view of services and intelligence agencies, does not exist yet, not even in major countries.

Information gathering process is directed against targets that do not agree with this fact and usually take measures to counteract this process. In peacetime, in respect of targets from abroad, the most important part of the information gathering process takes place by means that distinguish the informative activity from the non-informative methods of the policy makers in order to acquire information. In time of war, the distinction between specific and nonspecific informative activity methods is less clear. Special methods of the covert information activities remain an attribute of it, but we are witnessing the increase of the collection of information from the battlefield by means with a less covered character. Furthermore, informative techniques from the battlefield merge with the military ones specific to "information from the battlefield".

Military distinctions between these two types of information gathering contain accidental bureaucratic elements as well as elements related to conveniences but there is some logical reasoning that led to them. Intelligence obtained in the theater of war is somehow exploitable, less penetrable and more capable of penetrating, more complex and fragile (and therefore secret) than information from the theatre of war. However, using satellites and computers make some of these differences disappear.

In contrast the multisource informative activity is no different in its means. Its specific nature derives from the separation of its political recommendations and general orientation regarding its foreign policy (to which are added the inner aspects of the internal security). In this framework, external study fields and issues must be large. But the results produced by it are considered by governments as having regard to more enemies than allies and even more the studies in which

they are involved come from the public domain. The informative activity should not be diverted to informational materials coming from covered sources. But it tends to have a stronger authority as this type of source has the most important contribution compared to sources completely "open".

The informative activity justification is that it informs practical actions in useful ways. However the using of these activities varies: some reports are used immediately while others will be used with time. While many reports influence decisions through their cumulative effects others have an educational or long-term psychological value. Supervision for the purpose of warning constitutes a precautionary measure against things that might never happen. Some information is not used at all.

From all these points of view of "intelligence" information is not different from ordinary information. However, the effect is to optimize the state power and international influence at different levels. In times of crisis they support the effective use of force. Sometimes during a crisis situation the effect goes further and it is done most of all in diplomacy in order to implement foreign policy and less in conceiving it. In both times of peace or war the most significant impact of the informative activity is materialized in its cumulative character and in its less surprising contribution in increasing efficiency and its capacity to influence.

3. CONCLUSION

In conclusion the role of information in identifying investigating and monitoring crises depends on the distribution of resources in informative activity chapters with a social and political international context , and its balance at one point. The increase of some or other domains depends on several factors: the political and military interests of the state, resources, the degree of receptivity of the "intelligence" product and its use in the decision process ,risk factors specific to the state and on the degree of adaptability of intelligence services to in these risk factors

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ASPECTS REGARDING THE FREE MOVEMENT OF PERSONS IN THE EUROPEAN UNION

Ovidiu MOȘOIU

„Henri Coanda” Air Force Academy, Brasov, Romania

***Abstract:** Free movement of persons is one of the most important pillars and one of the most important achievements of the European Community law. There is no other way to express more clearly than that the progress made in Europe. EU citizens now have a unique right in the world, of traveling with their family to another EU country or for a short or long term stay or even for permanent residence. Currently, there is no other international cooperation among states to ensure a similar right.*

***Keywords:** European Community law, freedom of movement, free movement of persons, free movement of services, right of emigration and immigration, right of permanent residence.*

1. PROBLEM STATEMENT

Free movement, in the acceptance of the European Union law, is the right of persons to travel and stay in EU countries, without asking for permission. This right is not valid in their own state, but only after people cross the border to another EU country. Consequently, Romanian citizens have the right of free movement under EU laws, if they are in Hungary, Germany or in another EU country, but not in Romania. Similarly, Hungarian citizens, Germans or other nationalities, members of the EU, will benefit from this law in Romania or another EU country, except for their own. In each EU country, freedom of movement of its own citizens is stipulated in the Constitution of that country. In these conditions, it can lead to the so-called "discrimination against domestic residents" (not affecting the right of free movement within the EU), situation in which national regulations are less favorable than the European Union law (e.g. in terms of family reunification).

2. FREE MOVEMENT

For the European Union citizens there are **four rights to free movement**: free movement

of workers, free movement of services, freedom of establishment and the general right to free movement, without a specific purpose (Reg. 562, 2006).

Free movement of workers is regulated in primary law, Art. 39 and the ones that follow the EC Treaty (TEC) and also in secondary law, EC Regulation 1612/68 and EC Directive 68/360. This includes, according to Art. 39, paragraph 2 TEC, the removal of any differentiated regime applied (based on nationality) to laborers within Member States with regard to employment, payment and other working conditions (special nondiscrimination). This ensures free access to employment in any of the EU countries (Dir.38, 2004). EU citizen is entitled to appear in recruitment for vacancies, to move freely within the Member States, to reside in a Member State business purposes. The activity must be in accordance with legal administrative regulations applicable for the employees of that particular State. At the end of the working period, the EU citizen has the right to remain on the territory of that Member State, provided that he or she obeys the conditions specified in the rules for their application (TEC, 1992).

The term labor (worker) is set by the EU law and not nationally. It must be given a

broader interpretation, because it defines the scope of one of the fundamental freedoms guaranteed by the Treaty. National definitions or criteria are not taken into consideration when determining whether a person represents a worker and, therefore, benefits from the free movement of worker's right.

The conditions for free movement of workers – “laborers” can benefit from the freedom of movement right if they really wish to conduct businesses in a EU country, without having the nationality of that country. The activity should not have the character of employment in public administration and it should be insignificant in volume. It is allowed to work part time and for a lower salary than the minimal salary in the sector. To act as "worker", it is enough to be a part-time worker, whose activity does not exceed more than 10hrs/week (Reg. 562, 2006).

The “labor force” category includes a person who is practicing in professional training, provided that the practice is a real activity with reported wages. As a general rule, workforce or labor force quality is lost if the conditions for its acquisition are no longer met. At the time when the employment contract period ends, the person hereby mentioned ceases to be a worker. One that is in search of a workplace must be given enough time, so he could find a (new) job. Eventually, the time allowed will be even longer if the person can prove that his efforts to find a job are based on real opportunities.

After the cease of professional activity, the person may remain in the host country as invalid or retired, the same being true for surviving spouse. Their further stay must be analyzed in the context of free movement of workers, maintaining their status of persons benefiting from free movement rights. In addition to this, freedom of movement, once acquired, can also have other legal consequences. Thus, EU citizens would be reluctant to leaving their home country to go to another EU country with the purpose of having a trade and industry or independent activity, as long as, when returning home, the conveniences offered are not at least equal to the conveniences under the EU law.

If the worker returns to his home country, the child accompanying him continues to have the right to free movement within the European Union host State, if it is necessary for him or her to continue or to complete education (school / college). It is also possible for a European citizen who ceases work because of a disability to remain in the European Union host State, if necessary, to raise the child.

Free movement of workers is not applicable to workplaces in public administration, since such positions imply the exercise of State authority. Only classical administrative professions are excluded, such as police, border police, financial administration, military and government administration. Other professions benefit from the right to free movement of workers (professions in areas such as post and telecommunications, health and education) (Nat. Strategy, 2011).

Free movement of services – claims that restrictions of the freedom to provide services within the European Union are prohibited, in respect of nationals of Member States living in a State other than that of the person for whom the services are intended. The Parliament and the European Council, acting in accordance with the ordinary legislative procedure, may extend the TEC dispositions, to service providers who are nationals of a third country and are residents in the European Union.

Services shall be considered as such where they are normally provided for remuneration, as far as they are not governed by the provisions relating to freedom of movement for goods, capital and persons. Services may include industrial activities, commercial activities, craft activities, independent activities.

Free movement of services includes the right to provide services internationally, as an entrepreneur or through employees, or to be the beneficiary of such services, as a company or as an individual. Providing services under international regime covers, for example, situations where an operator performs construction, repair or maintenance, purchases or sales of goods (shipping) or passenger

transport (taxi), and these activities are international.

The category of service users includes people crossing the border into another EU country to go to the doctor, to a cultural activity, at a football match, shopping or at a petrol station, or tourists. Family members have the right to free movement (secondary law), when traveling with the service provider or when being in the European Union state in providing or receiving services.

The free movement of services must involve some form of foreign aspect. The person providing a service may, in order to do so, temporarily pursue his activity in the EU State where the service is provided. However, the European Court of Justice stated that there might be other forms of international service providing that can involve cross-border movement of services. This includes, for example, cross-border business relationships, achieved through modern media (e.g. business advice, translation, property management). Free movement of services includes (indirectly) rights for persons legally and permanently hired by companies. They can be temporarily deployed in another EU country to provide services. Third foreigner legally and permanently committed to a company based in a European Economic Area state may work temporarily in another state for his company, having the right to free movement of services and therefore, not needing a work permit. The service provider may temporarily pursue his activity in the Member State where he provides the services under the same conditions imposed by that State on its own citizens, without thereby affect the right of establishment. As long as restrictions on freedom to provide services are not removed, every Member State applies them, without distinction based on citizenship, nationality, residence or headquarters, in the case of all service providers who are nationals of Member States established in another EU country, excepting the State of residence of the recipient of services.

Freedom of establishment - restrictions on freedom of establishment of nationals of a Member State in another Member State are prohibited. This prohibition shall also apply to

restrictions on setting up agencies, branches or subsidiaries by nationals of a Member State established in another Member State. Nationals of Member States are entitled to begin and pursue an independent economic activity, to establish and manage companies in another EU country, in accordance with the host regulations on its own nationals. Nationals of Member States have also the right to establish a company (subsidiary), agencies, branches or subsidiaries in another EU country.

Companies established under the laws of a Member State and having its registered office, central administration or principal place of business within the European Union benefit from same treatment as individuals who are nationals of Member States. Companies are defined as companies established in accordance with civil or commercial law, including cooperative societies and other legal persons, excepting the non-profit. Companies participating in the exercise of official authority are excluded.

Freedom of movement, as a generally valid right – since the European Union was founded, in 1993, by the Maastricht Treaty, EU citizens have a right to free movement, generally valid. According to Art. 18, paragraph 1 TEC, each EU citizen is entitled to move freely and to reside in the Member States, under limitations and conditions stated in the Treaty and its implementing rules.

Art. 18, paragraph 1 TEC states a right to stay connected to a purpose that should not necessarily be business. Directive 2004/38/EC states the conditions for exercising the right to move and reside freely within the Member States by EU citizens and their family members, the permanent residence in the Member States, restrictions on the right of entry and the right of residence on grounds of public policy, public security or public health - without containing primary law dispositions.

Generally, according to Art. 18, paragraph 1 TEC, the European Union citizen must have means of living during the stay and have adequate health insurance, both for his person and family members, so that during their stay they do not need to ask for social support from the host state. The same rule is valid for

retirees who want to live in another EU country than that where they have worked and for students. Along with the one having the right of residence, family members may live, whatever their nationality is. These persons also have the right to free movement, so they can work without needing a work permit.

Free movement of family members is not primary, but derivative. This right may apply or not, depending on the person's EU / EEA status. One will have to travel to another EU / EEA country and the conditions of that particular state referring to the freedom of movement. The generally valid freedom of movement may be limited, as all other rights to free movement, especially for security, order and public health reasons, in accordance with the jurisprudence of the European Court of Justice.

Categories of beneficiaries of the free movement right - according to art. 18, 39, 43 and 49/TEC the free movement right belongs to EU citizens. According to art. 17/TEC, a EU citizen is one who has the citizenship of a European Union Member. EU citizenship does not replace, but complements national citizenship. The Agreement on the European Economic Area (EEA) from 02.05.1992, states that all rights of free movement also apply to nationals of Iceland, Liechtenstein and Norway. The same is valid for Swiss citizens - under the Agreement on free movement EU / Switzerland. Freedom of movement is valid without restrictions for people with dual or multiple citizenship, which - in addition to the nationality of a EU / EEA or Switzerland - still have one or more citizenships.

The right to free movement is also applied for family members who are not citizens of EU or EEA State. Irrespective of their nationality, the following family members may enjoy the EU / EEA or Swiss citizen right: husband / wife, partner with whom the Union citizen has contracted a registered partnership under the laws of a Member State, if under the legislation of the host Member State, registered partnerships are equivalent to marriage and in accordance with relevant legal requirements of the host Member State; direct descendants aged more than 21 years or dependents and direct descendants of the

spouse or partner as defined, direct ascendants who are dependents and those of the spouse or partner as defined.

With no prejudice to any right to free movement and residence of persons concerned, the Member State assures, under its law, entry and residence for the following people:

- any family members, whatever their nationality, that in the country from which they come, are dependents or household members of the Union citizen having the primary right of residence, or if serious health reasons imperatively demand for personal care by the Union citizen family member;

- partner with whom the Union citizen has a durable relationship, duly attested.

Member States need not recognize polygamous marriages attested in accordance with the law in a third country, but which may violate their domestic legal system. This does not affect the obligation to properly take into account the interests of the children of such marriages. These dispositions are found in Directive 2004/38/EC of the European Parliament and Council of 29.04.2004 on freedom of movement and residence within Member States for Union citizens and their family members, but also in Regulation (EC) no. 1931/2006 of the European Parliament and Council of 20.12.2006 stating rules on local border traffic at external land borders of the Member States and amending the Schengen Convention and Regulation (EC) no. 562/2006 of the European Parliament and Council of 15.03.2006 establishing a Community Code governing the movement of persons across borders (Schengen Borders Code). Regarding the last two regulations, "persons enjoying the Community right of free movement" means:

- Union citizens, within the meaning of art. 17 n. 1 of the Treaty establishing the European Community, and third country nationals who are family members of Union citizens who exercise their right to free movement, subject to Directive 2004/38/EC;

- Third country nationals and their family members, regardless of nationality, who, under agreements between the Community and its Member States on the one hand, and these countries on the other hand, enjoy rights of

free movement equivalent to the right of EU citizens.

3. THE RIGHTS FOR EU CITIZENS

EU citizenship confers to every Union citizen a fundamental and individual right to free movement and residence within Member States, subject to limitations and conditions of the Treaty and measures adopted for its implementation. Directive 2004/38/EC on free movement and residence within Member States for Union citizens and their family members states:

* Conditions for exercising the right to move and reside freely within the Member States by Union citizens and their family members;

* The right of permanent residence in Member States for Union citizens and their family members;

* Restrictions on the right of entry and the right of residence on grounds of public policy, public security or public health.

This Directive shall apply to all Union citizens traveling or residing in a Member State other than one's own state, but also to his family members, who benefit from freedom of movement, which accompany or join that particular person. Other family members and their own citizens are subject to national law of the State responsible for control.

Right of exit - EU citizens have the right to exit another Member State by virtue of having an identity card or valid passport. Family members can exit only by having a valid passport. Under no circumstances can an exit visa or equivalent formality be required.

Right of entry - EU citizens can enter by virtue of having an identity card or valid passport. Family members may enter only by having a valid passport, if they have an entry visa. Family members having a valid residence permit are exempted from the visa requirement. If a Union citizen or family member who is not a national of a Member State does not have the necessary travel documents or, where appropriate, the necessary visa, the particular Member State shall grant such persons, before proceeding to the expulsion, all reasonable means to enable

them to achieve, within a reasonable period of time, the necessary documents or to prove by other means that they benefit from freedom of movement and residence.

Right of residence for up to three months - for stays of less than three months, the only requirement on Union citizens is that they possess a valid identity document or passport. Paragraph also applies to family members who possess a valid passport who are not nationals of a Member State, accompanying or joining the Union citizen.

Right of residence for more than three months - all EU citizens have the right to reside in another Member State for more than three months if they: are engaged in economic activity on an employed or self-employed basis, in the host Member State; have sufficient resources for themselves and their families so as not to become a burden on the social assistance system of the host Member State during stays and have complete health insurance in the host Member State; are family members accompanying or joining a Union citizen who himself meets the mentioned conditions. Right of residence shall extend to family members who are not nationals of a Member State, if accompanying or joining the Union citizen in the host Member State, provided that such Union citizen satisfies the conditions mentioned above. In these cases, the host Member State may require Union citizens to register at the competent authorities and to be issued immediately a "registration certificate". Ignoring the registration requirement may render the person liable to non-discriminatory and proportionate sanctions. Family members of Union citizens who are not nationals of a Member State shall be given a "residence permit", if the planned period of stay exceeds three months. Ignoring the requirement to apply for a residence permit may render the person concerned liable to proportionate and non-discriminatory sanctions.

Family members of Union citizens who are not nationals of a Member State shall be given a document called "Residence card of a family member of a Union citizen" no later than six months after the they submit the application. A certificate of application for a residence permit is issued immediately. This confirmation will be sufficient to justify the proof of residence.

Right of permanent residence - Union citizens acquire the right of permanent residence in the host Member State after a five-year period of uninterrupted legal residence. Family members who are not nationals of a Member State and have legally resided with the Union citizen in the host Member State for a continuous period of five years benefit from the same right.

Member States shall issue Union citizens and their family members, beneficiaries of the freedom of movement (and residence), who have permanent residence, after having verified duration of residence, a document certifying permanent residence application. Right of residence and permanent residence cover all the territory of the host Member State. Member States may impose territorial restrictions on the right of residence and permanent residence only if restrictions are imposed to their own nationals as well.

Restrictions on the right of entry and the right of residence on grounds of public policy, public security or public health - Member States may restrict freedom of movement and residence of Union citizens and their family members, regardless of nationality, on grounds of public health and public order or national security. These reasons cannot be invoked for economic purposes.

5. CONCLUSIONS

In conclusion, measures taken on grounds of public policy or national security must

respect the principle of proportionality and are based solely on personal behavior of the particular citizen. The behavior of the person must represent a real threat, sufficiently serious, affecting a fundamental interest of society. Reasons not directly related to the case or connected to general prevention shall not be accepted. The person with the right to free movement can be denied to enter the EU area only if there are genuine and sufficiently serious threats to harm the fundamental interests of society.

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THE IMPLICATIONS OF FUEL PRICES EVOLUTION ON MILITARY CAPABILITIES

Maria CONSTANTINESCU

Regional Department of Defense Resources Management, Brasov, Romania

***Abstract:** The military is a fuel intensive sector and the high volatility of fuel prices and the upward trend of this prices impact on various aspects of the defense planning and operations, in both direct and indirect ways. The negative effects of the fuel price volatility on the development of military capabilities is enhanced by the economic downturn and the degree of fuel dependency of each country, creating challenges in estimating accurately the budget needs.*

***Keywords:** oil, evolution, implications.*

1. INTRODUCTION

The price of fuel has been one of the main factors of influence after the Second World War on the world political, military and economic situation. The price of fuel, as any other price, is subject to the evolution of supply and demand; in this case though, these economic concepts are heavily influenced by political, military, social and even psychological factors, leading to a very high volatility and unpredictability of the fuel quotations on the international markets. Fuel prices have been linked in modern history to economic recessions, political and social unrests and even military interventions, making them a very important factor of influence at any level of a modern society, as the prices of many other goods are linked to the price of fuel.

The military sector is also subject to the negative effects of fuel price volatility and increases, more than other government areas, as the military sector, by reason of its specific activities, consumes more fuel than less fuel-intensive areas, such as education. The generation and sustainability of modern and effective military capabilities is directly linked both to the need to increase the fuel efficiency of the military equipment and to embrace in a higher degree alternative, renewable energy

sources, but also to the need to find methods to manage effectively the financial and economic risk of fuel price fluctuations.

2. THE EVOLUTION OF FUEL PRICES AND ITS IMPLICATIONS ON THE MILITARY CAPABILITIES

2.1 The evolution of oil prices and its political, economic and social implications. The evolution of the oil prices after the Second World War has been intricately linked to the world's political, military and economic events. As shown in figure 1, according to the data provided by the Center for the Analysis of Financial and Economics Dynamics – CAFED, the evolution of the oil prices has been fairly constant, until the 1970 oil crisis, which marked the beginning of the upward trend which has continued since then. After the peak in the '70s and '80s, the oil prices decreased until 1991, when the invasion of Kuwait by Iraq and the subsequent operation Desert Storm lead to a new peak.

The year 1999 marked a low point in the evolution of the oil prices, as the increased supply from Iraq was accompanied by the financial and economic crisis in Asia, leading to a decrease in demand. After this point, the oil prices experienced a rapid increase in the year 2000, followed by a decrease in 2001 and

a new steady increase after the events of 9 September 2001 and the subsequent “war on terror” waged by the US.

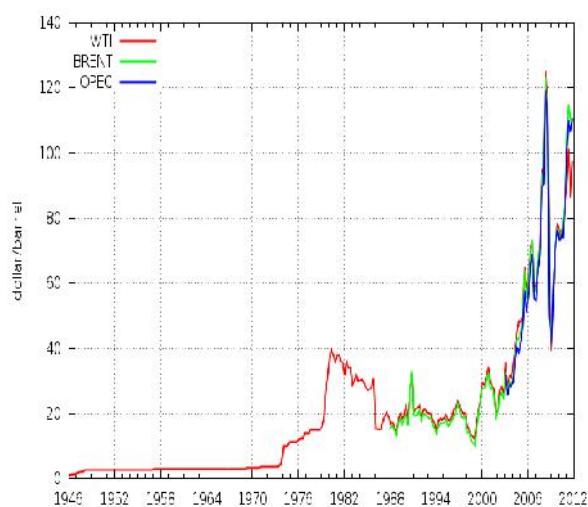


Fig. 1. The historical evolution of oil prices 1946-2012

Base on the data supplied by the Center for the Analysis of Financial and Economics Dynamics – CAFED shown in figure 2, the indirect effects of political, military and natural events on the evolution of oil prices is also visible. The increase of oil prices in 2003 marked the beginning of a steady rise in their evolution, influenced by such events as:

- the war in Iraq and the strike of Nigerian oil workers in 2003, coupled with an increased demand for oil;
- the effects of the hurricane Katrina, the continuing decline of the Iraq oil production, the deterioration of the security environment in 2004 and 2005; the tensions related to the North Korean missile tests, the ongoing Iraq war, the conflict between Israel and Lebanon and tensions related to Iran in 2006;
- tensions in eastern Turkey and the reducing strength of the U.S. dollar in 2007;
- the debut of the financial and economic crises in the United States, which subsequently spread at global level, was one of the most important factors behind the fall in oil prices in 2008, as the global demand for oil fell dramatically due to the recession
- between 2009 and 2010, tensions in Gaza strip and the hope for a timid recovery of the US economy drove up the prices, to be followed by another decline due to concerns

about the European economies going into recession due to budget deficit problems.

- In 2011, tensions in the Middle East (the civil unrests in various Arab countries), culminating with the war in Libya, drove the oil prices to high levels again.

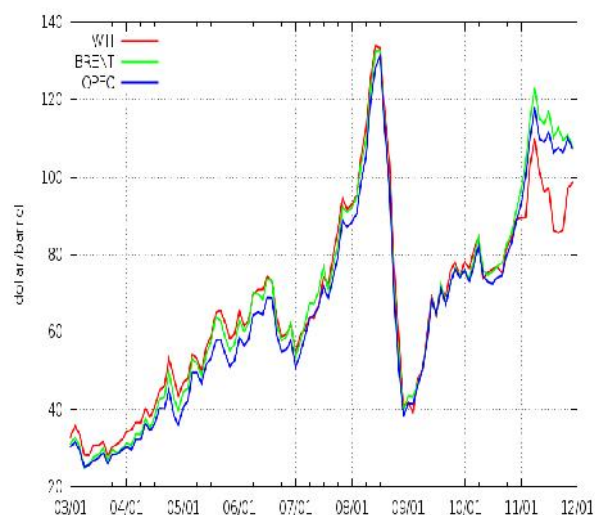


Fig. 2. The historical evolution of oil prices 2003-2012

2.2 The implications of the fuel prices evolution on the military capabilities.

The military uses fuel in a variety of ways, from fuel needed to operate the main military systems and equipment (jet fuel, ship fuel, tank fuel, missile fuel etc) to fuel needed for various other purposes, such as heating, functioning of generators etc. The high volatility of fuel prices and the upward trend of this prices impact on various aspects of the defense planning and operations, in both direct and indirect ways.

The *direct implications of the fuel prices* on the military capabilities refer to the difficulty to accurately estimate the fuel costs in order to develop correct budget proposals and also to the increased budget expenditures for fuel should the fuel prices increase.

The specific nature of the activities in the military sector leads to an increased difficulty in quantifying the total additional costs generated by the fuel price increases, as it is a challenging task to accurately provide a clear allocation of the fuel costs to the outcome of military missions and activities. In case the output measure of a military mission is expressed in quantitative terms (such as flying

hours or kilometers patrolled), allocating the fuel related costs to this type of output is possible with a higher degree of accuracy, as norms and regulations provide a framework for calculating the fuel consumption and associated financial requirements (based on average consumption / kilometer / mile / flying hour and the average price of a particular type of fuel used). In this instance, the link between the fuel costs and the mission output is straightforward.

A more challenging situation arises when the result of the military activity is expressed in terms of military capabilities, defined by the US military as “the ability to achieve a specified wartime objective including four major components:

- *force structure* (numbers, size, and composition of the units that comprise the defense forces);
- *modernization* (the technical sophistication of forces, units, weapon systems, and equipments);
- *readiness* (derived from the ability of each unit to deliver the outputs for which it was);
- *sustainability* (the ability to maintain the necessary level and duration of operational activity to achieve military objectives)”.

The issue of estimating fuel costs and linking them to the outcome of the military capabilities is a very complex one, as it involves a whole array of factors and variables to be taken into consideration, in an increasingly volatile and uncertain economic, political, social and military environment. Measuring military capabilities is an ongoing concern for the modern military analysts, fraught with numerous challenges, related to the complexity of the issue and the fact that many attempts so far at measuring capabilities have focused on the “input measures” approach, rather than the “output measures”. The example of a military capability provided in figure 3, according to the RAND Corporation study MR 1110/A, illustrates the complexity and challenges of such endeavor.

If the fuel costs related to the operation of corvettes, for instance, can be more easily be calculated and allocated, other fuel related costs are not so easy to estimate. For instance, what should be the fuel costs associated to elementary logistics activities which comprise the specified capability? Should the fuel costs associated to the transport of spare parts needed for ensuring the functioning and necessary level of readiness for elementary radars should be allocated to this capability or should it belong in the total costs of the logistic support capability?

Another area where fuel costs may prove to have an important influence over time related to the sustainability component of a capability. In this context, sustainability refers to the need to ensure and maintain the necessary levels of resources (personnel, materials, consumables, equipment etc) required for the sustainment of a military operation. In this respect, a correct and accurate evaluation of the fuel costs is very important in ensuring that the necessary financial allocations have been featured in the budget. If in short term operations this issue is not a problem, as the fuel requirements may be met from a centralized supply system of military depots, the situation is not the same in medium and long term operations, especially in situations when the fuel prices experience a sudden and significant increase.

Fuel costs evolution has also important implications in connection with the concept of

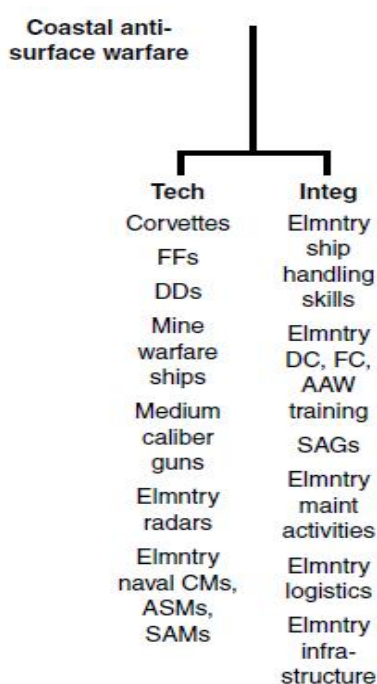


Fig. 3. Coastal anti-surface warfare capability example

life cycle cost of military equipment – the total cost incurred during the life cycle of a system/equipment, from the development / acquisition costs to operation and maintenance costs and finally salvage costs, when the product is taken out of operation. Fuel costs form an important part of the operating and maintenance total cost and they are especially difficult to estimate accurately considering that for many types of military equipments the life cycle stretches over a medium period of time.

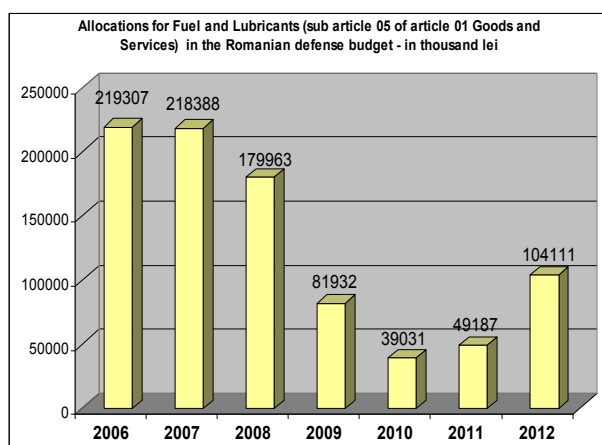


Fig. 4 Evolution of Fuel and Lubricants

There are also indirect implications of the evolution of the fuel prices on the military capabilities, deriving from the negative economic effects such as increased price volatility, increased inflation and increased uncertainty reflected in volatile stock markets or even decreased economic activity. These negative economic effects are also reflected in the decrease budgetary allocations for the defense. The effects of the economic crisis which started in 2008 on Romania's defense budget, with focus on the Fuel and Lubricants budgetary article, is clearly illustrated in the following chart. The dramatic decrease in this type of expenditures was not due directly to a

decrease of the fuel oil prices, but from the indirect effect of the economic downturn on the defense budget as a whole.

3. CONCLUSIONS & ACKNOWLEDGMENT

The impact of the fuel price evolution on the development of military capabilities is significant, enhanced by the evolution of the economic crisis. This impact is felt with even more severity in relation to the defense systems in countries relying on fuel imports (as is the case with many NATO and EU members).

Considering that Romania belongs to this category, the decision makers need to carefully analyze this phenomenon and take timely and effective measures for reducing, as much as possible, the impact of the evolution of fuel prices on the national defense capabilities.

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SAFETY PROBLEM IN SCHOOL ENVIRONMENT

Lenka KURHAJCOVÁ, Eduard SNIŽÍK

University of Security Management, Košice, Slovakia

Abstract: *The increasing of aggression at school is nowadays problem. The phenomenon of armed attack is increasing and represented specific risk in school environment. The safety of schools, their staff and students is now often discussed topic. In particular, the increasing rate of aggression and violence in schools and apparent seepage humanity in everyday interpersonal relations alarms the wider community too. The article deals with problematic of school violence and proposes prevention to reduce security risk.*

Keywords: *safety, security, school violence, school prevention.*

1. INTRODUCTION

The safety of schools, their staff and students is now often discussed topic. In particular, the increasing rate of aggression and violence in schools and apparent seepage humanity in everyday interpersonal relations alarms the wider community, too. Most shocking cases are escalating brutal violence and murder in the so-called school attack

This article discusses the issue of the phenomenon. In Slovakia, this issue does not pay proper attention. The article is to present safety concerns in schools and suggest preventive measures that could prevent possible attacks.

2. SECURITY RISK IN SCHOOL ENVIRONMENT

The safety of citizens is the real state of security and application of civil rights and freedoms, protection of life, health, property, environmental protection, preservation and growth of material and spiritual values of other. This is reflected in the individual perception of safety, survival threats in real time and environment. (Kelemen, Blažek, 2011).

An effective and comprehensive security system will include the following elements:

- Technical means of protection
- Organizational and regime measures
- Ensure of human resources.

Armed attack at school is specific way of antisocial behavior. In this article we deal with opinion which sees security as such a state in which they are removed or eliminated potential risk (Šimák, 2004) and the students and employees feel safe.

The probability that something threat school safety is very small. However, the subjective feeling of security influence the largely media. People are often faced with the knowledge of many attacks on schools and begin to feel fear. Often this feeling of fear is unfounded. But it for some event happens, the consequences can be terrible.

After the attack on the school is the people involved traumatized, neighborhood also. It happens that between the persons persists the fear to attend school again. People do not feel the safe after the attack, they are traumatized and takes a long time until the regaining a feeling of safety.

The armed attack on a school remains in Slovakia that the attacks are becoming mainly in abroad and Slovakia is a safe country. However, in this article, we point out that in Slovakia there are attacks that disrupt security in schools.

Following attacks suggest that Slovakia should be interested in safety issues in school (in Anonym, 2010):

➤ Eighteen years old student of Chemical secondary school, stabbed with a knife teacher of German subject. The murder was arrested to six years.

➤ 14 years old student attacked a primary school teacher, at elementary school. The teacher suffered a contusion of the chest.

➤ At the same school 11 years old student attacked a young teacher after having received the four in Exam. Teacher suffered light brain concussion.

➤ Two 11 years old students, on the pressure of third tried with a knife kill their teacher. Originally wanted to attack the other teacher, however scared to be leaking their plan which tried to make it one lesson earlier. After the attack they planned to go abroad. After one month stay in diagnostic centers have returned to their parents and later to schools.

➤ In elementary school after long term chicane 16-years old boy jab with brush in chest 13-years old classmate who died of injuries.

➤ Parent physically attacked a teacher at a primary school after his daughter called him by cell phone.

➤ In elementary school furious parents attacked teacher and her colleague threatened to kill. They came to school after call by their daughter.

➤ Emotionally disturbed high school student attacked a teacher, who pointed out need to change his shoes. The director said that it happened, because the student forgot to take medicines to his mental illness.

There were only some of the attacks in Slovak schools. It is fortunate that in Slovakia there was no use of firearms. In the case of using a firearm would have consequences much more destructive after the attack. The alarming is behavior of parents, which attacked teacher.

At present, for the fact that the profession of teaching has lost the respect and honor not only between students, but the parents, also. It is sad that parents allow physically attack the teacher. A parent should be pattern for the

child, so we cannot wonder that children attack teachers. We can say that it is only a question of time when Slovakia will become a country where safety in school is at risk for use of firearms.

3. PREVENT ISSUES FOR DECREASING OF SAFETY RISK

The intentions of the above, this chapter deals with proposals for preventive measures to improve safety at school.

Ensuring the protection of school facilities against internal attack is a difficult task. Persons who intend to attack, coming from the school environment and are well informed about security measures in school. The use of mechanical barrier means it does not arise. Exceptions are security shutters that lock and divided the space into smaller sectors. Based on the experience of attacks on schools in the U.S., we can state that the offender is to cause as much loss as soon as possible. Most of these attackers are not attack the locked rooms. Redeker (2007) states that the lock is after escape the second best way to survive.

The appropriate way to not only prevent armed attacks but also bullying, aggression and vandalism is a camera system. The data collected by a camera system allows effective prevention against unwanted antisocial manifestations, but they must be regularly evaluated. Use of camera system in Slovak Republic is restricted by the legislation and cannot be used throughout the building. At some schools after complaints from parents had to be removed camera system or its use has been minimized due to complaints intervention to privacy.

Another good tool is the communication system in the building and in its surroundings. Currently, information for people entering the building serves the school radio. School radio is the one element that satisfies the principles of crisis communication tool and as a result of its speed, accuracy and simplicity. In these media can be as a tool for informing the participants used a mobile phone. Texting is a normal part of school life and almost every student is carrying a mobile phone. In the case of pending danger could be informed the

students using bulk short messages sent by the directors.

Some of equipment which could help to feel and be felt in school is limit and control the main access for school visitors. This is using in many Slovak schools. You can pick up the children only with permission and only in given hours. If you want to change a time of pick up or person who will pick up the children you have to write application to director. This is one of security action against external dangerous.

Another thing which could help in the case of the attack inside of school is alarm system linked to police response.

In addition to the above must not forget the existence crisis plans. Each school should have prepared manuals and prevention measures in case of crisis.

The prevention of safety risks at schools need to point out that there is no the same profile of the perpetrator and thereby reduces the potential for effective prediction a uniform system of preventive measures.

Profile attacker is diverse both in terms of age, race, and gender. We can say there are more male attackers, but there also female attacker. It shows us that a potential attacker could be anyone. The detection of the perpetrator can ensure regular monitoring of the behavior of people moving in schools.

By monitoring of behavior we can help the early detection of the attack. The majority of the attackers before the attack send a warning for a long time drawing attention around of the upcoming danger. Most young people use social networks to communicate. Internet is becoming the standard tools of communication for young people. Gradually fades away interpersonal contact, as most people would like to communicate in anonymous virtual environment. As a result, anonymity is protected and often reads and disclosing information which would otherwise be not told to their closest. In this context, there is a possibility of tracing the unwanted behavior of potential attackers. The anonymity of the Internet allows potential offenders to make their intentions to another people. For participants it is difficult to estimate because the existence of a potential high risk as a

potential attack is hard to be able to find by well experienced professional, not peer. Prevent any attacks would help monitor communication through computer programs that record the correspondence between certain words and then evaluate the potential possibility of attack. This form of monitoring, however, encounters the problem of legislative protection of private information. It is for consideration whether to prefer the protection of human life or the protection of privacy for virtual communication.

The next instrument for promoting the security in school is education itself. Raising a child in the primary cell of society – the family, is the basis for learned patterns of behavior.

The right for a child has every individual in society. Raising a child is one of the most important things, but no one teach how to raise a child. It depends only on what parents want, which educational methods are chosen. The consequences of effect of inadequate or neglected education feel the whole company. The state has limited impact on raising a family, but it should focus its attention on strengthening the educational responsibilities of educational institutions – schools. With this in mind, it would be necessary to introduce new subject for dealing with education of students. At present school provides “teachers” hours, which should serve to communicate about problems between students and teachers. These hours would be a desirable way to educate students. The educational process in schools should be possible to replace a neglected educational process in family. If a teacher knows their students knows to detect unwanted behavior and to avoid the negative consequences of unwanted behavior.

Teacher in order to prevent undesirable behavior should talk with student about threats and safety. Sometimes just listen to the student, can avert undesirable behavior. By talking is important in addition to listening to await the conclusion of dialogue and not to interrupt speaking, as children sometimes take a while be expressed. If a child feels misunderstood, respectively if it interrupts by adult what to say, it may happen that the next time already does not come.

Another good advice is deal with worries and do not jeer of person, who want to talk about problems. The important thing is to tell students if they have any problem can come and talk about it. These were some of soft skills advice, which could help prevent unwanted behavior at school.

4. CONCLUSIONS

The safety at school environment has to be solved. The values in society have changed. Even if we were able to eliminate attack from schools, problem will be only move. In society are many potential attackers. Some of them change their mind and have to live full live, some of them not. We can only make prevention before unwanted behavior. We have to try to have safety society, safety life. If the people feel safety they produce value of society. Every member of country wants to

feel safety and want to have safety lives for children. This article deals with some of security rules, which can help with unwanted behavior at school environment. We need to have more developed the safety issues both in terms of preventive or follow-up.

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PATRIOTISM AND THE FINALITIES OF MILITARY EDUCATION

Diana ILIȘOI, Adrian LESENCIUC, Daniela NAGY

“Henri Coandă” Air Force Academy, Brasov, Romania

***Abstract:** Should the individual live as a teleological being, then education, perceived as a specifically human activity, sets goals aiming at making a human prototype (personality model), able to correspond to social ideals and to demands related to social progress. In this context, the characteristics of military education come out from the particularities of the combatant’s profile, whereas its final objective focuses on combat preparation. By correlating these two aspects there results a “combatant personality with a winner mentality” (Ch. Moskos), an already widely spread phrase of the specialized literature, which brings together the human model with the social and professional ones. Similarly, by transferring discourse within the context of globalization and postmodern armies’ making up, one can raise the issue whether patriotism and self-sacrifice, reflecting the existential condition of any combatant, are still of current interest. To what extent the pluri-racial, pluri-cultural and pluri-religious structure of contemporary armies alters or not the approach to patriotism into an obsolete topic, since it should be a defining moral sentiment to a human being? Moreover, how does the military values system reconfigure itself under the impact of profound changes within the military organization or given the remodeling of military thinking and action? Is openness to alterity, through designing and forming the intercultural communicative competence, perceived as a substitute for patriotism and nationalism? In order to answer these questions, we made use of the findings of a quantitative research, accomplished in 2010, on a sample of 1.020 Romanian military students belonging to the Romanian armed forces.*

***Keywords:** patriotism, cosmopolitanism, military education, military values.*

1. CHALLENGES OF MILITARY EDUCATION

The military education’s specificity results from the particularities of the military institution/ organization and the society that it assists. Although we witness profound and inevitable transformations within both the structure and the functioning modality of the contemporary armies, both the army’s uniqueness and the preservation of its institutional characteristics come to be of equal importance.

Charles Moskos (2005), considered the most influent American military sociologist embraces this idea, strengthening it in his studies. Even though, under the pressure of the market economy, of the cultural utilitarianism and of material values’ dominance, the occupational tendencies in the military environment, as a form of adaptation to

societal pressures, are obvious, there is need for prudence in managing changes and especially in relation with the process of professionalization of military personnel.

The terminological ambiguity of the specialized literature made the American politologist Samuel P. Huntington (1927 – 2008) apply the concept of profession, as a special type of vocation, to the military field. He also drew the conclusion that the military career accomplishes the major criteria of professionalism (expertise, responsibility, l’esprit de corps) to a great extent, thus approaching the ideal model the most.

In his paper, *The Soldier and the State*, Huntington (1981) makes distinction between the career-oriented soldier, enlisted mainly for material advantages, and the professional soldier/ officer, who puts his vocation to serve society. Consequently, the modern officer

needs to be a professional; similarly, the officers' corps should be a professional body.

In this context, even if the army has to adapt to occupational criteria, the officer should distinguish from the other agents of the professionalized human action from the social space. Holding the power and wisely managing it, in accordance with the specificity of military actions and missions, provides this professional profile with a definite structure. Different from the ordinary social actions, error and failure gain different dimensions within the military action plans, due to the catastrophic effects they may produce. All these aspects lead to a focus of the military education plans on values and norms able to embody them and which should constitute the core of military education, in its instructive-educational endeavors.

Although the "civilianization of the army" is more and more invoked, the American sociologist Harold Dwight Lasswell (1902 – 1978) identifies a distinct and defining ability of the officer – to manage violence. Accordingly, apart from designing a personality model based on a winner psychology and action abilities, military education holds as its major target forming and developing this complex intellectual ability, regardless of the cultural space where it takes place. Moreover, lest he should be a mere mercenary, the professional officer needs to be keen on his profession, to hold a high feeling of duty and social responsibility, to know and understand society and people whom he defend.

The same author, H. D. Lasswell, stated the military career "requires vast general knowledge so as to reach perfection" (Sava *et al.*, 1998:246), arguing that the action dimension of the military career is intimately connected with the social and the cultural pattern of society. If for the traditional army of institutional type, self-sacrifice, on behalf of duty and love for the country used to be intrinsic to the existential condition of a soldier, then, which is the moral support of his deeds given the conditions of globalization and diminishing of these moral feelings?

2. RELATIONSHIPS BETWEEN CITIZENSHIP, PATRIOTISM AND THE FINALITIES OF MILITARY EDUCATION

The Byram model would be an adequate model for the Romanian cultural environment, with regard to intercultural competences development required by the design of the military model – a professional acting in a multi-dimensional, dynamic, digitized and multi-national battlefield. In this respect, Byram (1997) designed a forming model based on self- knowledge and knowledge of others, knowledge of interaction (*savoirs*), interpretation connection-making abilities (*savoir comprendre*), discovery and/or interaction abilities (*savoir apprendre/faire*), attitudes: relativization of self, value of the other (*savoir être*) and political knowledge, critical cultural awareness (*savoir s'engager*). Cultural awareness, in Byram's acceptance is only possible by real engagement in interactions with others while preserving the spirit of self-awareness and the spirit of cognitive, evaluative and action-based orientation, accomplished by cumulating cognitive, affective and psychomotor achieved throughout previous stages. Political knowledge and critical cultural awareness do not entail limitation within the limits of any type of extreme patriotism. Similarly, they do not imply patriotic dilution, but an engagement in relation with the Other, while still preserving the coordinates of respect for national values and humanity values.

Within the military environment, the openness to alterity should not be perceived as alternative to patriotism and nationalism, as openness to common cosmopolitanism or as abandonment of the national culture's values to the detriment of civilization's values, which could annihilate the former. Patriotism and nationalism, implying affection and identification with a state (country), respectively with a nation, appealing to political reasoning and to the cultural existential reasoning of a state-nation, should not involve restrictive, exclusive or even aggressive forms. In its essence, patriotism offers the powerful motivation to act morally

(Alasdair MacIntyre, *apud* Primoratz, 2007:24)), which implies transcending any barriers for the openness to the Other, promoting human rights regardless of ethnicity, religion, race or gender and manifesting tolerance as a fundamental value of intercultural relationships.

After an ample and fine analysis of the evolution of patriotism throughout the mankind history, professor Maurizio Viroli warned against hidden effects of globalization on the human being, stating the necessity of a feeling of belonging and community: “for an individual to be able to perform his duty, he must belong somewhere” (Viroli, 2002:36), he needs roots. As citizens of the broad world, affection to an impersonal entity (such as the planetary village), even if this entity is based on the universal values of liberty and justice, loses its value. There are, still, other modalities of relating to the whole, of identifying with the whole, and one of the manners by which this relation is not possible is the very citizenship. Citizenship, initially aiming the belonging to a specific fortress, designating the inhabitants of the fortress and their relationships (rights, obligations derived from their statuses) with the fortress, has become a manner of a person’s relating to a state, this implying rights and obligations resulting from this relationship. Although the expressions “e-citizen”, “European citizen” or “global/world citizens” invoke an associated status, they are artificial. Considering the fundamental mutations in understanding the term ‘citizen’ throughout its historical path, marked by such periods as the Ancient Greece, Ancient Rome, Enlightenment, the French Revolution, the term has never estranged, in its meaning, from the relationships with the belonging group, regardless of its size. Nonetheless, by relating to an entity whose spread is hard to understand, such as an over-national or global organization, the term ‘citizen’ implies spread from the semantic area’s perspective, alongside with the weakening of its conceptual power (up to its contents annihilation).

In this instance of conceptual weakening of the term, from nomological perspective, alongside with its enrichment by significance adding, it is hard for a soldier, acting mainly in

a multi-national environment, to stay connected to a cultural system, in parallel with his relationship with an ideological system of over-state norms, and, implicitly, with some norms that, in many cases, become inoperable or even contradictory with his own cultural norms. To be a world-citizen means to be under a double bind, of cultural norms and of over-state impositions/ conventions. Consequently, the normative context of certain organizations such as NATO, the EU, the UN, or OSCE cannot be imposed as citizen normative context. This may lead to a perception of the kind: citizen obligations are in strict relation with the state, whereas contractual obligations, mercantile, in many respects, regard the relationships with these organizations, despite the existence and development of the concept of world-citizen.

Debates with regard to the opportunity of maintaining as valid such expressions as ‘world-citizen’ remain suspended, as well as those concerning the opportunity of educating in the sense of revealing strictly-contractual, mercantile relationships with over-state organizations (in this respect, there is clear distinction between the human rights and the citizen’s rights). Nevertheless, under these circumstances, there raises the issue of educating the military personnel in the spirit of human rights or of the citizen’s rights, in the spirit of relating to national values or to the whole world’s values, in the spirit of patriotism or cosmopolitanism?

3. PATRIOTISM AS FORMATIVE VALUE. REFLECTION OF PATRIOTISM IN THE MILITARY STUDENTS’ OPTIONS

Although all military academic environments there are ethics codes promoting honor, courage, spirit of sacrifice and dignity, which are the standpoints and mechanisms able to activate these values? Charles Moskos concludes that the occupational tendencies within the armed forces also influence the motivational universe of a soldier: the intrinsic motivation that had been nurtured by an internalization of institutional values has become extrinsic motivation (especially

material), specific to industrial organization. All these issues highlight the fact that of all dimensions of military education, the fundamental component, and equally, the most vulnerable one, under present circumstances, is the formative component. Forming strong, honest characters, anchored in reality, animated by superior goals, has become the millstone of military education. In other words, the ethical constitution of the military career, in a society promoting ethical minimalism, has become problematic. The axiological void of the contemporary society is reflected by the multiplication, up to exhaustion of judicial laws, regulations and procedures that, aiming at strengthening social control, do nothing else but conceal values' and moral laws' weakness, or the moral crisis that erodes society.

How does the military values system reconfigure in this context? To what extent does the pluri-racial, pluri-cultural and pluri-religious composition of contemporary armed forces ("post-modern", Charles Moskos) transform or fail to the topic of patriotism as a defining moral feeling to the human being in an obsolete debate or not? Clarifications are needed especially in the post-communist space (Eastern Europe), where excessive and later on, abusive love for country (as an instrument of gaining political capital) nurtures a profound identity crisis. In this space, under the present conditions, patriotism is weighted in relation with the European Union's values, derived from freedom: decentralization, autonomy, free circulation, knowledge and understanding of ethnic, religious and cultural diversity, tolerance. Should patriotism, perceived in its aggressive limits, according to Eastern ideology, be currently face to face with the tolerance philosophy, proposing the equality principle between all people, regardless of their race, religion, nationality, then its fundamental objective would be to substitute force relationships with dialogue ones (Ilişoi, 2008:65). Therefore, it would be easy to understand the formative challenge regarding the Romanian military students. The analysis of relationships between Romanian values and European ones may be figured out in terms of the relationship between national

values and over-state organisms' values. Romanian values correspond to the national dimension of the political community and of the state form corresponding to it, whereas the European ones represent a sum of national values resulting from countries situated on the European continent, their diversity causing the difficult definition of the European cultural model (Dassen *et al.*, 1999:110).

Let us observe how patriotism is reflected in the Romanian military students' options. In a study aiming at identifying the ethnic profile of military students, accomplished by appealing to open items included in a WAY-type test (*Who Are You*), we post-codified data based on central values from the Rokeach table. The questionnaire was adapted to the topic under discussion, administered in December 2009 – January 2010, to 1.020 military students from military academies representing all branches (Lesenciuc, 2011:41-48), and was valid for 821 subjects (due to, mainly, elimination of non-answers and answers comprising general data or physical particularities). Apart from the 40 nominal values included in the Rokeach table, we also quantified answers sending to the dimension "patriotism", "pride of being Romanian", namely, we scored distinctly (outside the Rokeach table) answers aiming the dimension regarding the attachment to country and nation. In order to quantify the expressed options, we used an intensity scale in seven steps (Osgood type), in which we utilized a conventional score ranging between +3 to -3, in accordance with the intensity and meaning of the option, respectively, we also monitored the popularity indicator.

The two values were appreciated by the military students as follows: with regard to intensity: 1. patriotism (average +1,51 points, within the interval -3 to +3); 2. honor (1,41); 3. communicative power (1,34); 4. responsibility (1,31); 5. pride of being Romanian (0,98) ... 38. happiness (0,04); 39. utility (0,03); 40. inner harmony (0,03); 41. comfort (0,01); 42. Soul salvation (0,00); with regard to popularity: 1. honor 50,64% of total of valid answers; 2. patriotism (50,39%); 3. communicative power (46,27%); 4. responsibility (43,96%); 5. Pride of being

Romanian (31,88%) ... 38. wisdom (1,80%); 39. utility (1,54%); 40. Inner harmony (1,54%); 41. comfort (0,51%); 42. soul salvation (0,00%). The difference of rank for the value "honor" in relation with the value "patriotism" related to the indicator popularity is justifiable by a higher percentage of negative appreciations, which indicates that some of the investigated subjects considered that being "dishonest" was one negative trait of Romanians, whereas all respondents who related to the indicator "patriotism" considered only the positive dimension. As a result, defining the military student in his/her posture of Romanian citizen is achievable by appealing to indicators such as "honor", "patriotism", "communicative power", "responsibility" and "pride of being Romanian" (the topic of patriotism not being the most debated one, it cannot be negotiated, therefore there is only one meaning of its perception). Even though the ethnic profile of the Romanian military student cannot be achieved by a sum of characteristics, since it may lose its very essence by devaluation or by losing its intrinsic value, the presence of "patriotism" and of "pride of being Romanian" among values of maximum popularity and intensity constitutes a reflection issue in relation with its placement in the proximity of national values scale – values belonging to over-state organisms.

4. CONCLUSIONS

Participation at multinational missions raises specific issues associated with the combatants' relationships with their country of origin, with the accomplishment of their duty for the country and the utility of their actions to the country they represent. Intercultural education constitutes a manner of forming, in the sense of offering answers, received through a different perceptive channel, answers concerning the manner in which the Romanian soldier can resist globalist challenges, while being bonded through the oath of faith to the country. Additionally, intercultural education provides answers to destructive, unattractive forms of cosmopolitanism, such as aggressive

universalism, a cosmopolite strategy of destroying cultures and local institutions and of creating a global political and cultural system. Other forms include the hegemonic globalism, a version in which a sole country is able to create a united world and subsume other countries to its own jurisdiction (Nathanson, 2007:80). With the military environment, intercultural education is achieved within the limits of a moderate patriotism, characterized by forbidding any harm, irrespective of person, special requirements from the country of origin (we mean positive duties, such as assistance, support etc. of all). Added to these are an increased interest in own country and authentic interest in others, although in a higher percentage, moral constraints in accomplishing national goals and obligations, both towards the own country and towards other countries by their citizens (Nathanson, 2007:82). Thus, exaggerations with regard to obligations only to own country are abandoned, without any constraints in reaching goals, specific to extreme patriotism, or constraints concerning interests without any constraints in reaching cosmopolite goals, specific to extreme cosmopolitanism.

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FROM THEORY TO PRACTICE IN THE INTERCULTURAL FIELD: AN ASSESSMENT MODEL FOR THE INTERCULTURAL COMMUNICATION COMPETENCE CONCEPT

Aura CODREANU

Regional Department of Defense Resources Management, Brasov, Romania

Abstract: *The goal of this paper is to take a further step in bridging the gap between theory and practice in the intercultural field by building a model that could be employed in the assessment of the intercultural communication competence. In order to accomplish this, I will focus on the description of the dimensions and variables describing the interrelated concepts of intercultural communication and intercultural competence underpinning the concept of intercultural communication competence (ICC). In addition, I will discuss the importance of adding to the list of competences described by the Common European Framework of Reference the meta-linguistic competence, as one of the variables describing the ICC concept. Furthermore, based on this, as well as on a brief overview of the existing models used to assess the ICC, I will propose a working model for its development and assessment in contexts like the drafting and use of curricula addressing the intercultural field and the competences it requires, or the development of a model for institutionalizing the individual and group lessons tested and acquired in the intercultural field.*

Keywords: *intercultural communication competence, intercultural communication, intercultural competence, subjective culture, objective culture, assessment model.*

1. INTRODUCTION

Approaching the concept of intercultural communication competence involves focusing on two interrelated concepts underlying the latter's definition, namely intercultural communication and intercultural competence. According to theoreticians (Knapp, *apud* Bakic-Miric, 2008), intercultural communication is viewed as the interpersonal interaction among members belonging to groups that are different one from another in terms of their knowledge and of the linguistic means employed to assign meaning to reality.

The concept of intercultural competence (Bennet, 1998:10-11) is viewed from a contrastive perspective that takes into account a two-fold taxonomy: *subjective culture* and *objective culture*. Thus, the intercultural competence is defined as the ability to understand both the *subjective culture* of the other and one's own culture, that is the

language, the behavioral patterns, and the values that are shared and learnt within a given group. Contrastively, the *objective culture* is a matter of *institutionalizing* culture in the form of artefacts (i.e. economic, political, artistic, linguistic systems). However, knowledge and socialization through the instruments provided by the latter (see for example training curricula that are focused on it) do not guarantee in any way the acquisition of the intercultural competence. Thus, even though a person may have knowledge of the culture (to be read as objective culture) from which the interlocutor comes, all of this does not inherently grant the capacity to interact with that person.

Based on the above observations and using some of the terminology used by the *Common European Framework of Reference* – CEFR, this paper will focus on describing a possible model based on which the analysis of the intercultural communication competence can be performed by researchers or trainers in the

field. However, before actually approaching the proposed goal, I will focus on the significance of the aforementioned document.

Thus, the *Common European Framework of Reference* – CEFR is an instrument employed at the level of the European Union in order to promote linguistic diversity, transparency of qualifications, mobility of the workforce market and continuous learning. Even though it originates on the European continent, it is acknowledged as a system of reference in the definition and evaluation of the knowledge level for foreign languages beyond the borders of the EU. Consequently, given its overall goals and coverage, I believe that the attempt of identifying and describing the intercultural competence needed in a contemporary world characterized more often than not as volatile, uncertain and complex (Ilie, Ion, 2010) should resort to some of the terminology used in the CEFR on grounds of its shared schemata quality. However, I would like to emphasize that for the delineation of the necessary parameters/criteria against which the intercultural competence is to be assessed, the CEFR is nothing but a starting point. Such a decision is supported by the second place granted by the document to the intercultural aspects. Moreover, as its very title suggests, the goal of elaborating and of putting into practice such a document is triggered by the necessity for multiple frameworks to align to a common norm that, in its case, is related to the English model for teaching/learning foreign languages. As a result, even though the CEFR is truly useful when it comes to evaluating the knowledge level of a foreign language, the latter does not prove that effective when used from an intercultural perspective. In addition, the CEFR is not enough if an encompassing intercultural perspective is to communication competence. In this respect, suffices to remind that being intercultural is not solely about working/acting within the EU, nor about learning/teaching in Anglophone cultures.

Consequently, some of the CEFR terminology will be only one of the means to achieve the the ultimate goal of this paper: to build an assessment model for the intercultural communication competence concept based on its defining dimensions and variables.

Moreover, in the long run, such a model could be used in the development of appropriate training programs, as well as of adequate instruments needed to identify the lessons in the intercultural field.

2. THE INTERCULTURAL COMMUNICATION COMPETENCE: DIMENSIONS AND VARIABLES

Besides all of the above, I would also like to emphasize that communication style and behavior are under the influence of what could be called an individual's 'culturalization' process that is accomplished through the establishment of social relationships or by learning and currently using a foreign language (Cheng, 2003:2). As a result, the intercultural communication competence is defined by two major dimensions: socialization competences and multi-linguistic competences.

As for the variables characteristic of the two dimensions, they are as follows: socio-cultural and psycho-social competences in the case of the socialization competence dimension; linguistic, sociolinguistic and pragmatic competences (in the CEFR view) underpinning the multi-linguistic dimension (as depicted in Fig.1).

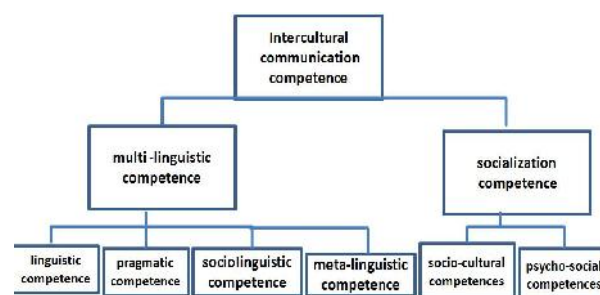


Fig.1. Intercultural communication competence: dimensions and variables

One important skill for intercultural communication to take place consists in “*the negotiation of a common meaning*” (Cheng, 2003:2). For this reason, the competences identified as dimensions and variables of the intercultural communication competence help in assigning meaning to reality through a series of intercultural parameters/criteria that

are used in accordance with the linguistic means chosen for the interaction and with their inherent psycho-social-cultural characteristics.

We will now briefly present the characteristics of the competences defining the overall concept of intercultural communication competence.

2.1 The socialization competence. As already discussed, the dimension known by the name of ‘socialization competence’ is defined by socio-cultural and psycho-social competences.

2.1.1 The socio-cultural competence. This type of competence is defined by knowledge of social norms, rites, taboos, conventions governing a linguistic community, as well as daily routines, the means by which interpersonal relationships can be established and maintained in a target culture compared to someone’s culture of origin. The intercultural characteristic of such a competence comes into play when the interacting actor(s) prove(s) able to ‘negotiate’ in a ‘win-win’ manner the likely conflicts or cultural misunderstandings. Consequently, being aware and acting in full acknowledgment of social, cultural, regional diversity is indicative of whether a person is competent from a socio-cultural point of view.

2.1.2 The psycho-social competence (savoir-etre). One of the main goals of the education and training processes resides in the development of the psycho-social competence. As far as the intercultural field is concerned, this type of competence can be developed by acquiring working knowledge of one or more foreign languages. Thus, its components are an individual’s values, beliefs, cognitions, all of which influence and shape the use or learning of a foreign language. From an intercultural perspective, all of the above represent the basis for the perceptual process and, in the end, for developing or shunning relationships. As a result, alongside with the socio-cultural variables the psycho-social ones may lead to the success or failure of interactions among individuals coming from fundamentally different cultural backgrounds.

2.2 The multi-linguistic competence. Unlike the CEFR that lists among the

communication competences, the linguistic one, I suggest that the ability to speak more than one language may guarantee an increasing capacity to adapt and integrate into varied speech and socio-cultural communities. As a result, the term I coin and propose for further use is the one of ‘multi-linguistic competence’. The latter’s components are not only those mentioned within the CEFR, namely the linguistic, socio-linguistic and pragmatic competences, but also the meta-linguistic competence required by a multi-linguistic approach.

2.2.1 The linguistic competence. The linguistic competence actually designates the basic grammar, semantic, and phonological structures, as well as the writing and spelling rules that more often than not are acquired as de facto elements and, hence, mistakenly viewed as the only valid and defining for the intercultural interactions. As a result, regardless of the important role they play in defining the accuracy of using a specific language, they can make up the linguistic whole only in relationship with the sociolinguistic components that characterize social relationships and conventions, or trace back one’s origin through the dialect, accent, or register employed. Furthermore, for the same linguistic whole to be truly defining for the adequate and efficient (Lesenciuc, Codreanu, 2012) use of language in a given intercultural context, the pragmatic competence should also come into play. The latter is defined by the discursive competence (i.e. the organization and structuring of the written and oral discourse), the functional competence (used for communication purposes), and by the construction competence (defined by the interactionist and transactional schemata characteristic of a given context).

2.2.2 The meta-linguistic competence. The meta-linguistic competence is, in my opinion, a basic requirement for those who, apart from their mother tongue, currently use more than one language. In this respect, I believe that an individual’s ability to ponder over the socio-linguistic, linguistic and pragmatic features of the languages s/he currently speaks, as well as his/her ability to self-monitor the verbal behaviour and correct

it accordingly is defining for multi-lingual people. In addition, developing such a competence contributes to preserving the language(s) as part of the speaker's active memory, an essential prerequisite for anyone who can speak a foreign language.

3. AN ASSESSMENT MODEL FOR THE INTERCULTURAL COMMUNICATION COMPETENCE CONCEPT

The identification and description of the intercultural communication competence do not suffice unless followed by a set of measurement criteria that should underlie a working model to be used in the assessment of the intercultural communication competence and that should describe more than the linguistic aspects already described in a complex and accurate manner in the CEFR. In order to achieve this goal, I will briefly overview some of the instruments already employed in the evaluation of the defining dimensions of the concept under investigation in this paper. Next, I will identify those criteria that are relevant for the operationalization of all the definitions and concepts provided in the previous chapters.

According to specialized literature (Spitzberg, Cupach, 1984), the intercultural communication competence is a speaker's capacity to efficiently use his/her intercultural abilities in establishing relationships by resorting to a verbal and non-verbal behavior aligned to a given communication context. Generally, researchers in the intercultural field (Cui, van den Berg, 1991) agree that any approach to the intercultural communication competence should be a three-fold one: cognitive, emotional and behavioral. All of these are covered, through different terminology, by the models that I am to present next.

One of the first instruments developed to assess the intercultural communication competence (ICC) belongs to Ruben and is known as *Behavioural Assessment*. The latter focuses on seven dimensions of the concept: tolerance to ambiguity; management of interactions; means of showing respect;

knowledge orientation; the management of the roles imposed by interactions; proxemics and empathy.

Another instrument, the *Intercultural Developmental Inventory* (Bennet, Hammer, 1998) is focused on the concept of intercultural sensitivity defined as "the ability to differentiate and experience the significant cultural differences" (Bennet, Hammer, 1998:422). Even though the authors believe that this is a criterion against which ICC can be assessed, I believe that this is the ultimate goal of all endeavors aimed at developing the ICC, and not an intermediary level as suggested by this instrument. However, if applied to the ICC model presented in Figure 1, I believe this could be assimilated to the meta-linguistic competence suggested as a variable of the concept.

The Multicultural Personality Questionnaire (van der Zee, van Oudenhoven, *apud* Ponterotto *et al.*, 2006) was designed as a psychometric instrument focused on multicultural orientation and adaptability, rather than on the ICC. Nonetheless, the five dimensions it uses to assess the multicultural competence can also be employed when approaching the ICC and they are: cultural empathy, emotional stability, openness to the new, flexibility and social initiative.

In addition to all of the above criteria against which the concept can be assessed, I believe that the parameters suggested by Clyne (1996) to identify and explain the cultural differences that can be perceived at the level of the written discourse, but that are also reflected at speech level should also be part of the ICC assessment model. According to the researcher, these are: harmony, uncertainty avoidance, individuality, the content/form speech orientation, and the linear/loose construction of arguments.

Based on the criteria briefly presented above, the dimensions and variables defining the concept of intercultural communication competence can be assessed against the criteria selected and presented in Table no. 1 below. However, these criteria do not represent an exhaustive list. Even though validated by research in the field, they are open for further discussion and investigation. Moreover,

depending on which of the dimensions of the ICC is emphasized within certain curricula/training courses/other types of endeavors in the intercultural field, their ratio/importance/impact is different.

Table no.1. An assessment model for the intercultural communication competence concept

Concept	Dimensions	Variables	Criteria
INTERCULTURAL COMMUNICATION COMPETENCE	socialization competence	socio-cultural competence	<ul style="list-style-type: none"> • management of interactions (individual/collective) • Means of showing respect (power distance) • knowledge orientation • proxemics • empathy
		psycho-social competence	<ul style="list-style-type: none"> • tolerance to ambiguity (culture of shame/culture of guilt) • management of the roles imposed by a given context (types of transactions accepted by the psycho-social-cultural code of an individual and of the community s/he is part of)
	multi-linguistic competence	linguistic competence	In accordance with the Common European Framework of Reference
		pragmatic competence	idem
		socio-linguistic competence	<ul style="list-style-type: none"> • content/form speech orientation • linear/loose construction of arguments
		meta-linguistic competence	intercultural sensitivity

4. CONCLUSIONS

Depending on the goals underlying any theoretical and practical approach to the intercultural field in general, and to the ICC in particular, it is obvious that the model needs to be further expanded. Additionally, for the model to become a comprehensive one it needs the input of sociologists, linguists, anthropologists and not only in order to detail each of the assessment criteria.

For example, if the focus of the model was on a sociolinguistic level, and more specifically on developing/refining the conversational style of those who are to participate in intercultural encounters, then it could be expanded as in Table no.2.

In conclusion, in order to bridge the gap between the existing theoretical frameworks

on the intercultural communication competence concept and the endeavors to transfer these into current practice, a set of clear-cut criteria describing in an in-depth manner the dimensions and variables describing the aforementioned concept is required.

Table no. 2: The intercultural communication competence: dimensions, variables and assessment criteria from a socio-linguistic perspective

Concept	Dimensions	Variables	Criteria	Conversation laws/strategies/Indicators
INTERCULTURAL COMMUNICATION COMPETENCE	Socialization competence	socio-cultural competence	Management of interactions (individual/collective)	Law of involvement
			Means of showing respect (power distance)	Law of involvement Strategy: granting the interlocutor the role of a conversation partner Indicators: granting the interlocutor the role of "Sender" in Chomsky's terms; level of indirectness
			Knowledge orientation	Law of the domino Strategy: continuous questioning Indicator: ability to go beyond the "yes"/"no" answers
		Multi-linguistic competence	empathy	
Intercultural sensitivity	Law of coherence <u>Interactional strategy</u> Indicators: the correlation of one's own story (i.e. narrative, speech, statement) with the interlocutor's story; use of active listening techniques			

Once these established, it is of utmost importance to identify the reasons underlying the need to develop/refine such a competence so that the right instruments (i.e. linguistic, socio-linguistic, anthropological, etc.) are developed and adequately employed.

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MULTIPLE INTELLIGENCES AND LEARNING REGARDING STUDENTS – AN EXPERIMENTAL APPROACH

Anca-Olga ANDRONIC, Răzvan-Lucian ANDRONIC

„Spiru Haret” University, Brasov, Romania

Abstract: *During faculty, students in psychology and pedagogy experience different learning problems. Some of them need rigorous directional elements (what and how much to learn), while others need only to be guided towards the sources of learning. Once at the graduation level, one rarely asks the question: how could I learn more easily, more durable and in a nicer manner. And this happens because, until they reach faculty, each person had already outlined a personal learning style that they consider it to be the best one. Is there a relationship between student learning and multiple intelligences? Could the application of multiple intelligences make teaching / learning more attractive both for teachers and students? Could it increase the motivation for learning following the application of Gardner's theory? Are students' results better after differentiated instruction? The psycho-pedagogical experiment carried out has attempted to answer these questions and it started from the following hypothesis. 1. If the teacher uses in his teaching activity the theory of multiple intelligences then, the students' motivation for learning increases. 2. If the student learns based upon the profile of multiple intelligences, school performance increases. 3. If the teacher uses Gardner's theory, teaching / learning becomes more attractive for both the teacher and the student. The sample included two groups of first year students from the Faculty of Psychology and Pedagogy - 25 students in the experimental group and 25 students in the control group. Methods: psycho-pedagogical experiment conducted during the second semester, school year 2009-2010. The results confirmed the three hypothesis described and showed that there was a significant difference between teaching based on the theory of multiple intelligences and the classic one. Conclusions and recommendations: a classical education addresses rather the mathematical and verbal intelligence, the intrapersonal and interpersonal intelligence – so necessary for the psychologist and the pedagogue - are least developed. Therefore, the introduction of a differentiated teaching/ learning strategy is required in order to develop the bio-psychological potential of each student.*

Keywords: *multiple intelligences; teaching; learning; motivation; performance.*

1. PROBLEM STATEMENT

From year to year the psychology and pedagogy students (and others) seem to have less and less motivation, to learn with more difficulty, considering the whole process almost to be a chore. Seeing this, a question arose in our mind: "How can we help students to learn, how can we motivate them to learn? " A few years ago I heard about the Theory of Multiple Intelligences. It was first published by Howard Gardner in "Frames of Mind: The Theory of Multiple Intelligences" in 1983. Starting from the existence of different and autonomous intelligences, leading to different

ways of knowing, understanding and learning, Howard has achieved the most important discovery in the field of pedagogy, after Jean Piaget. In Gardner's view, an intelligence is "a computational capacity - a capacity to process a certain type of information - which is found in human biology and in human physiology as well [...]. An intelligence entails the ability to solve problems or to create products that are important in a particular cultural context or in a community "(Gardner, 2006, 14). The conclusion reached by Gardner is that intelligence is not an inborn trait which dominates the other skills that people have. He does not question the existence of a general

intelligence, but he supports with evidence the fact that the traditional definition of intelligence does not cover newly discovered cognitive possibilities. The results of his research suggest that intelligence is located on different areas of the brain that are connected to each other, support one another, but can function independently if necessary. They can also develop in optimum environmental conditions.

The eight intelligences found by Gardner are: the verbal/linguistic intelligence or the intelligence of words; the mathematic/logic intelligence or the intelligence of numbers and reason; the visual/spatial intelligence or the intelligence of images, drawing and painting; the musical-rhythmic intelligence or the intelligence of tone, rhythm and timbre; the bodily-kinesthetic intelligence, or the intelligence of the whole body; the interpersonal intelligence or the intelligence of social interaction; the intrapersonal intelligence or the intelligence of self-discovery; the naturalist intelligence or the intelligence of the patterns of regularities and behaviors. The existence of the ninth intelligence, the existential intelligence, which however is still a subject to research is being put into question.

The principles this theory follows are: the application of multiple intelligences can make teaching / learning more attractive for both teachers and students; each student should be encouraged to use the preferred type of intelligence when learning; students remember best the materials if they had learned them in their personal style. Our schools address rather the mathematical and verbal intelligence and the intrapersonal and interpersonal intelligence are least developed in school. Children are often labeled as having learning difficulties or hyperactivity, but in reality they are not involved in learning through a certain task adapted to the type of intelligence. Howard Gardner's findings were followed with great interest by the international educational community which was accustomed to another way to deal with intelligence: unique, measurable, an indicator of academic success.

The training opportunities offered by the theory of multiple intelligences: we can be

identify at least three ways in which this theory can be used by teachers: a. Knowing the student's intelligence profile for the development of bio-psychological potential of each student; b. The examination of own training strategy in terms of human potential differences c. The contribution to differentiated instruction for students in accordance with the intelligence profile (Gardner *apud* Gliga and Spiro, 2001,12).

In short, the theory of multiple intelligences leads to three conclusions: 1. We all benefit from the full range of intelligences; this makes us human beings, cognitively. 2. There are not two individuals – not even twins – that have exactly the same intellectual profile. This is because, even if the material is genetically identical, individuals have different experiences; twins are often highly motivated to distinguish themselves one from another. 3. If one has a strong intelligence, this does not necessarily mean that one acts smart [...]. All these allegations relate to the psychology of human intelligence -where the theory of multiple intelligences seeks to make a contribution. But of course they involve important issues regarding education, politics and culture" (Gardner, 2006, 33).

Regarding motivation, as we know, it refers to those states and emotional and cognitive processes that can trigger, guide and support various behaviors and activities. Motivation determines the initiation of an activity and persistence in achieving a task or its abandon, being one of the main factors influencing performance. In most cases, the motivation to achieve human behaviors results from the interaction of complex sets of reasons: the need to maintain the balance of physical and mental functioning; the need to adapt to the environment and the need for personal development. In what concerns the relationship between motivation - performance, motivation is undoubtedly an important factor of performance in activity. It is seen, both by experienced teachers and the newest in the field, as a prerequisite for effective learning, and the biggest challenge for most teachers is to make students wish to learn. If a student does not wish to study,

learning effectiveness will be so small that he will probably not learn anything.

2. PURPOSE AND METHODS

Is there a relationship between student learning and multiple intelligences? The application of multiple intelligences can make teaching / learning more attractive for both teacher and student? Can motivation for learning increase due to the application of Gardner's theory? Are students' results better after a differentiated instruction? The psycho-pedagogical experiment carried out has tried to answer these questions. The purpose of the experiment was to increase motivation for learning and to develop bio-psychological potential of students.

The main methods used: the psycho-pedagogical experiment, the observation, the questionnaire, the study of digital social documents (catalogs). For more than a century, the application of the experiment in social life has given birth to a dispute between supporters of this method and positivists - a dispute that, in one form or another, is perpetuated today. In terms of the history of the experiment, there is a full conformity among specialists, "it is considered that the studies of Norman Triplett in 1898 represent the first attempts of a rigorous enforcement of the experiment in the field of psycho-sociology" the paradigm introduced by him being not only the oldest of field, but also one of the most fruitful experimental paradigm (Chelcea, 2007, 422).

Regarding the definition of the experiment, Leon Festinger believes that it "is to observe and measure the effects of the manipulation of independent variables on the dependent variables in a situation in which the action of other factors (actually present, but foreign to the study) is minimized" (*apud* Hohn and Vârgă, 2000,13). The psycho-pedagogical experiment is an alternative of the natural experiment.

In the psycho-pedagogical experiment conducted, we have followed several steps: choosing the problem - as Einstein said "the formulation of a problem is often more important than its solution." Identifying the problem started, as most often happens, from

practical intelligence, from daily observations. Observing how children learn, I found that some of them need rigorous directional elements (what, how and for how long to learn), while others needed the indication of more diverse sources of learning. Once at the graduation level, one rarely asks the question: how could I learn more easily, more durable and in a nicer manner. And this happens because, until they reach faculty, each person had already outlined a personal learning style that they consider it to be the best one.

Defining the assumptions. In the present experiment we started from the following assumptions: 1. If the teacher uses in his teaching activity the theory of multiple intelligences then, the students' motivation for learning increases. 2 If the student learns based upon the profile of multiple intelligences, school performance increases. 3. If the teacher uses Gardner's theory, teaching / learning becomes more attractive for both the teacher and the student.

In what concerns the planning of the experimental design, it involved: 1. The election of variables - the dependent variables were: motivation, school performance and attractiveness of course; independent variable - teaching (lecture and seminar) / learning after the theory of multiple intelligences.

The investigated group: 50 students in the first year of the Faculty of Psychology and Pedagogy of Brasov, University "Spiru Haret" - 25 students in the experimental group (G1) and 25 students in the control group (G2). The sample (although not representative for the investigated population) was extracted by simple randomization process (lottery method) from a total of 180 first year students. The average age of the students was 37 years and two months old, including students between 19 and 65 years old. Each group included 21 women and 4 men.

The psycho-pedagogical experiment was conducted during the second semester, school year 2009 - 2010 and involved three stages: 1. the pretest phase: all the participants in the experiment have written their own profile of intelligences by filling up the questionnaire for identification of multiple intelligences; the students have also filled up the motivation

questionnaire, the questionnaire for identifying class attractiveness and also, school performance was noted. 2. the experimental phase, where G1 benefited from teaching / learning by Gardner's theory. 3. the post-test phase in which the participants (both in the control group and the experimental group) were retested (the motivation questionnaire, identifying the intelligence profile and the questionnaire for identifying the attractiveness of the course), noting the school performances.

Regarding the teacher, he was the same for both groups, the differences between the two approaches - the traditional manner in the control group and the manner in the light of Gardner's theory in the experimental group - have been noted on observation forms and in the research journal. The experimental instrumentation included all the technical means of realization of the experiment: sound and audio-visual recording, computers, questionnaires, forms etc.. The application itself: the research was conducted over 14 weeks, four hours per week - two hours of lecture and two seminars. Regarding other methods used, the observation is with no doubt " the first and fundamental method in the knowledge of the surrounding reality and, therefore, the cognitive canvas of our actions" (Iluț, 1997, 76).

The need to understand human behavior, for than to be able to make predictions on their way to act, has always been alive throughout history and speculated in various forms. Physical sciences (called "hard sciences"), started with rigorous observations that led later to experiment along with observation which, however, as a specific method, continues to be a main one (ibid., 76). Regardless of its forms: self-observation, observation (oriented to capture behavioral manifestations of others), passive/external observation; structured/participatory observation quantitative), which involves to follow a list of pre-established categories of behavior etc., the observational act is designed to bring more information to the one using it. I used observation in the following situations: observation of behavior during role-play; observation during problems solving; observing the behavior during communication. The effort of observation

involves three landmarks: noting the attitudes and behavior; acknowledging the context in which the behavior occurs; the availability of an intellectual sympathy of the counselor towards the subject (Dafinoiu, 2002, 87). Among the conditions of a good observation are: the clear and precise establishment of the goal and objectives, selecting the most appropriate forms of observation to be used, the necessary conditions and means for an accurate observation, the immediate record of the observed facts (within an observation protocol) because subsequent noting might be affected by obliteration; making an optimum number of observations; the development of the observation in conditions as varied as possible; compiling a list of units of observation (behavioral sequences, where applicable) (Jigău, 2007, 287)

3. FINDINGS AND RESULTS

The obtained results confirmed the three assumptions described and showed that there was a significant difference between teaching based on the theory of multiple intelligences and the classic one. From the analysis of the responses to the applied surveys in the first stage of the experiment, the following results emerged: regarding the first method used – the questionnaire for identifying multiple intelligences - the majority of students (86%) have outlined a profile where two, maximum three intelligence scored high, the rest being insignificantly pointed. The first identified intelligences (with high scores) were: 1. the naturalist intelligence (58%), the intrapersonal (30%), the interpersonal and the visual intelligence took the third place (24%). In last places: the linguistic and the musical intelligence (12%). There were also students who scored the lowest regarding all 8 types of intelligence.

The second method applied to students – the motivation questionnaire. The results showed a low to medium motivation. In the end of the phase their school performance in the first semester was noted (the study of catalogs).

In the experimental phase where G1 benefited from activities developed after

Gardner's theory. Thus, a part of the workshops were held outdoors (for example for the topic on research methods in education psychology, the observation was made in the park, but also in kindergartens and schools); it was provided a musical background where the theme allowed it, the students were asked to express through sounds the feelings they believed that some of the subjects presented in the case studies were having. Activities aimed at expressing through body (exercise "human statues" for a particular concept for each group) were also used.

The main feature of the faculty is understanding and relationship with man, so there have been presented several problematic situations in which the student had to resort to inter- and intrapersonal intelligence so as to finally be able to find optimal solutions to resolve them.

In posttest phase, the questionnaire for identifying multiple intelligences was applied again: the results of most of the students in the experimental group were surprising: 92% of the respondents attributed high scores to almost all multiple intelligences (some of them have even filled up the applied questionnaire - where there are only eight intelligences - and the existential intelligence). Although the latter does not have specific questions in the questionnaire, some of the students (28%) felt the need to specify that they are aware of it and use it equally.

In the motivation questionnaire, the results showed a significant difference – in the experimental group as opposed to the control group and to the initial results, the motivation for learning increased, being also confirmed by a permanent and constant presence of all students in the activities developed (although it had been explicitly stated that that presence is not mandatory!). The presence of the students in the control group decreased significantly during activities – from 25 students remaining until the end only one group of 12 people.

The questionnaire identifying the attractiveness of the course was applied to both groups only during posttest phase. The significant difference was made by the final item in which the students were being asked to make suggestions on how to conduct future

activities in order to improve the quality of the seminar. In the experimental group all questionnaires show remarks like: " they are to be the same as those carried out", " I don't have any suggestions, everything has been very well and if all classes were as attractive I would come to school more often and learn with more pleasure". In the control group the majority of responses were: " certain group discussions on specific case studies would be more useful", " I would like some activities to take place in nature"; " I think we could use a musical background in some classes " etc.. The attractiveness level of the course was rated as "low".

Regarding the teacher, the differences between the two approaches of the groups were noted on observation forms and in the research journal. There were days in which I find noted in my journal a great enthusiasm after meeting with the experimental group, "students have expected me today with big, playful eyes and inquisitive as children and one of them have even told me: " We're looking forward to seeing what you we have prepared for us today!. " It is certain that working with the control group was very difficult, making it hard to resist the temptation to accelerate the activity through the strategies used in the experimental group. Finally, because I did not want that the 25 students in the control group to be denied of the benefits of Gardner's theory, I held three sessions were I presented in essence the means by which everyone can support and develop one or other of the intelligences. Knowing that the selection was made by the lottery method at the end, their reaction, was: " what a pity we didn't have the good fortune to be elected in the experimental group!"

4. CONCLUSIONS

The Even though, unlike children, adults are predominantly intrinsically motivated to learn, it does not mean that in their case we should not use motivational strategies. Learning to teach from the perspective of multiple intelligences or how to improve your teaching can be a great challenge. Sometimes, at first, students "fight" these methods because they

are not used with them and one can spend a long time teaching both partners in education to use them in their favor.

Sometimes one makes many mistakes until finding the most appropriate way for each of those with whom one works. The experiment undertaken, but especially the daily reality shows us that the traditional education addresses the mathematical and the verbal intelligence, and the intrapersonal and interpersonal intelligence – so necessary to the psychologist and the pedagogue - are the least requested. Therefore, the introduction of a differentiated teaching and learning strategy in order to develop the bio-psychological potential of each student is mandatory.

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DEFINING THE LIBERAL CONCEPT OF SECURITY: LIBERALISM AND ITS IMPACT ON SECURITY SYSTEMS

Oana-Andreea PIRNUTA *, Dragos Nicolae SECAREA **

*„Transilvania” University, Brasov, Romania, **”Lucian Blaga” University, Sibiu, Romania

Abstract: *Free The present paper deals with the liberal concept of security. This concept plays a very important role in rendering the manner in which modern societies act in the present-day economic, social or political environment due to the fact that many of the states, which are considered to be superpowers, and many international communities have enacted laws or have initiated interventions, either military or humanitarian ones, under the concepts highlighted by the philosophy of liberalism. This paper lays emphasis upon the theoretical aspects of liberalism as well as its influence on the security systems.*

Keywords: *liberalism, global security, international organizations, NATO, UN, OSCE, IMF.*

1. INTRODUCTION

First of all, it is important to define *liberalism*. This field appeared in Europe in the 18th century and it was developed around the ideas initiated by the German philosopher Immanuel Kant (1724-1804). He is also considered the founder of the current named *idealist criticism*, presented in the philosopher's book, *Zum ewigen Frieden*. In this book, he praised the idea of Europe becoming a federal state, a very good example being the present-day *European Union*.

Kant thought that this Union had to go through a few processes, such as: creating a *republican constitution*, which would be adopted later by all the states from the coalition, creating a pacifist union of the states from the Union and allowing its citizens to walk freely, without being stopped at borders, within the framework of the Union, which can be illustrated by today's example of *Schengen*.

This society would have its foundation on the fundamental rights of men, received at birth and standing for the right to live, freedom and property. No power has the right to remove these rights.

Thus, it could be said that liberalism is an ideological current, socially as well as politically based on promoting ideas like

liberty and equality. Its main components are: constitutionalism, democracy, elections, human rights, free commerce, religious liberty or moral values.

2. LIBERALISM IN POLITICS AND ECONOMY

Liberalism, as a political doctrine, tries to diminish the power that the state could impose on its citizens. In other words, people have the right to practice their own interests and ideas, as long as these features do not endanger the rights and liberties of the other members of society.

Liberalists say that democratic states have more power than the totalitarian ones. The democratic state can be involved in several conflicts, but a democratic country will never attack another state, which has the same ideology. This idea was again based on Kant's concepts. The critics consider that this concept could be used as a pretext by the democratic countries, which want to attack totalitarian states (Chan, 1997:59). For instance, experts say that this pretext was used by the USA to attack Iraq.

This idea is represented in John Herz's concept, the *Security Dilemma Theory*, which is highlighted in the *Concept of Security* by

Radu Sebastian Ungureanu (2006:183). If a state tries to consolidate its security, it will automatically create a state of insecurity for another state, which tries to obtain the same thing. This will lead to a weakening of the international security system.

From an economic perspective, liberalism tries to diminish the intervention of the state and promote the idea of free market. Liberalists consider that states have to cooperate, a good example in this sense being *Schengen*. This interdependence will prevent states from attacking each other in order not to obliterate this economic prosperity. Also, an important role is held by organizations like the *International Monetary Fund*, which is perceived as an entity, which consolidates the relationship between states.

Liberalism is opposed to *realism*, which saw the international community as a jungle. The liberalists perceived this community as a garden, which could be taken care of in order to consolidate the global security (Doyle, 1997:19). Experts say that liberalism promotes four major ideas: *individual freedom* (people have the right to apply the rights they received at birth as long as they do not threaten the rights of the others), *property* (including the right to security and life), *individual responsibility* (each person is responsible for his/her actions), *equality in front of the law* (the actions are judged in the same way, for everyone, irrespective of wealth, sex, nationality). When it comes to international relations, it is important to mention three distinct branches: *international liberalism*, *neoliberalism* and *regime theory*.

The first case was influenced directly by the American president *Woodrow Wilson*, who suggested that the states should transfer their internal philosophy to the foreign policy. It refers to the intervention of some states in order to consolidate the global security. This was noticed in *World War I*, when Wilson convinced the Congress and the population to quit the old *Monroe Doctrine*. This doctrine was initiated by the former president, *James Monroe* (1817-1825) who adopted in the USA an isolationist ideology, especially because of the tensions with Spain. Thus, Wilson convinced the legislative branch that it is vital

to intervene in the war against the *Central Powers*.

Then the ideas of international liberalism were used in the *14 Points Act*, which stipulated, among others, the creation of the *Society of Nations* (or the *League of Nations*), the UN's ancestor, that is, one of the main elements of the present-day liberalism: state alliances aim at creating and consolidating the global security. But, it has to be mentioned that the document was an important failure for Wilson just like the *Versailles Treaty*, which tried to reconstruct the post-war Europe on an American foundation. The Congress refused to ratify the document and the USA did not enter the League of Nations. Also, it is worth to mention that international liberalism lost its power towards the end of the 20th century.

Specialists divided the historical development of liberalism into four distinct phases:

- 1) defining the concept through features like idealism and international liberalism;
- 2) integrating liberalism (because of the connections between liberalism and international as well as regional integration);
- 3) interdependent liberalism (developing economic and social factors in the context of the relations and international organizations);
- 4) institutional liberalism.

3. COLLECTIVE SECURITY AND WEAPONS CONTROL

Liberalists say that the world peace and security could be maintained and developed only through the cooperation of the states. Also, the world peace should be maintained not only by military interventions, but also by implementing measures like protecting and promoting the individual rights. For example, liberalists think that the fight against terrorism could also be done with legislative measures, not only through military activities. It is important to mention two concepts which form the trend of liberalism in security: *collective security* and *weapons control*.

Collective security is basically the concept which was used when *NATO* was created. Thus, it is a protection measure adopted by several allied states. When one of these states

is threatened, then its allies intervene and annihilate the aggressor. This concept is based on participation and obligation, which means that all the states which form a community have to intervene in order to annihilate any threat to the alliance. Obviously, this is not the case of NATO, because some countries refused to participate in the Iraq or Afghanistan military intervention or Iceland, which is incapable of participating in such an intervention. It could be said that the objective of these countries is to annihilate all risks and to consolidate the global security or neutralize an enemy before he could make his move.

It could be said that the concept has the following features:

- *to prevent* (wars cannot be stopped, but the international organizations can prevent an aggressor to initiate operations),

- *to block* (the international organizations have to recognize the aggressors and stop them),

- *to annihilate* (the allies have the rational power and the aggressors are a threat to the international security and therefore they must be annihilated),

- *to discourage* (the international community has to inform the aggressor that they are against their actions and give them final warning to stop their actions).

At the level of global security, the *weapons control* is translated as having less weapons, which means having less insecurity elements for the states. Therefore, the officials try to reduce the number of weapons or remove weapons, but also try to intensify the disarming processes and annihilate the illegal weapon traffic. It is worth to mention that applying liberalism does not mean that wars do not exist, but it means that liberal states will intervene only to protect and consolidate their status or to defend their allies. For this reason, many specialists say that liberal states try just to protect their interests and not the international justice (Owen, 2004:95-96).

4. THE LIBERAL CONCEPT OF SECURITY

The liberal concept can be applied in the liberal pattern of security which is also an

optimistic pattern, which relies on political solutions, with the purpose of gaining and preserving peace. The liberal solution is based on the use of four instruments: *the international law, the international organizations, the political integration and democratization* (Badalan, 2009:73).

The *international law* is a judicial mechanism which communicates to several states a single perception regarding the international system. In fact, it offers the possibility of applying a series of rules that have the purpose of minimizing the tension and incertitude between states. This is why states promote the appliance of standards belonging to the international law.

Obviously, the international right is important when dealing with economic relations (concerning foreign trade, foreign currency transactions, etc.). But the main purpose of this instrument is to provide the possibility of solving some conflicts through judicial means and not through military interventions. A significant negative aspect of the international law represents the lack of a legislative body at a global level designated to adopt and implement the stipulations. This system is used by the European Union; its legislative body (consisting of representatives of all the states that are EU members) decides the norms, the rules that should be approved by all the countries of the Union.

Another negative aspect of this concept is the lack of an institution delegated to supervise and punish the violation of rules. For example, the *International Court of Justice* cannot intervene without the permission of the states. Therefore, the countries decide whether they implement or not the decisions which were taken at the international level and the manner in which they will supervise the fulfillment of these norms. It can be implied that the efficiency of these decisions taken through this instrument depend entirely on the interest of each state to make it happen. States will also decide if and how restrictions will be applied to states that do not fulfill the international rules. If states/an alliance of states decide/s to adopt the resolutions through this instrument, then the norms of the international right can be divided into judicial norms *with a general*

perspective, meaning that they are valid for all the states, and norms with *particular perspective*, which can be applied only for two or three states.

Analysts consider that a greater role in solving the global security issues (which seems head towards a war between the Occident and Iran) will be held by the *international organizations*. The existence and functionality of these organizations is based on the following issues: the participation of states as contracting parts, the existence of the multilateral treaties as constitutive parts, the existence of some common objectives or means, the making of an own constitutional structure. There are two large organizational categories: *intergovernmental and nongovernmental*. The intergovernmental organizations consist of states, they have specific procedures concerning the decisional process as well as headquarters. It deals with solving some global issues which concern different fields, such as: economic exchange, education, criminality, humanitarian assistance etc.

The international organizations can be classified as follows: 1. global organizations, such as: ONU, the World-Wide Organization of Commerce, UNESCO, the Organization of the Islamic Conference, the World-Wide Organization of Health, the World-Wide Organization of Labor, IMF etc. 2. Intercontinental, regional, and sub-regional organizations, such as: UE, OSCE, the Organization of American States, the Arab League, etc.

When talking about nongovernmental organizations, it must be underlined the fact that only 10% of them have a global character, the rest being regional or intercontinental. The majority of these organizations are found in North America and aims at solving problems belonging to different fields, such as: economy, environment, health, culture, law, ethics, theology or security. They represent social groups that can mediate the signing of some treaties (generally between the states) concerning nongovernmental aspects (for example, the integration in society of persons who have AIDS or the pollution issue).

5. THE UN, NATO, EU, OSCIE, IFM

Some of the most important institutions of the world which must be mentioned are the *UN, NATO, EU, OSCIE* and *IFM*. The UN is the only organization in the world which has a global character. Nowadays, it consists of 190 members and the main purpose of the organization is to maintain peace and world security, to create and improve the economic and social cooperation, to assure the international cooperation which aims at the spread of respecting the human rights and fundamental freedom, without discrimination irrespective of race, sex, language or religion as well as developing friendly relations between the states (Miga-Besteliu, 2006:10-11). The ONU has been dealing with a lot of issues, such as: the *Korean War*, the *Kuwait War*, the *Suez Chanel*, *Afghanistan*, the *Iran-Iraq War* etc.

NATO represents an institution with regional character, but in the last few years it became extremely important due to the involvement of the Alliance in conflicts that do not aim directly at the NATO territory, or in other words, intervenes with the purpose of annihilating aggressors that do not represent a direct threat to the states of the Alliance. This fact is also due, to a certain extent, to NATO's capabilities of involvement all over the globe (based on an international warrant). The *EU* is very important nowadays because its leaders started to get involved in areas and states located near the European community (a recent example is Iran as a result of the nuclear program).

Also, when talking about *the International Monetary Fund*, it must be underlined the fact that this organization became very important due to the economic crises, which started in 2007. It could be said that the Fund has an important role in the legislative branch of the states which require financial support (like Romania nowadays). This has led to the populations' protests, which in turn led in many cases to the changing of the governments (Spain, Italy, Greece or Romania being some recent examples). It is important to mention that more and more organizations will have an important role in the global security

environment, organizations, such as: the Arab League or the Shanghai Organization.

The third instrument in the liberal security model is *political integration*, which is a process of creating new political communities and international institutions. Again, experts consider that this instrument is a way of forcing states to solve their problems through wars. Basically, its aim is to create and consolidate institutions which will have more power than the states which act on their own. A good example in this sense is the European Union, through different acts like the *Maastricht Act*. The states belonging to these institutions will never attack each other. Still, one of the weak points of the institutions is the contrast between the two sides which usually form such alliances, meaning the rich and the poor (a good example is again the European Union).

The last component of the liberal model is *democratization*. Experts consider that conflicts can be initiated by the political systems adopted states. According to the liberalists, wars cannot start between democratic states.

On the contrary, realists consider that wars will start irrespective of the regime, be it totalitarian or democratic. According to the liberalists, wars are determined among others by the inefficiency of the governments. A good example is that according to the UN documents, most states invest less than two dollars/person on education, but invest approximately 160 dollars/person on military equipment.

The liberal paradigm says that peace represents a major objective for maintaining economic prosperity and therefore, the increasing role of the democratic institutions is more and more important. Spreading democracy in the world will maintain peace (Moise, 2008:171).

6. CONCLUSIONS

Liberalists used the ideological concepts in order to directly influence the current foreign environment. The concepts of liberalism have their origin in the 19th century ideas enacted by philosophers. In the 20th century, there were

some branches which developed from liberalism, like the international liberalism created by the American president Woodrow Wilson.

Nowadays, the liberal model of security in the 21st century world has four big instruments: the international law, the international organizations, the political integrations and democratization. The international organizations will have a more and more vital role at the level of global security especially because of the tensions between Iran and the Occident.

Nobody knows clearly what are the advantages and disadvantages of these actions enacted by these organizations or of the leaders who use the liberal concepts. Though, it is clear that they have the power to decide the course of some state (for example, the recent NATO intervention in Libya) and we can say that nowadays the Occident depends on these concepts.

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ENERGY AND SECURITY IN THE BLACK SEA REGION

Iulian LĂZĂRESCU

National Academy of Intelligence, Bucharest, Romania

***Abstract:** The Black Sea is a region where the interests and positions of major international actors converge and therefore smaller actors must adapt their strategies to those of major players. The fact that Romania and Bulgaria are today NATO outposts in the vicinity of the Black Sea and the US has placed military bases in those countries proves that there is an ongoing game of chess for mastering Rimland and Romania plays an important part in it. The problem of energy resources will become a major Romanian national security issue. Its long-term solution should be a less politically-conditioned subject and economic projects should be fundamented and managed on the principle of reciprocity between prospective partners. EU proposes a common approach for all participants, and the adoption of common options, but the energetic sector is by its very nature not without controversy, as its members are highly dependent on imported oil. Therefore, Member States are forced to address the problem of these resources independently. We have not yet overcome the geopolitics of oil and the Romanian state should engage in pragmatic projects generating long-term positive effects, which are also supported by geopolitics.*

***Keywords:** energy, security, Black Sea region.*

1. INTRODUCTION

The concept „energy security” is frequently used lately, as this issue has come to be considered the key to regional security, for any dysfunction or damage in the sector of critical energy infrastructure has the potential to generate political, military and social effects. Greater energy security means in the first place, a greater diversity of suppliers. This explains the great importance attributed to projects regarding energy resources, especially oil and natural gas.

Energy has become a strategic element of global politics, an essential component for economic development and the progress of society as a whole, stirring interest from the period following the First World War. Presently, the oil and gas component of energy constitutes simultaneously the greatest challenge and concern not only at European level but also at global level. This is dependent on several factors such as: available reserves, transit routes, geopolitical context, economic

power and diplomacy. Europe is increasingly dependent on energy resources and consequently is searching for new suppliers in order to satisfy demand in this field and insure its security. Current projects are a reflection of the European interest in the Caspian Sea region and North Africa as well as of the European intention to limit its dependency on Russia. In its turn, Russia as a supplier, wants to limit its dependency from transiting Ukrainian territory, shifting its attention to Turkey while at the same time launching alternative projects to those supported by the European Union.

Europe holds the seventh part of the world energy consumption and must rely on imports for more than half of the resources necessary to satisfy its energy demand. In order to deal with the explosive demand of hydrocarbons, the European Commission has assumed the role of leader in the developing strategic energy partnership with traditional suppliers of the EU – Russia, OPEC, Norway and Algeria, as well as with alternative suppliers from the Caspian Region, Central Asia, North Africa and

South America. Moreover, it's not only the European Union who is doing this, but also NATO, the most important military organization from the international arena, is interested in energy security, as some of the NATO member countries will become more and more dependent on external energy suppliers and in some cases on external supply and distribution networks to satisfy their energy demand. Taking into consideration the fact that a large part of the global energy consumption is transported worldwide, energy suppliers are increasingly more exposed to attacks, which could have a negative impact on these transports. All these concerns are mentioned in the new NATO strategic concept launched in Lisbon in 2010.

Romania finds itself for the first time in a situation where its geographical and geopolitical position offers several opportunities of which Romania should fully take advantage. The geopolitical and geo-economic context in the Black Sea region has transformed greatly in the last years, as the center of gravity of the interests of all major international actors has moved towards the Black Sea-Caspian regions, in the vicinity of Romania, which has the potential of becoming a "gateway" to the regional economic-political block of the European Union and a transit space between the Central Asian suppliers and the major European energy consumers (taking into consideration its proximity to the energy resources and its oversized infrastructure – the oil pipelines network, the greatest refinery in the Black Sea Region – Midia Năvodari, the size of its petrochemical industry etc, the permissive terrain which does not pose any special technical or economic difficulties – such as pumping stations which generate additional costs, the largest port in the Black Sea basin - Constanța).

2. THE BLACK SEA

It's a sea from the Atlantic basin, situated between Europe and Asia, neighboring Russia, Ukraine, Romania, Bulgaria, Turkey and Georgia. Through the Cherci Straits you reach the Azov Sea, through the Bosphorus, the Marmara Sea and through the Dardanelles the

Egean Sea and implicitly the Mediterranean. The Black Sea was formerly part of the Sarmatic Sea and has several unique characteristics. It has an area of 413.000 km².

From a strategic point of view, the Black Sea region is of fundamental importance for the energy corridor between Europe and the Caspian Sea, representing also a potential risk related to the traffic of human beings, drugs and weapons or as an access point for military ships.

From a military point of view, The Black Sea was never an invasion route and was generally used as a defense line. In what concern energy the role of the Black Sea is becoming increasingly important as it offers transportation routes to Europe for oil and natural gas, providing an alternative to the EU's energy dependence on Russia. In addition, the rising oil consumption has become a problem for transit in the Bosphorus, because of the large number of ships forced to pass through a limited space.

From an economic point of view the Black Sea basin is the secret weapon of regional economy. Amidst the full blown crisis of primary energy resources, the eyes of all investors in this field look to this region. There are not many alternatives: The North Sea is heavily exploited for decades by neighboring countries. The Caspic Sea is already part of regional economic calculi, being up until now the main transport way for oil products destined for Europe. Russia, with its important oil and gas reserves is a traditional player, respected on the international market but at the same time feared as it has used the energy „weapon” in many occasions in its disputes with various states. The dependency on its resources is a cause for concern for many strong economies, such as Germany, for which a cease in supply would be a disaster.

The Black Sea's energy resources are even more important as neighboring countries search for new resources for economic development. The East European countries need oil and gas to support the rise in their GDP and exit the crisis and one of the most handy solutions is the subsurface of the Black Sea. The country which plucked its courage and decided to massively invest in this field is

Turkey. The exploitation director of the Türkiye Petrolleri AO national company, announced that the company will invest \$ 500 million for three years in prospect drilling. In case they find important deposits, the Turkish company will allocate an additional \$ 8 billion in prospect operations. In turn the American company Vanco Energy Co, which won the auction to develop the Prykerchensky block situated in Ukrainian territorial waters, declared that „the Black Sea is the sole virgin basin in the world and has a phenomenal potential”. The BP director made some encouraging statements, by expressing his belief that oil and gas will be discovered in the Black Sea. The only unknown variable is whether the quantities will be sufficient to compensate for the costs.

The exploitation of oil and natural gas from the Black Sea is a profitable business, proven by that fact that Petrom is exploiting these resources starting with 1986. The Black Sea occupies a privileged position also for the fact that it is situated in a relatively peaceful region from a political point of view, in comparison to many other places in the world, such as the Persian Gulf. In addition, the Black Sea benefits from depths favorable to exploitation, the oil being extracted from approximately 80 meters with *jack-up* installations. Furthermore, the discovery of important natural gas deposits in the region of the Isle of Snakes makes the Black Sea region attractive for investors and places it amidst the regions of importance on the world energy map. The oil and gas exploitation and extraction rights from the two sectors of the Black Sea situated in the proximity of the Isle of Snakes have been leased for a period of 30 years even from 1992 to two companies, one from Canada and the other from Great Britain, Sterling and Melrose. The gas found – 2 billions of square meters in the Doina structure - have not yet been exploited. Sterling Resources will invest \$ 5 million in the Doina and Ana sectors from the Black Sea, and the first natural gas will be extracted starting with the last trimester of 2013. Russia is also interested in gas extraction from the Black Sea. That is why the Russian and American energy giants, Rosneft and ExxonMobil have signed an agreement for

the common exploration and exploitation of natural gas resources from the Black Sea. Initially, this activity will focus on the Tuapse basin, in the Russian platform of the Black Sea. As it is neighboring Central Asia (Turkmenistan, Kazakhstan or Iran), an area rich in hydrocarbons, the Black Sea is essential for the European Union in its linking role in the transportation of Euro-Asian resources to European consumers on the geopolitical axis. Riparian states form the most important corridor for the transportation of fossil fuels from Russia and the Caucasus to the European Community, representing a possibility of varying energy resources. The transportation for the energy mix and the „pipeline game” are issues constantly analyzed in the relations of this region with adjacent areas, as beside the production monopoly exercised over the energy mix by the Russian Federation there is also Ukraine’s transit monopoly. Moreover, the Russian-Georgian conflict (august 2008) illustrated certain vulnerabilities of the Caucasus region, previously considered sure resistance alternatives to Russian’s energy blackmail for Caspian oil. All these determined the EU to consolidate its energy diplomacy, so that in search of new solutions to consider alternatives to previous solutions. In its turn, Turkey controls the transit to the Black Sea through two straits – the Bosphorus and the Dardanelle.

3. THE PLACE AND GEOPOLITICAL ROLE OF THE BLACK SEA

Black Sea geopolitics is dominated by resource strategies, especially energy resources and has profoundly changed after the fall of the Soviet Union. Russia suffered as a result of various counterstrikes starting with 1991, and its influence on the former countries of the Warsaw Treaty – including Romania and Bulgaria – diminished considerably. Although Russia has preserved important – and often underestimated – economic ties with most of the former satellite countries, the American and European geo-strategic penetration in the last 15 years in what is traditionally considered Russia’s sphere of influence has been considerable.

The 9/11 terrorist attacks have had seismic effects on energy geopolitics, especially on oil strategies. The Middle East has suddenly become a less secure area and the most developed economies of the world realized they are too dependant on it. Therefore they resorted to actions aimed at dissipating this dependency all over the globe. As a result, other regions rapidly gained strategic importance and other competitions emerged, while national interests begin to weigh heavier than those of alliances. This only bears out once again that in the great strategies nothing can be ignored, especially as on the long run other resources could become cause for strategic competitions: water, food etc. Even a brief analysis on the states from the Black Sea region leads to the conclusion that there are significant differences among them in terms of size, level of development, organization, leadership, democratic behavior, and the list can go on.

The last decade and a half brought numerous transformations in the Black Sea region. States, in their fight for assertion, engaged in an unceasing competition for promoting their national interests. Within this competition, economic interests have been promoted and defended with great care. After a long period of having a planned economy in almost all states from the region (with the notable exception of Turkey), now the economic systems of each of the 9 states subject to analysis represent not only unique cases, but these entities tend to become, despite the economic crisis which affects all economies at world level, stronger, more stable, more developed and competitive. And even if these are still only tendencies and not large scale achievements, there is no doubt that the economies of countries from the Black Sea region will soon play a major role within the European economy and even global economy, because they possess resources, incredibly creative human potential and the capacity to surpass the negative impact of centuries of conflicts or tensions between various empires.

From this perspective we are witnessing today a fierce battle for access to the resources of the Black Sea region, a battle which dominates the geopolitics of the checkerboard.

This is characterized by at least two important features: the monopoly of production of the energy mix practiced by Russia and the monopoly of transit used by Ukraine, which leads, as it has become clear in the last years to direct threats to Europe's energy security. Not all states in the vicinity of the Black Sea have energy resources. Armenia and Moldavia lack oil and natural gas. On the other hand, the Russian Federation occupies first place in the world when it comes to natural gas deposits and second place in oil production and exportation. There are also differences in the way in which prime ministers are processed. Although Azerbaijan occupies second place in production in the region, it does not possess sufficient process capabilities, which is why it is forced to export unprocessed oil and gas. Romania possesses refining capabilities much larger than its extraction capabilities, which it supplements through imports. The transport of the energy mix and the „pipelines game” are problems analyzed in relation to the region and adjacent spaces. Consumers want the energy prime materials to arrive on time, in the desired quantity and with the lowest costs possible. Even if suppliers can insure these demands, in the end consumers are dependent on transporters.

An important event in the geopolitical evolution of the region was the „Black Sea Synergy” launched in 2008, as a part of the European Neighbourhood Policy (ENP), which aims to develop cooperation in the region as well as between this region and the European Union, putting into practice the Commission's recommendation on the creation of a regional dimension to the ENP. Together with EU's bilateral policies towards the states in this region as established through the ENP, Turkey's pre-aderation process as well as the strategic partnership with Russia, the „Black Sea Synergy” will charge the already substantial efforts conducted by the EU to promote stability and reform in the countries situated in the vicinity of the Black Sea. This initiative compels the „chain” of regional cooperation agreements at the borders of the EU, together with the Euro-Mediterranean Partnership and the Nordic Dimension.

4. ROMANIA'S MEMBERSHIP TO THE BLACK SEA REGION

Romania has multiple interests in the region and the advantages derived from its proximity to the Black Sea are great and go beyond our national borders. Hence, there are:

- *political interests* – the Black Sea insures Romania an access point to the world ocean (a source of political and economic power), offering it the possibility of reaching a naval middle power status as a result of the geo-strategic advantages provided by its sea-access and the fact it possesses an important segment of the fluvial-maritime channel of communication represented by the Danube, as well as by its participation in the political agreements signed by the states from the Black Sea region. In what concerns its international importance, this is a region where both for Europe and the US have major strategic interest which is why they have elaborated all-encompassing strategies aimed to spread prosperity and democracy in the region;

- *economic interests* – insuring Romania's participation in regional projects of economic development, socio-economic development of the coast and fluvial area;

- *security interests* – we cannot ignore the evolutions in the field of security which evident around national borders; the assurance of security and the promotion of peace and stability directly contribute to the diminishment of a wide specter of conventional and nonconventional risks to European security, such as military threats regarding air space sovereignty, organized crime, terrorist networks, traffic of illegal weapons and radioactive materials;

- *military interests* – today military cooperation in the regions takes the shape of efforts directed at achieving a „co-operant security”, materialized through economic, cultural, ecologic and military programs which can be corroborated among themselves; through its adherence to NATO, Romania contributes to the expansion of the ally controlled air space, being interested in managing the problems from the Black Sea region characterized by a high instability potential.

Romania continues to resent one of the key factors for the future of European electricity procurement, as have proven the previously signed agreements between France and Greece. In order to insure an adequate preservation of its infrastructure, Romania becomes an important partner within NATO for security in the Black Sea basin, which holds a jay position for the entire European security system. This country can become an important transit point for the oil coming from the Caspian Sea through the Black Sea into Europe, as well as for the natural gas which arrive on the European continent from the Caucasus and Middle East, through Turkey, despite the fact that as a result of the agreement signed between Russia and Bulgarian on the South Stream project, Romania has been practically removed from the circuit as a transit country for Russian gas, remaining only a consumer, with all consequences deriving from this status.

5. CONCLUSIONS

In the following 45 years, world population will rise with 40% from 7 to 10 billion and although the world economy is passing through a severe crisis, the process of industrialization will continue to expand and accelerate. Consequently, because natural resources are limited, world competition for them, especially for oil and gas deposits will gradually become acerbic and will have an increasingly greater impact on the foreign policy of states. The exacerbation of the competition for the control of territories possessing raw metals and the advance territories necessary for transport will generate major tensions and conflicts between different actors, which will lead to surprising realignments of exporting and consumer countries, directly engaging the world economic and military power centers.

The placement of pipelines for the transport of oil and gas from Siberia and the Caspian basin to the consumers has become a main topic for geopolitical rivalries between the great powers. This rivalry will have a profound impact on inter-states relations as well as on the political evolution of the region

in question. Moscow has expanded its influence on the export of oil and gas from the Caspian Sea basin through special arrangements with its neighbors from the region. Kazakhstan, having considerable natural resources was forced to accept Moscow's control over the export of hydrocarbons for the next 15 years. Under the patronage of a multinational association, the oil producing fields from Tengiz in Kazakhstan were connected through a pipeline with the Russian port Novorossiysk, on the East coast of the Black Sea. The pipelines through which Russia exports hydrocarbons to Europe pass through Ukraine which leads Moscow to transform the recovering of Ukraine into a continuous obsession. Pro-Russian Victor Yanukovich's electoral victory and NATO's stance toward this country have created new perspectives for Russian objectives of regaining control over the Ukrainian transit territory. Because of geopolitical causes, Western oil companies, supported by their respective governments prefer and try hard to place oil pipelines coming from the Caspian basin in regions which are not controlled by Moscow (as a result of the personal intervention of American presidents Bill Clinton and George Bush, a pipeline was constructed from Baku, Azerbaijan through Georgia and Turkey to the Ceyhan port at the Mediterranean), because in various occasions Kremlin has threatened to cease the supply of hydrocarbons to neighboring countries which didn't appear to accept certain political „requirements”.

Nevertheless, in spite of certain clear advantages, Romania does not yet possess the means which would allow it to adopt an independent position. The entire political rhetoric focuses on topics which have already been exhaustively analyzed starting with the 1990s. Any attempt from Romania's part to overcome, at the level of statements, its real status and capabilities will have as a direct result a loss of credibility and the failure from the beginning of any initiative. Romania's experience with the participation in regional cooperation systems, trilateral or quadrilateral (in the 1990s there has been an inflation of such initiatives) has shown that the economic and influence gains resulted from these

projects did not match the intentions expressed.

From a geopolitical perspective Romania cannot adopt a clear stance as its economic and military potential does not allow it to do so. To this we must add the differences in the interests of some of the neighboring allies from NATO, and most importantly we must consider the fact that all strategies aimed at creating a normal relationship with Ukraine have been a fiasco. It can be said that the Black Sea is a region where the interests of important international actors converge and the positions of minor players must be reconfigured in relations to those of major actors. The fact that Romania and Bulgaria are today NATO outposts at the Black Sea and the US has placed military bases in these country clear shows that there is an ongoing game of chess for controlling this region and Romania plays an important part in it.

The problem of energy resources will become a major Romanian national security issue. Its long-term solution should be a less politically-conditioned subject and economic projects should be fundamented and managed on the principle of reciprocity between prospective partners. EU proposes a common approach for all participants, and the adoption of common options, but the energetic sector is by its very nature not without controversy as its members are highly dependent on imported oil.

Therefore, Member States are forced to address the problem of these resources independently. We have not yet overcome the geopolitics of oil and the Romanian state should engage in pragmatic projects generating long-term positive effects ,which are also supported by geopolitics.

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EUROPEAN IDENTITY, MEDIA AND OTHERNESS: EMPIRICAL FINDINGS FROM A FRAMING PERSPECTIVE

Florina CREȚU*, Georgiana UDREA**

*National School of Political and Administration, Bucharest, Romania, ** University of Amsterdam, Amsterdam, The Netherlands/National School of Political and Administration, Bucharest, Romania

Abstract: *After more than 50 years since the beginning of the European unification project, the development of a genuine European identity is still questionable. Due to the difficulties in defining and sharing a common European identity, some views claim that this concept is strictly utopian, as it cannot be operationalized, while others sustain the idea that an increasing number of citizens identify with Europe under specific circumstances. Given the literature dedicated to European identity as a product of people's frames regarding Europe, the paper aims at analyzing how this identity is framed today by the citizens of the EU. Secondly, it aims at exploring how certain media frame European issues and how these frames can influence the construction of a European sense of belonging. In order to meet these objectives, the present study uses qualitative analysis and is based on the fact that although the media's power in reshaping certain identities is highly debated, it is rarely demonstrated empirically.*

Keywords: *European identity, citizens' identity frames, news frames, otherness.*

1. FRAMES OF A EUROPEAN IDENTITY

The issue of "European identity" has become, in the recent years, a constant source of inquiry and research for different academic disciplines. Despite the growing interest manifested by scholars in this field, the identity of Europe remains uncertain and imprecise. Today, the literature reveals various trends regarding the existence of the European identity: some scholars argue that the concept denominates a well established presence, a continuous process, its existence being proven and supported by different phenomena such as migration or media coverage of the European issues (Trandafoiu, 2006: 91); others remain more reserved and say that a sense of European identity had begun to develop and increasing numbers of Europeans identify in one way or another with Europe (Baycroft, 2004; Brutter, 2005: 150-165; Risse, 2010). However, some academics agree that European identity is just a theoretical concept, a form lacking content, "an illusion, at best" (Ferencová, 2006).

At the same time, the latest writings discuss European identities in the plural (Checkel & Katzenstein, 2009). Without being rivals, as usually thought, they complement each other successfully. Moreover, as studies have often revealed, people display "multiple identities" (Smith, 1992; 1993; Arts & Halman, 2006; Dufek, 2009; Fligstein, Polyakova, & Sandholtz, 2012). That means Europeans can be members of both, their nation, and the wider EU. Put differently, "identities do not wax or wane at each other's expense" (Checkel & Katzenstein, 2009: 9-10); they are "fluid" and "flexible" (Smith, 1993), "contextual" and "situational" (Brubaker & Cooper, 2000; Brutter, 2004), and dependent on the roles that individuals play. Identity, thus, cannot be seen as a static entity, but as a process of constant change and negotiation with the people around us (Jenkins, 2000: 12). And European identity, one of the many layers of one's social identity could be approached in the same terms.

European identity is, doubtless, a multidimensional concept, covering very

different aspects. However, for the purpose of this paper, it will be understood as a perception of *self* in relation to the *others*. The literature dedicated to exploring the construction of identity by defining alterity underlies the fact that identity can be viewed as a process of classification and self-categorization, involving boundaries of inclusion and exclusion (Turner et al., 1987; Bruter, 2005: 8). Put differently, *we* know who we are because *others* show us what we are not; comparing *us* to *them* gives us the possibility to “recognize ourselves as different” (Shore, 1993: 782).

From this particular point of view, European identity is defined by some scholars as a relational process, shaped both by the interaction with national identity and with significant *others* (Triandaffiyidou, 2008: 280). The debates on who Europe’s others were have a long history in the literature and findings won’t be discussed here. However, Timothy Baycroft captures very well the core of the research by saying that Europe’s *others* “represented an entire range of degrees or types of difference according to the circumstances” (2004: 157). Russia, Turkey, Islam or the USA were perceived, for centuries, as strong European identity builders (Morozov & Rumelili, 2012)

Another important aspect in the contemporary debate on European identity is the extent to which it can be measured and experienced in everyday contexts. Among the factors that have the ability to foster and construct a sense of Europeanness, researchers point to European institutions, everyday social practices, political actions and common media discourses (Gripsrud, 2007; Checkel & Katzenstein, 2009). This particular approach concerning the role of common media discourses in shaping the European identity will be the highlight of this paper.

Also, the recent research dedicated to measuring European identity defines it as a product of people’s personal perceptions of and experiences with Europe, a product marked by their frames regarding it (Brutter, 2004). In the light of this research, identity is defined through context, emphasizing the goals that determine a certain identification,

and through the frames it generates. According to this conception frames influence a certain sense of identity in the same way that identity determines the formation of frames. From this particular perspective the attitudes toward Europe and the EU are seen as at least partially determined by identity’s role in mixing different frames of thinking (Van der Veen, 2010).

By using focus-groups for analyzing European identity and the sense of membership to a European community, Brutter (2004) revealed significant variations from one country to another. For example, while the citizens of Luxembourg tended to associate the EU with values of peace and cooperation, Romanians had a tendency towards associating it with economic prosperity and democratic values, and less with a stronger political power in the world. Nonetheless, in most cases, one of the main definitions of Europe was that of “dissolution of physical and symbolic boundaries for citizens” (Brutter, 2004: 30). Brutter’s research also showed that individuals feel European in certain contexts, such as traveling freely in Europe, and civil institutions such as mass media can influence the emergence of a European identity. Consequently, European identity could be interpreted as one of the multiple identities that citizens of Europe possess, and may become prominent in specific circumstances (Udrea & Corbu, 2011).

Since media messages have proven to represent a rich source of frames regarding the world they present (Iyengar & Kinder, 1982), we should look deeper into how media frames, and especially news frames, can create a sense of a common European identity by confronting “us” to “them”. Although some authors have revealed the fundamental role that common media discourses might have in the construction of a European identity (Gripsrud, 2007; Schneeberger, 2009), few research has been conducted in order to test empirically these hypotheses.

In order to explore the possible influence of news frames on forging a common identity, it is necessary to understand the process of framing in its components. This process consists of *frame building* (creating certain

patterns of interpretation to understand the facts that surround us), and *frame setting* (the interplay between media frames and audience predispositions) (Scheufele, 1999; de Vreese, 2002; 2005). Although definitions and measurements of this concept vary considerably in the literature (de Vreese, 2005 *apud* Capella; Jamieson, 1997), a common view on frames defines them as patterns of cognition and interpretation generated by emphasizing certain aspects of reality and hiding or minimizing others (Entman, 2003). That is why, in the context of our research, frames were understood as frequently expressed attributes about an issue or a social actor.

The important role of news frames in shaping perceptions of everyday realities, and in building a certain representation of facts, has been highly outlined by scholars in political communication. Iyengar (1991) provided experimental evidence on how news frames can affect attributions of responsibility. He outlined the existence of two types of news frames: episodic and thematic. While the first depict public issues in terms of concrete instances, the latter emphasize general outcomes, conditions and statistical evidence. As Iyengar's research proved, exposure to episodic formats makes viewers less likely to hold public officials responsible of certain problems. Also, some academics show that framing effects are not limited to changing certain opinions; they also imply adding new beliefs (Shah, Kwak, Schmierbach & Zubric, 2004; Slothuus, 2008, Lecheler & de Vreese, 2009). Given the essential role of news frames in shaping certain perceptions, it will represent one of the aims of this paper.

2. QUESTIONS, INSTRUMENTS AND LIMITATIONS OF THE RESEARCH

The empirical research addressed to young educated people from Romania, aged between 18 and 33. 18 individuals participated in this study and were organized into 3 groups, according to their age (18-22; 23-29; 29-33). The choice of this category of people was motivated by findings in the current literature relating to the assuming of a European

identity. Following recent studies (Bruter, 2005; Arts & Halman, 2006; Fligstein, 2009) we may affirm that in contemporary Europe, the young, educated people, speaking foreign languages, having higher incomes and the opportunity to travel and interact with fellows across borders tend to identify with a "broader geographical unit" and to perceive themselves as Europeans.

The study was guided by the following research questions: *What are the frames that young Romanian citizens associate with Europe and European identity? To what extent do they assume a European identity through the lens of these frames? How can media news frames affect young Romanians' patterns of thinking regarding Europe and European identity? To what extent the Other's presence in the news frames creates the prerequisites for a common European identity?*

In order to answer these questions, we used peer group discussions. As variations of focus-groups, peer groups were firstly used by Gamson (1992), and considered to reflect respondents' perceptions and intersubjectivity, forcing the creation of common frames of reference. They are based on the fact that the formation of a public opinion implies a dialogical process among social actors, a constant negotiation of meaning between people and their close ones (de Vreese, 2003). That is why peer groups are usually centered on the frames emerging as a result of the interaction between individuals, their close ones and others. Furthermore, considering that this method can reduce participants' discomfort in expressing their opinions by enabling them to bring friends along, we have found it very appropriate for our research.

In order to capture participants' frames regarding Europe, we asked them to indicate the first thing that came to their mind when hearing this word. Respondents' spontaneous associations were grouped in clusters of meaning that allowed us to identify their frames regarding Europe. They were asked then to define the ideal image of the European, which helped us explore their frames concerning European identity. This also gave us the opportunity to examine to what extent respondents assumed such an identity.

After expressing their opinions about Europe, participants were asked to read a news article regarding an informal meeting between Barack Obama and the representatives of the EU. We wanted to learn, in this way, to what extent one of its main frames was to be absorbed by participants in the study. The meeting reported in the article was referred to as being centered on finding solutions for the financial crisis in Ireland and on laying to rest the concerns related to its spread in Europe. We identified one of the main frames as being *EU spooned by the USA* and tried to find out to what extent this could alter respondents' frames regarding the EU and the European identity.

Thus, respondents were told to formulate their opinions about Europe and the USA after reading it, and to explain if they would like to be a part of Europe as it was described in the article. Their viewpoints were structured in clusters of meaning reflecting respondents' frames as a result of interacting with this type of media discourse.

One of the limits of our research is that we do not know the degree of salience of this article's frame in other Romanian media. Thus, it might not be illustrative for the dominant news frames of the EU. However, we accounted for the high visibility of the website that hosted this article, *ziare.com*, that could favor numerous views. According to the *Study of Audiences and Traffic on Internet* (electronic source) introduced by the Romanian Audit Bureau of Circulations, this website is among the top ten most viewed general journals in Romania. Another reason that determined the choice of this article is that it refers to an issue that is highly debated in everyday discussions in Romania - the financial crisis. Moreover, it presents the official position of the USA (which we qualified as Europe's *Other*) with respect to overcoming it.

Although this research is limited by the previously mentioned aspects and by the relatively reduced number of peer-groups conducted, it highlights the way in which everyday news frames can reframe individuals' perceptions regarding the European Union and the European identity.

3. FINDINGS OF THE RESEARCH

The 18 – 22 years group. In order to find out how respondents frame European identity, we firstly explored what Europe means to them. It is necessary to mention that most participants in this group equated Europe with the EU, in the sense that when asked about Europe, they referred to the EU. Their spontaneous associations with Europe included frames like: *EU as an artificial construct*, *EU as an opportunity*, and *EU as a counter-power for the USA*.

The first frame portrayed the EU as being nothing more than „an artificial unity between cultures that have no intension to unite”, “a union of interests”. The European official motto is uncredited by most of the people involved in discussion, because it implies cultural uniformity, which, in their view, remains unrealistic for the moment. The second frame presented the EU through the advantages it offers to its citizens, among which the freedom of movement, the possibility to work abroad and to access European funds were the most frequently mentioned (“I can travel without a visa”, “You can get a job anywhere”). By means of traveling, Romanians have the chance to promote their national specific, to improve their living standards by reference to other economic landmarks, to change their mentalities or to bring back home technological innovations. The third frame revealed the EU as a political structure, an economic power created to counter-balance the USA, but unable to live up to the American political construct, seen as a superstate. Somebody argued that the success of the USA as a political construct is also determined by the fact that each culture is free to preserve its specificity; Americans respect differences and diversity and never try to level their cultures.

Part of the spontaneous associations above revealed an ideal image of the European, enriched with new elements as the discussion advanced. Therefore, the ideal citizen of the EU belongs to a well-developed state (similar to the USA), and is not forced to perform poorly paid jobs; he possesses a certain standard of civilization and can travel freely

around Europe, getting to know other cultures in this way (“We need to be familiar with the cultures of other countries”); he is a Christian and is part of a European construction guided by moral values, by rigor and formalities. As it appears, respondents framed Europe as *moral*. They also stressed that the European is not from other continents such as Africa, which determines the emergence of the frame *EU in opposition to the others*. Thus, Europeans are also defined by what they are not.

Despite the ideal projections regarding European identity, some opinions claimed that this concept is abstract and artificially made up to symbolize the idea of unity, which is not plausible in the near future. European identity is related, in respondents’ views, to the existence of a EU developed not only economically and politically, but also culturally. So, as long as the EU fails to reach the development of a normal state on certain levels, the idea of a European identity remains utopian, more appropriate for the literature than for everyday realities.

Another important aspect: participants in this group are aware of the gap between their ideal projections regarding European identity and real life experiences that often contradict them. The EU is not a moral value-centered union, but a union of economic and political interests, where small, poor countries have no power of decision at the political level and have to comply with measures imposed by the strong and powerful. Mobility, on the other hand, can be seen as an opportunity, as a great chance to travel freely and interact with different people and cultures; but it can be equally understood as disadvantage, because it fosters the migration of professional elites rather than that of ordinary citizens. These ideas promote a new frame – the *contrasting Europe*, which reflects that Romania’s access to the EU brought with it both benefits and costs.

As for the degree of assuming a European identity, findings showed that most respondents consider themselves Europeans simply by convention – they belong to the European continent and, since 2007, they are members of the EU; but they do not feel that they share common values, symbols or

traditions with other Europeans. Thus their national identification takes priority (“We are Europeans in the same way that we are citizens of the world. We live in Europe”). Isolated, it was noticed that certain contexts favored the assuming of a European identity. These contexts referred to the possibility of traveling freely within the borders of the EU, which is believed to be enjoyed especially by Romanians whom experienced a restrictive past from this point of view.

Additionally, one of the main purposes of the present paper was to capture whether the news frames reflecting the presence of the *Other* generate in our respondents the assuming of a European identity. After reading the news article, most of them identified the dominant frame of the story, that of the EU accepting advice from the USA in order to overcome the financial crisis (*rescued EU*). As discussions on the article’s message developed, respondents portrayed Europe in terms of vulnerability and insecurity (“USA helps EU to overcome the crisis in Ireland”, “EU is insecure, it needs assistance and help”). On the other hand, the USA, represented by Barack Obama, was seen as the “powerful”, “interventionist”, “omnipresent” actor, “able to offer help in solving certain financial crises”; but also selfish, centered on its own goals (“USA involvement in European affairs is driven by selfish purposes; Europe crisis affects the economy of the USA”). Thus, the frames resulting from the ideas above can be portrayed as *vulnerable EU* and *powerful USA*. This positive representation of the *Other* reflected a less appealing image of the EU and a reduced attachment to the European community.

The 23-28 years group. Similar to the youngest group, when asked about the first thing that came to their mind regarding Europe, respondents in this group referred to the EU. Their spontaneous associations with Europe reflected the following frames: *EU as an opportunity*, *EU as a common economic and political structure* and *EU as opposed to the Other*.

The first frame included advantages such as the freedom of travel, enjoyed especially by Romanian citizens, given the country’s

communist past (“[...] Traveling was only a dream before 1989 [...]”), and attributes associated with the EU, like conservatism, precision, power, diversity. Europe’s political, economic and cultural diversity was expressed by comparative reference to well-developed Western countries and Eastern ex-communist countries. The second frame presented the EU as a union of states with a common speech, currency and defense force, a space defined by the leveling of national cultures and languages, a „global village”, as one person mentioned. As for the EU understood as opposed to the *Other* many participants in this group defined it as implying a certain liberty of expression, in contrast with Arabian countries, and as being a political and economical counter-power for the USA.

These spontaneously expressed frames created the outlines for an ideal image of the EU and the Europeans. This image includes equality of rights (understood as lack of discrimination), freedom of choice (“You have the right to choose what you want to do”), adaptability, the opportunity and willingness to study abroad and to interact with various cultures (“The European is open to new experiences and cultures [...]”). This ideal image also reflects civic involvement for a better society, understood as promoting a certain moral conduct – respecting the law; it reflects the belonging to a well-developed state, and equally the development of Romanian standards of life as a result of observing different lifestyles from other countries in the EU. In addition, EU as a whole should be a moral value-centered structure that goes beyond economic and political interests. Besides the opportunity frame mentioned before, another frame is that of *moral Europe*, which values selfless solidarity and equality of rights.

Moreover, most individuals in this group claimed that being European implies being recognized and treated as such, pointing to the equality of rights and obligations. Despite all these ideal projections regarding the European identity, two respondents argued that this concept is rather artificial, as it is content lacking (“How should we be? Should we be like the English, or the French? What makes

them European, anyway?”). Respondents also argued that European identity originates from institutional contexts, being adequate only in certain circumstances.

Beside the opportunity and the moral frame, there have been identified the contours of a negative perspective upon Europe, seen through the lens of the following frames: *economic-centered EU*, *discriminating EU* and *contrasting EU*. The first frame referred to Europe as a structure guided only by economic goals and not by common values among the members states. The second frame pointed to Romania’s negative image in Europe proliferated by the law-breaking actions of the Roma people, by the illegal workers and immigrants who work abroad, and also by the fact that Romanians accept low waged jobs compared to the inhabitants of the host countries. The vision of contrasting Europe reflects respondents’ reference to the ideal image of EU and the fact that real life experiences contradict it. That is, although Romania’s accession to the EU has brought several advantages, respondents claim that the political and economical costs implied are important. They referred to the internationalization of the Romanian industry (selling oil refineries and electricity enterprises) and to the profits the country is deprived from as a result of this process. Likewise, some participants emphasized that while accessing European funds is viewed as an advantage of the integration process, it generates a certain political control over our country by the EU. Furthermore, despite the fact that the accession to the EU brought the opportunity of higher incomes and a better life for the people who leave Romania, it also implies the migration of Romanian professional elites; this is perceived as a blind spot in the Romanian collective consciousness (“We go for the miracle of the West [...] valuable people go away”).

As the discussion evolved, we discovered that some of the frames previously explored also reflected respondents’ identification with Europe. In this sense, half of them said they do not feel European, given the *discriminating EU frame*. The other half affirmed that there are certain contexts that can help generating

the assuming of a European identity, such as: traveling freely within the borders of the EU, living in countries that do not discriminate Romanian citizens or the contexts in which Romanians are recognized as Europeans by other citizens of the EU. Also, working in international environments (academic institutions or foreign internships) has been pointed as a context that privileges the sense of belonging to a European identity, because in these environments Romanians are appreciated for their work and qualification. Thus, for some of our respondents, the assuming of a European sense of belonging is strongly influenced by the *EU as an opportunity* frame. Despite these projections, an important finding here is that all the members of this group experienced a reduced assuming of a European identity, partially because they took it for granted. As one of them said, “We are Europeans as we are members of the EU”.

Then, considering that another main goal of the paper was to find out if news frames referring to the *Other* can influence the forging of a European identity, we tried to explore to what extent participants in this group identify and assume the main frame of the news article presented. After reading it, respondents identified its dominant frame - Europe being helped by the USA in overcoming the financial crisis (*rescued EU*). Subsequently, they underlined a relationship of inequality between the two actors, with the EU seen as “vulnerable”, and “weak” and the USA perceived as “arrogant”, “powerful”, and “not interested in Europe’s real issues, but focused on its own goals”. In this context, Obama’s presence to the reunion with the EU’s representatives was considered by most of the respondents as guided only by self-centered, economic interests (the financial crisis in Europe could affect the USA).

Although participants in this group mentioned that the article stressed the USA’s attempt to help the EU in overcoming the financial crisis, they also expressed their distrust regarding this. The dominant opinion was that the USA only meant to evaluate the spread of the financial crisis in Europe and to give reassurances of their support, but not necessarily to offer practical solutions to

eliminate it. As it seems, not only did respondents identify the main frame of the news article, but they also emphasized a strong power gap between the two political actors. The *vulnerable Europe* and *powerful USA* frames generated the idea that Europeans are “mere puppets in the hands of the powerful”. Thus, we can argue that this representation of the *Other* determined an undesirable image of the EU and the European citizens, fairly distant from the one initially described. Perhaps creating a positive outlook of Europe and a rather negative perspective on the USA, could have made respondents more willing to consider themselves as Europeans. Naturally, this assumption requires further research in order to be affirmed.

The 29-33 years group. Within this group, the spontaneous associations with Europe revealed the following main frames: *former powerful Europe* versus *present powerless EU* and *Europe as a specific cultural entity*. Respondents emphasized particularly the difference between Europe and the EU, defining the latter as a mere travesty of the first, in terms of political power. *Former powerful Europe*, a frequently outlined frame in this group, outlined the past of Europe as a source of powerful empires and of great antique civilizations. As opposed to this image, contemporary Europe, assimilated as the EU, was perceived as a structure “without a strong say in the world”, as a medium power compared to states such as the USA and Russia.

Relating to Europe as a specific cultural entity, respondents affirmed that its main features can be defined by Christianity, white race, multiculturalism, and beautiful capitals. The last two traits were seen as highly admired by Americans. As it seems, all of these images of Europe were built in reference to the *Other* which, in our view, demonstrates the importance of alterity in shaping a certain identity.

Although respondents’ initial associations with Europe did not focus on the EU, all of their further projections regarding the image of Europe and the European identity pointed to it particularly. In this context, respondents highlighted two main frames: *EU as an*

opportunity and *EU as an artificial construct*. The first one referred to the possibility of traveling freely inside the borders of the EU, to the human rights that citizens from communist states didn't have before, and to the advantages of a well-established education system. Other opportunities included the possibility to work abroad, the European health card, the chance to address to a higher judicial institution and the lack of certain automobile taxes for the citizens of the member states.

Regarding the *EU as an artificial construct*, it alluded to participants' belief that this structure was created as a counter-power to the USA and Russia, and was intended to balance political forces and not to unify people with common needs and interests. Similar to the spontaneous associations fore mentioned, these frames were created in reference to the *Other*, highlighting another proof of its prominence in forging the image of the EU. Equally, the EU's ideal portrait was outlined by most respondents as a well-defined political organism, a federation marked by economical prosperity and flexibility, like the USA. Subsequently, by reference to the USA, these elements helped generating a desirable image of the European, pointing to the following characteristics: rigor, conservatism, tolerance, equality of treatment and rights, ethical principles. Moreover, being European involves being recognized as such and having a common historical background with other citizens of the EU; in this respect, some respondents placed to the fore the necessity of an educational system in which a common history of the EU to be taught ("We do not have the possibility of learning in school a history of the European community").

After defining these ideal images, participants expressed the extent to which they assume a European identity. Hence, the group revealed three different views: some individuals claimed that they feel European in the light of the opportunities fore mentioned, while others affirmed that there is no need to identify with this entity, as it is a given ("We are Europeans either we like it or not"); in addition, two respondents accentuated that European identity is a relatively content-

lacking concept, hard to be assimilated and less salient as opposed to national identity.

Despite the fact that respondents also pointed to other disadvantages of EU membership, these were not mentioned as reasons that would hinder the assuming of a European identity. The respective inconveniences pictured the frame of *contrasting EU* and referred to the inequality in terms of employees' remuneration among member states. Likewise, one isolated opinion revealed that although the integration to the EU has brought the possibility to access certain economic funds, this opportunity is shadowed by the poor management of Romanian authorities.

After reading the article, new frames emerged as a result of interacting with this type of media discourse. As in the other two groups, not only did respondents identify this article's main frame, but they also emphasized a strong power gap between the EU and the USA ("The US are acting like Europe's babysitter"). In this respect, the EU was described as "weak" and "with no control over what is happening in Europe", whereas the USA, represented by Obama, were pictured as "powerful", "interventionist", "focused on their own goals". Moreover, most participants in this group argued that the USA were trying to impose certain economic measures to EU representatives in order to save the American companies in Europe ("The Americans believe their system is the one that works and they're trying to impose it to others [...] They were only concerned with their companies, anyway."). Therefore, the frames generated by the article consist in that of *vulnerable EU* and *powerful USA*. As a result, all participants in this group refused to identify themselves with such an image of the European community.

4. SUMMARY AND CONCLUSIONS

The investigation of the European identity has proven to be a demanding approach, both theoretically and empirically. Despite the numerous debates dedicated to this subject, scholars haven't agreed on a common definition or understanding of this concept. Thus, in the first part of this paper we

identified and briefly discussed the most common trends regarding the existence of a European identity. Additionally, the empirical research explored the present forms and meanings of the identity of Europe, and the frames associated with it in Romanian context.

The analysis was split into 3 main parts, corresponding to the 3 group discussions, and was organised to answer the research questions guiding the study. The main findings of the research are synthesised in what follows.

Regarding participants' spontaneous associations with Europe, the study revealed Europe as defined by reference to *alterity* (predominantly represented by the USA). In this sense, the EU was perceived as an economic power created as a counterweight for the USA, but unable to live up to the American political construct. If the first two groups accentuated the frame of *EU as an opportunity*, the last group highlighted Europe's cultural and historic past. Furthermore, all groups used Europe and the EU interchangeably, although the last group didn't associate the two entities spontaneously, but during the discussion. Concerning the ideal image of Europe and the Europeans, certain frames could be identified in all groups: *EU as an opportunity*, *moral EU*, and *EU as a counter-power for the USA*. In this respect, respondents idealized Europe as a well-defined political construct, comparable to the USA, guided by moral principles and intended for its citizens' well being. Despite these ideal projections about EU and the Europeans, many opinions in all group discussions revealed frames such as *contrasting EU*, *EU as an artificial construct*, while the frame of *discriminating Europe* was remarked only in the 23-28 year-old group. These frames indicated a negative perspective upon this economic and political structure.

In conclusion, the people involved in our research perceived EU both positively and negatively, pointing to the great benefits and the important costs implied by Romania's accession to the Union. Also, it seems that the *Other* plays an important part in constructing participants' image of the EU, by providing a constant reference point and by highlighting certain traits of "us" in opposition to "them".

In terms of the assuming of a European identity, we found that respondents tended to take it for granted. Anyway, it is important to mention that the positive images of the EU, mostly expressed through the advantages offered to its citizens, can facilitate Romanians' assuming of a European identity. That is, in specific circumstances, particularly when traveling without restrictions around Europe, the young Romanian people assume a European identity alongside their national identification. This finding was revealed by all peer-group discussions. Likewise, the EU understood in negative terms (*economic-centered EU*, *discriminating EU*) can considerably reduce the sense of belonging to a common European identity.

Concurrently, one of the paper's main goals was to reflect how media news frames can affect young Romanians' patterns of thinking regarding Europe and their common sense of belonging to the European community. Therefore, participants in this study were exposed to a news article presenting the debate concerning the financial crisis in Ireland, between Barack Obama and the EU representatives, at an informal meeting. After reading the article, all respondents strongly emphasized a power gap between EU and the USA, through frames like *vulnerable EU* and *powerful USA*. As a consequence, respondents refused to associate themselves with this "weak" image of the European community. We can consider this new frame of *vulnerable EU* to add to their views on Europe, but further research is needed in order to find out to what extent it is one that remains in participants' memory. Therefore, one hypothesis that emerges from our research is that only certain representations of the EU and of the *Other* (more powerful EU and a less obvious *Other*) can generate the assuming of a European identity.

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IDENTIFICATION OF MOTIVATIONAL LOGISTICS IN CHOOSING THE SPECIALIZATION “MILITARY MEDICINE” BY THE STUDENT

Maria Dorina PAȘCA

University of Medicine and Pharmacy, Târgu Mureș, Romania

***Abstract:** Being a student at the specialty “Military medicine” represents for most of us a standard of human value quality but also a big university responsibility concerning professional training and not only. This individuality relates from the fact that the logistics and methodological strategy applied to the student from an educational perspective but also from a military one, prepares the future military doctor to face the professional challenges, starting from the consulting room, saloon, surgery room and ending through his presence on the battle field/ war. From a psychological point of view, the military medicine student develops specific moral and human qualities which in its own opinion lead to success. This study shows this kind of logistical perception from the side of the actual military medicine students which complete their studies among their “civil” colleagues, being able to catch, starting from the motivation of their choice and up to qualities, a very developed spectrum of professional and military training spectrum, having as a result the success, they giving in time, honesty and honor to the Romanian army.*

***Keywords:** student, motivation, military medicine, logistics, attitude, qualities, professionalism.*

1. INTRODUCTION

For many of the high school graduates, being a medicine student represents a real challenge where the verbs: to learn, to be aware of and to be responsible of, are conjugating together with: to work. In this context semantically delimited, the student at medicine, military medicine specialty involve moral value and quality but also applying a logistic and a methodological strategy meant to prepare the latter one from an educational perspective but also from a military one. Tries and succeeds to respond to the motivational items of the student who chooses this specialty of the medicine because the whole approach it is based on determinations and attitudinal components which from psychological perspectives, number indubitable specific identities.

Thus, starting from the desiderates that in the UNESCO report view – 1996 are fundamental for the 21st century, at university level in forming the student, those have to start from: learning to know = to know the past,

present or virtual reality, learning to learn permanently, bringing close to you the cultural values that exist at a certain time; learning to make = learning to act getting to a pragmatic competence in a certain activity area; learning to face the many and complex social situations that you tend to integrate in; learning to live together = to be permissive and attentive towards the other, to perceive the alteration in an optimum way and to become soldiery with it regarding the circumstances; realizing projects in group and being ready to handle the eventual conflicts in the respect of pluralistic values, of mutual understanding and of peace; learning to be = to value your personality, to become capable of own judgment, responsible, to create yourself constantly, to live the values, to promulgate them, and to amplify them through your own deeds.

Takes shape in this way the necessity of a constructive-valuable approach in motivational identification of choosing the military medicine underlining the fact that his psycho – social profile has to correspond to some conceptual standards. We can see thus, at this

age (18/19 – 24/25 years) some adolescence lintels fact that denotes identifications like: apparition of a new thinking type: logical, dialectical, causal, dominating the problems and the abstract world; new abilities are gained; the need of knowledge systematization appears; superior feeling appear, sensibility becoming more equilibrate; it is shaped in its structure the element of stability; the role of creativity increases, being a superior valorization modality of the personality; the personality structures are already established; fact that determines after Schiopu U, Verza E (1995) three age dominants through: consolidation of self conscience (where we can identify the body, spiritual and social self); vocational identity (point when the person is aware of its own qualities and defects); independence debut (coming of age).

Same authors underline the fact that "prolonged adolescence it is expressed as a period of transition when there manifest characteristics of adolescence and new characteristics that belong to youth, of the young adult with a virtual social status as an adult" (1981).

Starting from all those psychological identity marks, we end that in our structural demarche, to decode motivational the logistics of choosing military medicine, starting from the request (R0 and getting to the offer (O), fact exemplified by the psycho – social factors that influence the deciding step made by the student.

It is the moment when we can enumerate among the choosing facilities, the usual elements that the University of Medicine gives to the student (good informational source, study programs at an academic level, opportunities of doctoral studies and post-doctoral) and also the specific ones to the military university environment (free study, military career, opportunities to practice military medicine in the system, scholarships and training abroad) this making the student to be aware of the tasks that he has to accomplish.

In this context, taking into account the very good results that the students have, of a continuous challenge and of an accessible number of entry places (those doubled in the

university year 2010 – 2011), we considered it is necessary to approach the study through which the motivational identity made by the student to obtain viability and validity for its future making believable the investment in time.

Thus, we elaborated an instrument to measure those that we suggested, the questionnaire proving its opportunity in registering in a given time; evolutions, values, qualities, opinions, sketching: an age, an identity and practically a spiritual state and a fact one. The pattern was formed by all the students from M.M. from the university year 2010 – 2011 at the University of medicine and Pharmacy from Targu Mures, a number of 56, boys and girls, that in the first decade of the first semester answered to the items of the following questionnaire

2. QUESTIONNAIRE

Please answer by marking one or more of the variants of the following questions, remembering just:

age ___ sex: M ___ F ___ year of study ___

1. Did you graduate the military high school?
yes ___ no ___

2. You got the information about the specialty Military Medicine from (you may choose 1-3 variants):

family ___ Internet ___
high school/school ___ military centers ___
friends ___ university ___
media ___ other source ___

3. What motivates your choice (you may choose 1-2 variants):

military career ___ money ___
medical career ___ abroad ___
social position ___ fulfilling a dream ___

4. Do you think that this specialty fits to you?
yes ___ no ___

I don't know ___ I'm not interested ___

5. Choosing this specialty will give you a state of safeness and stability to the future?

yes ___ no ___
I don't know ___ I'm not interested ___

6. Did the entry exam correspond to you exigencies?

yes ___ no ___
I don't know ___ I'm not interested ___

7. Do the classes from the university correspond with the standards imposed by this specialty? (you may choose 1-2 variants)

yes ___ no ___
 I don't know ___ I'm not interested ___
 slightly ___ mainly ___
 not at all ___ not necessary ___

8. Does the Faculty (University) give you the logistic base for an exceptional training (scholarships, abroad trainings, internship, PhD)

9. Are you going to practice the specialty that you have chosen? (military medicine)

yes ___ no ___
 I don't know ___ I'm not interested ___

10. What qualities you think that a student at military medicine should have? Give at least three _____

_____ and which responded to the objectives and also to the aim that we proposed at the beginning of this logistic investigation.

3. RESULTS

Going practically to psycho – statistic interpretation of the registered data, we will code and than decode the answers to the items, obtaining first identities of the sample group like:

a) – age = this included the ages 18-24 of the 56 students split into the segments: 18 – 20 years – 43% - 1st – 2nd study years, - 21 – 22 years – 34% - 3rd – 4th years of study, - 23 – 24 year – 23% - 5th – 6th years of study. The statistical weight observation is represented by the first period due to the enlarged number of students from the 1st year.

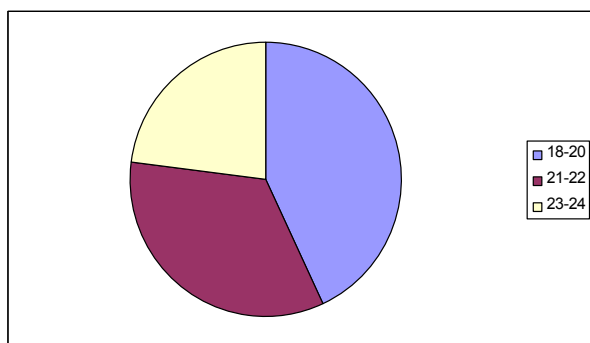


Fig.1 Results

b) – sex = shows that the girls are once more those who prefer the “military cloth”, implicit military medicine, the motivation coming from the qualities that they consider absolutely necessary for this specialty, that’s why they represent 64% (32) from the sample group, and the boys 36% (24) percentage that demonstrates that the “weapon” does not totally belong to them. We have in this context:

Table 1. Results

girls	boys
64%	36%

Related to the years of study we have to mention that the group sample included: 1st, 3rd, 4th, 5th, 6th years of study – 2nd years didn’t exist in the structure of this specialty in the university year 2010 – 2011.

Going on with our psycho-statistic investigation, we start by decoding the first item, where they were asked to point if they graduated or not the military high school. It came out that: 34% graduated such a high school (18 subjects) and 66% not (38 subjects) the first year making the weight as from the 20 students 19 of them didn’t graduate a military high school and only one did, first ones (10 girls and 9 boys) being from “civil” high schools. Does it consist as a mirage for those from “civil” high schools the military career? The students from the actual first year confirm this remark, the information coming in this case through military centers, family and school, being built for sure on the safeness for future of a social viability given by such a medical specialty. More balanced is the 3rd year, where from the 10 students, 6 of them graduated a military high school (4 girls + 2 boys) and 4 didn’t (3 girls + 1 boy). At the 4th year we have equality from ten students five did graduate a military high school (3 girls + 2 boys) and five didn’t (4 girls + 1 boy).

The information regarding the specialty military medicine from the faculty of medicine was taken from: family – 34%; friends – 16%; media – 2%; Internet – 20%; military centers – 55%, the subject having the possibility of choosing from 1-3 possibilities of answer

variants. Military Centers remain the main informational source, followed by high school, family, internet coming up closely, and not at all encouraging being the fact the besides the usual information that came from University, military medicine did not have specificity and with all this all offers for study were completed (double this year). We think that a benefic co-operation between military centers and the faculty of medicine is welcomed because the results show that this is needed. Statistically:

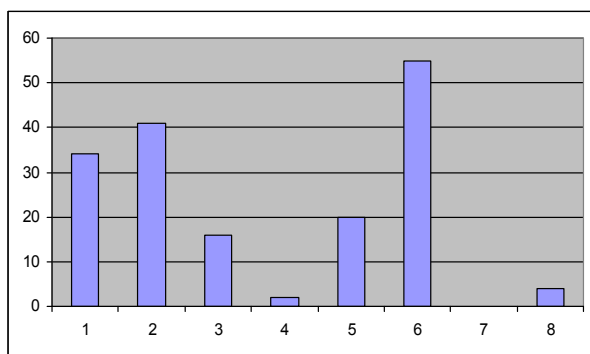


Fig. 2 2nd item results

The motivation of the made choice which may contain 1-2 answering variants, has the certitude of connection between the two careers military / 61% and medical 71%, social position coming up naturally / 20%.

If going abroad means 2% (the mirage for the first year and the solution for the 6th year), fulfilling a dream or a wish 8%, is the prerogative of the "freshman", money making the link between dream and reality 20%. military career 61%; medical career 71%; social status 20%; money 16%; fulfilling a dream/ a wish 14%.

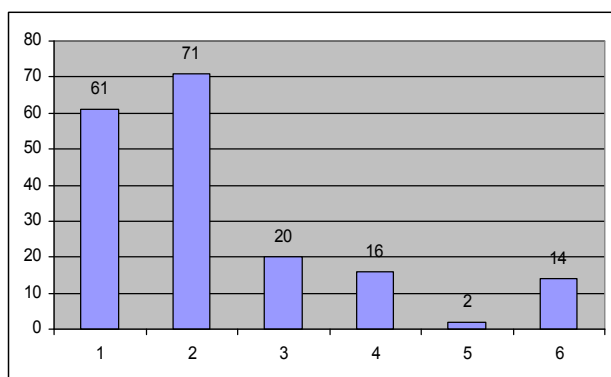


Fig. 3 3rd item results

In this context of motivation, compete for success: a) medical career + social status + fulfilling a dream + going abroad, results the whole, close being the triad: b) military career + social status + money being sustainable thinking at the idea that money make you whole c) military career + social status + fulfilling a dream + going abroad, where the wish the dream became reality. Concluding to this item, intrinsic motivation precedes the extrinsic one, the future being thus plausible.

If this specialty fits to them or not, the subjects that made our sample group, considered that 80% of them are determined and knew what they wanted, 18% don't know and has to be remarked the fact that the ponderosity goes to the third year, deciding year in medical school in what concerns the chosen road, and 2% representing an extreme from the first year and other from 4th year – for whom only medical school matters. Statistically we can talk about:

Table 2. 7th item results

yes	don't know	not interested
80%	18%	2%

We wanted to know from the applied questionnaire if this specialty will create for them a state of stability and safety. Our expectations were confirmed 66% giving an affirmative answer, but surprisingly and also explicable from the point of view of socio – humane conditions which we make close to "equilibrium" being situated against – 21% - I don't know and 11 % - no = 34%, which determines a reevaluation of the state of fact bringing into sight the rigors of the program and the hope of professional fulfillment.

It is the moment when in the mind of our subjects appear the saying "Ubi bene, ubi patriae" – fact that doesn't do any good not to the subject nor to the society.

A new social politics concerning education and population health maintaining, under all its aspects, we would like to think that it would give stability and safety for the future to the today's student, mostly for the one who chose from the start this kind of specialty which

itself starts from those two desiderates of value and evolution.

It is the moment when in the internal structure of the proposed and applied questionnaire to the sample group, an important weight in choosing the specialty of military medicine, goes to the faculty, university, practically to the entire staff for complex training, instructive – educative and military of the student that represents in this moment the subject of our study.

Thus, to the item concerning the exigencies at the admission exam, 82% of the subjects considered that yes, 12% showed themselves more exigent saying that no, and 6% didn't give any importance to this thing. We could remark that the 4% are from the first year and don't come from military high schools, and the wish of becoming a student at medicine was first before exigencies, and the exam itself consisting no interest for it.

In the same order of involving the faculty, a special place was given to the quality of classes, the subject being able to choose from 1-2 answering variants: yes 68%; no 4%; I don't know 0%; I'm not interested 2%; not very much 10%; very much 27%; not at all 0%; it's not the case 2%, being interesting here to follow the: yes + very much = 68% + 27% = 95% unlike: no + I'm not interested + not very much + it's not the case = 4% + 2% + 10% + 2% = 18%, which may come into attention when the class does not reach its maximum formative, instructive – educative value, interactivity, cooperation and student focusing, remaining inflexible, closed and only "for be taught".

Our university being an exceptional one, and the logistical base offered to the students being of same standard. Thus, we start from: quality classes, stages, internships and getting to PHD degree remarking that 89% are interested of all the logistic, 6% already were the beneficiaries of a stage or scholarship abroad, only 5% being those who are not interested and have no idea about those possibilities. Can we call them ignorant? Surely not, just a little superficial, this thing happening to the first year and being still based on the period of adaptability of the student to the new and complex requirements of

the faculty. Statistically we can exemplify through: 6% scholarships, stages; 3% don't know; 2% not interested; 89% yes.

The following item concerns the involvement and responsibility of the student from military medicine (M.M.) putting him to practice or not in the chosen specialty. 78% represents a percentage that motivates our study, thinking mostly that from 44 subjects 17 of them are in the first year of study, those who are not decided appearing with 20%, fact that show that psychological training is still necessary, but mostly inserting motivation in permanent and future professional education. Statistically:

Table 2. 9th item results

yes	don't know	no
78%	20%	2%

As we said at the beginning of the study the motivational logistics may and it is necessary to identify with those moral qualities which come before the result and not only in this kind of vocational situation. We didn't propose to make a "scale of values" but came into evidence very clear qualities like (being aware that they are the reports of the students from military medicine and not others): 1. intelligence 39%, 2. ambition 34%, 3. sobriety 30%, 4. perseverance 30%, 5. responsibility 21%, 6. discipline 19%, 7. courage 14%, 8. honesty 14%, 9. competence 14%, 10. passion 14%, 11. team spirit 12%.

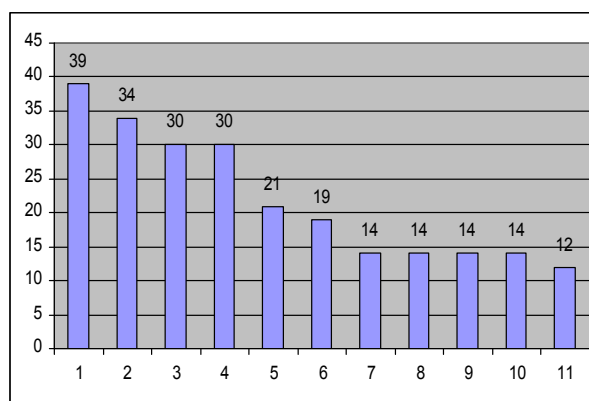


Fig.4 10th item results

to which we can add a special counting of some qualities because that in an evolutive

way they can be found at certain years of study decoding them somehow:

- patience	}	1 st year
- motivation		
- stubbornness	}	3 rd year
- self esteem		
- punctuality	}	4 th year
- empathy		
- affirmation	}	4 th year
- sociability		
- morality	}	5 th year
- talent		
- discernment	}	6 th year
- altruism		
- devotement	}	6 th year
- involvement		
- cooperation	}	6 th year
- interest		
- vision	}	6 th year
- vision		

In this context: the searching, hopes and gainings are gradually found into the items of motivational logistics concerning the option for "military medicine" Practically making the "profile – portrait" of this student, we observe that we find those constructive sequences which define an attitude, determine a behavior and precede a reaction. It combines intelligence with ambition, seriousness with perseverance adding to those: responsibility, discipline and courage, based on honesty, competence and even passion, being able to decide that, the team spirit marking out the structural qualities that have its print.

Thus, the questionnaire, through its identity and than processing and interpretation of data, brought into attention the fact that the student from military medicine is motivated in his choice, being more than others aware of their choice wishing always to be "seen", meaning: appreciated, encouraged, esteemed, and knowing that "serving my country with my weapon means the stethoscope" – this is an honor and why not the privilege of saying "present" when it will be needed and required.

4. CONCLUSIONS

We would like to appreciate the fact that the University of medicine and Pharmacy that has them at students is always proud for the

results that they have/had those being part of the stamp of this place of Romanian culture and medical education. All the things mentioned above are found in the exceptional print that the student at military medicine and pharmacy (especially the one from where come the students that formed our sample group).

Why this logistic – motivational demarche? The answer for the above interrogation contains that in Ey's conception" student's personality is a history; it is built through chaining from a series of events and through the way of being of the inner self, being truly the most important actor of the university range.

He is what he is, because he wants to be a student – better saying we add – at military medicine specialty (M.M.). And thus we wanted to underline in a conceptual, structural and constructive way this fact, because, military medicine has its chosen who never forget this thing. Who are they? For sure it is the exception that strengthens the rule, concerning medicine generally and military medicine especially.

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KNOWLEDGE NEEDS OF FINAL YEAR STUDENTS WITH FOCUS ON MILITARY LOGISTICS

Zbysek KORECKI*, Cosmina DRĂGHICI**

* University of Defence, Brno, Czech Republic, **“Henri Coandă” Air Force Academy, Brasov, Romania

***Abstract:** This paper underlines the results of a survey about the knowledge and knowledge needs of final year students and graduates of University of Defence. The aim of the study is to compare final year students knowledge needs before they are sent out to short military attachment in the various units of the Czech Armed Forces. General Logistics Assessment Test is a set of testing instruments used to assess the acquired knowledge of students about commercial and military logistics, Informational System of Logistics and language skills. The findings are based on empirical study and show the most important role of specific knowledge needs, especially in the military field of logistics.*

***Keywords:** knowledge, knowledge capital, military logistics.*

1. INTRODUCTION

Knowledge capital and its development have consequences on educational streams and knowledge dimensions. Knowledge capital and knowledge production in contemporary educational processes are reflected in the production phase as well as in the practice phase. Knowledge creation, channels, distribution e.g. between producers and users is mainly important for better understanding of nowadays knowledge needs of university students, especially in case of final year students.

The paper has an immediate relevance in the current debate on the knowledge needs and practical experiences of final year students (bachelors and masters) within two directions – to achieve goals in transformation conditions of defence sector and armed forces and to identify factors of knowledge development, improvement and transfer. Knowledge plays a key role in the economic relationships on the local as well as on the global level. Stevenson (2002) highlighted the path chosen in professional education, and education generally, to concentrate on dynamic economic conditions involving education area.

Knowledge organizations, as it is the case of universities, are found in the new position – enquiry requirements are changing quickly and they require reaction. Better understanding of current knowledge needs is one of the most important objectives of present knowledge organizations. Orientation towards knowledge capital building becomes a factor of knowledge maximization. OECD (2000) highlights that national and regional governments will be influenced by trends and developments in knowledge-intensive industries and professions and will be focused on the relationship between different forms of capital.

This is related to transformational processes in the Armed Forces in Romania – transformational processes understood as a whole, as a perpetual one, as processes of adaptation (Năstase, Nicolae, 2006; Udrescu, Bădălan, 2010; Surugiu, 2012) - with respect to new conditions for logistic branch. Korecki et al. (2010) examined processes and needs of military logistics in terms of EU and foreign operations (Korecki and Pomazalová (a) (b) (c); Pomazalová, Korecki and Darkwah, 2010).

2. RELATED THEORY AND WORKS

Knowledge capital and capitalization (Stewart, 1997, McPhail, 2008) of any society is pursued within the framework of the intention of knowledge society (Drucker, 1992, McPhail, 2008), learning society (OECD, 2000), knowledge economy (Burton-Jones, 1999) and knowledge management (Zack, McKeen, and Singh, 2009). In the new conditions of impact of informational and knowledge growth and in the context of transformational societal processes, knowledge production was developed also in universities. Because it is more likely to understand universities as knowledge organizations, knowledge management approaches start to play a key role in achieving goals. Liebowitz and Megbolugbe (2003) view knowledge management as a set of tools that managed ways for leverage knowledge internally and externally. In order to better understand how to share and manage knowledge, a knowledge framework should first be developed within the following lines.

According to OECD (2000) it is possible to identify sources of hypotheses regarding the interaction of social and knowledge capital in educational institutions (OECD, 2008). Knowledge capital is a theme discussed in particular within the conceptions of knowledge needs (Heisig et al., 2010). Knowledge capital in universities is a present studied phenomenon in the context of socio-economic changes. For the identification of knowledge capital due to the specificities of societal and organizational conditions – individual and collective knowledge capital mobilization is about to capture the individual dimensions of the approach mentioned. Knowledge capital description of universities is based on the characteristics of the community in educational processes. Involving actors in contract networks is one of the elementary presumptions for effectiveness knowledge production.

In knowledge capital literature different approaches to define knowledge, knowledge capital and knowledge system are overviewed. According to Nesta (2008) knowledge is considered homogeneous and that, as a

consequence, firm knowledge capital equals with the sum of homogeneous pieces of knowledge. This is possible to use as an analogy to military organization. Niessen (1999) features knowledge capital as a commonly discussed factor of no less importance than the traditional economic inputs of labor and finance. For example Quaddus and Xu (2005) further emphasize knowledge system as key for knowledge creation and production.

Knowledge needs in Heisig's survey (Heisig et al., 2010) are oriented on engineering and engineering community. Knowledge and information needs are categorized in this study as 'need to retrieve' and 'need to capture' and both two categories do not represent truly novel knowledge and information needs, as both are already addressed in engineering practice. The conclusion of the survey is that no absolute novel knowledge and information needs emerged from the second question regarding 'needs to capture'.

Stevenson (2002) focused on constitutes workplace knowledge and appropriate ways for it to be learned are dynamic and subject to powerful societal forces. He emphasized that there is a polarization of what is considered to be vocational for class of workers or related to work (e.g. professionals), from those life pursuits that are the subject of general, academic, or theoretical knowledge. According to his findings, knowledge for work has historically been seen as a "second-best" kind of knowledge, concerned with utility: the material, the practical, the technical, and the routine. It brings a wide impact for educational organizations as universities. Stevenson showed professionals, whose practice is aimed at a collective motive and mediated by artifacts, rules, responsibilities, and a community of practice. He also argued that there is one type of knowledge (e.g. theoretical knowledge) for academic or professional work that is qualitatively different from the kind of knowledge needed for vocational activities. This theory could be used in the system of foreign mission preparation and accomplishment.

3. RESEARCH APPROACH

The aim of the paper is to contribute to the discussion of knowledge needs of military logistic students as future military professionals in military logistic system. The main used method is analogy. To achieve this objective, a problem of knowledge needs in comparison to knowledge achieved in bachelor and master degrees is employed. Used materials are findings of research conducted at the University of Defence of the Czech Republic (Korecki and Pomazalová, 2010). In this study students knowledge in selected areas was tested - acquired knowledge of the students about commercial and military logistics, Informational System of Logistics and language skills. Test was provided before students are sent out to short military attachment in the various units of the Czech Armed Forces. . The research was answered logistics graduates enrolled in the University of Defence between academic years 2004/2005 and 2008/2009.

4. RESULTS AND DISCUSSION

Korecki and Pomazalová (2010) examined knowledge needs of final year students and required knowledge according to evaluation test. They found that need of commercial logistics degreed, contrasting military logistics

from increased, the known of Logistics Information System increased and also language skills little bit increased. As milestones were set in the periods between first short term attachment and three/one year in practical assessment. Trend line represents regular growth of military logistics knowledge. Columns stand for 3rd and 4th period which have to be considered as important milestones, were not compared with the following year's figures. Trend curve represents growth of military logistics knowledge. Obvious absence of period 3 and 4 comes from the fact that these students started their practical career just after Bachelor exams.

Based on these findings is possible to use neo-Thorndikian theory. De Corte (1999) solid the problem of transfer of knowledge requires discernment of identical elements between learning and application situations according this theoretical framework. He emphasised that the new identical elements are to be found in declarative and procedural knowledge that is confirmed in the described case. Comparison of findings shows differences in knowledge needs (Heisig et al, 2010) between bachelor and masters graduates. It brings necessity of reinforcing knowledge sharing between Ministry of Defence and responsible institutions (Military Universities and logistic praxis at units) in the logistic branch (cf. Strain and Preece, 1999).

Table 1: Human Science contribution to Integrated Logistic Support (ISL). Source: Strain, Preece (1999)

ILS component	Human Factors aspects	Relevant contributions from Human Sciences
Use study	Identifying characteristics of intended users in operational environment	Characteristics of intended users in a Target Audience Description
Design optimization	Identifying characteristics of operational environment	Assessment of health hazards in operational environment
	Establish training requirements of design options	Early training capability requirements of design options
Through-life costing	Identify maintenance requirements to meet required availability	Early estimates of personnel required for maintenance in each option
	Manning, personnel and training costs	Skill categories of personnel relevant to costing
Maintenance task design	Design of maintenance tasks	Design of maintainer tasks
Support equipment procurement	Equipments required for operational support	Operator and maintainer tasks associated with support equipments
	Trainer equipment procurement	Human performance capabilities required to be developed by training equipments and trainee assessment methods
Training needs analysis	<i>Much overlap with the training domain of HFI and with the discipline of Training Needs Analysis which is often presented separately from both Integrated Logistic Support and HFI requirements</i>	<i>Considered separately under the discipline of Training Needs Analysis</i>

Strengthen of knowledge capability brings potential for development of military logistics capability as a whole. It is known that knowledge needs changes, therefore the educational policy (OECD, 2008) to achieve better educational and practice results is established through a specialized study programme. According to findings of this study it is shown that short military attachment contributes to development of knowledge and identification of individual knowledge needs and it should be related to work of Stevenson (2002).

Instrument and methods of knowledge management established for knowledge producers in specific conditions of defence sector for achieving common goals and maximize knowledge production. Modification of knowledge system (comp. Quaddus and Xu, 2004) that consist of information about staff which improve organizations' ability to identify people with needed skills and knowledge, information about providers and end-users which help logistic organization to support and serve them, information about methodologies and tools which allow organizations to deliver quality and consistent service in an efficient and effective manner, and information about practices and groups which keep everyone in organization up-to-date at anytime and anywhere. Information technology is only one element of the logistics management system.

Through analogy to described knowledge status Lehtonen and Karjalainen (2008) discussed the problem of the employers' definitions of good language skills in their work, where they revised that professionals also work in settings, that these settings function as activity systems, and that activity within these settings is multiply mediated and knowledge is related to the activities of their practice. It seems to be also a crucial implication in the study of Korecki and Pomazalová (2010).

In Romania, this issue is not highly approached at the level of scientific research. Some authors, like Ilie (2007), consider the adjustment of integrated logistic support to the

specific of Romanian Army necessary, as long as the full implementation of an already functional system is not efficient.

The problem of theoretical knowledge and practical skills development and practice is a matter of military training activities. Strain and Preece (1999) focused on Integrated Logistic Support. According to them, the United Kingdom Ministry of Defence identified the need to avoid effort across Integrated Logistic Support and Human Factors Integration (Table 1). The main aim in this case was to optimize logistic policies/practices in order to generate the most effective use of staff in the support area. These authors emphasized staffing across both operational and support areas to achieve operational goals. They discussed the need of Project management in military system procurement. It represents a very important part of logistics activities in foreign operations (Korecki et al., 2010; Korecki and Pomazalová (b), 2009, Korecki, Pomazalová and Dvořák, 2010). The procurement activities seemed to be very important for achieving goals and for development if knowledge especially in the logistics branch.

According to the results of research (Strain and Preece, 1999; Korecki et al. (2010) Korecki and Pomazalová, 2010; Pomazalová, Korecki and Darkwah, 2010) the main role in the knowledge needs nowadays are activities connected with logistics support, especially with Reception Standing Onward Movement, procurement activities for better achieving of operational goals based on tasks and objectives. They seem to be more important in the military logistics branch than activities based on commercial logistics principles. It is based on the sense of military organization and management and military logistics. Because for military professionals is necessary to implement their knowledge in multinational surrounding, here is clear the need of language development and skills in the information and communication technologies is also based on the community of practice (Stevenson, 2000). In the logistics branch is possible to apply neo-Thorndikian theory (De Corte, 1999) and human science (Strain and Preece, 1999).

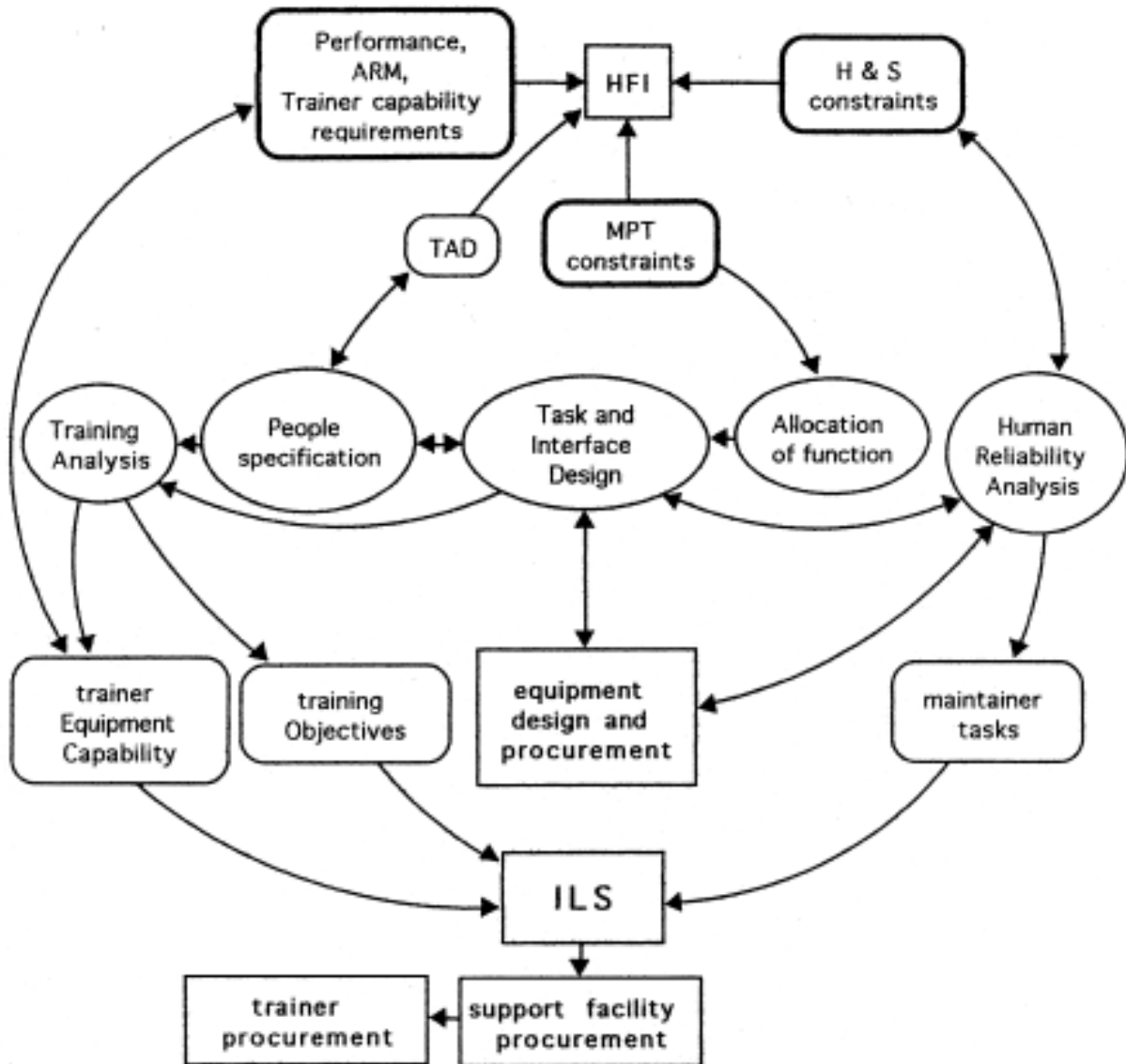


Fig. 1. Human Factors Integration constraints, activities and data set by Strain and Preece. Source: Strain and Preece, 1999

4. RESULTS AND DISCUSSION

The permanent deficient in human resources and inability to predict initial military appointment of the graduates decreases the University of Defence ability to systematically manage and adjust study programs and just in time/just enough time short term attachment according to concept of lifelong learning and training in the knowledge era via e-learning or knowledge management technologies. The possible way is description of complex logistic processes in the foreign operations for saving internal costs, improving activity realization and increasing of job security and also knowledge management

tools preparation (Korecki and Pomazalová, 2010).

Knowledge capital literature highlights that enterprise and organization efficiency is involved in socio-cultural capability of the enterprise or organization and ability to reduce costs and preformatted benefits and positive effects of knowledge. Knowledge capital usage and membership graduates in knowledge networks create linkages based on shared knowledge. The density of knowledge network is based on cognitive ability and decision-making process of graduates. The relevance in the current debate on the knowledge needs and practical experiences of final year students is also based on new

transformational conditions of defence sector. In this respect, in Romania the curriculum has been revised in order to offer the opportunity of developing a knowledge network, more precisely, to align the educational approaches according to the Major Staff needs and expectations, to increase practical character of military education, to focus on the realities of the modern battlefields (Frunzeti, 2010; Lesenciuc, 2011).

Knowledge relationships in the frame of knowledge networks of university, government (Ministry of Defence) and Armed Forces may grow up as ad hoc students, graduates and military professional as practitioners in teams to linkage ties to building reciprocal knowledge advantage in the stream of knowledge management system. Knowledge position of the final year students and graduates may be better institutionalised in knowledge networks to support military tasks. Achieved results bring the necessarily growth of military logistic knowledge needs of the logistic students and also suggestions for educational process improvements with contribution of Human Science (Strain and Preece, 1999).

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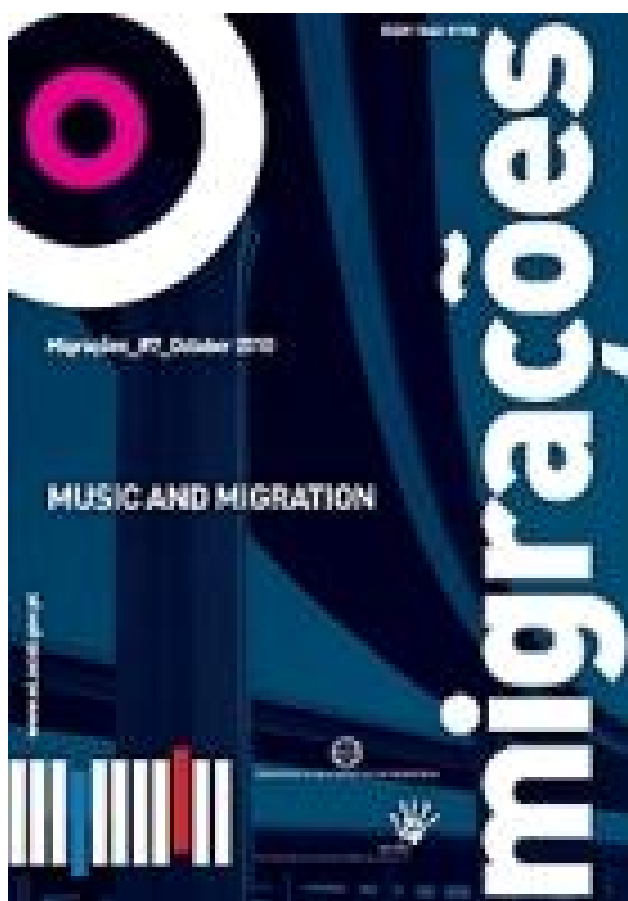
MUSIC – SUBTEXT OF INTERCULTURAL CONTEXT

Adrian LESENCIUC

“Henri Coandă” Air Force Academy, Brasov, Romania

Abstract: *This article intends to highlight the importance of music in the context of migrant communities, reflected in the special issue of the publication Migrações. Journal of the Portuguese Immigration Observatory, Music & Migration, #7 October 2010, coordinated by the researcher Maria de São José Côrte-Real (Universida de Nova, Lisbon).*

Keywords: *music, migration, identity, citizenship, intercultural context.*



1. INTRODUCTION. PROBLEMATICĂ AND STRUCTURE

The special issue of the publication *Migrações. Journal of the Portuguese Immigration Observatory, Music & Migration*, #7 October 2010, coordinated by the

researcher Maria de São José Côrte-Real (Universida de Nova, Lisbon), dedicated to the intense relationships, identity, established between cultural groups from Diaspora and their cultural memory, is important by its focus on contemporary cultural framework where continuity and innovation vectors act by appeal to musical subtext. Being structured into three parts: I. *Research* II. *Good practices* and III. *Notes and opinion articles*, this issue is introduced by Rosário Farmhouse's accompanying texts, High Commissioner for Immigration and Intercultural Dialogue, Roberto Caneiro, Immigration Observatory Coordinator and the publisher Maria de São José Côrte-Real.

Music – reliable element of cultural identity, equally universal and particular language – is one of the factors that unify the current community that enables increasingly diverse cultural mixtures characterizing a society that moves on, into the contemporary mixer, towards the global homogeneity and also having the role of maintaining the specificity, the local particularity, that of origin. *“Resulting from – individual or collective – creative processes, music reveals elements that characterize specific cultural identities of its creators, at the same time establishing itself as a new identity element of the community that appropriates it”*, Rosário Farmhouse mentions in his introductory speech (2010:7). This “succulent” number 7

from *Migrações* as Roberto Caneiro names it, therefore brings to the readers, under the organizational print of the publisher Côrte-Real, not only issues such as harmonic, aesthetic involved in music, but also social and cultural ones, political and economic aspects implicitly, that remain within an area (often marginally) of dialogue between cultures. Maria de São José Côrte-Real's complex foreword is meant to build systematically a map of the binominal music-migration and to bring into discussion referential elements of the structure of this special issue from *Migrações*, presenting – intended to be illustrative in this review of the scientific paper *Review of the Air Force Academy* – important names of ethnomusicological research who agreed to participate in the already completed design of above-mentioned binominal: Dan Lundberg (Universitrt of Stockholm), Sílvia Martínez (Universitat Autònoma de Barcelona), Susana Sardo (Universidade de Aveiro), Maria de São José Côrte-Real (Universidade Nova de Lisboa), Jorge Castro Ribeiro (Universidade de Aveiro), Ursula Hemetek (Universität Wien), Jorge de La Barre (Universidade Nova de Lisboa), John Baily (University of London), Marcello Sorce-Keller (Università ta' Malta), Dieter Christensen (Columbia University, New York), Mark Naison (Fordham University, New York), Jean-Michel Lafleur (Université de Liège) și Marco Martiniello (Centre d'Études de l'Ethnicité et des Migration).

2. MUSIC AND MIGRATION. MUSIC ROLES WITHIN MIGRANT GROUPS

Music – important identity marker – mainly expresses its marker qualities within marginality. This marginality, seen not only within ethnic boundaries¹, space of confluences and cultural interference, gives rise to the need for expression of belonging, and music, through its symbolic potential, being meant to configure differences and similarities. „*Music, and folk music in particular, constitutes a special case as an identity marker. Especially since it, together with other forms of expression, moulds our perception of what collective human identity*

actually is.”, as Dan Lundberg mentions (2010:42). Community membership involves both introspection and expression, the culture functionality by implementing various forms of highlighting, being accomplished implicitly through music. But this highlighting is the more obvious, the larger the cultural diversity is. Therefore, the stronger the need of expression is, the more emphasized the membership is required to be.

In particular, music is meant to maintain cohesion in Diaspora groups, to preserve the language and to transmit it to young people. It contributes substantially to evoking memory, to keeping alive emotions of migrant population that accompanied and remained with her, unlike other cultural items that had remained far behind. By this, we should understand that the repetition of these cultural practices (through music) is a source of comfort for the migrant population. Sometimes, after generations' succession, after keeping some evoking ritualized forms through music, „*cultivating the 'retention of musical models' (Carvalho, 1991) which retains and evokes the past era*” (Castro Ribeiro, 2010:105), successive generations born out of migrant groups, may create a dynamics musical innovation by enriching, through new forms of expression, the own cultural expression and bringing closer the host cultural space, thus helping to create a new identity¹. In this framework of cultural reconfiguration through music, passing from 'natural order', folklore to the 'aesthetic order' of cult music should not be omitted.

Furthermore, music, used to maintain cultural identity, to create cohesion, sometimes split on ideological and religious foundation, has a therapeutic role for the immigrant and for the group, stimulating self-esteem and getting closer the person that is situated far from the own cultural framework, to an

¹ “*This is specially typical to the second or third migrant generation, born and brought up in a new land.*”, Baily and Collyer note (2006), cited by Castro Ribeiro (2010:105); more, Baily (2010:159) underlines the fact that the role of music (in the sense of implicit innovation) is „*to reinforce an encapsulated sense of identity*”;

imaginary cultural landscape that begins to shape.

But these roles that music have are filled with significance for the ethnomusicology researchers, that consider it a source of analysis of migration, as source of information on behaviors and attitudes, on openness, on rendering the possibility to configure the intercultural dialogue. In a brief presentation, Maria de São José Côrte-Real (2010:92) succeeds the transfer from music towards citizenship matters and intercultural dialogue: „*Body and mind reactions pointing in opposite directions in circumstances such as musical sound preferences, choice of leading references and reflection on one's identity-belonging, seem to highlight the discussion on citizenship, implying openness to diversity, creativity and collaborative endeavour on the interpretive experience*”.

3. CONCLUSIONS. CHALLENGES OF GLOBAL WORLD

This new space, under the umbrella of globalism, overturning effects caused by disjunctive cultural logic, by the more frequent appeal to conjunctive logic in a global world, forecasts the role of music, in the new context of cross-cultural manifestation of the need to maintain the group in an identity and not so stable balance. The challenge suitability for the cultural dynamics is immense. Thus, the group – „*the group entering in performance, constituting and reconstituting itself – imagining itself as it is consolidating itself, and consolidating itself as it is imagining itself -, always re-actualized*” (de La Barre, 2010:147) – is forced to adapt, not to a host culture, but to a dynamic, multiethnic supra-culture, where the mixture represents the greatest danger. Thus, the role of the ethnomusician becomes more important, who is forced to study the music of migrant groups, not in relation to the stable and unique cultural environment, but to a trans- and intercultural framework. Seen as a phenomenon with a decisive role in acculturation relations, the music of migrant groups has changes (of migrant culture and host culture), not in

relation with the original models, but rather with a music of time, and not of space.

The question which this special issue of *Migrações* answers to, directly or indirectly, is that concerning the logic (and ethics) that govern the music of migrant groups, namely, the unstable equilibrium which this involves, in a world hungry for culture: „*On the one hand, the ethic of responsibility (reason) and its values of universalism and humanism, the progressive and finally indifferent inclusion of 'all' in an undifferentiated and repetitive world music; on the other hand, the ethic of conviction (emotion), the 'music of periphery' with their potential of resistance through cynicism and silence, their perfect indifference in being represented by the center, also revealing, denouncing and eventually exhausting the pitfalls, the contradictions of the 'repetitive society' (Attali, 1977). A resistance which, by the way, would be directly proportional to the degree of exclusion that these musics 'suffer'*. (de La Barre, 2010:153). Within such a framework, where both „*music relaxes and awakens*” (Côrte-Real, 2010:73), its study, correlated with the dynamic, globalizing context, is a necessity.

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