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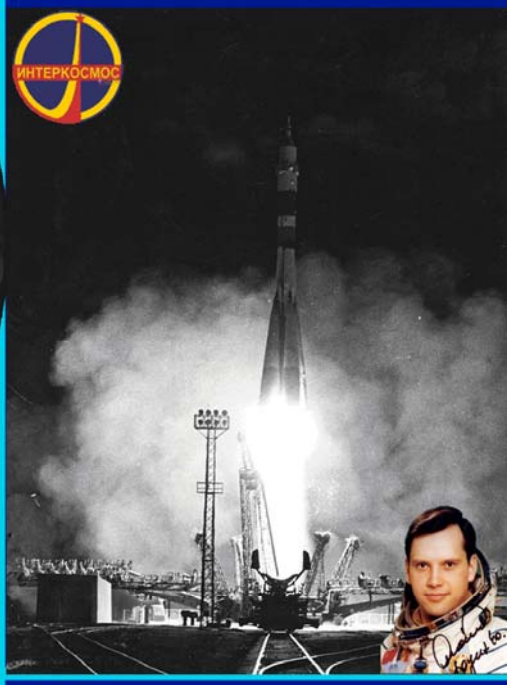
in the outer space of a Romanian: Dumitru Prunariu



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Celebrating 30 years from the first flight in the outer space of a Romanian:
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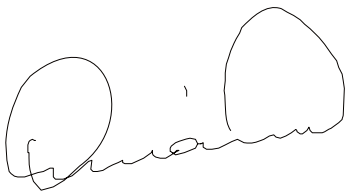
First of all, a spaceflight provides a person with a different perspective of the surrounding world, starting from the very physical perception of the Earth, seen from the outer space. Moreover, all of these perspectives enlarge one's horizon with regard to perceiving problems globally. This phenomenon does not take place immediately after experiencing a spaceflight, but in time, once one starts confronting oneself with a series of new activities, especially in international context. After a thorough analysis of such activities, the resulting conclusions are in most cases ignored by those people who do not possess a sense for perceiving things at a cosmic scale... I am absolutely convinced that Life is not only a terrestrial characteristic; it would be absurd for one to display such thinking.



Dumitru Prunariu, 2004

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C O N T E N T S

STRIPLINE ANTENNA WITH ELLIPTICAL DIPOLES - THEORETICAL AND EXPERIMENTAL CONSIDERATIONS

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***Abstract**: The paper presents the main theoretical and practical aspects regarding stripline antenna with elliptical dipoles. There are presented design principles of the stripline antenna, their shape and physical dimensions. The material outlines specific characteristics of the stripline antenna with elliptical dipoles. The characteristics are investigated experimentally.*

***Keywords**: stripline antenna, elliptical dipole, microstrip, microwave circuit.*

1. INTRODUCTION

At the same time increasing importance of wireless communication systems and personnel IT (information technologies) services (e.g., Bluetooth) increasing efforts are devoted to the design and implementation of novel microstrip structures from miniaturized electronic circuits to the antenna arrays. One major application is design of microstrip antennas which are attractive candidates for adaptive systems in the present and future communication systems. Their main advantages are light weight, low cost, planar or conformal layout, good gain (the gain obtained are comparable with gain of big classical antennas), and ability of integration with electronic or signal processing circuitry (Wong, 1999).

On the other hand, designing active/passive microwave circuits requires understanding of both mathematical relations (i.e., the theory) and applications (i.e., computer simulations as well as measurements).

Mathematical relations exist for only simple, idealized microstrip structures and may help to understand only the fundamentals.

This article describes the design, architecture and testing of stripline antenna with elliptical dipoles.

2. THE STRIPLINE ANTENNA WITH ELLIPTICAL DIPOLES

2.1 Design Principles. The resonant frequency selected for the design is 900 MHz. Theoretical and real wavelength is (Balanis, 1997):

$$f = 900\text{MHz} \Rightarrow$$

$$\Rightarrow \lambda_{th} = \frac{c}{f} = \frac{3 \cdot 10^8}{9 \cdot 10^8} = 33\,\text{cm} \qquad (1)$$

$$\lambda_{real} = \frac{\lambda_{th}}{\sqrt{\varepsilon_r}} = \frac{33}{1.61} = 20.5\text{cm} \qquad (2)$$

Here, c and ε_r are speed of light and effective relative permittivity.

The dimensions of the elliptical radiant element (a, b – half of the ellipse axis) are:

$$2a = \frac{\lambda_{th}}{4} \Rightarrow a = \frac{\lambda_{th}}{8} = 4.125\text{cm} \qquad (3)$$

$$\frac{a+b}{a} = \frac{a}{b} \Rightarrow b = 0.61 \cdot 4.125 = 2.51\text{cm} \qquad (4)$$

(according to optimal interpolation ratio – *golden cut* of the ellipse).

The size of the ellipse was calculated using λ_{th}, and to calculate the size of the slot type resonator was used λ_{real}.

For the calculus of the ellipse axis intersections, in case of higher harmonics, it was used the interpolation method (Morariu, 2009; Evangelos, 2006:294-297) on the cylindrical resonator by approximation at the elliptical boundaries (figure 1 and figure 2).

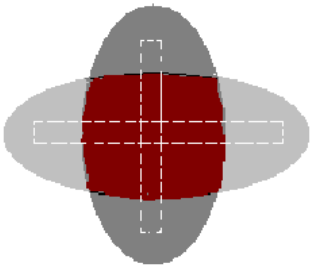

Fig. 1 Physical resonant cavity

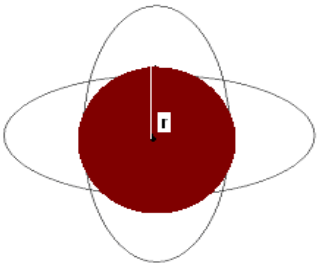

Fig. 2 Equivalent cavity used for calculation

The method consist in the equivalence of common radiating surfaces to those two stripline dipoles superimposed and separated by the dielectric layer as in figure 1, with an equivalent circular area presented in figure 2, neglecting the transfer radiation on the elliptical boundary and dipole plane behind the dielectric (their influence is minimal).

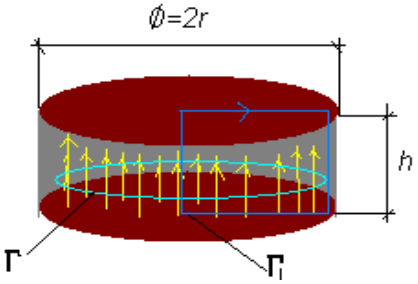

Fig. 3 Stripline equivalent resonator

Applying this procedure it is obtain a stripline cylindrical resonant cavity like in Figure 3, whose resonance frequency is derived using the calculation for the variation of high frequency electromagnetic field between plates of the parallel circular plane capacitor with dielectric ε_r.

Calculation of components B and E of the radiating electromagnetic field is obtained by applying the integral form of Maxwell equations iteratively as follows.

- Equivalent stripline cylindrical resonant cavity

$$\oint F \cdot dl = \iint_{\Sigma} \nabla \times F \cdot ds \tag{5}$$

$$c^2 \nabla \times B = \frac{\partial}{\partial t} E \tag{6}$$

$$\nabla \times E = -\frac{\partial}{\partial t} B \tag{7}$$

$$\oint_{\Gamma_1} E \cdot dl = -\frac{\partial}{\partial t} \iint_{\Sigma_1} B \tag{8}$$

$$c^2 \oint_{\Gamma} B \cdot dl = \frac{\partial}{\partial t} \iint_{\Sigma} E \cdot ds \tag{9}$$

$$E = E_0 \cdot e^{j\omega t} \tag{10}$$

$$c^2 B \cdot 2\pi \cdot r = \frac{\partial}{\partial t} \iint E_0 \cdot e^{j\omega t} \tag{11}$$

$$c^2 B \cdot 2\pi \cdot r = \frac{\partial}{\partial t} E_0 \cdot e^{j\omega t} \int_0^r 2\pi \cdot r \cdot dr \tag{12}$$

$$c^2 B \cdot 2\pi \cdot r = E_0 \cdot j\omega \cdot e^{j\omega t} \cdot \pi \cdot r^2 \tag{13}$$

$$\Rightarrow B_1 = \frac{j\omega \cdot r}{2c^2} \cdot E_0 \cdot e^{j\omega t} \tag{14}$$

which is the first field iteration.

$$\oint_{\Gamma} E \cdot dl = -\frac{\partial}{\partial t} \iint_{\Sigma_{\Gamma 1}} B_1 \cdot ds \tag{15}$$

$$-h \cdot E_1 = -\frac{\partial}{\partial t} \int_0^r \frac{j\omega \cdot r}{2c^2} \cdot E_0 \cdot e^{j\omega t} \cdot ds \tag{16}$$

$$-h \cdot E_1 = \frac{\omega^2 \cdot E_0 \cdot e^{j\omega t}}{2c^2} \int_0^r r \cdot dr \cdot h \tag{17}$$

where $ds = dr \cdot h$ (18)

$$-E_1 = \frac{\omega^2 r^2 E_0}{4c^2} \cdot e^{j\omega t} \tag{19}$$

$$\Rightarrow E_1 = -\frac{\omega^2 r^2 E_0}{2c^2} \cdot e^{j\omega t} \tag{20}$$

$$E_T = E + E_1 \tag{21}$$

For the second iteration:

$$c^2 \oint B_2 \cdot dl = \frac{\partial}{\partial t} \iint E_1 \cdot ds \tag{22}$$

$$c^2 \cdot 2\pi \cdot r \cdot B_2 = \frac{\partial}{\partial t}\iint -\frac{\omega^2 r^2 E_0}{4c^2} \cdot e^{j\omega t} \cdot ds \quad (23)$$

where: $ds = 2\pi r \cdot dr$ (24)

$$B_2 = \frac{-1}{2\pi \cdot r \cdot c^2}\frac{\partial}{\partial t}\int_0^r 2\pi r \frac{\omega^2 r^2}{2^2 c^2} E_0 e^{j\omega t} dr \quad (25)$$

$$\oint E_2 \cdot dl = -\frac{\partial}{\partial t}\int_0^r B_2 \cdot h \cdot dr \quad (26)$$

$$-E_2 \cdot h = -\frac{\partial}{\partial t} h \int_0^r B_2 \cdot dr \quad (27)$$

$$\Rightarrow E_2 = -\frac{\partial}{\partial t}\int_0^r \frac{j\omega^3 r^3}{2^4 c^4} \cdot E_0 \cdot e^{j\omega t} \cdot dr \quad (28)$$

$$E = E + E_1 + E_2 + ... \quad (29)$$

$$E_T = E\left[1 - \frac{(\omega r)^2}{(2c)^2} + \frac{(\omega r)^4}{(2c)^4}\frac{1}{2^2} - \right. \quad (30)$$
$$\left. - \frac{(\omega r)^6}{(2c)^6}\frac{1}{6^2} + ...\right]$$

$$E_T = E\left[1 - \left(\frac{\omega \cdot r}{2c}\right)^2 \cdot \frac{1}{(1!)^2} + \left(\frac{\omega \cdot r}{2c}\right)^4 \frac{1}{(2!)^2}\right. \quad (31)$$
$$\left. - \left(\frac{\omega \cdot r}{2c}\right)^6 \cdot \frac{1}{(3!)^2} + ...\right]$$

Naming: $x = \frac{\omega}{c} r$ (32)

$$E_T = E\left(1 - \frac{1}{1^2}\left(\frac{x}{2}\right)^2 + \frac{1}{(1 \cdot 2)^2}\left(\frac{x}{2}\right)^4 - \right. \quad (33)$$
$$\left. - \frac{1}{(1 \cdot 2 \cdot 3)^2}\left(\frac{x}{2}\right)^6 + ...\right)$$

$$E_T = E \cdot J_1 \quad (34)$$

Bessel function $J_1(x)$ shall be cancelled for x = 2.41; 5.52; 8.2.

▪ For the equivalent cylindrical resonant cavity:

$r = b = 2.51cm = 2.51 \cdot 10^{-2} m$

The first resonance frequency (x = 2.41) is:

$$v = \frac{c}{\sqrt{\varepsilon_r}} \Rightarrow f = \frac{c \cdot x}{2\pi r\sqrt{\varepsilon_r}} = 2.85GHz \quad (35)$$

(the dielectric permittivity is $\varepsilon_r = 2.6$)

The second resonance frequency (x = 5.52) is f = 6.52GHz.

▪ Planar resonant cavity (Marchais, 2006: 319-322)

It is positioned symmetrically on the major axis of the ellipse, having the form and dimensions presented in figure 4.

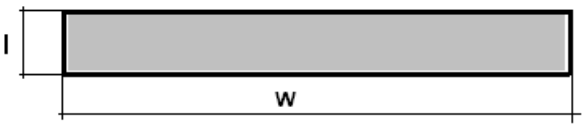

Fig. 4 Stripline resonant cavity

According to (2) the dimensions are:

$l = 0.52cm = 0.52 \cdot 10^{-2} m$

$w = 5.125cm = 5.125 \cdot 10^{-2} m$

Resonance modes are E_{m0n}.

$$\lambda_{rez} = \frac{2 \cdot \sqrt{\varepsilon_r}}{\sqrt{\left(\frac{m}{l}\right)^2 + \left(\frac{n}{w}\right)^2}} \quad (36)$$

$$f_{rez} = \frac{c}{\lambda_{rez}\sqrt{\varepsilon_r}} \quad (37)$$

E_{001} mode implies m = 0, w = 5.125cm, n = 1; according to (36), for ε_r = 2.6, the resonance wavelength is λ_{rez} = 16.5cm, and the resonance frequency is f_{rez} = 1.13GHz.

In case of open dipole antenna configuration (λ/2) with elliptical radiating elements and slot resonators, oscillating process take place and for slot length w = λ/4. This property lowers minimum operating frequency of the antenna at:

$$f_o = \frac{f_{rez}}{4} = 282.5MHz \quad (38)$$

According to (36), (37), (38), E_{00n} resonance modes determines resonance frequencies (n > 1) in the antenna $f = nf_o$, widening emission/reception spectrum of the antenna.

E_{101} mode leading to higher resonance frequencies, which in accordance with relations (36) and (37) starting with 11GHz.

▪ Planar resonant cavity situated at the intersection of slots (Morariu, 2009)

The resonance frequency of the cavity having dimensions:

$l = w = 0.5cm = 0.5 \cdot 10^{-2} m$
according to (36), (37), (38), for E_{001} mode is f_{rez}=2.9GHz. E_{00n} resonance modes determines resonance frequencies (n > 1) in the antenna $f = nf_o$, widening emission/reception spectrum of the antenna.

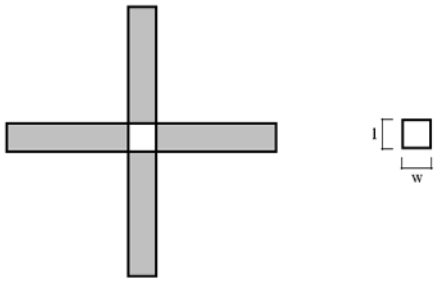

Fig. 5 Slot resonators

E_{101} mode leading to higher resonance frequencies, which in accordance with relations (36) and (37) starting with 16.7GHz.

2.2 Antenna architecture. The obtained antenna has the shape and dimensions presented in the figures 5, 6 and 7.

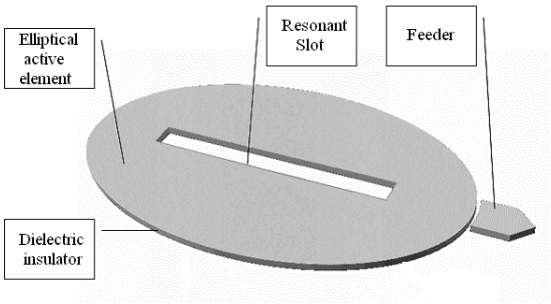

Fig. 6 Panoramic view of the stripline antenna

From physical point of view the microstrip antenna contain an active plan implemented with resonant elements in the specified frequency band, dielectrically separated by a ground conductor plan. The frontier insulation coefficient of the electromagnetic field is proportional to relative permittivity (ε_r) of the dielectric layer.

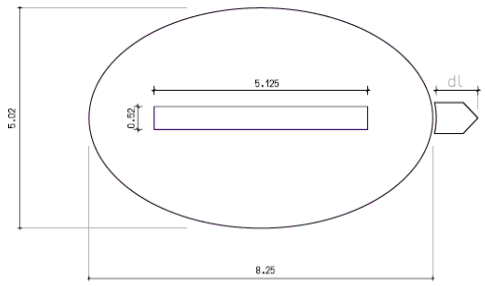

Fig. 7 Dimensions of the antenna radiant element

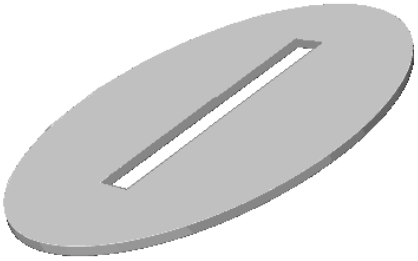

Fig. 8 Panoramic view of the radiant element

The two antenna radiating elements listed above are superimposed on the insulating layer, one on the front and the other on the back with homologous axes in angle π/2 as shown in the figure 9.

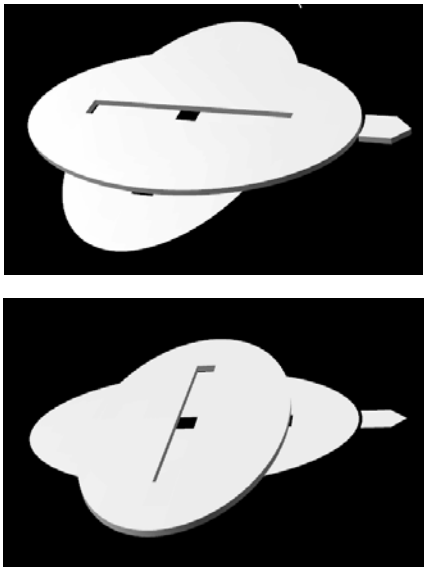

Fig. 9 Antenna front-back view

To pass the signal received or delivered, the antenna being symmetrical load, it is necessary to adapt and to make it asymmetrical for passing signal to and from the coaxial cable.

Antenna type is open dipole (figure 10) with $Z_{ant} \approx$ 40-60Ω. Value should not be adapted, but it is compulsory to make it

asymmetrical (to pass to asymmetrical coaxial cable with Z = 50Ω).

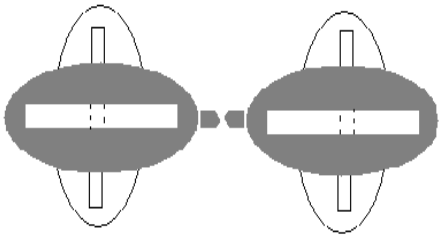

Fig. 10 Open dipole

The scheme from figure 11 has been developed to adapt to coax feeder using VSWR chart (Fig. 12). Feeder impedance adaptation is achieved by moving the point marked with (*).

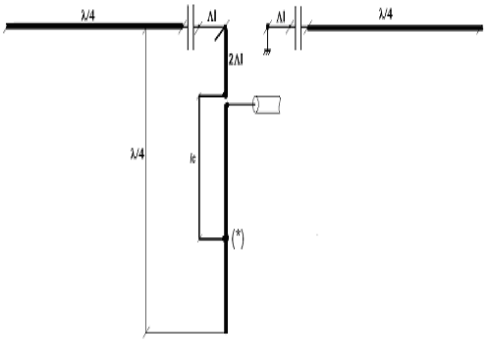

Fig. 11 Feeder matching

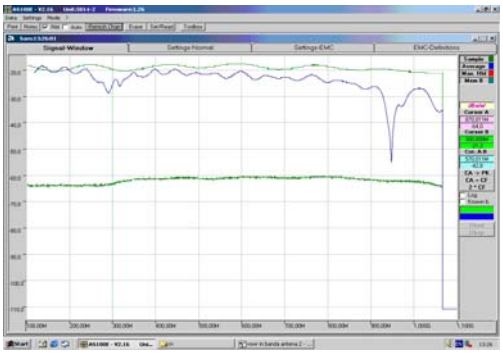

Fig. 12 VSWR in case of Γ = 1, Γ = 0 and inside band

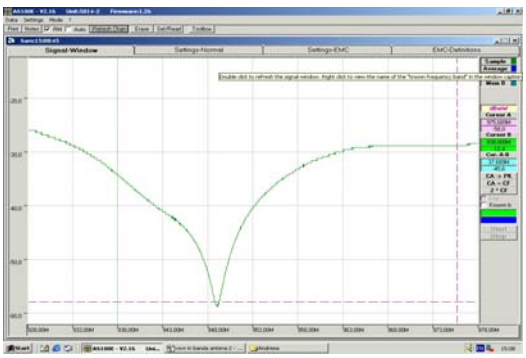

Fig. 13 50MHz opening band for VSWR 1,3,5

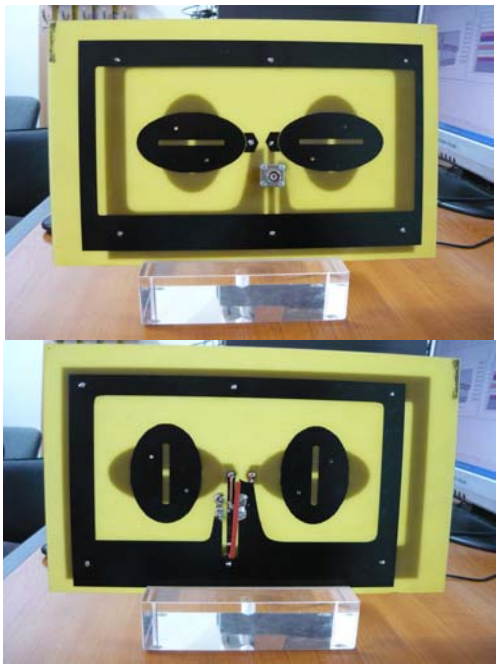

Fig. 14 Front-back view of the stripline antenna with elliptical dipoles

2.3 Experimental results. Figure 14 presents the realized stripline antenna with elliptical dipoles.

Vertically polarized stripline antenna operates from 260MHz to 1000MHz. It has two frequency bands in which operate optimally [260MHz - 470MHz and 780MHz - 1000MHz]. In case of horizontal polarization, stripline antenna operates from 230MHz to 1000MHz. Again, it operates optimally in two frequency bands [230MHz - 450MHz and 780MHz - 1000MHz].

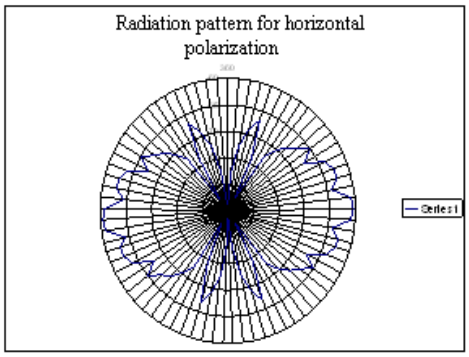

Fig. 15 Radiation pattern of the horizontally polarized stripline antenna with elliptical dipoles

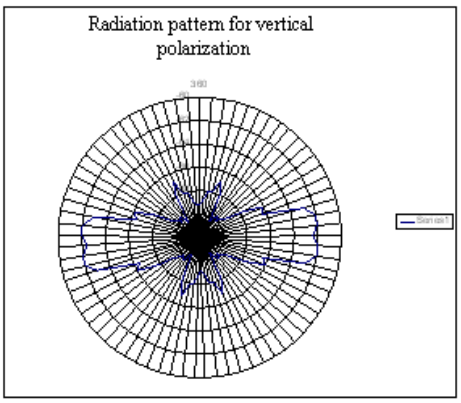

Fig. 16 Radiation pattern of the vertically polarized stripline antenna with elliptical dipoles

4. CONCLUSIONS

The design, architecture and experimentation of stripline antenna with elliptical dipoles are discussed.

The process of experimentation revealed that the proposed antenna is characterized by: important gain, wide frequency coverage band - both horizontally and vertically, very good impedance match between the antenna and feeder. Thus, adaptation to a 50ohm feeder is made with less than 0.3dB loss. Also, it appeared that the feeder matching is possible in a relatively wide range (dynamic adaptation).

On the other hand, the antenna radiation pattern shows a lobe large enough in case of horizontal polarization; in case of vertical polarization the lobe is flattened out.

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FINITE ELEMENT SIMULATION OF THE GAS TURBINE COMBUSTION

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***Abstract**: Gas turbines are one of the key energy producing devices of our generation. Improved designs of gas turbine components are necessary in order to address the increasing demands of high performance and reduced emissions. This paperwork addresses the key issue of automated optimization by presenting optimization algorithms that are implemented in realistic design processes of gas turbine components. The results include algorithmic advances and the development of efficient designs for turbine components.*

***Keywords**: FEA, gas turbines, optimization, combustion.*

1. INTRODUCTION

Finding optimal solutions to real world design applications is usually an iterative process limited by the available resources. These limits may be the maximal number of possible computational and experimental design evaluations or the limited labor time of the design engineers. The development of optimal designs can be achieved by human designers or by exploiting automated optimization techniques. Human designers exploit their accumulated domain knowledge while automated optimization algorithms search by analyzing design evaluations resulting from a systematic parameter variation.

The setup of an automated optimization requires three steps. The first step addresses the automation of the data flow. The different evaluation tools of a design process usually require input data in different formats. For an automated data flow, interfaces are necessary in order to convert formats and to execute the evaluation tools without user interaction. Then, a large number of designs can be evaluated with minimal user time, while performing simultaneously sensitivity analysis and optimization. In the second step, the design objectives and constraints are defined along with the free decision variables that are allowed to be modified in the optimization process. The objectives and constraints have to be formulated as a function of the design evaluation and optimization then may be formulated as the classical mathematical problem of finding the extreme values of functions. In the third step, an optimization algorithm has to be selected.

For combustion processes, numerical simulations are still rarely used, since combustion processes are difficult to handle with today's computational techniques and computer resources. The underlying chemical reactions are complex and the mixing of fuel and air has to be sufficiently resolved since mixing is mainly responsible for the flame properties. Thus, experimental test-rigs are widely used to analyze combustion processes.

The Finite Element Analysis simulation is becoming a standard tool to study the dynamics of turbulent flows into the Gas Turbines, being a key tool for predicting and studying the processes encountered in many combustion devices as gas turbines but, also, rocket engines or industrial furnaces.

Up to now the reacting flows, combustor geometries, thermodynamic and transport properties were limited to fairly simple schemes for obvious purpose of cost and

complexity reduction. This study presents the computation of a rather complex system as the burner of a Gas Turbine available on market.

2. MULTI-OBJECTIVE OPTIMIZATION OF COMBUSTION PROCESS

It is considered the multi-objective optimization of the combustion processes for a single burner of a stationary gas turbine. The burner combusts fuel (methane) by a vortex stabilized lean premixed flame. The burner is analyzed by an atmospheric test-rig. In the test-rig, the combustion can be passively controlled by a set of valves that control the fuel flow rates though different fuel injection holes along the burner axis. Two different setups are considered using either 8 proportional valves to adjust the fuel flow at each injection hole or 16 digital valves which just open or close certain injection holes. Noise-tolerant Strength Pareto Evolutionary Algorithm (NT-SPEA) is applied to the Pareto optimization of the combustion process. The optimization results in an approximation of the Pareto front for minimizing NOx emissions and reducing the pressure fluctuations (pulsation) of the flame. Both objectives are conflicting and affect the environment and the lifetime of the gas turbine, respectively.

Figure 1 shows a state-of-the-art mid-size gas turbine. Supporting systems like the secondary air systems are not show. In the figure, the gas flow through the machine is from left to right. Ambient air enters the compressor first. Then the compressed air is burned in the combustion chamber and finally expanded in the turbine. The difference in power between the turbine output and the compressor input is the net power to generate electricity.

In today's machines, axial compressors generate pressure ratios between 1:15 and 1:30 and consist of about 20 to 30 stages. Each stage comprises a stator and rotor row. For the gas turbine in Fig. 1, the combustion chamber is annular around the turbine axis with a set of burners aligned in the annulus. The combustion products leave the combustor at temperatures of about $1200 - 1400^0$C. The design of the turbine differs from the compressor.

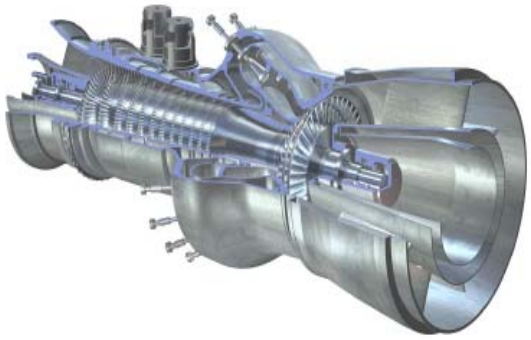

Fig. 1 Cut-away view of a gas turbine (Alstom Power)

Since gaseous flow can be more easily expanded than compressed, only about 4 turbine stages are needed to expand the hot gas. Due to the high temperatures of the gas, the combustion chamber and the turbine rows need to be cooled.

A central component in the design of a gas turbine is the design of the burners in the combustion chamber as the burners are mainly responsible for the emissions of the machine and have a major impact on the thermodynamic inlet conditions of the turbine. The burners mix air and fuel and combust them continuously.

The design of a burner follows various objectives. The burner determines the position of the flame in the combustion chamber. The flame position should be well controlled, avoiding direct contact and thus damage on walls of the combustion chamber. Also, a uniform mixing of air and fuel is desired. Mixing is responsible for the emissions and the pressure pulsations of the combustion flame. For example, the presence of areas of rich combustion results in locally increased temperatures and NOx emissions. Local temperature peaks in the exhaust gas of the burner may damage the proximate turbine blades. Furthermore, the burner should produce a stable combustion flame, avoiding undesired pressure pulsations. Pulsations are thermo-acoustic waves, which occur in particular for very lean combustion when operating under part load condition. They can reduce the lifetime of the turbine, e.g., by

fatigue and by local overheating the blades surface.

3. ATMOSPHERIC TEST-RIG FOR GAS TURBINE BURNERS

The test-rig for a single burner under atmospheric pressure condition is illustrated in Fig. 2. Preheated air enters the test-rig from a plenum chamber. The air flows into the conical burner through two inlets as illustrated in Fig. 3. Along the inlets, fuel is injected and mixes with the air due to the difference in velocity.

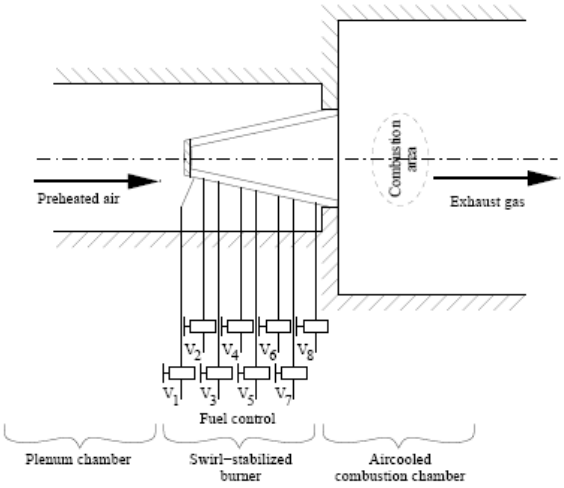

Fig. 2 Sketch of the atmospheric combustion test-rig with a low-emission swirl stabilized

The mixing is enhanced by the swirl in the burner that occurs due to its conical shape. A controlled vortex breakdown is caused by the difference in the cross-section between burner and combustion chamber. The flow re-circulates around the combustion zone. Recirculation stabilizes the combustion flame in a predefined combustion area. The fuel is methane and is injected through injection holes, which are uniformly distributed along the burner.

Gas analysis equipment and a microphone are used to measure all emissions and the pressure pulsations of the burner. Constant operating conditions are obtained by monitoring the airflow from the plenum chamber, the total fuel flow and the exhaust gas of the burner. The NOx emissions and the pulsation of the burner are the two objectives to be minimized in a Pareto optimization setup. Pulsations are thermo-acoustic combustion instabilities, involving feedback cycles between pressure, velocity, and heat release fluctuations. The microphone measurements of the pulsation need to be time-averaged over several seconds. NOx emissions are exponentially dependent on the combustion temperature and occur especially in centers of rich combustion resulting from inhomogeneous mixing of fuel and air.

4. THE FEA MODEL

The FEA model of the Combustor of the Gas Turbine given in the Fig. 1, is, somehow, complementary to the optimization model, allowing obtaining analytical results to completely describe the combustion process inside the Gas Turbine.

Up to now the reacting flows, combustor geometries, thermodynamic and transport properties were limited to fairly simple schemes for obvious purpose of cost and complexity reduction.

This study presents the computation of a rather complex system as the burner of a Gas Turbine available on market (with main dimensions and input data changed), shown in Figure 1.

The second objectives of this study is to investigate the main thermodynamic parameters of the combustion process of the optimized Gas Turbine, as flows, velocities, temperatures and pressures, and supplementary, to investigate the main species mass fraction distribution and physical properties as enthalpies, entropies and so on.

The “negative” of the CAD simulation to simulate the flow paths of air and CH_4, is given in the Figures 3 and 4.

On the above figures it may be identified the air inlet area having the diameter of 500mm, the fuel inlet in burners, having the diameter of 30mm, and the outlet area for the combustion chamber having the diameter of 570mm. The entire modeled assembly has the overall length of 1900mm. It was generated only a slice of 60^0 of the burner for computational purposes, the exit of the burning gases is passing through the two rows

of blades of turbine, colored in blue on the figure.

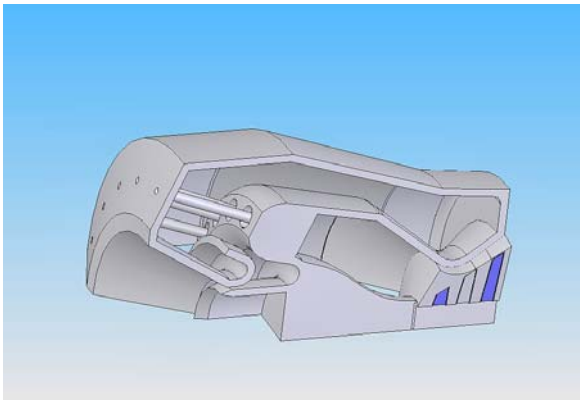

Fig. 3 The CAD geometry

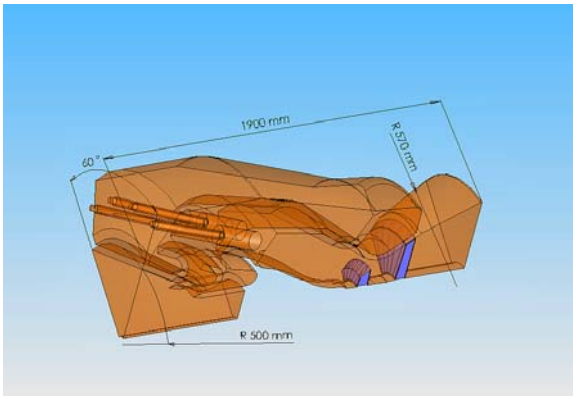

Fig. 4 The "negative" of the CAD geometry simulating the flow paths of Air, Fuel (methane) and combustion products

5. INPUT DATA FOR THE FEA MODEL OF THE COMBUSTOR AREA AND THE OUTLET

The Finite Element Grid comprises 763.892 tetrahedral cells, as it's seen in Figure 5.

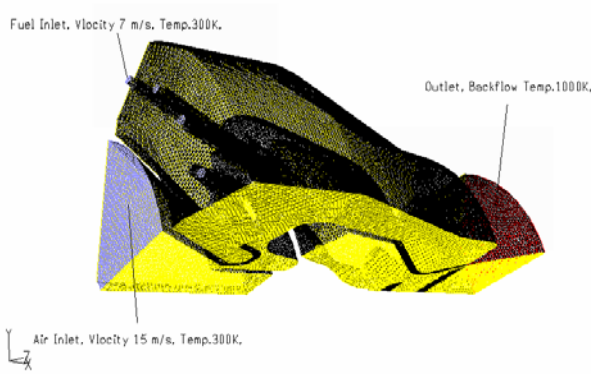

Fig. 5 The finite element's grid

There were defined the boundary conditions as follows:

- The air-inlet zone having a hydraulic diameter of 0.25m, the temperature of 300^0K and the velocity magnitude of the air coming from compressor, 15m/s.
- The fuel-inlet (CH_4) zone modeling the inlet into the burners, having a hydraulic diameter of 0.03m, the temperature of 300^0K and the velocity magnitude, 7m/s.
- The outlet zone modeling the outlet from the blades row, having a hydraulic diameter of 0.27m, the backflow total temperature of 1000^0K.
- The walls have been set to have the temperature of 900^0K.

The mixture material is methane-air, and the defined species are CO_2, CH_4, N_2, O_2, H_2O, with the properties given in Table 1.

The specific heat for the mixture was taken accordingly a mixture law and for each species this was deemed non-constant, obeying a piecewise-polynomial function.

Table 1 Species Properties

	CO_2	CH_4	N_2	O_2	H_2O
Weight [kg/kgmol]	44.009	16.043	28.013	31.998	18.015
Enthalpy [J/kgmol]	-3.93e8	-7.48e7	0	0	-2.41e8
Entropy [J/kgmolK]	213715	186040	191494	205026	188696

6. NUMERICAL PREDICTIONS AND DISCUSSION

The program, after 500 iterations, provided the results discussed below:

Pressure. The maximum pressure (Fig. 6) was found to be $34.2e^6$ Pa in the burner zone and right before the blades row, in the outlet zone decreasing sharply, being identified some portions with cavitations conditions (min. pressure $1.1e^5$ Pa).

Velocity. Starting from the burner's zone, the velocity of the fluid (Fig. 7) sharply augment to 119m/s, the maximum being calculated in the blades row and outlet zone where, on very thin areas, it reaches the staggering value of 2380m/s, about 7 times the speed of sound.

Temperature. The highest temperature, as is expected, was calculated in the burner's

zone, where it achieves the maximum value of 1870^0K, in the exhaust zone being 926^0K.

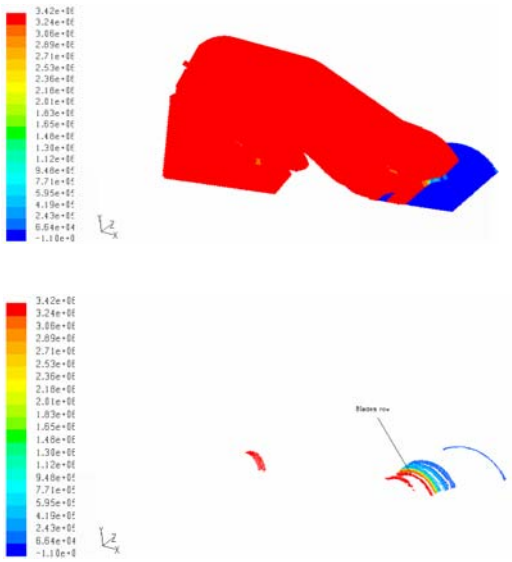

Fig. 6 The pressure distribution

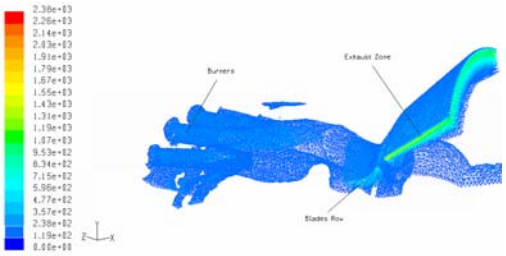

Fig. 7 The velocity distribution

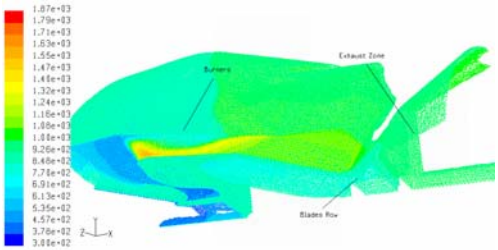

Fig. 8 The temperature distribution

Specific Heat. As was stated above, the specific heat (Fig. 9) for each species was deemed to obey a non-constant piecewise-polynomial function, the mixture being calculated considering a mixing law, therefore the specific heat varies within the domain, reaching a maximum of 4090J/kg-K in the burner's and outlet zone, in the rest of the domain being averaged on 1470J/kg-K.

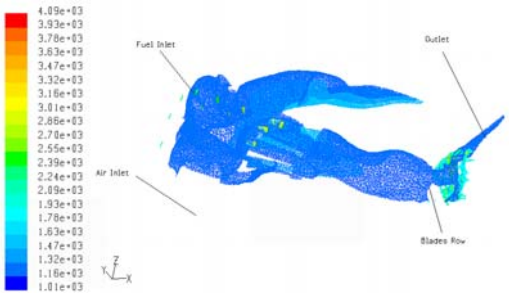

Fig. 9 The specific heat distribution

Enthalpy. The maximum enthalpy (Fig. 10) was calculated in the burner and blade's row zones, reaching a value of $2.35e^6$J/kg, the rest of the domain having an average of $3.55e^5$J/kg.

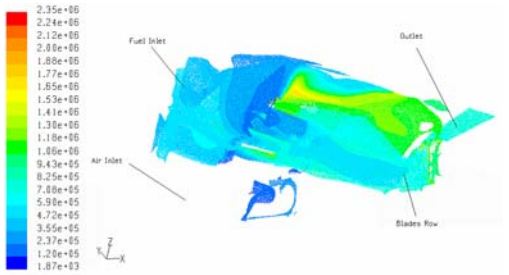

Fig. 10 The enthalpy distribution

Entropy. The entropy distribution (Fig. 11) follows the same pattern as enthalpy; the maximum was calculated in the burner and blade's row zones, reaching a value of $3.34e^3$, the rest of the domain having an average of 700.

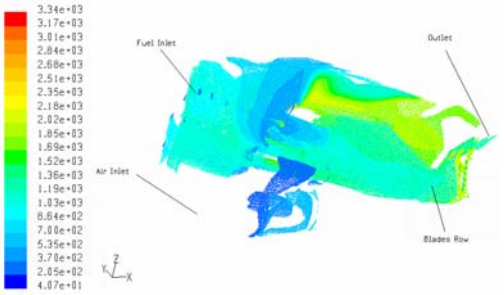

Fig. 11 The entropy distribution

7. CONCLUSIONS

Optimization of engineering problems in an automated setup requires blending of domain knowledge with expertise in optimization techniques. Analysis of the

problem specific requirements is always the first step in setting up an automated optimization. Then, an optimization algorithm is chosen with respect to the problem requirements. The characteristics and capabilities of efficient optimization algorithms can be identified by comparing different algorithms on test functions.

The test functions should be selected such that they reflect the assumed problem features. Improvements of existing algorithms are often necessary, when the performance of the different algorithms is not satisfying for these functions.

The proposed method of optimization is also highly suitable for other problems sharing key features with the design of gas turbine components such as noisy and conflicting objectives, expensive function evaluations and only point-wise information about the objective functions. Experimental test-rigs for gas turbine burners represent a noisy multi-objective problem. The goal is to obtain an approximation of the Pareto front for minimizing NOx emissions and for reducing thermo-acoustic pressure waves (pulsations). Both objectives are time averaged measurements and thus noisy.

This paperwork illustrates that automated optimization can find excellent solutions to complex engineering problems. However, a prerequisite is the careful setup of the optimization process with expertise in both optimization algorithms and the problem to optimize. The numerical results are highly dependent of the input parameters and the geometry of the combustor, the optimization of this sensitive area of the gas turbine leading to the final results of the overall efficiency of the turbine and the noise/NOx effluents.

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MECHANICS TO OBTAIN MULTI-LAYER MATERIALS USING THE EXPLOSIVE WELDING METHOD

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Abstract: *The theme propose to treat some aspects about the employment the welding by explosion mechanism in obtaining new materials used in special industry.*

Keywords: *welding, explosion, materials, multilayer.*

1. INTRODUCTION

Several mechanisms have been submitted, in order to define the process of welding through explosion, beginning with the first phases in the research of the phenomenon. Some of these mechanisms suggest that the process is fundamentally, one of melting.

It is taken into consideration that at the welding-interface, the kinetic energy transforms into thermic energy (accompanied by an energy dissipation), which acts as source of heat, enough to cause bilateral dissolves through the interface, the diffusion of the shells occurring later.

This diffusion of the metals into liquid state, takes place gradually, concerning the structure of the welded metals and the distance from the interface.

According to the studies concerning the waves at the welding-interface, "the whims" and the marks of melted and solidified metal cannot be explained through the mechanism of welding in the solid state, or by the dissolving mechanism.

The deformation of the granules at the interface and the appearance of the waves defines that the phenomenon of welding through explosion is based on a hydrodynamic process of inflows.

2. MECHANICAL PROCESS

The scientists have experimentally established that during the process of welding, important transversal tensions form on the interface, result an effect of warming of the interface. This phenomenon could lead to an adequate warming of the superficial shells to produce the welding and can also explain the appearance of the waves at the interface (Goga, 1999).

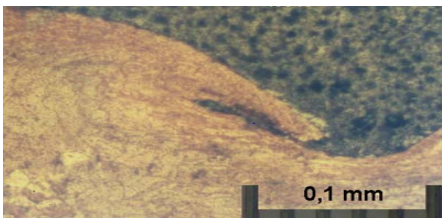


Fig. 1 Example of an interface obtained at the plating through explosion through explosion of the metallic layers

The new testing procedures have revealed that, at the collision of the welding pieces, only a very thin layer of melt forms on the interface. The assigned value of refrigeration of the remained melting layer is 10^5 ^{0}C/s, this value is so high because of the line of contact between the components.

The existence of amorphous layer, inside the welding zone, has been taken into account

for different metallic combinations and explained by the scientists as being the material reason of welding through explosion's fundamental mechanism (Mustață, 2003:96-112; Belmas *et al.*, 1996:217-222).

The welding mechanism with jet configuration is able to incorporate the influence of the main technological parameters and can somehow envisage a "working" domain for the welding parameters, for any metallic combination.

According to these assertions, it is generally accepted that the well-known phenomenon of the formation of the jet in d point is a collision; it is a fundamental condition for the process of welding through explosion. It deals with, because the formed jet represents the agent that cleans mechanically the welding areas, removes the impurities and the oxides, allows that the atoms of the two materials collide at interatomic spaces, thus resulting the welding through explosion.

As defined in the specialty language, the *p* pressure resulted by every metal in the collision point, is obtained by the following formula:

$$p = \rho \cdot u \cdot D \qquad (1)$$

where: p is the pressure of the shock at the interface between plates; ρ - the volume body of the material; u - the material speed of which the materials form the interface move; D - the speed of the shock wave inside the material, this speed is approximately equal with the speed of the sound (the speed of the longitudinal waves).

Besides the dimension of the impact speed between the mobile and the fix material, the welding through explosion it is only possible if at the level of the impact and collision interface exist plastic leaks. In practice, this condition is defined that the speed of the collision point, sometimes named the welding speed, must have a lower value that the speed of the sound inside the value.

Also, so that the welding process could be obtained, the angle of dynamic collision β must excel a minimum value. This angle has very low values.

The speed of the collision point is obtained by the following formula:

$$V_c \approx \frac{V_p}{\sin\beta} \qquad (2)$$

where: V_c is the speed of collision; V_p - is the speed of propulsion; β - dynamic angle of collision.

The study to obtain some layered materials through the unconventional process mentioned above, it is essential also because of the energetic independence provided by the technology, such as the energy to detonate explosive load is adequate.

To obtain the process of plating through explosion, after the construction of half-finished materials and bringing them to desirable sizes, the covers of the explosive loadings are being built, with the function to maintain the geometric sizes of the explosive loadings, under the explosive's character and its granulation. In this instance, the boxes belonging for the explosive loadings have been made of carton.

Determined the testing conditions, the assembly of the technologic system to create the process of plating through explosion begins. Therefore, across the base plate the spacers are put.

The spacers are mechanic elements with the function to create the best distance between the plates, for the process of plating succeed.

The experimental technological system, created to realize the process of plating through explosion is shown in Figures 2 and 3 (Mustață, 2003:96-112).

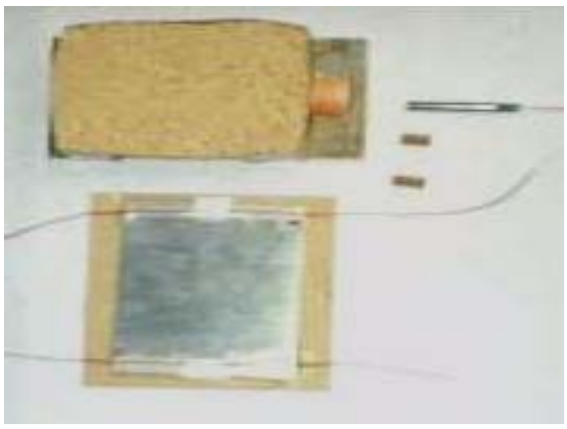


Fig. 2 Essential components of the technological system used for the plating experiments

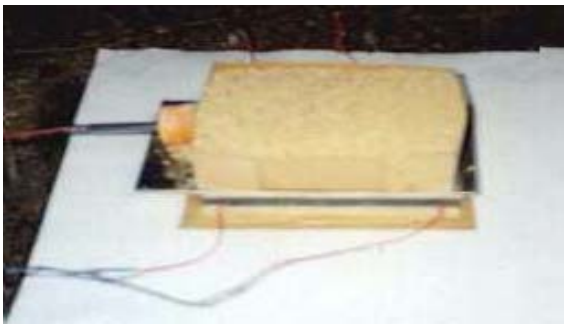


Fig. 3 Lateral angle of the experimental assembly used for the process of plating through explosion

The main and diagram image of the process of welding through explosion are presentes in Figure 4 (Crossland, 1982).

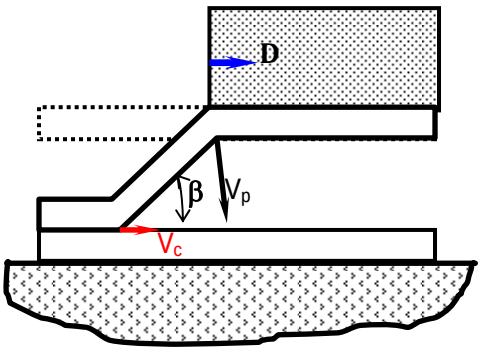


Fig. 4 Main and diagram image of the process of welding through explosion

To obtain a multilayer metallic structure with private characteristics, by the process of plating through explosion, has been tried to create a multi-layered metallic material, underlying aluminum alloy plates type 3105, 3 millimeters thick; between these plates is inlayed a stainless steel fiber, with the role of consolidation (Mustață, 2003:96-112).

Studying the speed area (Fig. 5) during the assemble process, an important distinction is being observed, comparatively with the adapted mode which acknowledges the immediate transfer of the impulse from the explosive to the mobile plate, and the moving with constant speed, without causing kinetic energy loss, till the moment of impact.

In Figures 6 and 7, are presented the time functions of the normal speeds on a mobile plate in some control joints (Mustață, 2003:96-112).

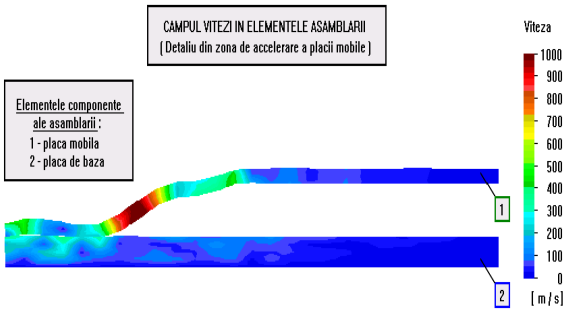


Fig. 5 Speed area during the assemble process

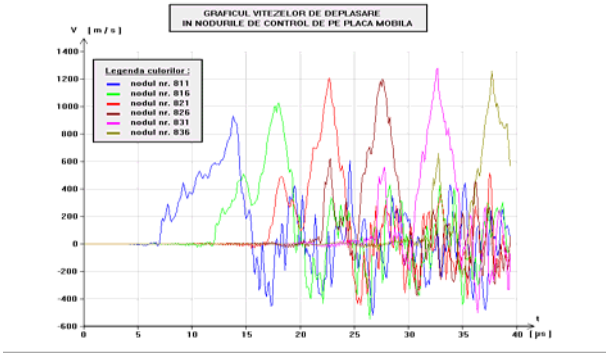


Fig. 6 Image of moving speeds in the control joints of a mobile plate

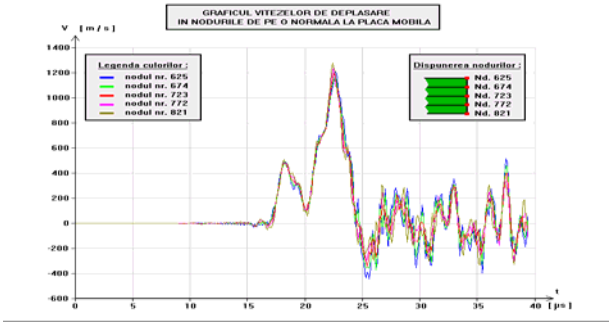
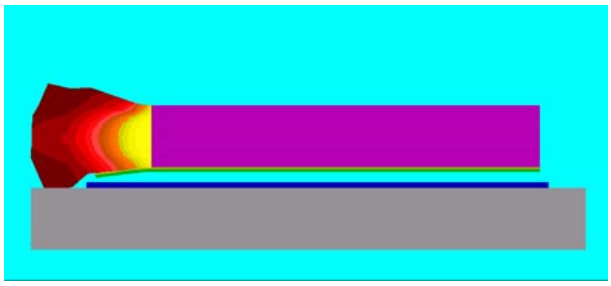


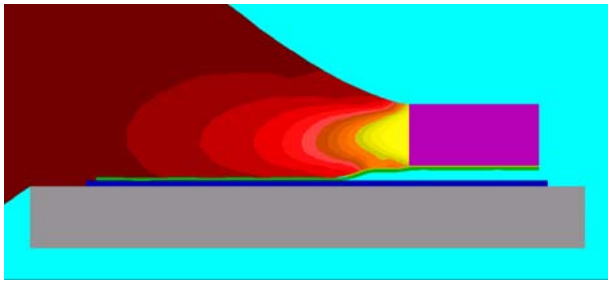
Fig. 7 The Graphic of moving speeds of the nodes from a normal mobile plate

From the calculation obtained by the simulation of the process of plating through explosion from the method of finite elements, can be observed the deformed image of the mobile plate at different moments of time (Mustață, 2003:96-112).

Types of materials submitted, including those obtained by using explosive cladding process once again underlines the fact that the layered materials are those that due to the properties they own, can meet the requirements largely (Mustață, 2003:96-112).



a)



b)

Fig. 8 Sequential phases (a, b) of lining through explosion procedure, of time t [μs]

Rapid transit phenomena, like the ones particular on lining through explosion, are affordable and can be treated sequentially to numerical simulation (Fig. 8) and represented as an effect of simulation, without drawing on sophisticated means of record, like ultra-fast cinematography, photocopying by x-rays are costly methods (Cîrciu, Mustață, 2008).

3. CONCLUSION

From the above, it can be concluded that trends in the field of research is to obtain new multi-layer materials with high mechanical properties able to satisfy the most demanding technical requirements imposed by the peak.

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WAYS OF WORKING THE DATA OBTAINED THROUGH ATOMIC FORCE MICROSCOPY TECHNOLOGY

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***"Stefan cel Mare" University, Suceava

***Abstract**: The article presents a series of methods of working the data obtained through Atomic Force Microscopy technology. It shows the way in which the obtained data can be used and read through the Labview programming language. Emphasis is also laid on a series of advantages resulting from scanning by the direct contact or the non-contact method. AFM consists of a sharp micro fabricated tip attached to a cantilever, which is scanned across a sample. The deflection of this cantilever is monitored using a laser and photodiode and is used to generate imaging or spectra of the surface. The AFM works in a number of different modes.*

***Keywords**: technology, Atomic Force Microscopy, contact mode, force modulation mode, intermittent and non-contact imaging.*

1. INTRODUCTION

Atomic Force Microscopy (AFM) is a powerful surface analytical technique used in air, liquid or vacuum to generate very high-resolution images of a surface and can provide some topographic, chemical, mechanical, electrical information (Duncan, Thompson, 1991:71-75). An AFM consists of a sharp micro fabricated tip attached to a cantilever, which is scanned across a sample. The deflection of this cantilever is monitored using a laser and photodiode and is used to generate imaging or spectra of the surface.

The AFM works in a number of different modes (Duncan, Thompson, 1991:71-75).

These include:

a) Contact mode: the tip is kept in constant contact with the sample (with a force range of 1-1000nN, it may be used with hard materials) and provides the basic mode for topography;

b) Force modulation mode: the tip is kept in contact but a modulated signal is also applied which gives information on dynamic responses from surfaces. Phase and stiffness imaging are extracted from the modulated response signal. This is conducted in the frequency ranges of 10-20 kHz and 400-1000 kHz and modulation forces of around 100pN - 500μN (Binnig *et al*., 1986:930-933);

c) Intermittent and non-contact imaging: the tip is oscillated normal to the surface enabling soft materials to be imaged for topography. This eliminates much of the shear force involved in the contact mode. Phase images are also taken in this mode;

d) Force versus distance spectroscopy. The AFM applies forces from 50μN to 5pN to one spot on a surface to analyze material mechanical properties at surfaces. It either pushes into the surface to measure nano-mechanical properties of a surface such as modulus and adhesion or pulls away from the surface for example to measure the forces associated with unfolding of proteins or the breaking of individual covalent bonds. The hysteresis of the scanner can be controlled by use of closed-loop sensors. The deflection of the cantilever is measured using a laser and a position sensitive diode. The force acting on the sample is calculated from the product of the cantilever spring constant and the

cantilever deflection. The example below is a simple force-distance curve on a piece of silicon wafer (Fig. 1).

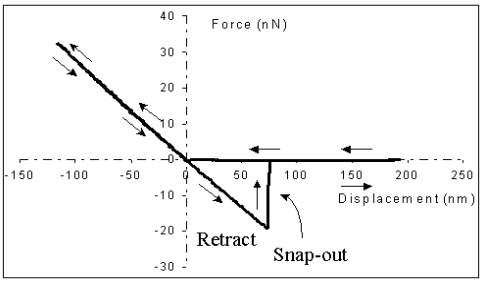


Fig. 1 a simple AFM force-distance curve on a silicon wafer

When a tip is far away from the surface no forces act, as the tip approaches a sample it experiences an attractive van der Waals force until it snaps onto the surface (Pejryd *et al*., 1995:268-274). For studies in ambient conditions this is promoted by a small neck of water, which condenses at very small separations. As the tip moves further the cantilever is deflected by the sample. As the tip is withdrawn, the small capillary layer of water and organics on the sample surface hold the tip longer than expected until the snap-out point is reached. This snap-out displacement is dependent on several factors such as the tip size, and the nature of the surface and ambient environment (Thompson, Garner, 1986:53-56) (Fig. 2).

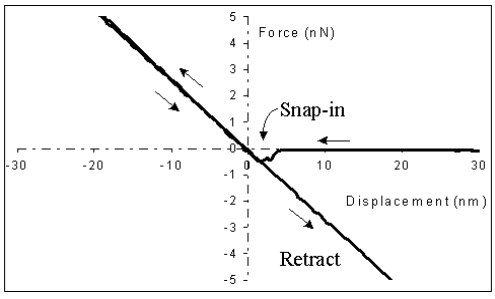


Fig. 2 zoomed in region of a force-distance curve showing the snap-in event

Thermally sprayed coatings are now used extensively in a variety of applications. However, their application has often preceded detailed knowledge or understanding of their corrosion mechanisms or rates. Previous studies involving plasma sprayed coatings (Binnig *et al*., 1986:930-933) have shown that good quality coatings, in terms of low porosity, are essential to protect the substrate from corrosion. There are many thermal spray processes available to date: the high velocity oxygen fuel (HVOF) process, which uses higher exhaust velocities and lower flame temperatures than other processes, can produce coatings of low porosity levels (1%) and avoids alteration of the mechanical properties of the substrate. The corrosion characteristics of thermal sprayed coatings in static saline environments are extremely important where the flow of aqueous solution over components intermittently ceases. It has been established (Tsai, Shih, 1997:42-48) that where coatings are applied by a high-quality process and under stringent quality control procedures, the coatings can provide a very effective barrier to the substrate and prevent any corrosion from occurring. In this situation, however, it is very important to appreciate that corrosion of the coating can occur and that initiation and propagation of corrosion, associated with micro structural features of the composite system, are a real issue. For improvements to the coating corrosion resistance to be made, a full understanding of the corrosion rates and mechanisms, and in particular the resistance of the metallic binder (in systems), is required. In addition, an understanding of static corrosion behavior can help reveal the mechanisms of the coating degradation in erosion-corrosion environments (Binnig *et al*., 1982:57-61). This article investigates the corrosion rates and mechanisms of two HVOF coatings (WC-Co-Cr and WC-Co).

2. EXPERIMENTAL PROCEDURE

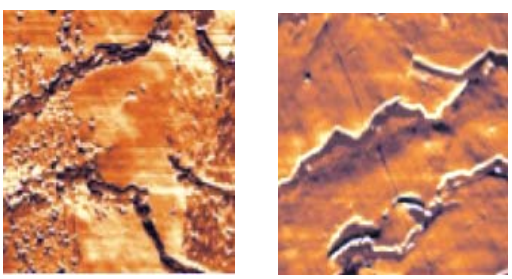
Two HVOF sprayed coatings are studied in this work: a WC Co-Cr coating with nominal composition 86%WC10%Co-4% Cr, and a WC-Co coating with a nominal composition 86% WC-14% Co. The coatings were applied to a stainless steel substrate (UNS S31603). Specimens were soldered on the rear side to an electrical conducting wire and subsequently encapsulated in nano-conducting resin. The exposed coated face of the specimen was then ground with silicon carbide abrasive papers

and polished to a 6μm diamond finish. The main seawater constituents were 19300ppm chloride, 11000ppm sodium, 2700ppm sulfate, 1300ppm magnesium, 400ppm calcium, 400ppm potassium, and 150ppm bicarbonate ions. The specimen-resin interfaces were sealed using varnish (Agar Aids, UK) to prevent interference from the substrate. Electrochemical monitoring was carried out with a standard three-electrode cell, comprising a platinum auxiliary electrode and a saturated calomel reference electrode (SCE). Direct current (DC) anodic polarization tests were carried out after 1 h immersion in the seawater at 18 and 50°C. The seawater was left open to the atmosphere. The potentiostat was used to scan the electrode potential of the coating samples from the free corrosion potential in the positive (anodic) direction until a current in the range of 500-700μA/cm^2. In addition, an atomic force microscope was used to map the topography of the coatings during accelerated corrosion tests.

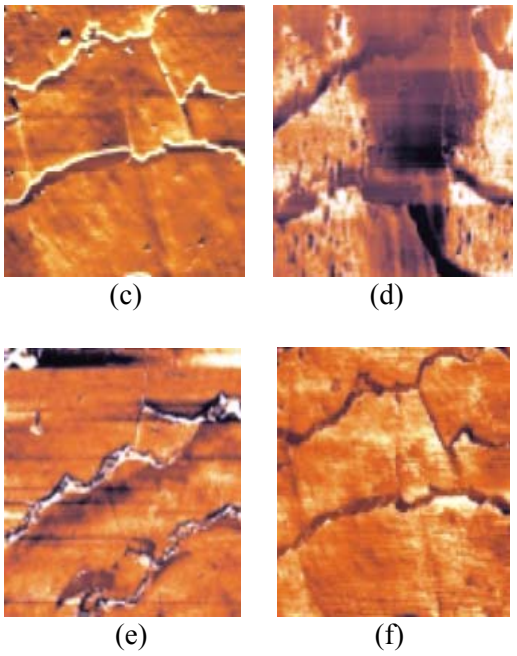
The AFM was configured to probe the surface under water and to record images during anodic polarization n tests. Each image took 6min to produce, during which time the potential had shifted by approximately 90mV.

3. RESULTS

During the decrease in current (points B to C), the matrix is dissolving at a steady rate, defining the hard phase particles more clearly (Fig. 3c). As the current increases (points C to D in Fig. 3d), the matrix dissolves further, revealing the smaller hard phases from point D to E (Fig. 3e). At the end of the anodic polarization, areas where the matrix has dissolved in some regions and areas of attack around the matrix-hard phase interface can be seen (Fig. 3f).



(a) (b)

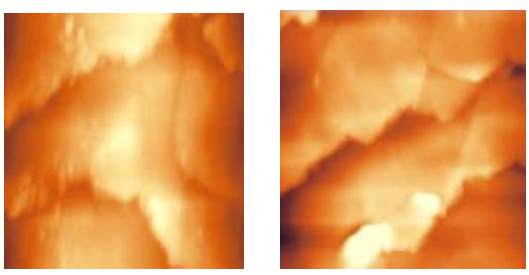


(c) (d)

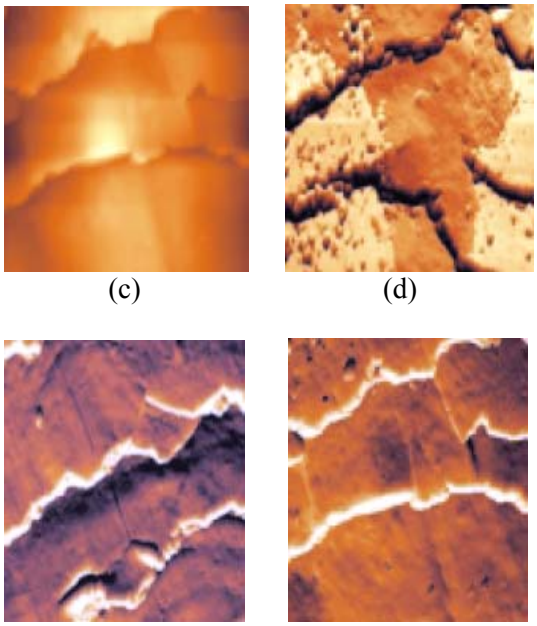
(e) (f)

Fig. 3 In situ AFM images (a) Polished coating prior to polarization; (b) points A to B; (c) points B to C; (d) points C to D; (e) points D to E; (f) end of anodic polarization

In a similar manner, the corrosion mechanisms during anodic polarization of the WC-Co-Cr coating were examined. Fig. 4a shows the coating at the free corrosion potential with the light grey hard phases encased in the darker grey matrix. The rapid increase in current with the potential corresponds to dramatic matrix dissolution and leaves the hard phase protruding from the matrix (Fig. 4c). As the current stabilizes at point D, carbides begin to fall out from the matrix and leave voids behind (Fig. 4d). These progresses until the end of the scan at point E, where the matrix consists mainly of voids left by the carbide particles and a few carbides on the next layer are visible (Fig. 4e). After immersion in seawater for 1h at 50°C, the kinetics of the anodic polarization processes are accentuated on both coatings.



(a) (b)



(c) (d)

(e) (f)

Fig. 4 In situ AFM images (a) Polished coating prior to polarization; (b) point B; (c) point C; (d) point D; (e) point E; (f) end of anodic polarization

4. CONCLUSIONS

The use of an AFM can aid the determination of corrosion mechanisms on a micro scale. The addition of chromium to a cobalt matrix increases the corrosion resistance of a WC-based HVOF sprayed coating and its extent of this has been quantified. Although the WC-Co-Cr coating more localized attack at 18°C, accentuated at the hard phase-matrix interface, the WC-Co has more uniform corrosion affecting the entire matrix. It results an increase in temperature. dissolution of the cobalt matrix, whereas on the Co Cr matrix more severe attack is further localized in regions not associated with any specific micro structural features.

ACKNOWLEDGEMENTS

This work was supported by The National Authority for Scientific Research, Romania – CNCSIS-UEFISCDI: Grant CNCSIS, PN-II-ID-PCE-2008, no 703/15.01.2009, code 2291: “Laser Radiation-Substance Interaction: Physical Phenomena, Modeling and Techniques of Electromagnetic Pollution Rejection”.

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TENSILE PROPERTIES ANALYSIS OF HONEYCOMB STRUCTURES

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Abstract: *An analysis of honeycomb structures mechanical properties is presented. The honeycomb sandwich construction is one of the structural engineering developed and used in aerospace industry. The honeycomb sandwich structures provide the benefits over conventional materials: very low weight, high stiffness, durability and production cost savings. The finite element method is applied for the determination of the elastic characteristics of the sandwich structure with honeycomb core, in terms of constraints, loads and displacements.*

Keywords: *sandwich structures, honeycomb core, finite element analysis, elastic constants.*

1. INTRODUCTION

The most important part of the aeronautical structures, the helicopter main rotor blade, can use exclusively composite materials. The most frequent solution is that of the sandwich structure with a core made of a very light material, in which the external surfaces have high strength limit. One of the most frequently used structures for the core is the honeycomb structure. Therefore, this paper present the applications of the finite element method for the determination of the elastic characteristics of the sandwich structure made of Dural boards and honeycomb core.

In figure 1, a honeycomb core is presented, the materials used being aluminum, paper or carbon fiber, depending on the pressures to which the sandwich structure is subjected.

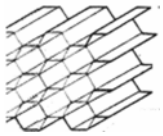


Fig. 1 Honeycomb structure

2. ANALYSIS

2.1 Honeycomb structure characteristics. The honeycomb structure will be considered an orthotropic material, which requires the elastic constants: Young's modulus, E_x, in x direction; E_y, in y direction, E_z, in z direction; $\nu_{i,j}$, Poisson's ratio $(i,j = x,y,z)$, and shearing modulus G_{xy}, G_{yz}, G_{xz}.

Hooke's law generalized and detailed for an orthotropic material in relation with its axes has the following expression:

$$\begin{cases} \varepsilon_x = \dfrac{1}{E_x}\sigma_x - \dfrac{\nu_{yx}}{E_y}\sigma_y - \dfrac{\nu_{zx}}{E_z}\sigma_z \\ \varepsilon_y = -\dfrac{\nu_{xy}}{E_x}\sigma_x + \dfrac{1}{E_y}\sigma_y - \dfrac{\nu_{zy}}{E_z}\sigma_z \\ \varepsilon_z = -\dfrac{\nu_{xz}}{E_x}\sigma_x - \dfrac{\nu_{yz}}{E_y}\sigma_y + \dfrac{1}{E_z}\sigma_z \end{cases} \quad (1)$$

$$\gamma_{xy} = \frac{\tau_{xy}}{G_{xy}};\ \gamma_{yz} = \frac{\tau_{yz}}{G_{yz}};\ \gamma_{zx} = \frac{\tau_{zx}}{G_{zx}} \quad (2)$$

The following conditions are met:

$$\frac{\nu_{xy}}{E_x} = \frac{\nu_{yx}}{E_y};\ \frac{\nu_{yz}}{E_y} = \frac{\nu_{zy}}{E_z};\ \frac{\nu_{zx}}{E_z} = \frac{\nu_{xz}}{E_x}; \quad (3)$$

2.2 Analysis steps. The steps for finite element analysis are: identification of the representative unit cell for the whole honeycomb structure, meshing and applying

the boundary conditions, computation and processing the results.

The cell of the structure is a hexagonal cell and with this hexagonal cell it is possible to describe the entire honeycomb core, using the periodicity of the structure.

For the finite elements model, it is developed only one portion of the hexagonal cell unit of the honeycomb structure. By multiplying this portion in relation with Ox and Oy axes, one may notice that a real honeycomb structure is obtained. This portion will then be replaced in the final model by a solid element having the same elastic and weight characteristics.

A tri-dimensional element SOLID, presented in figure 2, is used in problems of structural analysis or thermal transfer. For the structural analysis, each node has three degrees of liberty, translations.

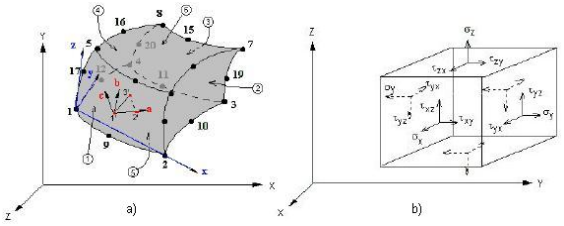


Fig. 2 SOLID element with 20 nodes

Mention should be made that the two types of elements previously presented are not perfectly compatible due to the different degrees of liberty of the nodes, that is, rotational degrees of liberty. The COSMOS/M program allows for the continuity control between the solid elements such as TETRA5, TETRA10 and SOLID and the diaphragm ones (SHELL). Some restrictions are necessary in terms of coupling and connecting these incompatible elements by using an indicator for rigid links. This allows for an articulate link (HINGE) between the solid and diaphragm elements that has to be stabilized by applying sufficient frontier conditions.

The developed analysis for the determination of the Young's modulus and Poisson's ratio, are the traction along the X axis, along the Y axis and along the Z axis. Once the structure is meshed, boundary conditions are applied on the structure in terms of constraints, loads and displacements.

Figure 3 presents the geometrical characteristics of the unit cell portion developed from the hexagonal honeycomb structure.

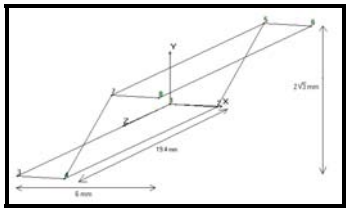


Fig. 3 Geometrical characteristics of the developed honeycomb structure sample

2.3 Axial load. The boundary conditions along the axis are presented in table 1, and figure 4.

Table 1 Boundary conditions

Displacement		Node							
		1	2	3	4	5	6	7	8
Traction along X axis	Along X axis	0	/	0	/	/	0.1	/	0.1
	Along Y axis	0	0	0	0	0	0	0	0
	Along Z axis	0	0	0	0	/	/	/	/
Traction along Y axis	Along X axis	0	/	0	/	/	0	/	0
	Along Y axis	0	0	0	0	0.05	0.05	0.05	0.05
	Along Z axis	0	0	/	/	0	0	/	/
Traction along Z axis	Along X axis	0	/	0	/	/	0.1	/	0.1
	Along Y axis	0	0	0	0	0	0	0	0
	Along Z axis	0	0	0	0	/	/	/	/

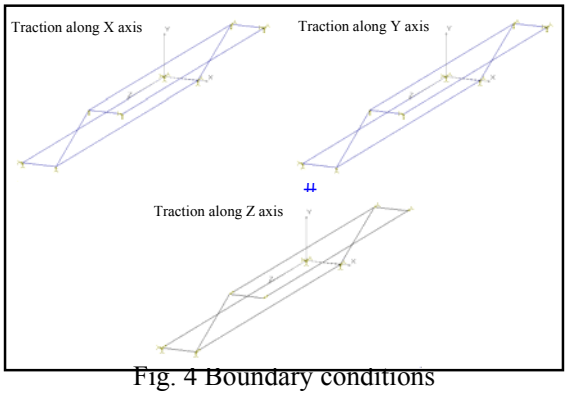


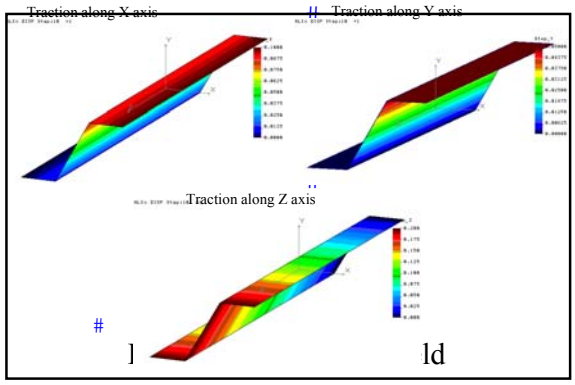
Fig. 4 Boundary conditions

2.4 Results. The obtained results are presented in table 2, whereas the

displacements along the axis are represented in figure 5.

Table 2 Results#

Results	Traction along X axis	Traction along Y axis	Traction along Z axis
Normal force along X #axis, N_x (N)	267.8	222.3	0
Normal force along Y #axis, N_y (N)	446.5	395.2	0
Normal force along Z#axis, N_z (N)	0	0	219.81
Displacement along X axis, δ_x (mm)	0.1	0	-0.021033
Displacement along Y axis, δ_y (mm)	0	0.05	-0.012151
Displacement along Z axis, δ_z (mm)	-0.05066	-0.05335	0.2



Based on these results, one can calculate:

Traction along X *axis*

- normal stress on x axis:

$$\sigma_x = N_x / A_{yOz} \quad (4)$$

$$\sigma_x = 267.8 / (19.4 * 2 * 3) = 3.985\text{MPa}$$

- normal stress on y axis:

$$\sigma_y = N_y / A_{xOz} \quad (5)$$

$$\sigma_y = 446.5 / (19.4 * 6) = 3.835\text{MPa}$$

- normal stress on z axis:

$$\sigma_z = N_z / A_{xOy} \quad (6)$$

$$\sigma_z = 0\text{MPa}$$

- strain on x axis:

$$\varepsilon_x = \delta_x / l_x \quad (7)$$

$$\varepsilon_x = 0.1 / 6 = 1.666 * 10^{-2}$$

- strain on y axis:

$$\varepsilon_y = \delta_y / l_y \quad (8)$$

$$\varepsilon_y = 0$$

- strain on z axis:

$$\varepsilon_z = \delta_z / l_z \quad (9)$$

$$\varepsilon_z = -0.05066 / 19.4 = -0.2611 * 10^{-2}$$

Substituting these results in equations (1) we obtain the following system of equations:

$$\begin{cases} 0 = \frac{1}{E_x} 3.985 - \frac{\nu_{yx}}{E_y} 3.835 \\ 1.666 * 10^{-2} = -\frac{\nu_{xy}}{E_x} 3.985 + \frac{1}{E_y} 3.835 \\ -0.2611 * 10^{-2} = -\frac{\nu_{xz}}{E_x} 3.985 - \frac{\nu_{yz}}{E_y} 3.835 \end{cases} \quad (10)$$

Traction along Y *axis*

- normal stress on *x* axis:

$$\sigma_x = 222.3 / (19.4 * 2 * 3) = 3.308\text{MPa}$$

- normal stress on y axis:

$$\sigma_y = 394.2 / (19.4 * 6) = 3.386\text{MPa}$$

- normal stress on z axis:

$$\sigma_z = 0\text{MPa}$$

- strain on x axis:

$$\varepsilon_x = 0$$

- strain on *y* axis:

$$\varepsilon_y = 0.05 / 2 * 3 = 1.4435 * 10^{-2}$$

- strain on *z* axis:

$$\varepsilon_z = -0.05335 / 19.4 = -0.275 * 10^{-2}$$

Substituting these results in equations (1) we obtain the following system of equations:

$$\begin{cases} 0 = \frac{1}{E_x} 3.308 - \frac{\nu_{yx}}{E_y} 3.386 \\ 1.4435 * 10^{-2} = -\frac{\nu_{xy}}{E_x} 3.308 + \frac{1}{E_y} 3.386 \\ -2.275 * 10^{-2} = -\frac{\nu_{xz}}{E_x} 3.308 - \frac{\nu_{yz}}{E_y} 3.386 \end{cases} \quad (11)$$

Traction along Z *axis*

- normal stress on x axis:

$$\sigma_x = 0\text{MPa}$$

- normal stress on y axis:

$$\sigma_y = 0\text{MPa}$$

- normal stress on z axis:

$$\sigma_z = 219.81 / 6 * 2 * 3$$

$$\sigma_z = 10.576\text{MPa}$$

- strain on x axis:

$$\varepsilon_x = -0.021033 / 6 = -0.3505 * 10^{-2}$$

- strain on y axis:

$$\varepsilon_y = -0.012151/2\sqrt{3} = -0.3507 * 10^{-2}$$

- strain on z axis:

$$\varepsilon_z = 0.2/19.4 = 1.0309 * 10^{-2}$$

Substituting these results in equations (1) we obtain the following system of equations:

$$\begin{cases} -0.3505 * 10^{-2} = -\dfrac{\nu_{zx}}{E_z} 10.576 \\ -0.3507 * 10^{-2} = -\dfrac{\nu_{zy}}{E_z} 10.576 \\ 1.0309 * 10^{-2} = \dfrac{1}{E_z} 10.576 \end{cases} \quad (12)$$

Solving the systems equations (10), (11), and (12), and considering equations (3), get the following results for longitudinal modulus of elasticity and Poisson's ratio:

$$E_x = 14.28\text{Pa}$$
$$E_y = 13.06\text{MPa}$$
$$E_z = 1043.92\text{MPa}$$
$$\nu_{xy}/E_x = 0.067$$
$$\nu_{yx}/E_y = 0.068$$
$$\nu_{yz}/E_y = 3.45 \cdot 10^{-4}$$
$$\nu_{zy}/E_z = 3.31 \cdot 10^{-4}$$
$$\nu_{xz}/E_x = 3.28 \cdot 10^{-4}$$
$$\nu_{zx}/E_z = 3.31 \cdot 10^{-4}$$

3. CONCLUSIONS

The finite elements method is the most effective method of numeric calculus in structure analysis, regardless of their type and complexity. By applying the constitutive law of an orthotropic material, only for the reference orthotropy axes, the sample mechanical characteristics have been determined. Based on this work, an equivalent model will be developed, in a static and dynamic calculus of a sandwich structure. This method eliminates the disadvantages of analytical methods, and is successfully used to solve calculus problems related to aeronautical structures.

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DESCRIPTION OF THE LAYERS OF BIOCOMPATIBLE MATERIALS IN LIQUID ENVIRONMENTS

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Abstract: *The paper presents a study regarding the description of biocompatible materials in different liquid environments. The studies especially refer to those materials used in medicine and which, due to the liquid environments, can modify their structure and properties in a short amount of time. The paper presents the results obtained after comparing different materials that have been investigated.*

Keywords: *biocompatible, liquid environments, Atomic force microscopy.*

1. INTRODUCTION

The principle of operation of an Atomic force microscopy (AFM) is based on a sharp tip (radius at the tip is between 5-40nm), which is scanned over the surface of the sample. The forces between the tip and the sample surface are measured by tracking the deflection of the cantilever. Although there are several design solutions, the basic components of the AFM are the cantilever with a sharp tip at its end, the laser, the detector, the feedback and control electronic system, and the sample-cantilever relative movement system (piezoelectric material).

Operation of the AFM is shown in figure1 (Binnig *et al.*, 1986:930-933; Henderson, 1992:445-447).

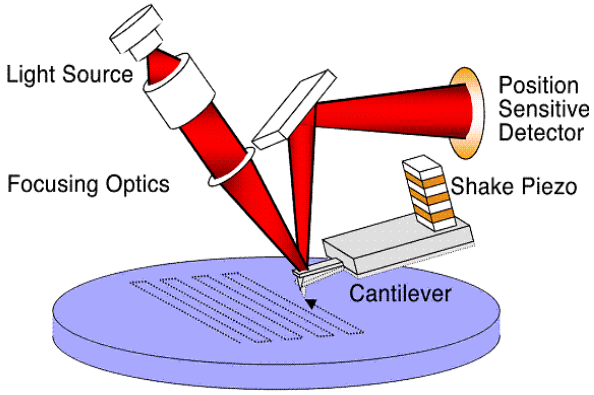


Fig. 1 Atomic Force Microscope Operation

The tip is moved through the scanning area where the surface topology at each point is evaluated. Fine stepping between the points on the surface is essential to achieve high resolution.

This is attained by using piezoelectric materials. By definition piezoelectric crystals, when subjected to an externally applied voltage, can change shape by a small amount. The deformation is of the order of nanometers. This property of the piezoelectric materials makes them suitable for fine displacement of the tip. Over the years, several modes of AFM operation have been developed.

The different modes are the following:

a) Contact mode. In this mode the force between the tip and the surface is constant. Deflection of the cantilever provides information about the sample surface. When the AFM operates in contact mode, the tip touches the surface of the sample with a constant force controlled by a feedback loop.

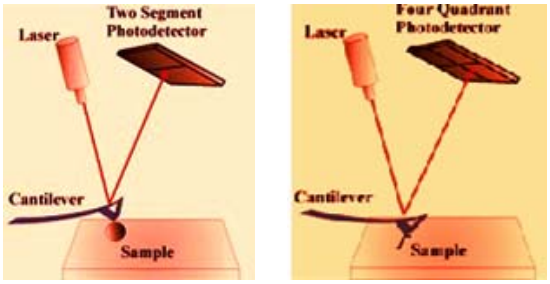
b) Non-contact mode. The cantilever oscillates at its resonant frequency. The oscillation is modified by the tip sample interaction forces. These changes in oscillation with respect to the external reference oscillation provide information about the sample's characteristics.

c) Dynamic contact mode. In this mode the cantilever oscillates so that it comes in contact with the sample with each cycle. Then, a

sufficient force is applied to detach the tip from the sample.

Friction imaging is a method, where the cantilever can measure the friction between the tip and the sample. This imaging method uses torsional deflection. When the tip touches the sample, friction occurs, and it causes the cantilever to twist. A four quadrant photo detector can distinguish the resulting left-and-right motion of the reflected laser beam from the up-and-down motion caused by topographic variations. Therefore, AFMs can measure tip-sample lateral deflection while imaging sample topography.

Figure 2 illustrates the differences between an AFM and a frictional force microscope.



(a) (b)

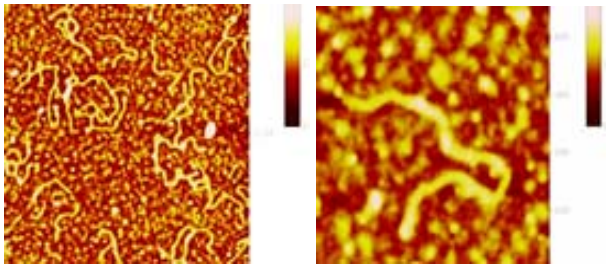
Fig. 2 Atomic Force Microscopy (a) and Frictional Force Microscopy Imaging (b)

2. SEMICONDUCTOR TITANIUM DIOXIDE PARTICLES SYNTHESIS AND APPLICATIONS

Titanium dioxide has been widely used in many areas such as the paint industry, biomedicine, electronics an environmental engineering.

In recent decades, TiO2 nanoparticles (NPs) have had direct applications in the preparation of biosensors because of their biocompatibility, large surface area, stability and strong adsorptive ability on various electrode materials TiO2 NPs were used for the modification of a screen printed carbon electrode (SPE).

The resulting. TiO2 film coated SPE was used to immobilize flavin adenine dinucleotide (FAD). The flavin enzyme firmly attached onto the metal oxide surface and this modified electrode showed promising electro catalytic activities towards the reduction of hydrogen peroxide (H2O2) in physiological conditions.



a) b)

Fig. 3 3D AFM images (10 μm × 10 μm) of (a) TiO2NPs, and (b) FAD/TiO2NPs films

3. MB/ZNO HYBRID FILM

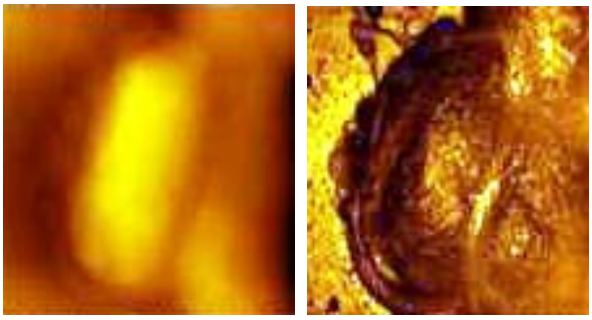
Nicotinamide adenine dinucleotide (NADH) is one of the most important coenzymes in the human brain and body (Hansma *et al*., 1992:1980-1984; Zenhausern et al., 1992: 69-73).

This coenzyme is a common cofactor of about 500 dehydrogenises and its reversible regeneration is a key step in the development of amperometric sensors.

The electrochemical oxidation of NADH in aqueous solution has attracted considerable interest in order to develop amperometric biosensors for the detection of biomolecules. Zinc oxide (ZnO) is an important member of the II–VI group of semiconductors. It has applications in optics, optoelectronics, sensors and actuators due to its emiconducting, piezoelectric and pyroelectric properties. On the other hand, ZnO is a biocompatible material with a high isoelectric point (IEP) of about 9.5 which make it suitable for absorption of proteins with low IEPs and the protein immobilization is primarily driven by electrostatic interactions.

We developed a new amperometric biosensor for detection of NADH based on ZnO/dye hybrid films. Meldola's blue and toluidine blue have been used as mediator. We currently active on metal oxides based electrodes for chemical sensor applications. The following figure shows the SEM images of hybrid film made of ZnO/Meldola's dye modified electrode.

This hybrid film modified electrode shown excellent electro-catalytic oxidation of NADH.



(a) (b)

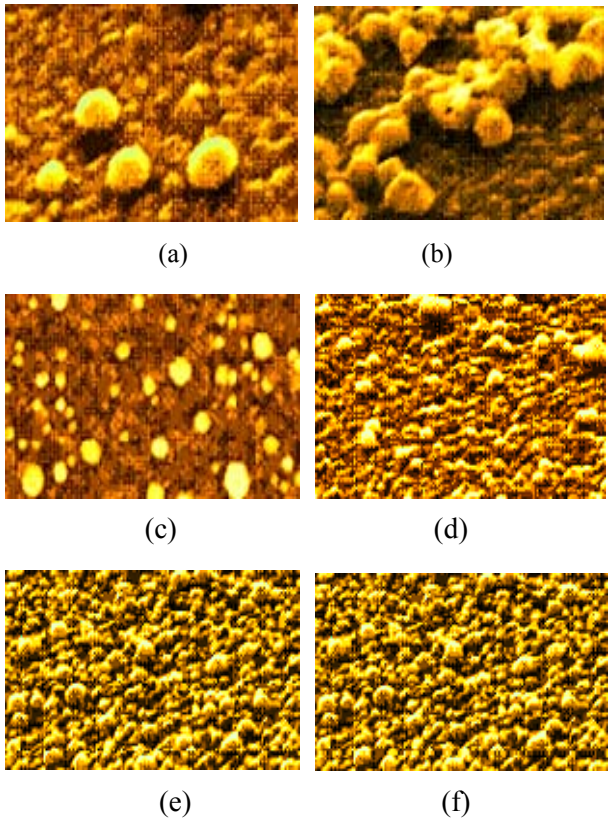
Fig. 4 SEM image of ZnO film (a), and MB/ZnO hybrid film (b)

4. CHEMICAL AND ELECTROCHEMICAL SYNTHESIS OF METALLIC AND BI-METALLIC NANOPARTICLES FOR ELECTROCHEMICAL BIOSENSING APPLICATIONS

PtAu Hybrid Film (Fig. 5).

The fabrication of mono and bi-metallic nanoparticles (Pt, Au, Ag and Pd) by chemical and electrochemical synthesis methods are interesting investigations in the field of nano science. Mono metallic and bi-metallic nanoparticles have their wide range of electrocatalytic activities which can be applied as electrochemical sensors and biosensors. We have developed a PtAu hybrid film modified electrochemical biosensors using L-cysteine as binder.

The developed PtAu bi-metallic nanoparticles modified sensors could be applied for the individual and simultaneous detection of dopamine, ascorbic acid and uric acid and for the selective detection of epinephrine, nor epinephrine, respectively. This PtAu bimetallic hybrid film could be produced on gold, indium ion oxide electrodes for different kind of studies such as electrochemical quartz crystal microbalance (EQCM), scanning electron microscopy (SEM), atomic force microscopy (AFM) and X-ray diffraction (XRD) and direct electrochemical studies (Binnig *et al*., 1986: 930-933, 1982:57-61; Lyubchenko *et al*., 1992:3983-3986).



(a) (b)

(c) (d)

(e) (f)

Fig. 5 (a) SEM images of the Pt particles deposited on ITO from 0.5 M H2SO4 containing 1×10−3 M K2PtCl6 (magnification 25K); (b) NanoAu particles deposited on ITO from 0.5 M H2SO4 containing 1×10−3 M KAuCl4·3H2O (magnification 25K); (c) PtAu hybrid film deposited on ITO from 0.5 M H2SO4 containing 1×10−3 M KAuCl4·3H2O and 1×10−3 M K2PtCl6 (100 µM L-Cysteine, magnification 20K, 30 cycles); (d) PtAu hybrid film (magnification 20K, 60 cycles); (e) PtAu hybrid film (magnification 20K, 30 cycles, 60 deg); (f) PtAu hybrid film (magnification 20K, 60 cycles, 60 deg)

5. CONCLUSIONS

Over the years, several modes of the AFM operation have been developed. He different modes are the following: contact mode (in this mode the force between the tip and the surface is constant); non-contact mode (the cantilever oscillates at its resonant frequency); dynamic contact mode (in this mode the cantilever oscillates so that it comes in contact with the sample of each cycle). Friction imaging is a

method, where the cantilever can measure the friction between the tip and the sample.

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A PROJECT SOLUTION FOR NON-COOPERATIVE IDENTIFICATION OF TARGETS IN THE LAND FORCES

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***Abstract**: Present Land Forces Staff's unmanned aerial system (UAS) is Shadow 600, which was implemented in the late '90s. The land forces units have used successfully this system in coalition missions in the timeframe 2003-2009. Currently, the Shadow 600 system will reach the end of life cycle by the end of 2012. The system has proven its utility and the Land Forces are committed to keep this capability in the future. In order to fulfil the needs of Land Forces for new UAS capability, this paper proposes, as a project, a possible solution that can solve all of the system requirements. Development of Romanian MEDIAS concept can optimize the balance between the three objectives of the project: time - performance/quality – cost. The main goal of using a UAS remains, but in the context of the new challenges of the modern battlefield, it is imperative that the new acquisition of the Land Forces meet these requirements: Vertical Take Off and Landing capability to allow operation from unarranged land runways; for flight in non-segregated air space, the design of the air vehicle will include a sense and avoid system; the modular payload concept will enable the system to adapt to a wide spectrum of operational missions; compatibility with communication networks and data links; capability to act as a communication relay in the national or allied networks; ready for tactical strike missions.*

***Keywords**: project management, unmanned aerial system, MEDIAS, Land Forces.*

1. INTRODUCTION

The Land Forces do require operational Unmanned Aerial Systems (UASs) by the timeframe of 2012 to 2015 due to the lack of this capability, after the resources expiration of existing assets (fig.1). The timely development of this UASs demands mutual cooperation between national and international bodies. This includes but is not limited to sharing existing information with regards to technical solutions and studies in order to fulfil the harmonized operational requirements.

Today's technologies enable UASs to execute the associated tasks providing the common operational picture – ISTAR – thereby freeing conventional air assets for more complex tasks. The prerogative to achieve the required information density in a timely manner is the constant availability of airborne sensors. The main goal of using a UAS is the non-cooperative identification of interest targets. Typical situations include:

a. continuous collection of information on land and maritime activities, to set up a tactical situation, as well as to strengthen capabilities for general surveillance and the fight against illicit activities and terrorism;

b. the acquisition of information on the situation off some areas of interest, especially ahead of offensive operations.

In times of crisis or hostility the timely acquisition of the others side's Order of Battle and position is paramount if one wishes to achieve superiority.

Fig. 1 UAV Shadow 600

The system which is the basis for further operational and technical considerations consists of the following components:

- aerial vehicle (AV);
- airborne mission system (payloads);
- launch/recovery system;
- control station;
- communication system;
- support and logistics.

2. SYSTEM DESCRIPTION

The main purpose of the UAS is to conduct tactical ISTAR (Intelligence, Surveillance, Target Acquisition & Reconnaissance) missions, day or night. Characterized by its high readiness, UAS will support the tactical units through its capacities to detect, to recon, to identify, to acquire.

Potentially it will be able to carry an appropriate set of weapons.

A UAS is an ISTAR system for ground units and ships for use at tactical level. By collecting information in areas of interest, UAS contributes also to force protection (Lafrance, 2006).

The operational needs for the UAS are:

- Continuous collection of information on land and maritime activities, terrain features, so as to set up a tactical situation close to the forces.
- The strengthening of capabilities for general surveillance, and the fight against illegal activities and terrorism (e.g. anti-piracy).
- The acquisition of information on the situation in open/urban terrain. The use of UAS enables any unit to be more "intrusive" while at the same time appearing discrete. Facing mined areas, the UAS still contributes to the information gathering, while remaining stand-off.
- The timely acquisition of the opponent side's Order of Battle and position is paramount to achieve information superiority at all time, in order to get intelligence superiority. In times of hostility, the timely acquisition of information to engage with own assets and to assess the effectiveness of this own engagement (Battle Damage Assessment) is crucial.
- The support of crisis management operations, and interagency activities.

UAVs will be always more intensively used in those fields, as they provide the requested service, while tackling the questions of costly airframe and human life losses.

2.1. System Environmental Conditions. The UAS will be operated day or night, 24/7, worldwide on land and at sea within its tactical land unit or within range of the parent ship and the prevailing weather conditions (*STANAG 2895*, 1990).

Areas of operation include open, rough and urban terrain over land, as well as the littoral areas.

Typical land conditions as terrain feature and weather conditions, altitude, dust, heat or coldness and camouflage of objects are the challenging factors for the architectural design including data link, sensor equipment and operational use of UAS. It has to be taken into account that mountainous regions with their own prevailing meteorological conditions are the most difficult operational environment for Vertical-Take-Off and Landing (VTOL) UAS.

Normally UAS will operate independently from other UAS in the same area of reconnaissance and surveillance. For long distances, beyond the line-of-sight, it is mandatory to operate a second UAS with relay-function.

The UAS shall be able to operate in a maritime environment and withstand influence of turbulent and humid air and/or strong electromagnetic fields (i.e. thunderbolts) without notable performance degradation.

To fulfil the missions mentioned above and in order to give growth potential for upcoming missions, the final aim is to employ the UAS in non-segregated airspace.

Presently, constraints in legislation and technical development do not allow a UAS as described in this document to fly in a non-segregated airspace (*Eurocontrol*, 2006). Therefore we are prepared to accept an IOC with lower airspace integration capability until the appropriate conditions are met. An intensive discussion is still on going (NATO and EU) concerning categorisation of unmanned aerial vehicles (UAVs).

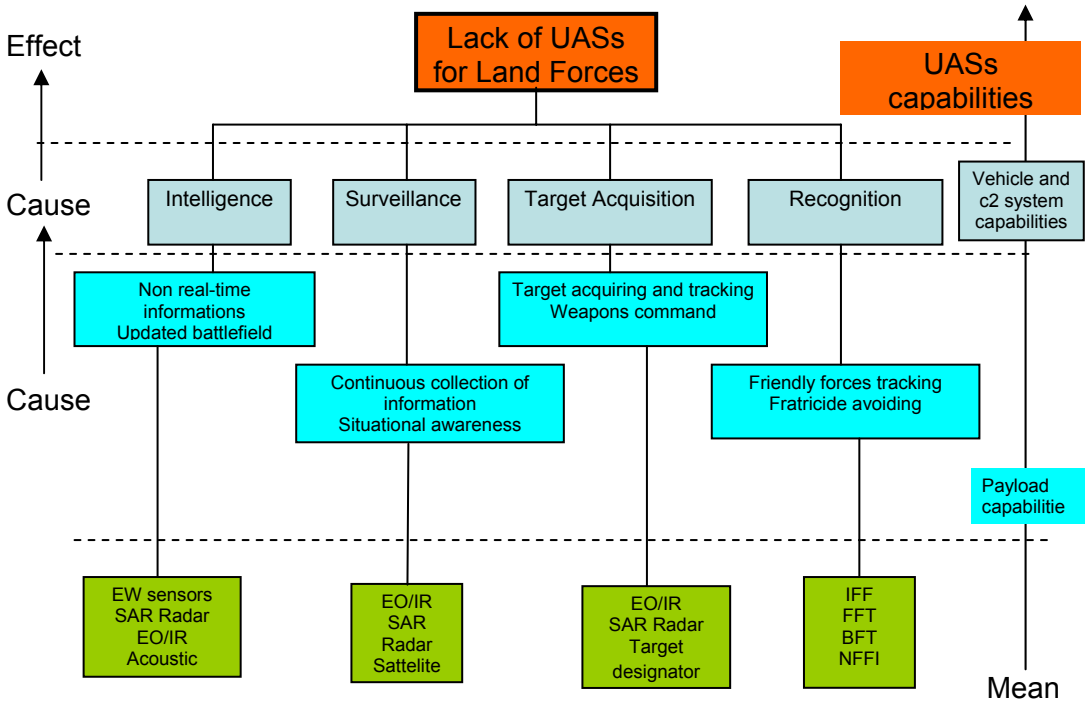

Fig. 2 The problem tree

The UAS has to be operated (AV and payloads) within the limited and changing frequency spectrum assigned to UAVs.

The system must comply with all relevant military and civil authority air traffic safety regulations and be able to be integrated into the airspace management system, as required at the in-service date (Fig. 2).

The requirements may include:

- transponder/IFF (mandatory);
- Integrated radio for ATS communication;
- redundant command and control for the flying segment;
- redundant navigation system;
- safety modes in case of loss of communications;
- sense and avoid system.

2.2 System Employment Concept. The UAS is a system designed to perform ISTAR missions at a tactical level. This system is designed to:

- be operated from small and non prepared landing sites;
- fly at low altitude with medium endurance;
- perform long lasting ISTAR missions for the benefit of the commanding unit;
- be fully integrated and interoperable with the commanding unit;
- extend the range of surveillance area around land-based facilities or forces;
- gain information which will sometimes lead to action. The UAS will have some capacity for action such as target designation.

The UAS will be capable of providing support to operations due to its wide ISTAR capability, radio relay, Battle Damage Assessment, and possibly other emerging missions. In particular, UAS will provide its tactical unit with INTEL products or will cue other ISTAR assets on ground, in air or at sea.

The overall efficiency of ground forces in the frame of joint operations will be increasingly improved by the operation of the UAS, nights and days, in nearly all weather conditions.

The UAS will be operated by an Army unit and deployed to a land component's area of operation within this unit. Therefore all segments of UAS have to be designed to be transported by planes, Medium Transport Helicopter (MTH), trucks, ships and railways. For operations in hostile environments, the ground segment needs protected vehicles or containers if missions are conducted outside of protected land sites (e.g. field camps). Part of

the ground segment will consist in the antenna equipment and a suitable ground power unit. For short movements to or from the landing site, the air vehicle needs a lifting and transportation device.

As the UAS will consist of an unmanned air vehicle with Vertical Take Off and Landing capability to allow operation from small landing sites, it has to be designed as a rotary wing vehicle or a vehicle with identical flying capabilities.

Safe flight operations from launching sites will be provided by an Automatic Take Off and Landing System. In order to aim at full certification for flight in non-segregated air space, the design of the air vehicle will include a sense and avoid system.

The system will have the ability to fly autonomously pre-planned missions; nevertheless the operator of the Control Station will be able to take over control of the air vehicle at any time. If necessary, the control of the air vehicle will also be possible from any ground unit equipped with a UAS control station in accordance with STANAG 4586.

The modular payload concept will enable the system to adapt to a wide spectrum of operational missions.

It will allow fast and easy change of payload configurations between two missions and will also allow integration of new payloads in the future.

It will be possible either to operate the UAS with an uninterrupted data link connection for sensor data transfer and UAV control or in a silent mode.

It will be compatible with communication networks and data links and will have the capability to act as a communication relay in the national and coalition networks.

Integration in a ground unit has to ensure safe flight operations in the defined environmental, operational and the specific electromagnetic environment conditions.

Integration into the Combat Management System will be of national responsibility; however, the system design has to provide for maximum use of the functionalities.

2.3 Required Operational Capabilities. Outlined hereunder is a description of the expected contribution of the UAS to main operational requirements. The words *Must* and *Should* are to be understood as compulsory or less important capabilities of the equipment upon its delivery.

Command and control

The UAS will have ISTAR capabilities to support designated land forces. The near real time data provided by the UAS will highly contribute to detection, recognition and identification of contacts in order to obtain a recognised situational picture in the area of interest.

Payload Data Requirements

Near Real time dissemination (must) and on-board recording (must) and, as far as the payloads are in service:

- Position of all contacts or selected targets/objects in area of observation (must).
- Coastline and terrain feature information (must).
- Course and Speed of selected targets in area (must).
- AIS messages / possibility to switch off the transmitting function (should).
- EO picture (must).
- EO Video (must).
- Infrared picture (must).
- Infrared Video (must).
- Radar picture including Inverse Synthetic Aperture Radar with Ground and Maritime Moving Target Indicator (GMTI/MMTI) (must).
- MTI SAR Radar (should).
- EM interception: Direction finding and technical parameters (must).

UAV Control

- Real time UAV In-Flight data (must).
- Enable the operator to control at least two UAVs at the same time (must).
- Enable the pre-Mission planning process (must).
- Alter mission planning during flight (must).
- UAV operating modes are the following (must): autonomous flight (pre-programmed waypoint navigation) and direct positive control (e.g. altitude, speed and direction);

- Any combination of both modes is possible;
- Hand over of partial or total control of the UAS in according to STANAG 4586 at level 3+5 (must).

Engagement Support

The UAS will be capable of designating targets (OTHT/TPT), for engagement by third parties, while remaining at a safe distance. Its capacity to be equipped with weapons is considered as a growth potential:

- Target reporting (grid coordinates) (must);
- Target designation by laser (must);
- Laser rangefinder (must);
- Jamming (should);
- Growth potential: armament (must);
- Impact on the weight and the conception of the airframe.

Protection

Particular attention will be paid in the design of the AV in order to minimize without significant additional costs its Radar Cross Section (RCS), its Infrared (IR) and its acoustic signature to reduce the detection range of the AV by the opponent's detection systems. For instance, it is not anticipated that the AV will be equipped with self protection electronic countermeasures (ECM): neither EPM, nor decoys are expected, in order to minimize costs.

- Be identified by friendly forces (must).
- Minimize detect ability by non friendly forces (must).
- Compliant with EMCON policies (must).
- Resistant to enemy's EM aggressions or interception actions.
- In case of crash or unauthorized access to the AV, confidential stored data will be inaccessible (must).

Logistics, Maintainability

Support and maintenance will be built taking into account the process used for in-service helicopters and UAS.

- Maintenance to be performed up to medium level by crews. High (industrial) maintenance is performed in Land Forces facilities (must);
- Maintenance personnel up to level 2 has to be kept to an operational minimum (must);
- Logistic and maintenance should be as simple as possible (must);
- Fault analysis and report. Self test capability to minimize maintenance period (must);
- UAS must be handled on the ground (must).

3. A TECHNICAL ROMANIAN SOLUTION

The Romanian Land Forces should take advantage of the latest technical solutions in the aerial vehicles field in order to successfully cope with new requirements of the modern battlefield.

Most of the UAVs are designed to have propulsion according to one of the following two schemes: a fixed wing design (traditional plane) and employing rotors (helicopter). To achieve better results in their specific missions, it is important for UAVs to have VTOL capability.

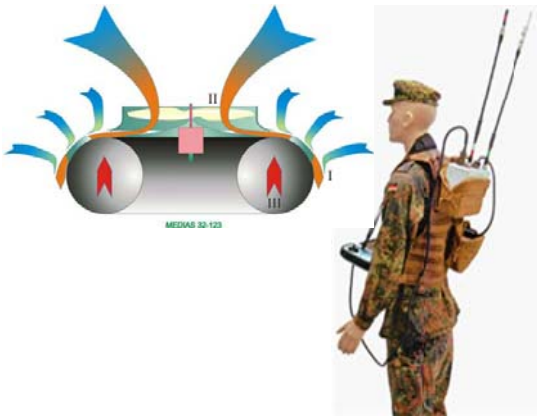

Fig. 3 Military operator – MEDIAS system (Nedelcuț, 2010)

With the increased possibilities of maneuverability and payload capacity, the UAVs based-on Coanda Effect could be a possible and efficient solution.

In 2007 Geoffrey Haton presented an optimized control for his family of Coanda UAVs (Hatton, 2007) and, more important, one year later, in Romania, an academic consortium made up of researchers from Galati, Iasi and Bacau universities, coordinated by Florin Nedelcut, realized a modern UAV (MEDIAS), easy to maneuver, safe to the environment and people, with an innovative design, and with high propulsion

efficiency using Coanda effect (Fig.3).

A Coanda UAV (as MEDIAS) would be capable to accomplish different missions, both in military and in the civil field. Also, it could be sent out for about an hour to scout out the territory, flying at an altitude from few meters up to 1000m, and bring it back (Nedelcuț, 2010).

4. CONCLUSIONS

In order to increase the capabilities of the Romanian Land Forces and in accordance with the principle of stimulating national production to ensure a minimum necessary independence from external suppliers, by adapting existing Romanian defence industry capabilities to NATO demands, it requires a careful analysis of the possibility of building such an aerial system in Romania, enjoying the early start made by the Romanian civil consortium.

The stakeholders will be involved in the project by representatives and the assigned tasks to them will be staffed according to existing rules inside of each organization. The main stakeholders are: General Staff, Armaments Department, Land Forces Staff, and Aviation Industry.

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INVESTIGATION OF THE POSSIBILITIES TO EXTEND THE CONCEPT OF STABILITY TO MILITARY AIRCRAFTS

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Abstract*: The stability of military vehicles is a new concept that was analyzed in detail in my doctor's degree paper. In this work, we will try to apply this concept at the level of military aircrafts. The concept, the definition and the stability factors are presented in the first part, whereas their interdependence will be analyzed in the second part. Because it is a new concept, we had difficulties in translating it. The word "stability" will be used in spite of the fact that sometimes the word "durability" (or "viability") can also be met. This term could be confused with the older exploitation characteristic "durabilitate" that has more the meaning of reliability. "Viability" has been used in the fields of cybernetics and electronics.*

Keywords*: stability, military aircrafts, stability factors.*

1. THE STABILITY OF MILITARY AIRCRAFTS – CONCEPT, DEFINITION, STABILITY FACTORS

In the NATO Romanian Army, taking into account the alliance partners' expectations, it is necessary to improve the ways of intervention by increasing the stability of act capabilities of the specialized squads. The improvement of the global stability of the military technique assets can be accomplished only by borrowing and adapting some data taken from other fields.

These details and the other existing ones related the act tactic and combat management technology have as a result the improvement of initial data in the system of the act capacity, and through a proper algorithm, the result will be the optimization of the combat stability factors and, finally, the success of military actions.

Applied to the Air Force**,** the stability is the reliability of the military technique aviation to which a practical and tactical assembly of measures and preoccupations is added (the capacity of military aircrafts and people to avoid the wastage, to avoid in time the enemy's gun strikes and their ability to fast recover their strike, fire, maneuvers and protection capacities) that guarantee the fulfillment of the intervention. In order to analyze and understand the concept of stability the stability factors are studied thoroughly: the performances of military aircrafts, the reliability, the efficiency of maintenance and maintainability works, air traffic specifications, combat service, combat service support (logistics), the quality of the infrastructure, the management of the human resources and the co(-)operation for support. After that, their interdependency is studied. In other words, it could be said that the possibility of a military system to accomplish its mission as good as possible, could be better expressed by studding thoroughly the stability factors taking into account their reciprocal influence.

In conclusion, analyzing the behavior of military system related to its stability, it could be expressed to what extend the act system technically suits its missions.

Conclusions drawn from the analysis of stability factors:

- **The performances of military act systems** (military aircrafts in this situation)

The maximum performances which can be reached by a military system are very important, especially in bad acting conditions.

The promptness of the intervention, its quality, the way the people who fulfill it are protected and supported depends on the maximum level of the performances of the military aircrafts. For instance, this is the reason why the larger and high acting capacity military aircrafts are widely used (large capacity of targets strike especially for the combat area).

- **The reliability**

The second important factor of stability is the reliability because of its direct influence on the performances of the military systems. As we know, during exploitation, the technique assets change their performances in a negative way because of the worn out of their parts and ageing of some component materials. It is important for the technique assets not to undergo a major malfunction during intervention because these would compromise the mission.

- **Maintenance**

Maintenance represents all the organizational and technical activities done in order to maintain and re-establish the technical state of a product so that this product could fulfill all the functions it was created for. The optimization of the exploitation of the military technique assets in military activities can be done only if the maintenance work was very well organized during the period of peace.

- **Traffic specifications** (flight tracks rules of organization)

The planning of flight tracks to interventions is one of the most important parts of air missions' organization activity and it is done following the orders of the superior echelons.

Many times the reconnaissance missions are very important. The initial reconnaissance of the field in order to take into account the real flight conditions to choose the best track, military aircraft, its position into a possible flight formation as well as applying some coefficients which consider some unexpected elements becomes vital.

- **Combat service**

It represents all the measures taken in order to protect the troops from the surprising attack of the enemy, in order to give them the possibility to engage on time and in an organized way in a fight, in order to keep combat capacity and to fulfill their missions. The most important part of combat service is the reconnaissance. To draw up an intervention plan an initial detailed reconnaissance of the main access routes is needed. These could be done with the support of civilian factors. During fighting, a permanent air supervision, which keeps under surveillance the area, is obviously necessary.

- **Combat service support** (logistics)

It has an overwhelming importance during training the fight, but a small one during the actual fighting. The supplying of the logistics resources on time and in a sufficient quantity is necessary in order to assure a quick and prompt intervention.

- **The quality of the airport infrastructure and flight tracks**

The choice of a suitable route and airports in combat conditions is decisive for the fighting. It can bring about an important advantage but, in the opposite situation, it can provoke the failure of the mission. That is why the theoretical study of the field on the map, its practical study and by using other means must be done in detail.

- **The management of the human resources**

Many times the supplying of human resources is done to complete the necessary personnel of the units, because the fighting casualties or because personnel deficit caused by other reasons.

This requires monitoring, centralizing and analyzing the data concerning casualties and the level of personnel employment, drawing up and sending the personnel request, receiving, repartition and, the permanent connection with military local offices.

The handling of military aircrafts can be very difficult, stressing to the maximum both the technique asset and the operator (the pilot) because of difficult conditions of the mission. The last one has to know very well the theoretical notions about the operation of the technique asset and, that is why the decision of the manager of the mission, regarding the choice of the operator, is very important too. The operator's training level as well as his partners (the co-pilot or the flight crew) can influence in a decisive way the operating mod

of the technical system. That is why, it is necessary, for the very important missions, to use only very well trained personnel, capable of fulfilling the mission without any problems.

For the military helicopter, in Romanian Army, the assignment of the second pilot should be more important helping the main pilot to overcome the difficult situations. The helicopters flying intervention capacity used into combat missions depends a lot by the human factor.

The training level of the pilot and of the second pilot can influence in a decisive way the operating mod of military helicopter. That is why, it is necessary to use in combat areas only the personnel very well trained for military aircrafts in these kinds of conditions. The role of the second pilot should be more important helping the pilot to overcome the difficult situations.

- **Co(-)operation for support**

The co-operation represents an activity used to ensure the working together of the forces taking part in the mission (in time, space and actions), cooperation based on the plan of the action and on the coordination done by the commander in order to concentrate and total their efforts, the aim being the success of the mission.

Eventually, we could say that the possibility for a military aircrafts to fulfill its mission in perfect conditions could be better expressed by the thoroughgoing study of the stability factors taking into account their reciprocal influence.

2. THE INTERDEPENDENCE OF THE STABILITY FACTORS

The explanation of connections (Fig. 1):

1. The higher or lower maintainability indirectly influences the rapidity and the quality of the execution for maintenance operations and, sure, in an indirect way, the stability.

2. The decrease, sometimes very low, of aircrafts performances, happens because of the reliability of global system. If the reliability is higher, the performances will decrease less and in a longer period of time.

3. At the same time with the increase of the easiness and the rapidity of maintenance the reliability parameters increase too, and the inverted phenomenon is true because if the reliability is high, the maintenance interventions are more rare, easier and faster; that means the maintenance parameters are higher.

4. If the management is a modern one, the operators are well trained, the performances of technical systems can be used to maximum; it is obvious that the manager of the pilots has to apply the principle “the adequate person at the adequate place”, because, it is not necessary only the pilots to be very well trained, but, through joining more factors, the professional experience, the training level, behavior features, the decision factors must choose the fit people to accomplish the specific assignments (Popa, 1994).

5. This thing has to be applied in the case of maintenance teams; moreover, they have to be trained in order to be specialized in some domains to increase the workmanship and the rapidity of the execution; also, during the training program of workmen and operators, the teaching of principles and systems will be underlined at first and after that each of them will be specialized in one domain (Arie, 1979).

6. The general level of training increases because of the change of experiences between different domains.

7. The maintenance could be easier by cooperation with the superior echelons especially for difficult situations.

8. A high combat service support could be ensured by co(-)operation, especially for missions abroad but only when the frictions caused by the differences between civilizations and cultures do not appear.

9. During reconnaissance missions, the reconnaissance of the field could be executed and with the support of the obtained data the decisions about air traffic specifications will be made.

10. The method to execute the maintenance depends on the rapidity and the quality of the supply with tools, devices, spare parts and POL.

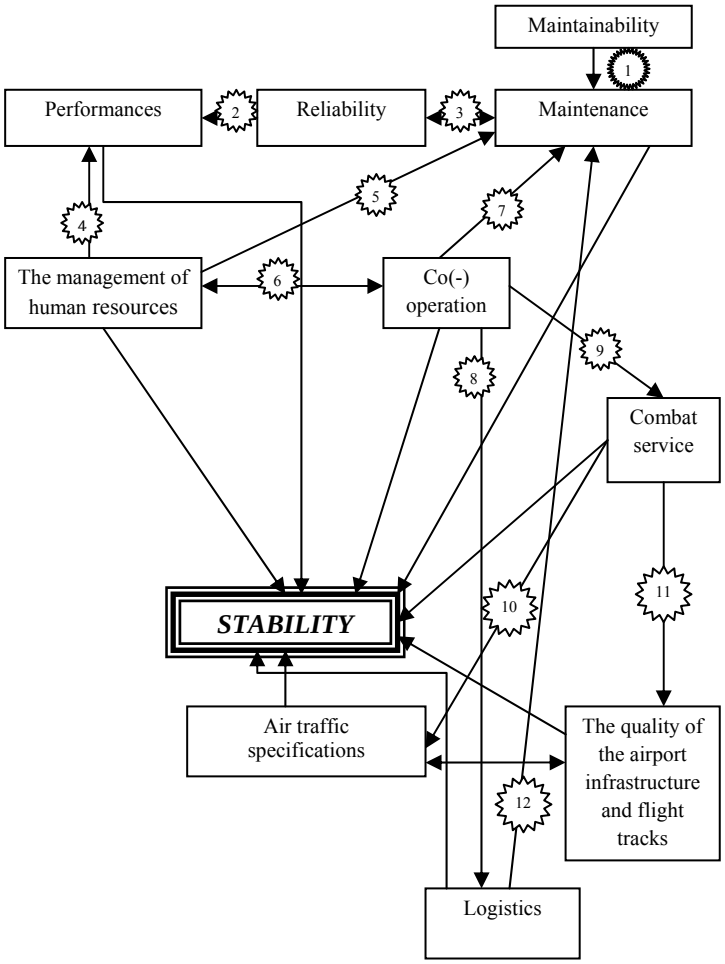

Fig. 1 The chart of interdependence of the stability factors (Aramă, 2006)

3. CONCLUSIONS

The stability of military vehicles is a new concept. In this work, we tried to apply this concept at the level of military aircrafts. Because it is a new concept, we had difficulties in translating it. The word *stability* will be used in spite of the fact that sometimes the words *durability, sustainability* (or *viability*) can also be met. This term could be confused with the older exploitation characteristic "durabilitate" (in Romanian language) that has more the meaning of reliability.

Finally, we can say that the possibility of a vehicle to execute the mission in the best conditions can be expressed best by deepening the stability factors and taking into account their mutual influence.

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SOME RESULTS ON CONVERGENCE IN DISTRIBUTION OF RANDOM VARIABLES

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***Abstract**: This paper presents some results on convergence in distribution of random variables. We define concepts as the weak convergence of probabilities, the function of Kolmogorov, the real Brownian motion, and finally, we refer to the Invariance Principle as one of the notable results in the intervening notions outlined above.*

***Keywords**: convergence in distribution, weak convergence, real Brownian motion.*

1. INTRODUCTION

Problems as the convergence's sequence of random variables and the links between certain types of convergence are the subject of a vast literature. It is known that each type of convergence is used in certain situations as well as Brownian motion has a large domain of applicability in the real world.

Starting from these considerations, we stopped in this article on the concepts of weak convergence of probability and convergence in distribution of random variables, notions underpinning the result of a fundamental theory of probability as the Invariance Principle.

2. CONVERGENCE IN DISTRIBUTION OF RANDOM VARIABLES

Furthermore, we introduce the function of Kolmogorov (Orman, 2003: 73-74) that uses in the definition of convergence in distribution of random variables.

Let (Ω, K, P) be -a probability space, F – a set and $f:\Omega\to F$, a function. If we note $K^{(f)}(F)$, the following set:

$$K^{(f)}(F)=\left\{A\subset F \mid f^{-1}(A)\in K\right\} \tag{1}$$

Then, the set $K^{(f)}(F)$ is a new σ-field.

For $(\forall)A\in K^{(f)}(F)$, one can define a single function:

$$P^{(f)}(A)=P\left(f^{-1}(A)\right) \tag{2}$$

We see now, that the function $P^{(f)}(A)$, defined by that relationship (2) is a probability on σ-field $K^{(f)}(F)$, and thus, the triplet $\left(F, K^{(f)}(F), P^{(f)}\right)$ becomes a probability space.

Indeed, the relationship (2) indicates:

$$P^{(f)}(A)\geq 0,\ (\forall)A\in K^{(f)}(F) \tag{3}$$

$$P^{(f)}(A)=P\left(f^{-1}(F)\right)=P(\Omega)=1 \tag{4}$$

because P is a probability on the σ- field K.

We check now the third axiom of probability, the countable additivity:

If $(A_\alpha)_{\alpha\in I}\subset K^{(f)}(F)$ is a family of events, with $A_{\alpha'}\cap A_{\alpha''}=\emptyset$, if $\alpha'\neq\alpha''$ and $\alpha',\alpha''\in I$, then:

$$\begin{aligned} P^{(f)}\left(\bigcup_{\alpha\in I}A_\alpha\right)&=P\left(f^{-1}\left(\bigcup_{\alpha\in I}A_\alpha\right)\right)\\ &=P\left(\bigcup_{\alpha\in I}f^{-1}(A_\alpha)\right)=\sum_{\alpha\in I}P\left(f^{-1}(A_\alpha)\right)=\\ &=\sum_{\alpha\in I}P^{(f)}(A_\alpha)\end{aligned} \tag{5}$$

We used such equality to demonstrate that the relationship $A_{\alpha'}\cap A_{\alpha''}=\emptyset$, for $\alpha'\neq\alpha''$,

$\alpha', \alpha'' \in I$ then:

$$f^{-1}(A_{\alpha'}) \cap f^{-1}(A_{\alpha''}) = f^{-1}(A_{\alpha'} \cap A_{\alpha''}) = f^{-1}(\emptyset) = \emptyset,$$

that means $f^{-1}(A_{\alpha'})$ and $f^{-1}(A_{\alpha''})$ are incompatible.

From (3), (4) and (5) it results that $\left\{F, K^{(f)}(F), P^{(f)}\right\}$ is a probability space.

Definition 1

If (Ω, K, P) is a probability space, the function defined by relationship (2) is called the function of Kolmogorov •

Furthermore, we introduce the concepts as "the weak convergence" of probabilities and "the convergence in distribution" of random variables that will be used in two applications (Problem 1 and Problem 2 - Section 3) that we tried to prove (Karatzas, 2005: 60-64).

Definition 2

Let (S, ρ) be a metric space, with Borel σ-field $B(S)$. Let $\{P_n\}_{n \geq 1}$ be a sequence of probabilities on $(S, B(S))$, and let P be another measure on this space.

We say that $\{P_n\}_{n \geq 1}$ *converges weakly to* P and write $P_n \xrightarrow{w} P$, if and only if:

$$\lim_{n \to \infty} \int_S f(s) dP_n(s) = \int_S f(s) dP(s) \qquad (6)$$

for every bounded, continuous real-valued function f, on S •

Definition3

Let $\{(\Omega_n, K_n, P_n)\}_{n \geq 1}$ be a sequence of probability spaces and on each of them consider a random variable X_n, with values in the metric space (S, ρ). Let (Ω, K, P) be another probability space, on which a random variable X, with values in (S, ρ) is given.

We say that $\{X_n\}_{n \geq 1}$ *converges to* X *in distribution* and write $X_n \xrightarrow{\mathcal{D}} X$, if the sequence of measures $\{P_n X_n^{-1}\}_{n \geq 1}$ converges weakly to the measure PX^{-1} •

It notes that $X_n \xrightarrow{\mathcal{D}} X$ is equivalent with $\lim_{n \to \infty} E_n f(X_n) = Ef(X)$, for every bounded continuous real-valued function f, on S, where E, and E_n denote expectations with respect to P_n and P.

The most important example of distribution convergence is the *Central Limit Theorem*. Lévy formulates and solved the problem: *find the family of all possible limit laws of normed sums of independent and identically distributed random variables*. The answer is given by *The Central Theorem*: "If it exists a series $\{X_n\}_{n \geq 1}$, of independent random variables, identically distributed, with the mean 0 and dispersion σ^2, then the series:

$$S_n = \frac{1}{\sigma \sqrt{n}} \sum_{k=1}^{n} X_k, n \geq 1 \qquad (7)$$

converges in distribution to a normal random variable".

An extension of the Central Limit Theorem is *The Invariance Principle*. This result leads to the property that a sequence of normalized random trajectories will converge in distribution to the Brownian motion.

In the following section, we introduce the definition of the real Brownian motion and *The Invariance Principle*, called The Principle of Donsker (1951) as one of the notable results in the intervening notions outlined above (Karatzas, 2005: 48, 66-70).

3. THE INVARIANCE PRINCIPLE

We consider X, a continuous process on a probability space (Ω, K, P). For $\omega \in \Omega$, the function $t \to X_t(\omega)$ is part of the set $C[0, \infty)$ and it is denoted with $X(\omega)$. We can say in this case, that the random function $X: \Omega \to C[0, \infty)$ is $K \mid \beta(C[0, \infty))$ measurable. Thus, if $\{X^{(n)}\}_{n \geq 1}$ is a sequence of continuous processes (each $X^{(n)}$ defined on a separate probability space (Ω_n, K_n, P_n)), the question when $X^{(n)} \xrightarrow{\mathcal{D}} X$?

Also, it raises the question of convergence of sequence of finite dimensional distributions $\left\{X^{(n)}\right\}_{n\geq 1}$, to another distribution X, namely, under what conditions the relationship exists:

$$\left(X_{t_1}^{(n)},...,X_{t_d}^{(n)}\right)\xrightarrow{\mathcal{D}}\left(X_{t_1},...,X_{t_d}\right)?$$

Definition 4

The standard Brownian motion is a continuous, adapted process $B=\left\{B_t,K_t \mid 0\leq t<\infty\right\}$ where B_t are random variables and K_t - subfield of K defined on the probability space (Ω,K,P) with the following properties:

i) $B_0=0$;

ii) The increases of B_t are independent, i.e for any finite number of times $0\leq t_1<t_2<...<t_n<\infty$, the random variables $B_{t_2}-B_{t_1}$, $B_{t_3}-B_{t_2}$,..., $B_{t_n}-B_{t_{n-1}}$, are independent;

iii) $(\forall)\ 0\leq s<t<T$, the growth B_t-B_s is normally distributed, with mean 0 and dispersion t-s;

iv) $B_t(\omega)$ is a continuous function of t, $(\forall)\ \omega\in\Omega$ •

We construct now, a sequence of normalized random walks that will converge in distribution to a process that is the Brownian motion.

It considers a sequence of independent random variables $\left\{\xi_j\right\}_{j\geq 1}$ identically distributed, with an average 0 and dispersion $\sigma^2, 0<\sigma^2<\infty$, with the sequence of partial sums $S_0=0$, $S_k=\sum_{j=1}^{k}\xi_k$, $k\geq 1$. With these initial data, we can construct a Brownian motion as following:

We consider now $Y=\left\{Y_t \mid t\geq 0\right\}$, the continuous-time process obtained from the sequence $\left\{S_k\right\}_{k\geq 0}$ by linear interpolation:

$$Y_t=S_{[t]}+\left(t-[t]\right)\xi_{[t]+1},\ t\geq 0 \qquad (8)$$

where $[t]\in Z, [t]=\max\left\{k\in Z, k\leq t\right\}$. If we make the graphic in relation both to time and space, we obtain from Y, a sequence of processes $\left\{X^{(n)}\right\}$:

$$X_t^{(n)}=\frac{1}{\sigma\sqrt{n}}Y_{nt},\ t\geq 0 \qquad (9)$$

It is noted that if $s=\frac{k}{n}$ and $t=\frac{k+1}{n}$, then the growth $X_t^{(n)}-X_s^{(n)}=\frac{1}{\sigma\sqrt{n}}\xi_{k+1}$ is independent of $F_s^{X^{(n)}}=\sigma\left(\xi_1,...,\xi_k\right)$ and in addition, $X_t^{(n)}-X_s^{(n)}$ has zero mean and variance t-s. From the previously notes it results that $\left\{X_t^{(n)} \mid t\geq 0\right\}$ is approximately a Brownian motion.

It is known that in the case of the random variables ξ_j are not necessarily normal, but using the Central Limit Theorem it results that the limiting distributions of the increments of $X^{(n)}$ are normal.

Theorem 1

If $\left\{X_t^{(n)}\right\}_n$, is the sequence of processes defined by (9) and $0\leq t_1<...<t_d<\infty$, then: $\left(X_{t_1}^{(n)},...,X_{t_d}^{(n)}\right)\xrightarrow{\mathcal{D}}\left(B_{t_1},...,B_{t_d}\right)$, $n\to\infty$, where $\left\{B_t,K_t^B \mid t\geq 0\right\}$, is a standard, one-dimensional Brownian motion •

Theorem 2 *(The Invariance Principle-Donsker – 1951)*

Let (Ω,K,P) be a probability space, on which we consider, a sequence $\left\{\xi_j\right\}_{j\geq 1}$ of independent, identically distributed random variables with mean zero and finite variance $\sigma^2>0$.

Let us define for every $n\geq 1$, the process $X^{(n)}=\left\{X_t^{(n)} \mid t\geq 0\right\}$, by (9) and this considers P_n, the measure induced by $X^{(n)}$ on $\left(C[0,\infty), B(C[0,\infty))\right)$. Then $\left\{P_n\right\}_{n\geq 1}$ converges weakly to a measure P_*, under which the coordinate mapping process $W_t(\omega)\overset{def}{=}\omega(t)$ on $C[0,\infty)$ is a standard, one-dimensional Brownian motion •

4. APPLICATIONS

Furthermore, we solve two problems (Problem 4.5 and Problem 4.12 - Karatzas, 2005: 61, 64). For the second, we give a generalization with $S = C[0,\infty)$.

Problem 1

Let us consider a sequence of random variables $\{X_n\}_{n\geq 1}$, with values in the metric space (S_1,ρ_1), which converges in distribution to random variable X. If (S_2,ρ_2) is another metric space and $\varphi: S_1 \to S_2$ continue, then the sequence $\{Y_n\}_{n\geq 1}, Y_n = \varphi(X_n)$ converges in distribution to random variable $Y = \varphi(X)$.

Demonstration:

If $(X_n)_n \xrightarrow{\mathcal{D}} X$, then, according to the earlier note:

$$\lim_n E_n f(X_n) = Ef(X) \qquad (10)$$

$(\forall) f$ - bounded, continuous and real-valued function f on S_1; S_1 is a metric space where the random variables X_n take values.

If g is a bounded and real-valued function on metric space S_2 and $\varphi: S_1 \to S_2$, then $g \circ f: S_1 \to R$ -bounded, continuous and real-valued function. For $f = g \circ \varphi$, relationship (10) becomes:

$$\lim_n E_n (g\circ\varphi)(X_n) = E(g\circ\varphi)(X) \Leftrightarrow$$
$$\lim_n E_n g(\varphi(X_n)) = Eg(\varphi(X)) \Leftrightarrow$$
$$[\varphi(X_n)]_n \xrightarrow{\mathcal{D}} \varphi(X)$$

that is what needed to be demonstrated •

Definition 5

a) Let (S,ρ) be a metric space and π a family of probabilities on $(S,B(S))$. We say that π is *relatively compact*, if every sequence of elements of π contains a weakly convergent subsequence. We say that π is *tight* if $(\forall)\varepsilon > 0$ there exists a compact set $K \subseteq S$ such as $P(K) \geq 1-\varepsilon$ $(\forall) P \in \pi$.

b) If $\{X_\alpha\}_{\alpha\in A}$ is a family of random variables, each one defined on a probability space $(\Omega_\alpha, K_\alpha, P_\alpha)$ and taking values in S, we say that this family is relatively compact, if the induced family $\{P_\alpha X_\alpha^{-1}\}_{\alpha\in A}$ has this property •

Furthermore, we propose to explore the convergence of sequence by type:

$$\left(\int_S f_n dP_n\right)_{n\geq 1} \qquad (11)$$

where $(P_n)_{n\geq 1}$ is a weak convergent sequence of probabilities defined on Borel σ-field $B(S)$, S being a metric space. The next enunciation indicates a sufficient condition by convergence of such a full sequence. We consider that the solution of the Problem 2 is standard, but interesting.

Problem 2

Let $(S,B(S))$ be a measurable space associated with a metric space (S,ρ), a sequence of probabilities $(P_n)_{n\geq 1}$ and a probability P. Also, let $f_n: S \to R$, $n \geq 1$ a sequence of functions uniformly bounded and converges uniformly on compacts to a continuous function f, $f: S \to R$.

If the sequence of probabilities $(P_n)_{n\geq 1}$ converges weakly to P, then $(f_n)_{n\geq 1}$ converges uniformly on compacts to a continuous function f, and if the family of probabilities $\pi = \{P_n, n \geq 1\} \cup \{P\}$ is relatively compact, then the following holds: $\lim_{n\to\infty} \int_S f_n dP_n = \int_S f dP$.

Demonstration:

According to the hypothesis of limitation uniform, there exists a constant $a > 0$ such that $|f_n(\omega)| \leq a, (\forall)\omega \in S, (\forall) n \geq 1$ and also:

$$|f(\omega)| \leq a, (\forall)\omega \in S. \qquad (12)$$

Let $\varepsilon > 0$ be fixed.

When the family $\pi = \{P_n, n \geq 1\} \cup \{P\}$ is alleged relatively compact, there exists a compact set $K \subset S$, such as:

$$P_n(K) > 1 - \frac{\varepsilon}{6a}, (\forall) n \geq 1. \qquad (13)$$

Therefore $P_n(S\text{-}K) < \frac{\varepsilon}{6a}, (\forall) n \geq 1.$

The uniformly convergence of $(f_n)_{n\geq 1}$ to function f on the compact K, ensures the existence of a rank N_1, that is natural such that:

$$|f_n(\omega)-f(\omega)|<\frac{\varepsilon}{3},(\forall)\omega\in K,(\forall)n\geq N_1$$

Also, because $P_n \xrightarrow{w} P$, there exists $N_2\in N^*$ that we have:

$$\left|\int_S fdP_n-\int_S fdP\right|<\frac{\varepsilon}{3},(\forall)n\geq N_2. \qquad (14)$$

We denote $N=\max\{N_1,N_2\}$. For $n\geq N$, we have:

$$\left|\int_S f_n dP_n-\int_S fdP\right|\leq\left|\int_{S\setminus K}(f_n-f)dP_n\right|+\left|\int_K(f_n-f)dP_n\right|+$$

$$+\left|\int_S fdP_n-\int_S fdP\right|\leq\int_{S\setminus K}|f_n-f|dP_n+$$

$$+\int_K|f_n-f|dP_n+\left|\int_S fdP_n-\int_S fdP\right|$$

$$\leq 2aP_n(S\setminus K)+\frac{\varepsilon}{3}P_n(K)+\frac{\varepsilon}{3}<\varepsilon.$$

It results $\int_S f_n dP_n \xrightarrow{n\to\infty}\int_S fdP$ •

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PARTIAL RESULTS OF THE TESTING OF FUTURE AIRCRAFT TECHNICAL PERSONNEL IN THE FIELD OF FLIGHT SAFETY

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***Abstract**: In aviation, the number of unpredictable situations occurs that require quick reactions, theoretical knowledge and practical skills. The complex of these and other factors ultimately affect aviation safety. It is in the interest of all airport operators and aircraft manufacturers to keep the air transport well organized to meet the requirements of even the most demanding customers and to guarantee the comfort and safety. The aim of the training focuses on air specialists and provides the appropriate learning process, which is constantly adapting to current needs and time requirements.*

***Keywords**: Human Factors, Training of Technical Personnel, Aircraft Maintenance, Security, Reason Model "Swiss cheese", MEDA, SHELL, Magnificent Seven, Dirty Dozen, Aviation Legislation.*

1. INTRODUCTION TO THE HUMAN FACTOR PROBLEM

The safety of air transport plays an important role both its strongest and weakest link - person. Daily basis is influenced by the surrounding environment both social relations, as well as from external environment. Well, to be able to increase their safety and work environment and eliminate the threat, must understand the causality of a complex system in its elementary subsystems. Although practical experience is indispensable, but it is mainly essential part of theoretical training and acquisition of specific knowledge in various spheres of professional development in the form of acquiring new and existing knowledge through education and testing. The acquisition of new knowledge from the human factor in aviation and their introduction into daily practice has lead to the recognition of human error in time and then carefully avoided.

Although pilot error or pilot assistance with immediate and very noticeable effect faults technical aircraft maintenance personnel are often hidden and less noticeable. Unfortunately, they can be just as deadly. And this article is devoted to just AMT and their training and testing. It is described here the world famous models supporting the promotion of safety in aviation, which can manage AMT.

2. WORLD MODELS FOR TECHNICAL ACCIDENT REDUCTION IN AIRCRAFT MAINTENANCE

Currently, the management and representatives of the FAA are much more aware of the necessity of the human factor and to receive and consider reports on the results of knowledge of the human factor.

To emphasize the significance and importance of human factors in aviation issued air federal authority in October 2005 the operator's manual entitled "The human factor in aviation maintenance". This manual was created in response to industry requirements and guidance to simplify the list of activities in implementing the human factor in aircraft maintenance and is an excellent document for aircraft maintenance personnel. The success of the human factor chosen by the international business experts following 6 important points:

1. Incident investigation;
2. Documentation;
3. Training the human factor;
4. Shift / change in the role / responsibilities;

5. Crisis management;
6. Maintenance and justification of the human factor.

It is a matter of debate whether the events associated with maintenance of aircraft are a new phenomenon and has existed since long ago, but recent statistics reveal them. Increasing the number of accidents and incidents involving maintenance appears to be statistically significant. In the past decade, the annual percentage of such accidents has increased by more than 100%, while the number of flights has increased of less than 55%. Research on human factors in accidents clearly shows that the resolution of systemic or organizational deficiencies contributes to minimizing errors caused by human error.

2.1 Dirty Dozen. Probably the most famous figures associated with reducing the negative impact of human error is the Dirty Dozen - "Dirty Dozen" - list of factors developed by Gordon Dupont Company of Transport Canada. 12 those issues are:

1. Lack of Communication;
2. Complacency;
3. Lack of Knowledge;
4. Distraction;
5. Lack of Teamwork;
6. Fatigue;
7. Lack of Resources;
8. Pressure;
9. Lack of Assertiveness;
10. Stress;
11. Lack of Awareness;
12. Norms.

Colourful, animated pictures showing human errors are motivational and educational character and reveal the factors that significantly affect safety, quality manpower and quality of personal and professional life (Bilas *et al*., 2009:1-5).

2.2 Magnificent Seven. Following the emergence of "Dirty dozen" was a document aimed at problems of the human factor - Magnificent Seven – "magnificent seven", developed by Gordon and DuPont is focused on the positive aspects. The 7 issues are:

1. We work to accentuate the positive and eliminate the negative;
2. Safety is not a game because the price of losing is too high;
3. Just for today - Zero Error;
4. We all do our part to prevent Murphy from hitting the jackpot;
5. Our Signature is our word and more precious than gold;
6. We are all part of the team;
7. We always work with a Safety Net.

The primary goal of any airline is maintaining safety and quality. There must be no compromise. Posters of "Dirty dozen" and "Magnificent Sevens" have a clear objective to highlight the quality and safety. Society for Aviation Safety (MARSS), located in British Columbia, Canada, provides these posters for aircraft maintenance for a fee.

2.3 MEDA. Another major human factors tool for use in investigation of maintenance problems is the Boeing developed Maintenance Error Decision Aid (MEDA). This is based on the idea that errors result from a series of factors or incidents. The goal of using MEDA is to investigate errors, understand root causes, and prevent accidents, instead of simply placing blame on the maintenance personnel for the errors. Traditional efforts to investigate errors are often designed to identify the employee who made the error. In this situation, the actual factors that contributed to the errors or accident remain unchanged, and the mistake is likely to recur. In an effort to break this "blame and train" cycle, MEDA investigators learn to look for the factors that contributed to the error, instead of the employee who made the error. The MEDA concept is based on the following three principles:

- Positive employee intent (In other words, maintenance technicians want to do the best job possible and do not make intentional errors.)
- Contribution of multiple factors (There is often a series of factors that contribute to an error.)
- Manageability of errors (Most of the factors that contribute to an error can be managed.)

When a company is willing to adopt these principles, then the MEDA process can be implemented to help the maintenance organization achieve the dual goals of identifying those factors that contribute to

existing errors, and avoiding future errors. In creating this five-step process, Boeing initially worked with British Airways, Continental Airlines, United Airlines, a maintenance worker labour union, and the FAA.

The five steps are:

1. **Event:** the maintenance organization must select which error that caused events will be investigated.
2. **Decision:** was the event maintenance related? If the answer is yes, then the MEDA investigation continues.
3. **Investigation:** using the MEDA results form, the operator conducts an investigation to record general information about the airplane - when the maintenance and the event occurred, what event initiated the investigation, the error that caused the event, the factors contributing to the error, and a list of possible presentation strategies.
4. **Prevention strategies:** the operator reviews, prioritizes, implements, and then tracks the process improvements (prevention strategies) in order to avoid or reduce the likelihood of similar errors in the future.
5. **Feedback:** the operator provides feedback to the maintenance workplace so technicians know that changes have been made to the maintenance system as a result of this MEDA process.

The implantation and continuous use of MEDA is a long-term commitment and not a "quick fix." However, airline operators and maintenance facilities frequently decide to use the MEDA approach to investigate serious, high visibility events which have caused significant cost to the company.

The desire to do this is based upon the potential "payback" of such an investigation. This may ultimately be counterproductive because a highly visible event may not really be the best opportunity to investigate errors. Those involved in the process may be intimidated by the attention coming from upper management and various regulatory authorities. By using the MEDA process properly, the organization can investigate the factors that contributed to an error, discover exactly what led to that error, and fix those factors. Successful implementation of MEDA will allow the organization to avoid rework, lost revenue, and potentially dangerous situations related to events caused by maintenance errors (Čekan *et al.*, 2009: 310-315).

2.4 Reason model "SWISS CHEESE". Figure 1 shows a modified version of the model Reason model of the causes of accidents which shows the different human involvement leading to degradation of a complex system.

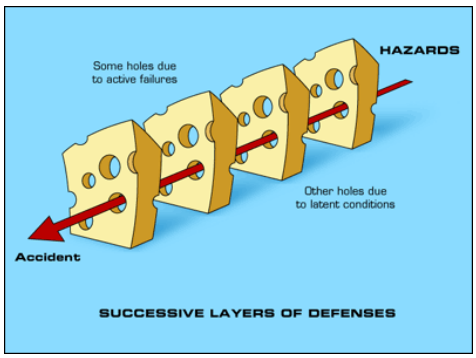

Fig. 1 Reason model "Swiss cheese"

Professor Reason saw the airline industry as a complex productive system. One of the basic elements of the referee (high level of control, corporate or regulatory authority), which is responsible for setting targets and for a message available means to achieve equality, two different aims: the objective of security and purpose of efficient movement of passengers and cargo (Shappell, 2000). The second key element is the segmental management - those who carry out decisions by senior management. Decisions of senior management and departmental management measures leading to effective and productive activities by participating employees, which must be some assumptions. For example, must be available equipment, manpower must be qualified, well informed and motivated and environmental conditions must be safe. Another, equally important element of the defense and security measures, which are usually in place to prevent injury, damage or costly service disruption is to achieve this objective which may also contribute to the conceptual model SHELL, referred to in the next chapter.

2.5 SHELL model. SHEL model first advocated Professor Elwyn Edwards in 1972

and modified diagram to illustrate the model was later proposed by Captain Frank Hawkins in 1975 (Fig. 2). Component block SHEL model are shown with appropriate alignment pictorial impression components. These interpretations are proposed as follows:

- liveware (man);
- hardware (computer);
- software (procedures, symbols etc.);
- environment (the conditions under which the LHS system must function).

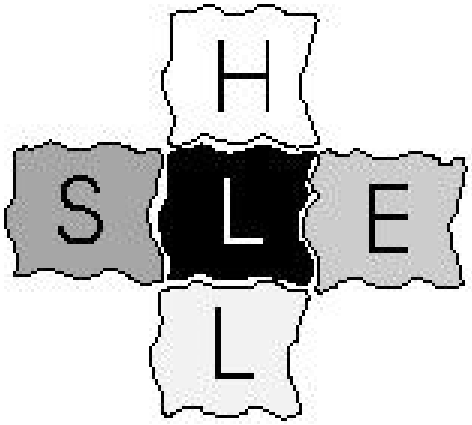

Fig. 2 The structure of the SHELL model

This block diagram does not cover interfaces, which are outside the human factor (e.g., the hardware - hardware, hardware - the environment, software-hardware) and is intended only as an aid to understanding the human factor (Blajev, 2009; Sulc, 2004.

3. PARTIAL RESEARCH FINDINGS AMT

As mentioned at the beginning of the document, testing AMT is an essential part of their profession. To check their knowledge and especially the quality of their information about world models, helping to increase safety and prevent accidents, was the dissertation prepared questionnaire. It was developed for Czech and Slovak AMT separately, to compare information in two different countries. The questionnaire was made available to the respondent to submit the letter, i.e. 3.1.2011 to 15.2.2011.

Although in the present questionnaire is not yet completed and evaluated, one can assume that awareness of personnel is much weaker than I originally anticipated. Surprisingly, up to 100% of Czech engineers said they are not aware of any program described in the questionnaire. Only 18% by Slovak engineers heard about the model SHELL, 18% had heard of the "Magnificent Seven". MEDA, model "Swiss cheese" and "Dirty Dozen" are not known to anyone. It would probably be fair to point out ignorance AMT, where up to 72% of respondents said that these things are not known, therefore, that they were not before testing the M 9 - (Module 9: Human Factors) mentioned during the lectures. It is difficult to assess the need for the inclusion of these, the new information to test questions for the AMT and all aviation personnel testing of M 9 must go, but it must be at least highlight the need to include information on existing and relatively successful programs, newsletters and passwords, which contribute to safety and traffic into the curriculum already in school for all aviation professionals and courses in M 9 also.

Excluding the foreign models and passwords, I assumed that the mechanics are in addition to the standard of workplace safety standards drawn up their passwords principles in the workplace. Nowadays it is not unusual, but 55% of Slovak respondents I my assumption confirmed. They have developed their passwords or codes of conduct in the workplace. As regards the Czech colleagues, the models have not heard, because they were not in taught in courses have their own security rules, but nevertheless considered the testing of M 9 is important and necessary. For Slovak engineers need the inclusion of human factors and lecturing on the rung 55%, it is absolutely unnecessary to be considered 18% respondents and 27% of respondents did not know.

Finally, I wonder whether respondents prior to testing some time off provided by the employer and whether the M 9 tested regularly (according to regulations of the SR is a once in 5 years). Striking is that only 36% of Slovak AMT is tested regularly and to 64% test is not. It seems to me unlikely that aircraft manufacturers and operators deliberately breaking the law, so this response will be

considered only as indicative, and I assumed that respondents understood the question correctly. With regard to study leave, only 27% can be in peace prepare for the exams to a 73% to the catch, besides the work. Their Czech colleagues also have study leave and also are not regularly tested. However, as already mentioned above, probably misunderstood the question (Čekanová, 2010).

4. CONCLUSION

Whatever the final results will be any, from past responses can be assumed that even after almost 5 years, inclusion of human error in the Slovakian air legislation and the curriculum as we do to strengthen the knowledge base and on to the next level. The Czech Republic is similar and in the future, I propose to revise or supplement teaching materials on the new findings, which are a normal part of international education and information AMT.

If we want to be air traffic has also still statistically the safest, if we want clients to worry about having to board the aircraft, if we want to be aviation workers credit for safety, we should offer them in first place with sufficient information, quality education and motivation to do their job 110%. If we understand that the Air Force does not begin to train a pilot, but the education drive, then we will be two steps ahead of a crash.

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PRE-SERVICE TEACHERS' UNDERSTANDING OF RESEARCH CULTURE IN NIGERIA MULTICULTURAL CONTEXT

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***Abstract**: The international literature base in teacher education provides broad consensus on the usefulness of both using and doing research in teacher education programmes. In Nigeria intercultural and multicultural linguistic context, teacher education programmes demand continuous research efforts in order to improve the quality of manpower development and engender best practices. Pre-service teachers' are encouraged to conduct research in their final year in fulfillment of their Bachelor Degree in Education and for professional growth. However, not much has been published about pre-service teachers' actual experiences with research, their aspirations about research and challenges they face. Specifically, the study investigates the research culture at Faculties of Education in two Nigerian Universities in relation to the aspirations, challenges, and experiences of the pre-service teachers'. Samples of three hundred and forty four (344) trainees' were randomly selected from four hundred levels in two Universities. Questionnaires and interviews were utilized as instruments in data sourcing. Analysis of data involves frequencies and percentages represented by component bar charts. Results indicate that pre-service teachers' are enthusiastic to conduct research. However, multiple factors such as difficulty in choosing a research topic, ignorance of research methodology, lack of incentive, lack of materials, ignorance of internet and library search skills, contextually inappropriate training and the researchers' relationship with supervisors, etc, tend to discourage pre-service teachers' aspirations to conduct research. Suggestions were offered with a view to creating awareness, promoting effective research culture, encouraging networking with experienced researchers so as to facilitate professional growth for sustainable best research practices in Nigeria and global communities.*

***Keywords**: pre-service teachers, multicultural context, understanding, research, Nigeria.*

1. INTRODUCTION

Education can be viewed as a veritable tool for societal change and sustainable development. For this reason, the demand for quality assurance in most countries of the world has precipitated series of innovation and research methods (Ajayi, 1999:113-114; Uvah, 1999:127-129; Ogunleye, 2000:1-58). Over the last decade, considerable attention has gone into promoting educational research and enhancing quality in Nigeria. Researches (Lawal 2008:5-7; Bamisaiye-Ayodele, 2009:2) continue to express the view that the process of global modernity, innovations, best practices in education and day to day realities have prompted the need for a rethinking on how teacher education should be organized in meeting societal goals in a more sustainable manner through research efforts. More importantly, the changes that are now taking place in global economy, coupled with the rapid advances in technology and communications' revolution have predicted a paradigm shift in education and training. For this reason, teacher education needs adequate research and better use of research results to enable it cope with the changes in a fast moving world. Williams (1999:203) asserts that intellectuals and academics strongly hold the opinion that teacher education is sustained and sustainable if its foothold is firmly entrenched in research. Consequently, many teacher education programmes aspire to improve current practices in knowledge acquisition and pedagogy through scientific

research process. Previous attempts such as (Brindley, 1992:89-105; Halliday, 2004:73; Avoke, 2005:90; Hiep, 2006:2) to record teachers' experiences in conducting research largely focused on teachers that are already in the field in such countries as Romania, Australia, Hongkong, UK and the USA. However, very little is known about the challenges of educational research culture among pre-service teachers' in developing countries. In this study, educational research embraces all studies, empirical and theoretical, carried out in support of educational programmes in Nigeria. We do research to gain knowledge, understand phenomenon and solve problems.

2. THE CONCEPT OF RESEARCH

2.1 Definitions and meaning. The essence of research has been variously defined by scholars. According to Tuckman (1999:44) research is viewed as a systematic attempt to provide answers to questions. It may yield abstract or general answers as basic research often does or it may give extremely concrete and specific answers as applied research often does. In both kinds of research the investigator uncovers facts and then formulates a generalization based on an interpretation of facts. Babbie (2007:87) defined research as a process of steps to collect and analyze information in order to increase understanding of a topic or issue.

According to him, it is through research that basic questions regarding aspects of the environment are manipulated to achieve development objectives. Referring to research as a fact finding mission, Avoke (2005:92) observed that research is part of the requirement for a degree qualification, because it helps to develop the critical mind of inquiry and cultivate in teachers the ability to evaluate their own practice. In this sense, he notes that when research is properly focused and conducted it is a veritable catalyst for national development as it serves to generate information and knowledge which may be developed and delivered in a form that has useful and enduring benefits in practical, economic and social terms.

Although each of these definitions has touched on some concern of research, the view of research with which this study is in agreement is that of Ogunleye (2000:10) which considered research from an educational perspective. He contended that research is a systematic collection of information or data on matters concerning education in order to confirm, improve, modify or predict a particular learning environment. Such practices, he averred, may include for example problems that emanate from teaching, school management, discipline, overcrowded classroom facilities, equipment, attitudes, social pressure and technological changes. No wonder then that Busari and Adekoya (2007:40) argue that: "Through research new facts and insights about teaching and learning are discovered, and this knowledge is remolded and restated in more satisfactory or more illuminating terms" (p. 40).

Ogunleye (2000:24) concludes that educational research enables us to:

- Examine educational and administrative problems in schools;
- Solve societal problems prevalent in schools;
- Choose better techniques that could be used to improve the conditions of teaching and learning in institutions of learning;
- Give satisfactory explanation of various causes of failure in education;
- Improve and update our existing body of knowledge;
- Predict future trends in the various aspects of education such as teaching, learning methods, materials etc.

It is therefore important for teachers and students to participate in research as this will provide them with training in problem solving as well as in leadership qualities. Research will enhance their academic and professional growth; provide satisfactorily the utilization of available resources and contribution generally to their pool of knowledge in planning and development. It will also expose teachers to knowledge of research design, teaching, and techniques of measurement and analysis of data using statistical procedures. For this reason therefore, in many institutions of higher learning, research is an integral part of

fulfillment of the requirements for the award of Bachelor of Arts or Science degrees and diplomas. All final year trainee students' that enrolled in final year courses at the University are expected to conduct a research project leading to a graduation thesis. Though different Universities have different norms about the structures of their research document, there are some standardized structures on how to write a research project. Generally it involves choosing a topic, writing a proposal which is submitted to the assigned supervisor and presentation of a final report.

2.2 Research and teacher education programme in Nigeria. Much of literature such as (Ajayi, 1999:113; Lawal, 2008:5) continue to support the notion that the role of research efforts are central to teacher education programme. The importance of teachers as the managers of knowledge is well recognized by government. It is emphasized in the Nigerian Policy on Education (1977, reprinted 1998, FRN 2004:5) that "education in Nigeria is an instrument "par excellence" for effecting national development (p. 5) and clearly endorses the fact that no education system can rise above the quality of its teachers" (p. 33). Accordingly, the philosophy for teacher education programme as enshrined in the National Policy on Education (FRN, 2004:5) is anchored on five objectives:

1. To produce highly motivated, conscientious and efficient classroom teachers for all levels of our education.
2. To encourage further the spirit of enquiry and creativity in teachers.
3. To help teachers fit into the social life of the society at large and to enhance their commitment to national objectives.
4. To provide teachers with intellectual and professional background adequate for their assignments and to make them adaptable to any changing situation in life.
5. To enhance teachers' commitment to the teaching profession.

These policy thrusts are to be emphasized in all the Nigerian universities in ensuring that teacher education produces quality and effective teachers for national development. Underlying these policy, therefore, are the core objectives as anchored in the goals of tertiary education. According to the National Policy (FRN: 2004:5) the goal of tertiary education shall be:

(a) To contribute to national development through high-level relevant manpower training.
(b) To develop and inculcate proper values for the survival of the society.
(c) To develop the intellectual capability of individuals to understand and appreciate their local and external environments.
(d) Acquire both physical and intellectual skills which will enable individuals to be self – reliant and useful members of the society.
(e) Promote and encourage scholarship and community services and
(f) Forge and cement national unity and promote national and international understanding and institutions.

Underlying these policies is the core mission of inculcating in teachers the right values, the knowledge of research, attitudes, behaviors and skills required by the individual for national survival, understanding the world around us and for the acquisition of mental, physical, social ability skills to perform their tasks effectively. This direction is also in line with UNESCO focus on four major themes for teacher education:

1. From basic to University.
2. Teachers in search of new perspectives (research).
3. Choices of education.
4. International cooperation: educating the global village.

It is therefore believed that tertiary educational institutions shall pursue these goals through: teaching, research and development. Teachers should not only be concerned with their actual teaching responsibilities but should be conversant and interested in research, their findings and their implications for teaching and learning. In other words, the quality of the manpower produced from the educational system would essentially be determined, among other inputs by the quality of the teacher and indirectly by the quality of that teacher's educational programme. It can then be said that the final objective of teacher education in many disciplines and for any level of education, is

capacity building in that discipline for national development be it social, economic, political, educational, scientific or technological. With high-quality of research in place in education, we can guarantee effective teachers in schools thereby ensuring first – class teaching that will raise students' academic achievements.

2.3. Previous research culture in Nigeria universities. Many strands of research converge and attempts have been made to examine the status of and pace of research and capacity building in education in Nigeria. For instance, Uvah (1999:127) and Ajayi (1999:113) confirmed that there have not been any global studies to determine the precise status of research culture in Nigerian Universities. They contend that the reason may not be unconnected with the perception that research which breaks the frontiers of knowledge does not have immediate developmental impact. Other problems identified by them include the quality and quantity of research, the policy vacuum, poor attitude to research and development, gross lack of research facilities, lack of proper research administration, funding, lack of information on and utilization of research findings. They concluded that research is yet to be given its due recognition in Nigeria's higher institutions and this is probably attributable to the culture of underdevelopment which the country is yet to completely shake off as a nation.

In discussing university research culture in Nigeria, Munzali (1999:2) argued that the dimensions of research since the educational reform of the 6-3-3-4 have created awareness of the need to increase the quality of teacher education in Nigeria. Policy makers and teachers he observed have continued to look for new teaching methods that aim to equip trainees' with sufficient information for current and future manpower needs. Munzali asserted that educational research is generally regarded as a set of activities which involves the systematic collection and analysis of data with a view to producing valid knowledge about teaching. He further contended that research has a vitally important contribution to make to the development of educational policy and practice.

Ajayi (1999:114) argued that if sustainable development is 'the management of resources in such a way that societies can fulfill their needs while maintaining the essential ecological processes, biological diversity and naturally occurring life support systems' then research is the backbone for sustainable development. In this perspective, he claimed that the standard of research in our tertiary institutions was, at one time in the past, higher than it is today. Rather than move forward, he lamented that we have regressed at many points. He claimed that only the knowledge and information accumulated through research can produce sustainable development, including sustainable environment. He warned that our strategy to sustainable, education, therefore, should be first and foremost to seek to make growth, research and development culture cumulative. As the succinctly put it: "We have to note that it is the tertiary institutions which train and provide teachers and act as role models for other levels of education in addition to direct input of research into the shaping of society" (p. 114).

In contemporary parlance, Ilogu (2006:v) contended that the deficiencies and inadequacies of the pre-20th century methods of research are more complicated and compounded by the ever expanding demands of 'our educational policies' which have made our educational problems more complex. This complexity he posited has made it more veritable the adoption of the scientific methods of research in the field of education so that complex problems could be investigated and solved by the collection and verification of empirical data in all fields of learning. Babalola (2007:v) asserted that the mission of University education is teaching, researching and public service for the production of qualitative graduates within the creation of new knowledge and innovation for the overall socio-economic development of the society. Universities, he averred are therefore meant to be places where all learning activities are governed by creative and constant questioning, disputations and argumentation. In order words, educational institutions, in which the University is the peak, serve the principal function of promoting social change through

the acquisition and dissemination of knowledge borne out of research findings.

While not disagreeing with these ideas, Ogunleye (2000:58) lamented that despite many advantages from carrying out research, there are still many constraints militating against the execution of research in most developing countries like Nigeria. Some of these he clearly enunciated as:

- Poor funding of research work by various governments and institutions of learning.
- High illiteracy rate which makes data collection an uphill task as many respondents may be unwilling to provide useful information when demanded.
- Inconsistent and unreliable instruments used in gathering data.
- Lack of continuity in research findings.
- Lack of societal recognition of research results.
- Inadequate documentation and computerization of previous research works.

He summed his opinion thus: "that the changes of research in teacher education are chronic and enormous; hence no significant progress has been made over the years".

Nonetheless, despite these pessimistic notes, a recent observation, Ibidapo – Obe (2008:2) pointed out those steps taken by most Universities in improving the quality of teacher education through research and support of faculty programmes have paid off positively. He noted that all academic programmes of the Faculty of Education have full accreditation by the Universities Commission and the introduction of new programmes in Education has also resulted in a significant increase in the students' enrolment for the Faculty. All this, he averred, were possible because adequate attention was paid to the issue of teacher education and research culture within the institution.

Lawal (2008:7) further echoed the views of Ibidapo-Obe (2008:2) when she counted the tangible gains of research in education. She opined that the gains of research efforts, the world over, have facilitated advances in medicine, technology, social and economic developments and education. She identified the major gains that research have created in the provision of basic necessities such as drinkable water, cheap food supply, and affordable shelter and relatively clean environments. Self – employment and other forms of empowerment are the products of research activities, she said. She further noted that researches have also prompted the inclusion and use of the indigenous language and culture in basic education and the extension of learning beyond the classroom space to various sites and community institution. Finally, she argued that through research, it has been proved that pre-school education has positive impact on developing key social skills among young children.

So far, the awareness of the fast changing pace in the process of educational research and its context of operation, research has vitally contributed to the development of educational policy and practice and this is true of the University of Lagos experience. Of recent, various steps have been taken to meet the challenges of quality teacher education through research and analysis of data collected. The University of Lagos, for instance, has just concluded its Annual Research Fair (2009) to reward researchers and motivate academic staff to pursue research more vigorously than in the past. More lecturers are now keen on seizing the opportunities the incentives offered to engage in research. Other steps in this direction included regular and continuous review of curriculum, commitment to teacher quality, continuous teaching and learning improvement, Academic Mentoring Process, Library development, Linkages, Quality admission, Internal generation of funds to subsidize government funding, Information and Communication technology (ICT), Support from Alumni, Private Sector/ Corporate Organizations and External Bodies, Staff Motivation and Development and increased funding by government.

In a similar vein, the Federal Government has inaugurated special funds for research, and the universities are making it mandatory for lecturers to engage in research and showcase their findings. The National Universities Commission (NUC) is now more poised than hitherto to make research a virile culture in our universities. University lecturers are therefore

urged to target their research at primary, secondary, higher education, adult literacy, children and women. In all, this is the evidence that Universities have recognized their responsibility as the apex repository of intellectual and professional resource to effectively initiate quality reform strategies through research.

Findings revealed that many Nigerians who study abroad often choose to make domestic issues the focus of their research and thus decide to return home to collect data for their research. Also, an increasing number of lecturers have started to publish their research findings in local, regional and international fora. This indicated that besides instrumental motives to earn a degree or satisfy institutional regulations, many Nigerian educators are motivated to conduct research to enhance their teaching performance and scholarship. International Agencies such as the World Bank, UNESCO, UNICEF, etc. are committing funds to research and support programmes in these areas. In support of this notion, UNESCO cited in Owhotu (2008:5) highlighted the areas of research it envisages in school based learning of the millennium as: "Having to focus on generating a robust knowledge based on learning in varying conditions characterizing the school systems in developing countries. This would draw, wherever relevant, from lesson learned and already accumulated internationally. The effort should lead to effective collaboration between north-south and south-south research and organization".

Finally, Owhotu (2008:5) clearly enunciated the critical areas of research that should be the focus of attention in capacity building for sustainable teacher education in the 21st century as:

- In depth studies and analysis of the issues happening at various levels, particularly at the local levels in order to enhance advocacy, policy making and qualitative reform and innovation.
- Assessment and quality including whole school approach and elements of effective schools; teacher development, training and status of teacher, mother tongue literacy, early childhood education; nutrition and mental health along with improved system of socio-emotional support to children.
- Development of knowledge sharing networks on learning, creating forms for continuous exchange of ideas and innovations through South – South collaboration and documentation of successful practice in enhancing learning under varying circumstances" (UNESCO 2007:3).

Rekindling the culture of research especially applied research in teacher training and development at both pre-service and in-service levels which will definitely enhance quality education through learning to know, do, be, and to live together.

3. STATEMENT OF THE PROBLEM

The major goal of teacher education in any system is to produce good and effective teachers for the implementation of the curriculum at each level of education. In this perspective, researchers (Ajayi, 1999:113; Owhotu, 2009:2; Ogunleye, 2000:54) recognized the relevance of research culture as an integral part of national development and teacher productivity as well as an effective means of attaining worthwhile educational goals in a multicultural context. However, many lecturers and the public at large have noted with concern the difficulties of pre-service teachers' in understanding and applying basic research methods in their project writing. Ogunleye (2000:52) for instance, lamented that in many of our institutions of higher learning, the overwhelming majority of the pre-service teachers' usually experience difficulties in understanding how to conduct and report research. He further stated that many students become engaged in research just to satisfy institutional requirements and thus do it in a superficial way. Not only is the problem of local significance, it has had an international ripple effect as Le (2005) cited in Hiep (2006:8) observes that: "Casual conversations with many lecturers have confirmed that the quality of these reports is often far from desirable, but they are usually assessed as acceptable or good, either because those responsible want to help the students to go or

because those in charge do not have appropriate expertise to properly evaluate the reports. In the end, these writings whether good or bad fall 'into oblivion' No one even seems to use any of them." (pp. 8-9).

Furthermore, much of the literature in education in Nigeria is concentrated on the country's research culture in general. Few studies, if any, have focused on understanding the research culture, aspirations and challenges of pre-service teachers in Nigerian universities. This study is one of the initial attempts to bridge this gap.

4. PURPOSE OF THE STUDY

This study therefore sought to explore the emerging research culture at Faculties of Education in two Nigerian Universities in terms of: aspirations, challenges, motivation and experiences of pre-service teachers regarding research projects. It is expected that the results of this study will provide insights that can help teacher educators as well as other bodies to promote research in Nigeria Universities and in similar cultural contexts world over.

5. RESEARCH QUESTIONS

The study particularly addressed the following research questions:

(1) What are the challenges that pre-service teachers undergo in conducting research in terms of:

(a) Research Methodology;
(b) Supervision-Student Relationship;
(c) Training-Computer skills and Library Skills
(d) The Most Difficult Area in Research Structure.

(2) What are the general attitudes, dispositions and aspirations of pre-service teachers toward conducting research projects?

6. RESEARCH METHOD

The research design used for this study is the survey research design. The population of this study consisted of all 400 level pre-service teachers. 400 level trainees' were chosen because they have done the compulsory courses and training titled: Research Methods in Education (A and B) and are in a position to say the extent to which they have understood the essence of research. The researchers used cluster sampling technique to pick the population of the study.

The sample comprised (344) respondents selected through simple random sampling technique within the faculties of Education from the two Nigerian Universities involved in the study. The criteria for selection involved a Federal University – University of Lagos and a State University – Lagos State University. This is to justify the comparison of findings. The subjects for the study comprised three hundred and forty four (344) pre-service teachers. Out of this sample, 148 were males while 196 were females and all in 400 level.

A researcher constructed questionnaire was used as survey instrument to reach at the respondents. A total of (45) items questionnaire was drawn made up of three sections. Section A sought the personal information of the respondents with respect to gender, educational levels, and marital status. Section B comprised (39) statements measuring the challenges of conducting research among pre-service teachers in terms of: methodology, reading challenges, aspirations, supervisor-student relationship, difficulty in understanding research, training etc. in two Nigerian Universities. Section C contained (6) open-ended items which dealt with definition of research, sub-headings of research proposal, the most difficult and the easiest area of research methodology as well as their general attitudes towards the conduct of research. Responses to each statement were placed on a 5-point Likert Scale of Strongly Agree (SA), Agree (A), Undecided (U); Disagree (D), and Strongly Disagree. The sum of all responses in the three parts comprised the respondents' rating on the variable.

The in-depth interviewing method used in the study was administered on 57 pre-service teachers which came to about (14%) of the total population of the respondents. Seidman (1999:56) phenomenological approach which consisted of 15minutes interview was applied on each participant. According to Seidman

(1991:56) "at the heart of interviewing is an interest in other individual stories because they are of worth" (p. 56). Open-ended questions were used to build on and explore the participants' responses allowing them to recount their experiences and challenges with research methods. Each interview response was tape – recorded using an electronic portable-cassette recorder. The interviews were transcribed to find common occurrences among participants' statements. Common occurrences within the interview transcriptions were categorized as emerging themes and used in analysis.

The initial content and face validity of the instruments were determined by expert opinion of the researchers who certified the instruments as appropriate for use in the study. Some items were deleted and the fifty items were reduced to forty five. A pilot study was carried out using test – retest method to establish the reliability of the instruments. The researchers administered copies of the questionnaire on thirty (30) 400 pre-service teachers from the Faculty of Education, University of Lagos. The instruments were administered to them twice within a two-week interval.

Thereafter scores in the first and second administration were correlated using Pearson Product Moment Correlated Procedure. A calculated re-value of 0.82 was obtained. This co-efficient of relationship was accepted as high and appropriate for this study.

6.1 Administration of the Instruments. Copies of the questionnaire were administered with the help of six research assistants who were Masters' students in each of the two Universities. The researchers first gathered the students inside the auditorium and briefed them on the objective of the research as well as how they were expected to respond to the questions. They were told to be sincere and honest with their responses. Out of the total 350 copies of the questionnaires distributed, only 344 were retrieved. The percentage return was deemed high.

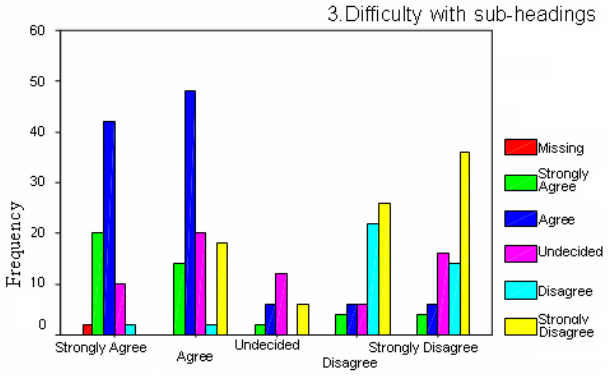
6.2. Method of Data Analysis. The data was analyzed using descriptive statistics (frequency and percentages) and represented with component bar charts.

7. PRESENTATION OF RESULTS

In this section, we present analysis of the result. The responses to a 42-item questionnaire are analyzed and the results are presented in the following sub-sections as follows.

Table 1 below shows the responses from items 1 and 3 of the questionnaire which state "I did not understand my lectures on Research Methodology" and "I found the sub-headings of research methods difficult to understand" highlight the challenges faced by pre-service teachers in the conduct of research. The analyses showed that 178 respondents (51.7%) and 152 respondents (44.4%) agreed that the contents of Research Methodology are difficult to decode hence the students are averse to research. This was also testified by the component bar charts of Table1 below indicating that the method and technicality of content were the major factors that hinder the teaching and learning of Research Methodology as a course work and the difficulties in understanding how to conduct and report research findings. This finding is in line with Ogunleye (2000:1-58) who reported the difficulties majority of the students encounter in research methods.

Table 1 Pre-Service Teachers' Understanding of Research Methods

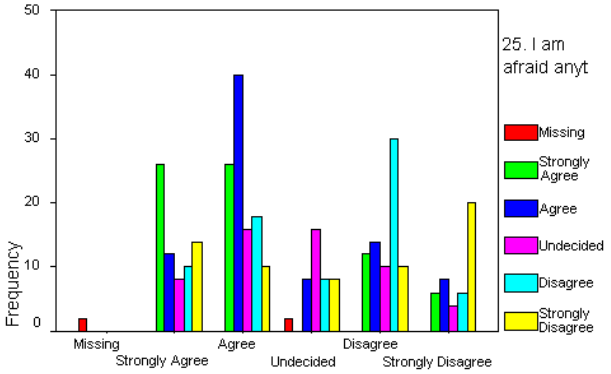


Furthermore, an analysis of Table 2 below showed that the students, considered research work as a worrisome and rigorous task. This is evidenced in item 7 of the questionnaire which states that: "I review a lot of materials for my project" with 250 respondents (72.7%) strongly agreeing that reading challenges are one of the factors that militates against the

carrying out research. No wonder some trainees' prefer to contract people to write their projects for them. The trainees' also testified to the attitude of supervisors, their bias and their perception of research. This was reflected in their responses to items 22 and 25 of the questionnaire with 180 (53.6%) agreeing that their supervisors' disappoint meeting them at scheduled times and this makes them to consider research as a threat to their academic work. Furthermore, 152 (44.7%) showed that the fear of meeting their supervisors in their offices made the aim of supervisor-student relationship in carrying out research ineffective.

This was also evidenced in the component bar chart of Table 2 below which illustrated that the two items (22&25) as responded by the pre-service teachers hinder the smooth carrying out of research.

Table 2 Supervisor-Student Relationship

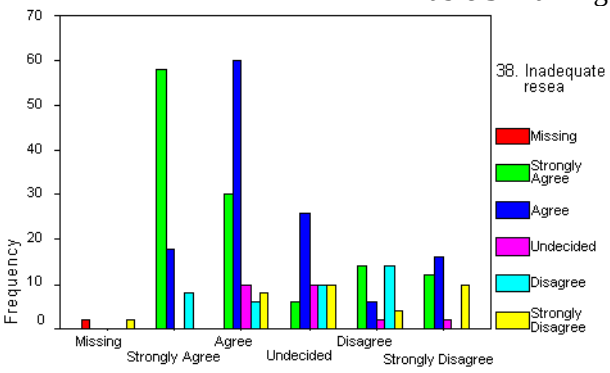


22. My supervisor does not have time to attend to us on the appointed "da".

It was also observed that inadequate training, lack of materials, Internet search, computer skills and library skills were the major challenges that face students in the conduct of research as shown on Table 3 below.

The responses to questionnaire item numbers 38 and 39 indicated that 71.9% and 58.2% respectively support the assertion as illustrated on the component bar charts of Table 3 that poor training facilities is a factor in carrying out research. Since the students are unaware of the empowering potentials of the use of computer and Internet search for research purposes, it was no surprise that they are not motivated on issues of research methods. This finding also corroborated Ajayi (1999:113) and Owhotu (2008:5) idea that there were multiple constraints militating against the execution of research in teacher education in Nigeria especially gross ignorance of the use of digital technologies in carrying out research. If trainees are to be further exposed to digital information and library search, they will become more aware of the limitless potentials of technologies in the conduct of research and more motivated to carry out research with full confidence. Recognizing the danger that professional incompetence can pose to teacher education programme, Ewer (198:124) warned that: "if teachers are not provided with the tools with which to develop their professional skills and judgment, the teaching will be reduced to n the level of craft which will not provide a sound basis for quality in education in general" (p. 104).

Table 3 Training



39. Lack of material, computer skills and library skill are my greatest

Surprisingly, analysis Table 4 below indicated that (100%) of the trainees' found the discussion of the findings very easy. Following closely to this result was choosing a topic which (12.0%) of the respondents found very difficult. These findings were linked to the lackadaisical attitude of students towards research.

The choice of a research topic is a personal matter in which the researcher must be keenly interested and should be within his personal observations over the years or it could arise from a general review of current issues in the literature (Ogunleye, 2000). The researcher should therefore need to be a versatile and avid reader in order to be able to identify an educational problem to which he intends to find a solution.

Table 4

41. Read a – i and tick your most difficult area in research work according to order of difficulty using

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Choosing a topic	32	9.3	12.0	12.0
	Writing the introduction	12	3.5	4.5	16.5
	Writing of statement of the problem	20	5.8	7.5	24.1
	Writing the methodology e.g. population and sample	40	11.6	15.0	39.1
	Deciding on the instruments to be used	38	11.0	14.3	53.4
	Significance of the study	14	4.1	5.3	58.6
	Literature review	44	12.8	16.5	75.2
	Analysis of data	46	13.4	17.3	92.5
	Discussion of findings	20	5.8	7.5	100.0
	Total	266	77.3	100.0	
Missing	System	78	22.7		
Total		344	100.0		

7.1 The Results of the Interview: Trends of Viewpoint. To further validate the responses of the instruments, some teacher trainees were interviewed. Regardless of harsh supervisor-student relationship, the trainees talked about numerous issues that they believe tended to discourage them from having interest in conducting research. The strongest trends of opinion of the respondents were transcribed verbatim as follows:

On teachers' definition and aspirations for research, many trainees' said that they aspire to conduct research primarily because they wanted to improve the problem of teaching and learning. The trainees' also claimed that doing research is also a process of going into a new knowledge and analyzing situations from an intellectual point of view. For example,

Respondent A said: *"For me I think as students we need to do research, but research for us basically means reflection of our practices, on a particular classroom problem to find out ways to improve our work"*.

On inadequate research training and lack of library and computer skills, two trainees talked about their lack of skill in doing research.

Respondent B lamented: *"Yes, I can tell you all the difficulties I had when I was doing the course called: Introduction to research methods. Up till now I don't know how to go about choosing a topic. They taught us many concepts about research, the abstract concepts; we were not taught how to conduct research practically. For example, how to choose a topic, how to design research methods, or how to design questionnaire and doing analysis remains an enigma till today. The lectures should be taught with more, subtleness, field work, better venue, more training on ICT and should be more interactive"*.

Respondent C recounted the same problems thus**:** *"The approach to teaching Research methodology (A) kills the interest for Research methodology (B). The lectures are often overcrowded and very uninteresting and we have transferred the hatred we developed for Research methodology (A) into Research methodology (B). We never had a good foundation on the principles of research methods hence the difficulties we are having with our projects right now"*.

On the area they found most difficult most:

Respondent D talked about her experiences thus: *"My greatest problem is choosing a topic because I never understood what this word "research" meant. Writing my proposal alone took me three months. My lack of interest in this whole business keeps me away from my supervisor all the time. I am now an extra year student because of my project. God help us"*.

Respondent E retorted: *"The whole mention of research methodology and choosing a topic makes my heartbeat to skip. It gives me goose pimples. I hate that course. Sorry madam"*.

8. RECOMMENDATIONS

In view of the research findings, the following recommendations are made:

1. Universities should be committed to regular training, organizing seminars and workshops and provide both intrinsic and extrinsic rewards for pre-service teachers. These will enable them to have flare for research and learning.
2. The importance of continuing education for all trainers cannot be over-emphasized. It becomes imperative that lecturers need to up-date- their knowledge and skills in handling research methodology ensuring that new techniques, equipment and skills are introduced regularly.

3. Research is a course which permeates every discipline; therefore lecturers need to handle the course as applied research and not strictly a theoretical issue. Sharing the students in manageable groups with different lecturers addressing the various parts of research methodology could be a way out of the problem. Conference marking should also be applied at the end of the semester.
4. In this new millennium and with globalization, there is the need to rethink teacher education in terms of improving the quality of research in pre-service and in-service teacher education globally. This is the only way to raise the level of its quality, engender best practices and create positive development in any society.

9. SUMMARY AND CONCLUDING REMARKS

It is clear from the views running through the interview comments and the responses of the questionnaire that the true character of educational research culture among pre-service teachers in Nigerian universities has never been more transparent than what this study has revealed. In as much as majority of the participants believe in research as a professional improvement strategy, results showed that pre-service teachers still face challenges in many areas; for instance:

- Total misconception of the whole concept of research;
- Relationship with supervisors;
- Lack of library and Internet search skills;
- Lack of thinking skills;
- Poor understanding of the fundamental principles of research methodology;
- Lack of incentives and motivation;
- The unmanageability of lectures in overcrowded classrooms;
- The lackadaisical attitude of the teacher trainees'.

It may be difficult to completely eliminate all challenges reported by participants in this study, but, one shares the optimism that they definitely can and should be minimized and managed. It is truism that education provides the foundation, the pivot and catalyst for developments and gains in other areas of human development for economic and social advancement. In this regard, the Nigerian National Policy on Education (Section 6, p. 51) asserts that research shall be relevant to the nation's developmental goals. Universities and teacher education programmes should therefore take research work more seriously with the view of creating awareness, promoting more effective networking research culture by becoming more research-friendly and facilitating professional growth for self reliance in Africa as a whole. Finally, teacher education classrooms should be embraced as research gold mine, if we are to achieve the aspirations of Education for All (EFA) and the Millennium Developmental Goals (MDGs).

10. LIMITATIONS

Finally, this study no doubt has its limitations. For instance, the aspirations of students in research work from other Faculties beyond education were not considered. This might have provided more insights into whether there was any significant difference in their actual experiences and challenges encountered. Secondly, no attempt was made to compare the attitudes and conceptions of students about research across the different disciplines in education, and possibly different cultural backgrounds. Also, the researchers did not employ sophisticated statistical methods of analysis for this study, relying rather on qualitative data, as presented, to speak for themselves. All these limitations notwithstanding, the study has succeeded in presenting a bird's eye view about research culture in two Nigerian Universities. We propose further futuristic studies concerning students' research culture in other Faculties across Nigeria, Sub-Saharan African and European communities. When we build data, it becomes easier to address the problems of research globally at the undergraduate levels.

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(SELF-)PERCEPTION OF ROMANIANS' CULTURAL DIMENSIONS AS A RESULT OF THEIR MULTICULTURAL EXPERIENCES. THE CASE OF ROMANIAN MILITARY OFFICERS PARTICIPATING IN PEACEKEEPING OPERATIONS

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Abstract: *The aim of this paper is to identify the manner in which the Romanian officers participating in multinational peacekeeping missions perceive Romanians' cultural dimensions. In this respect, our intention is to focus on Hofstede's estimation with regard to the Romanians' cultural profile, by simultaneously analyzing the results of the unique application of the VSM94 questionnaire on a consistent sample. The comparative analysis of the two sets of results brings up the Romanians' positioning, in terms of their cultural profile, in relation with European working areas identified by Hofstede: Balkan, Latin, German, Northern and Anglo-Saxon. The comparative analysis of the Romanian cultural profile represents the very approach to enlightening a former research and it is continued by a contextualization of Romanian realities, the perception manner of these cultural dimensions as a result of the multicultural experience being brought into discussion. The particular study case under analysis includes the Romanian officers participating in peacekeeping missions and it was accomplished by conducting an interview between May-June 2010, with 20 Romanian officers participating in operation theaters in Africa, Asia and Europe.*

Keywords: *cultural dimensions, multicultural experiences, peacekeeping operations, Romanian military officers.*

1. INTRODUCTION. CULTURAL DIMENSIONS

Starting from Hofstede's statement, which considers cultures to be conflict sources rather than synergy sources, a deeper approach to the Romanian's ethnic profile, from the ethnic dimensions' perspective, is imperious. The Hofstede indices represent independent dimensions, from a statistical point of view, based on which cultural differences between nations may be accounted, as follows:

- power distance index (PDI), measuring power inequality between individuals situated on hierarchically different positions within the social system (Hofstede, 2001:83), which is an indicator of society's accepting inequality, provided a high score, and of society's promoting opportunity equality, provided a low score;
- uncertainty avoidance index (UAI), reflecting the acceptance manner of uncertain situations, incertitude with regard to future being likely to be reduced, from Hofstede's perspective, by appealing to rules, rituals or technology. A high score of this index constitutes the rationale for a specific organization focusing mainly on uncertainty exclusion, alongside with a low tolerance toward novelty (a high score of conservatism), whereas collectivities reflecting a low score prove to accept incertitude more easily and to display higher tolerance toward novelty. Adherence to norms comes naturally related to the former situation, yet it is undesirable for the latter;
- individualism (IDV), which evaluates orientation toward individualism or collectivism within a specific society. According to Tönnies' study (2002), community (*Gemeinschaft*) implies a low

individualism score, whereas society (*Gesellschaft*) involves a high score of this dimension (Hofstede, 2001:209). The high value is an indicator of a high group cohesion score of that particular collectivity, while a low value shows a type of society where individualism and individual rights prevail;

- masculinity (MAS), regarding the distribution manner of roles between genders, under the circumstances of this distribution being a cultural indication (Hofstede, 2001:279). A high masculinity level reveals the man's traditional role in society, him occupying specific key positions, whereas a low masculinity level constitutes the standpoint of equal treatment of men and women within the specified community;
- long-term orientation (LTO) is a newer indicator, introduced in Hofstede's set of cultural dimensions, of Confucianist origin. Its characteristics oppose those of the short- term orientation. As a result, a high level of this indicator provides concluding results in relation with the long-term engagement, perseverance, and closeness to traditional values, specific to the community under discussion. On the other side, a low level indicates preoccupation for accomplishing certain social duties and establishing a near future perspective upon projects.

The five defined dimensions did not represent but proposals from the professor in Maastricht, they were also tools used for identifying the cultural profile of 50 countries (in case of PDI, UAI, IDV and MAS) and of 23 countries (in relation with the LTO). Romania was not placed among the 50 countries included in Hofstede's target, nor was she involved in the research of the LTO index, made on 23 countries. Nevertheless, the Dutch professor made some estimation in this respect.

In general, high values of the PDI index were found in Latin countries, while low values were located in German countries. Incertitude avoidance is valued especially in Latin countries, but also in states from Asia (Japan), while Northern Europe or China hold a lower UAI index. Individualism is predominant in Western countries and a low value of the IDV is characteristic for Eastern Europe and less advanced countries. The MAS index is high in case of German countries of Central Europe and low in case of Scandinavian countries and Latin Western countries. Long- term orientation characterizes the Asian countries, whereas the short- term orientation is common with European and North- American countries.

2. ROMANIANS' CULTURAL DIMENSIONS

Given this general presentation, we can now analyze Geert Hofstede's estimations with regard to Romania: PDI: 90, UAI: 90, IDV: 30 and MAS: 42 (Hofstede & Hofstede, *apud* Luca, 2005:5).

It is also worth mentioning that Hofstede values may range on a scale from 0 to 100, where 0 stands for the inferior limit of the index (the minimum value concerning the studied index), and 100 represents the maximum value. Equally, these values may be divided, according to the methodology used for applying the instrument provide by Value Survey Module (VSM94) / Institute of Research for Intercultural Communication (IRIC) into three large classes (Luca, 2005:4), more precisely:

- between 0 and 39 – low level;
- between 40 and 60 – average level;
- between 61 and 100 – high level.

Consequently, Romania has met, according to Hofstede's estimations, a high level with PDI and UAI indices, an average level with the MAS index and a low level with the IDV index, thus the country being imagologically placed between the Balkan and the Asian values, yet far from the European ones. The estimation constituted, later on, the topic of further analyses (and disputes within the theoretical field) among specialists. The only ample analysis, which used exclusively the VSM94 methodology on a representative sample for Romania's population (1.076 subjects) was achieved in 2005 by the team interact and Gallup Romania Organization. It aimed at "*advancing a theory based on sociological research so as to analyze which of the managerial and human resources practices fit or do not fit the Romanian*

environment and why" (Luca, 2005:2). From this perspective, the study proves its utility to our purpose involving the identification of factors that cause the nature of intercultural relationships within the operation theaters. Another purpose is the identification of a set of activating or inhibiting factors, characteristic to communication throughout theaters belonging to different ethnical, linguistic and religious areas, by appealing to a comparison of Hofstede cultural dimensions of representatives from cultures in contact. Moreover, by identifying managerial and human resources practices adequate to the Romanian cultural space, we can have a reference point in identifying selection and recruiting practices of the military personnel (and civilian also) to be sent to peacekeeping missions.

Resulting from the analysis were values that differ within a range of 3 points (in case if the MAS index) to 59 points (in case of the PDI index) and which lead to a re-configuration of the Romanian's profile, based on those cultural dimensions, as follows:

Table 1 Comparison between Hofstede's estimations regarding Romania and Hofstede index values resulting fromVSM94 instrument application

ESTIMATIONS/RESULTS	PDI	UAI	IDV	MAS	LTO
Geert Hofstede's estimations	90	90	30	42	
First survey Interact/2005	29	61	49	39	42
Second survey Interact/2005	33	61	49	39	42
DIFFERENCES	61	29	-19	3	
	57	29	-19	3	

Differences between Hofstede's estimations and the results of the VSM94 surveys, applied by the Interact team, are shown in the graphic representation in Figure 1.

Practically, the resulting differences in relation with Hofstede's estimations are the following: Romania maintains her high level for the UAI index, although it is at the bottom limit; she has average IDV and LTO indices, and low PDI and MAS indices. In contrast with the foreseen axiological formula of the Dutch professor, the new formula is substantially different, as shown in Table 2.

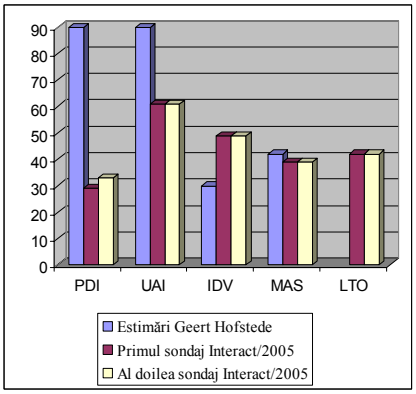

Fig. 1 Comparison between Hofstede's estimations regarding Romania and Hofstede index values resulting from VSM94 instrument application

Table 2 Axiological formulae based on Hofstede's estimations and following the VSM94 instrument application

ESTIMATIONS/RESULTS	PDI	UAI	IDV	MAS	LTO
Geert Hofstede's estimations	H	H	L	A	
Interact/2005 Surveys	L	H	A	L	A

Note: H – high level (61-100), A – average level (40-60), L – low level (0-39).

There are similarities regarding one index (UAI) related to the category of values where the index may be included (nevertheless it is situated at 29 points away from estimation and the survey's results). On the other side, the Interact team also considered the LTO index: "*Even though it did not offer estimation for the long- term orientation, we can assume that Romania may also have, just like all European countries, a short- term orientation"* (Luca,

2005:5). As a result, the foreseen formula H-H-L-A-(L) has become L-H-A-L-A. The most surprising difference is that regarding the PDI index, various comments and interpretations being based on the obtained results (Luca, 2005:5-6), yet, disregarding two important dimensions of the Romanians' ethnic profile:

- prevalence of instrumental values as compared with finality values, as it was highlighted by Luminita Iacob and Adrian Lesenciuc, respectively, a prevalence of orientation values as compared with effective values, according to Iacob's study (2003:77). Luminita Iacob's study (2003:76-87), was accomplished by means of an investigation that included 132 personalities of the Romanian culture and 224 of their works and Adrian Lesenciuc's study of the military students' ethnic profile (2010a:46-57), was achieved on a sample of 1.020 students and it was valid for 821 of the subjects.
- lack of action cohesion and civic spirit, based on Rokeach's individual values table, used as a research tool by the two studies, but also inability of pursuing goals, which transforms the Romanian into a character lacking power, at attitudinal level, still, not into a reactive individual toward authoritarianism, at behavioral level. The difference between *do* and *say* does not necessitate a labeling of the Romanian as having a high PDI index: only action "inabilities" cause a certain type of behavior, found in its latent mode (with violent outbursts in the past) and it prefigures a specific passivity, even a certain degree of cowardice. Yet, these action latencies, to which ironical attitude may be added, are rather indices for a low PDI, in accordance with the results of the study. The difference is too considerable (61, respectively, 57 points out of 100) for the result of the VSM94 instrument application to be denied and for it to take into account an index of at least 70 points or closer to Hofstede's estimation. The value of the IDV index equally asks for explicit interpretation. Compared with Hofstede's estimation (30), the result of the questionnaire reveals an average value of 49. Hofstede's estimation brought up a real positioning within the boundaries of collectivism, inclusive of anything deriving from it: existence of groups united by mutual interests, fighting for self-promotion to the detriment of others, "agrarian thinking", promotion of community values, to the detriment of society values (Hofstede, 2001:209). The difference appears due to, on the one side, Hofstede's "block" estimation of the Balkan countries: Romania – 30, Bulgaria – 30, Greece – 35, Serbia – 27, and, on the other side, due to most of the Romanian expert studies, which highlight the contemporary society's tendency toward individualism. This tendency has become manifest soon after the fall of the communist dictatorship and it may be explained by import of western behaviors.

Thus, considering that the valid formula is L-H-A-L-A, we can proceed comparing other countries' cultural dimensions (mainly from Europe), or other geographical regions' cultural dimensions. Within our comparative analysis, we will consider polar dimensions, without intermediary value. Consequently, the formula is L-H-L-L-L and we can compare it with other formulae, specific to larger cultural areas. Broadly, we can identify five geographical areas:

- Balkan (Bulgaria, Greece, Serbia, Macedonia, Albany etc.),
- Latin (Italy, France, Portugal, Spain),
- German (Germany, Austria, Switzerland etc.),
- Northern (Denmark, Sweden, Norway, Holland etc.) and
- Anglo-Saxon (The UK, the USA, Canada, Australia etc.) with which we can compare the axiological formula specific to our culture. The comparative findings are as follows (Luca, 2005:4):

Table 3 Regional cultural profiles

	Balkan	**Latin**	**German**	**Northern**	**Anglo-Saxon**
PDI	long distance	long distance	short distance	short distance	short distance
UAI	uncertainty avoidance	uncertainty avoidance	uncertainty avoidance	uncertainty unavoidance	uncertainty unavoidance
IDV	collectivism	individualism	individualism	individualism	individualism

MAS	femininity	femininity	masculinity	femininity	masculinity
LTO	short-term orientation	short-term orientation	short-term orientation	short-term orientation	short-term orientation

By appealing to axiological formulae, these findings may be re-written as:

Table 4 Axiological formulae equivalent of regional cultural profiles

	Balkan	**Latin**	**German**	**Northern**	**Anglo-Saxon**
PDI	H	H	L	L	L
UAI	H	H	H	L	L
IDV	L	H	H	H	H
MAS	L	L	H	L	H
LTO	L	L	L	L	L

Note: H – high level (50-100), L – low level (0-49).

Romania' specific formula L-H-L-L-L may be integrated between the Balkan and the Latin areas, as shown below:

Table 5 Romania's inclusion within the regional cultural profiles

	Balkan	**ROMANIA**	**Latin**	**German**	**Northern**	**Anglo-Saxon**
PDI	H	L	H	L	L	L
UAI	H	H	H	H	L	L
IDV	L	L	H	H	H	H
MAS	L	L	L	H	L	H
LTO	L	L	L	L	L	L

Note: H – high level (50-100), L – low level (0-49).

On a more detailed analysis, we can discover that there is a series of differences:

- in relation with the Balkan area- one difference;
- in relation with the Latin, German and Northern areas - two differences;
- in relation with the Anglo-Saxon area - three differences.

The fact that there is not a consistent number of differences as compared with those areas labeled as "European profile" or compared with Europe' s cradle, where Balkan, Latin, German, Scandinavian and Anglo-Saxon cultures emerged (inclusive of Commonwealth states) indicates the possible role of a mediator that a Romanian may play within an intercultural context. Moreover, as far as the Romanians presence in the operation theaters is concerned, their closeness to the Balkan soldiers, as cultural structure, or to soldiers belonging to the Latin area is confirmed by a comparison of cultural dimension indices in Hofstede's model.

Nevertheless, mention should be made that the most obvious difference is between the Romanian and the Anglo-Saxon areas. Romania massively imports, though, a multitude of things from this area: forms lacking consistence, managerial practices (and also in human resource sector), applied models, even in the military environment. The cultural differences are also perceived very well by the Romanian military officers participating in operation theaters, and who mentioned conflicts with the representatives of this area (especially with British military people).

In general, Romanians' openness and their efficient communication throughout operation theaters may be the result of a sort of closeness, at value level, to European averages, and world averages, as well.

In a comparative analysis, these results (and differences as compared to average values) are (Anton, 2007:89):

Table 6 Comparison between Romania's indices and the European averages with regard to cultural dimensions

RESULTS/AVERAGES	PDI	UAI	IDV	MAS	LTO
Results for Romania	29/33	62	49	39	42
European average	40	69	56	52	
World average	54	62	40	48	43
DIFFERENCES	-11/7	-7	-7	-13	
	-25/21	0	9	-9	-1

It can be easily observed that the greatest difference in relation with the European average is of 13 points (for masculinity index, much higher than for the German and Anglo-Saxon areas), respectively of 25 points in relation with the world average (at the level of that index expressing distance from power). Practically, the Romanian cultural dimension indices display minor differences from the European averages, which might be interpreted by a 'balanced' positioning of Romanians within the symbolical European matrix. Although there are only two differences in the axiological formula: Romania – L-H-L-L-L, Europe – L-H-H-H-L (identical with the German area's formula), Romanians may perceive themselves as catalyst.

Compared with the world formula, there is only one difference: L-H-L-L-L vs. H-H-L-L-L. This indicator is even more important because there is openness toward others (proven even by interviews with Romanian military participants in peacekeeping missions under the auspices of the U.N.), irrespective of the original cultural area, race, religion or skin color. At the same time, we can observe that index values for cultural dimensions are generally lower that the average values (excepting individuality index – an European brand), where Romania's specific value exceeds the world average by 7 points.

3. PERCEPTION OF CULTURAL DIMENSIONS

As a result of administering the AUM and S-P-E-A-K-I-N-G interview guides to a number of 20 Romanian officers participating in U.N. peacekeeping missions, between May and June 2010, we considered the possibility of interpreting the results from the qualitative perspective, by relating them to the cultural dimensions of Hofstede. Thus, we analyzed the possibility of bringing up the following aspects:

- the national entities' cultural dimensions perspective offers the possibility of approaching the participants in peacekeeping missions differently;
- as Romanian citizens, shaped in accordance with the Romanian cultural matrix and 'set' to function within the specificity of the local thinking, the military participants in peacekeeping missions are the bearers of a specific cultural imprint.

Even though the purposes of our investigation (based on applying the AUM and S-P-E-A-K-I-N-G guides) were not to confirm or infirm self-perception of cultural dimensions, we can establish a perception analysis of them. We may use the interview model established by Ilie and Macovei (2010) within the project *Confronting civilizations in international operation theaters – a study of impact from psychological, linguistic and judicial perspective on the Romanian soldiers.* The interview from the study *Determinant factors within the intercultural relationships in operation theaters* (Lesenciuc, 2010b) aimed at communication-related and cultural interference aspects rather than at aspects regarding distance toward power, incertitude avoidance or long/short- term orientation. Different from this, the interview drawn by Ilie-Macovei (considering the intentional

judicial dimension) completes the general picture of Romanian military personnel participating in peacekeeping missions both under the auspices of the U.N., NATO or the EU or within the international coalition from Iraq.

When asked about the perception of double control effects (national and international), Romanian officers provided a variety of answers that may be grouped in relation with the international organization under whose auspices the mission was accomplished, respectively, in accordance with the number of Romanian participants in that specific mission. Therefore, while the Romanian military observers serving under the U.N. auspices (present in the operation theater in a small number) did not feel the effects of Romanian control (UNAVEM III, UNMIS, UNAMI, ONUCI etc.), those participating in operation theaters within Romanian subunits in peacekeeping, peacemaking, peace enforcement or peace-building missions, encountered some restrictions from the Romanian leadership. Although in agreement with provisions regulating the authority transfer and the principle of command unit applicable to multinational force as well, national contingents cannot receive orders unless they are in a position of subordination, the Romanian 'contribution' was more than visible. And this contribution is specifically regulated through the obligation imposed on the Romanian contingent's commander to remain subordinated to national authorities totally. This subordination implies responsibility for the resources used, order and discipline within commanded structures and includes particularities stipulated in the agreement of participation and within the armed forces status. (SOFA), and in agreement with Law 23/1996, regarding the ratification of the Agreement between member states of the North Atlantic Treaty and the other participating states in the Peacekeeping Partnership, as well as in conformity with the Strategy for Romanian Armed Forces use and materiel within peacekeeping operations. This double conditioning of authority, related to national norms specifications within the Romanian contingent and to obeying international norms (starting with organization and functioning documents and ending with standard operation procedures), may constitute an indicator of (self-) perception of distance in relation with power. The respondents, participants in missions under the incidence of Bruxelles Agreement (1995) and implicitly, under the incidence of Laws 23/1996 and 61/2000, indicated the negative effects of the Romanian authority control: *"reports created trouble"* (IRAQI FREEDOM), *"**exacerbated** stress caused by Romanians"* (IRAQI FREEDOM, ISAF), "*Romanian control: **inopportune and inefficient**"* (KFOR, EUFOR, ENDURING FREEDOM), *"daily, weekly and monthly reports to national authorities – all of which containing exactly the same data"* (KFOR, EUFOR). The military officers interviewed were, in fact, perfectly aware of the short distance toward the Romanian culture power, found in conflict with important norms and the "autochthonous" modalities of applying them.

The problematic situation under discussion may also be interpreted differently through the UAI index: reference to norms is natural in case of a high UAI score and it is exaggerated when the score is low. Norm acceptance occurs naturally – considering the international norm accepted and assumed by all participants in the same mission. On the other hand, Romanian control is perceived as "interference", given the fact that it does not contribute to uncertainty avoidance in operation theaters, but to an increase in the amount of stress (multiple responsibilities): *"difficulties created by Romanians, who would report on **everything** back home"* (a military person participating in the IRAQI FREEDOM mission), and contrasting the situation of the other participants in the mission. Norm acceptance also resulted after the application of AUM and S-P-E-A-K-I-N-G instruments. In case of the former, engagement in activity and norm acceptance (both explicit and implicit norms) were revealed, alongside with the accomplishment of functional tasks by appealing to a common request framework, having its cultural conditioning "latitude", which leads to

enrichment of perception of others, within a prefigured normative framework. The latter case of the S-P-E-A-K-I-N-G scheme applied as an interview guide, revealed illustrative answers regarding the acceptance of the general framework of communication, explicit finalities acquisition (purposes-results), but mainly, the acceptance of interaction norms (even though the interview aimed at highlighting the discursive efficiency).

The preponderantly collectivist dimension was perceived by military officers participating in peacekeeping operations and being fully aware of it, by underlying the communication/socializing needs in interaction with foreigners (related to the normative framework convergence), to the detriment of the opportunistic/ selfish tendency of achieving results by means of using others. From the perspective of the informality degree, the Romanian military officers' capacity of coagulating "professional communities" (that is to promote the informal dimension of contacts and not to perform within societies- organized groups around some common goals) is illustrative. Equally, assuming the collectivist role becomes evident by high performance within the military group and within the boundaries of interpretation limits. We should not omit the fact that the "umbilical connection" with the origin community, is also highlighted by frequent mentioning of homesickness, longing for personal home, family or even lack of connection with family, besides the difficulties encountered during the mission. Thus, we can conclude that, as a result of interviews, the individualism index reaches Hofstede's estimation (30), rather than the resulting values after the VSM94 instrument application (49).

The masculinity dimension could not be highlighted by interviews. The presence of both male and female military people in operation theaters may constitute a standpoint regarding equal treatment of genders, although all respondents (20 military officers participating in U.N. peacekeeping missions) were males, fact that could have led to a one-dimensional perspective. Nevertheless, the distorted image of the MAS dimension within the military environment could be based on particularities of the military institution's cultural organization, in which progress, personal development and competition are preponderantly valued.

The LTO index is reflected in the very recruiting policy of Romanian military able to participate in peacekeeping missions. This index was perceived as *"un-upgraded"* (ISAF), or, euphemistically speaking, *"needing improvement"* (ENDURING FREEDOM, ISAF) (Ilie, Macovei, 2010) as the long-term projection of selection and rigorous preparation of mission was brought up. With regard to both Ilie-Macovei study and the interviews, in our study case, forming and improving the performance of Romanian military officers participating in peacekeeping missions was either questioned or criticized. These two aspects were characterized as: inefficient, insufficient, non-applicable lessons learned (often they are disregarded), too much simulation and theory (reality of the operation theater being by far different), insufficient training together with foreigners etc. (UNMIN, UNMIS, UNAMI, MONUC etc.). This close horizon of projects, reflected in representation of the Romanian military officers participating in peacekeeping operation is illustrative for the perception of the LTO index at its resulting value (even under-appreciation of it). Despite a precarious and inadequate preparation, and despite lacking a formative framework for the communicative competence formation, in general, and of intercultural communicative competence by assuming the cultural norms, not by appealing to lexical corpus and grammar necessary for reaching a specific language performance in English, the results obtained by the Romanian military representatives in operation theaters were very good. On the one side, this reality may be interpreted as a result of the Romanian's way of being – friendly, communicative, sentimental – that confers an informal dimension to the most rigid formal situations. On the other side, it is seen as a result of their placement close to the average areas (both at European and world levels) concerning the cultural dimensions of the Hofstede model.

At professional level, the very good results of missions, reminding, among others that „(...) *for the foreseeable future, Romania comprises one of the most willing contributors of special police units for peacekeeping operations in Europe"* (Daniel *et al.*, 2008:76), and of *"special forces capabilities of Poland or Romania"* (Moroney *et al.*, 2007:74) etc., were presented (at professional and cultural level) by the people interviewed (both verbally and by producing sustainable documents able to certify facts).

4. CONCLUSIONS

Identification of a set of factors holding activating/inhibiting roles with regard to intercultural communication in peacekeeping missions cannot be accomplished only from the perspective of a theoretical re-configuration of a specific pluri- and trans-cultural 'reality' of the operation theater. It may also grant the possibility of confronting the results obtained against a set of cultural dimensions already configured. Although the research tools have not been projected for the purpose of adapting the indices of each of the Hofstede's cultural dimensions to Romanian values, it was possible to compare the (self-) perception of four of the above mentioned dimensions.

We can admit that this analysis facilitated a correct foreseeing of the relation between communication efficiency throughout operation theaters and the cultural imprint of which Romanians are aware of (illustrated by the VSM94 indices).

A confirmation of the working hypotheses, to a large extent, and a total accomplishment of the projected goals grant validity to this study's results.

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LEADERSHIP, THE PLEASURE OF EXPRESSING OURSELVES THROUGH WORK

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***Abstract**: What is absent in the immediate reality is the charm, the pleasure of expressing ourselves through work, given by the existence, around us, of charismatic people who are as important as salt is to the food. That is why I considered this scientific analysis of leadership necessary, setting out from the personal magnetism of some people who have innate leadership skills.*

***Keywords**: management, seduction, leadership, charisma, leader.*

1. THEORETICAL AND PRACTICAL ABOUT THE PLEASURE OF EXPRESSING OURSELVES THROUGH WORK

All is possible when seduction is involved:
- Individuals might be seduced against their will;
- Leaders might seduce a given group without even aiming for it and they may find themselves triumphant without having planned or wished to.

This can be explained by starting from the **objective reality according to which the group transposes to a state of mind that is presumed to have been generated by the charismatic leader, but in effect has been intensified by the group itself** (Kets de Vries, 2003).

The type of seduction that leadership is built upon has nothing to do with eroticism and it consists of any sudden change or swing of attitude of a human being, such as any:
- sudden conversion;
- contribution in the name of a cause;
- moral metamorphosis.

The point is not to get what you want, but to want what you've got.

The seduction exerted on fellow creatures, from a non-erotic perspective, is in fact the charismatic leaders' mutual act of **leading and being led.** As interaction, this implies the use of some subtle charm in order to influence the others, to make them regard you with gratitude for the inner fascination you induced when they considered you the symbol of a world that they didn't know, but that they were coveting. Seduction must be understood as something that comprises a **certain degree of autosuggestion**.

The capacity to seduce is characteristic of the persons with leadership skills, as it is innate and it consists of **the personal charm some of us are born with and that we increase by means of cultural polishing up, materializing it in the sensation of dominating charm exercised more or less consciously over other individuals.** The seducer controls the seduced. To be the desired person is a subtle form of control. It is equally true that the **seducer**, as the person seducing others, **seduces himself/herself too**, depending more or less on the strength of his/her desire for power. The stronger the desire is, the more we may speak of a malignant form of narcissism and manipulation.

The seducer's portrayal segregated on genders appears:
- fragile and distinguished as a passive, defensive alternative of charm, even more redoubtable (in women);
- energetic, fanatic, determined and clairvoyant, as an active and offensive alternative to charm (in men).

Scientific research in the field of social psychology has demonstrated that, similarly to the world of bees, where the vast majority is made up of nurses and only a minority represents the queens, in the world of human beings, **three quarters of the individuals lack charm**, having nothing seductive in them. These types of people are terrified of inter-human relations that imply proximity, because they regard them as hazardous and therefore do nothing in order to bring their fellow-creatures closer. On the contrary, they do all they can to send them away. The paradox is that these individuals, who do all they can to isolate themselves, consider that the greatest threat that lurks is for them not to be accepted, or to be rejected, abandoned and humiliated by others. This majority of people build a scenario in their minds according to which they cannot be loved, given the fact that they do not deserve to be loved. They are the same people who surrender to the subjective perception that a charming, seductive fellow-creature, the leader, possesses something that they need.

If he/she possesses those qualities that can turn him/her into the representation of the personal fictions of the group members, the person in question will exercise, consciously or not, a certain fascination, seducing through the fact that he/she can reflect the image of the leader who embodies the strong emotional currents awaken by the subjective perception of the individuals from within the group.

It is a demonstrated fact that to be a leader is a talent, such as playing the piano or writing poetry. Personal charm cannot be acquired by storing up competences. Constructed charm is or is not artificial and cannot replace authentic inter-human relating.

We are currently witnessing the apparition of literature on seduction techniques that promise the impossible, that is to transmit the competence to seduce to anybody, even to those individuals who lack charm, i.e. to certain people who fear the idea of not being accepted by the group they are a part of, who dread rejection, humiliation abandonment, who lack self-confidence, nurturing the belief that they do not deserve to be loved and are not entitled to hope to ever be loved. It is cruel to promise sight to the blind, on condition they attentively read a couple of books.

Undoubtedly, the principles promoted by this type of scientific literature on the seduction techniques are correct, but they exclusively address people born talented and charismatic. Otherwise, persons who unconsciously avoid seduction applying them will turn them into anti-seduction techniques. Thus, a person who lacks charm, is insecure or has no self-confidence may intend certain gestures to attract others, but by monitoring their accomplishment he/she will make the charm of the interaction disappear and will let show the rigidity and lack of spontaneity. Seduction techniques are for those who try to make it look as if they were born charming, serving as a shield that the false seducers will put between themselves and those whom they wish to manipulate, so that they would feel safe and avoid being attracted or touched, thus losing control.

Similarly dangerous is the excessive use of the genuine native charm, with the purpose of dominating those in the proximity, as an obsessive need for power, case in which the manipulator will seduce himself/herself beyond limits, ending up smashed by the force of his/her own desire for power. This is the situation that designates the concept of exacerbated, malignant narcissism, where seduction operates as a defence system against painful feelings of rejection, abandonment and depression, in an attempt to convince the ill ego that it is attractive, wanted, loved and full of life, by means of confirmation of the personal value regarded as a toll of the manipulated victims, gathered in large numbers on display on “the hunting trophy wall”.

Seduction and manipulation are possible manifestations of the individuals’ personal strength, both deriving from the innate charm and aiming to influence the other. **The difference is given by the pursued purpose**, which depends on the strength of the individual’s personality, expressed in dimensions such as self-confidence, congruence, authenticity and morality.

The seducer might make use of the attraction created in order to exercise his

power over those seduced, either by keeping the effect of the seduction to himself, or by giving up on his own glory and orienting his/her strength toward higher prizes. In the first case, we are talking about manipulation, while in the latter we speak of mentors, masters, professors, vibrant leaders, who **deviate their disciples' fascination away from their own person, from their knowledge, to the idea that those whom they have inspire will be able to do things they were not aware they could.** Without the strong emotions nurtured by the group towards the leader, any activity becomes unattractive.

To manipulate is to use people by seducing them, including erotically, to the end of using them for purposes that are not their own. It is essential not to mistake manipulation for seduction, the latter being most often beneficial for the one experiencing it, as it elevates him/her to another spiritual dimension.

To seduce is to propose another a higher level of existence that relies on such aspects as living more intensely and expecting more from life.

What differentiates a manager from a leader is charisma, that is the individuals' magnetism, that certain '*je ne sais quoi'*, a mystery even for the one blessed with innate charm, based on character traits, which he /she tries to hide and not on something he/she would be convinced to show, as a personal advantage. The leader's charisma relies on authenticity and that is because artifice and control have nothing to do with seduction, as a phenomenon developed in the depths of personality.

What impresses, enlivens, fascinates and hypnotizes in a person with leadership skills is the profound side of his/her charm, which works as a magnet with five attitudinal properties:

1. The belief that one needs not be entirely agreeable.
2. The capacity to count on oneself alone to cope life's problems.
3. The sincerity and creativity in expressing personal opinions and solving problems.
4. The harmony between what one thinks and does.

2. AUTHENTICITY

Leaders are sympathetic by the people surrounding them, because they do not refrain from being honest and bold under any circumstance, imposing their character, desires, projects, but weaknesses too, assuming all potential risks. Being resolute persons, leaders cause fascination because they allow themselves to be themselves, being physically and psychically present under any circumstance, without fearing that they might be discovered as they truly are, with their weaknesses and vulnerabilities.

Precisely because they have the courage not to waste energy on fighting the tiresome and useless battle for the maintenance of appearances, leaders have always exerted a certain fascination over the crowds. The leader's magnetism is related to not keeping appearances, not necessarily meaning that the leader is at peace with all the aspects of his/her personality, but rather that he/she never lets himself/herself deceived by the contradictions and conflicts with him/her.

What makes the leaders examples for those around them is the acceptance of their own individuality, people discovering a new energy in their company, one that sets out from sincerity and positively stimulating boldness that is contagious for the fascinated group. This is the capacity to shine of the one seducing the group, of the leader: to give the others the impression that they can be 'brilliant' too, provided they dare to assert themselves (Buckingham, Ciffman, 2005).

A leader is an unperturbed person, regardless of the manner in which he/she is regarded by those around, not seeking the total approval or disapproval of the others. A person with leadership skills does not seek to be agreeable to everyone around, expects nothing from his/her fellow-creatures, which is why he/she will not attempt to constraint anyone to behave according to a pre-established scenario that suits his/her personal needs. This is the fundament of respect for the other, as an attitude specific of strong leader personalities, as people who listen to those around without judging them, thus creating a dialogue-enabling climate, fascinating through their

inner freedom. Otherwise, it is the case of the "evil seducer" or the manipulator, and people will feel apathetic, suffocated, paralyzed, without initiative, deprived of the freedom of expression, obligated to behave according to a scenario to their detriment, yet serving the needs of the one manipulating them.

3. SELF-CONFIDENCE

Those who feel good about themselves, at peace with their inner self, have always been sympathized by their fellow-creatures. Enthusiastic people who like themselves are capable to generate a good state of mind to those around them. It might involve a bit of narcissism but not much, just as a pinch of salt in the meal. Sometimes it suffices for the human being to feel worthy of love in order for his psychic to give birth to an energy that will enable him/her get through difficulties and problems; the history of the world abounds in examples of mothers, capable of unexpected energies and actions derived from their feelings towards their children and families.

Charismatic persons like themselves as they are, allowing other to see them without trying to appear else how, but with all their qualities and defects, the charm of which they don't even suspect, and all this is due to their self-confidence that comforts them and those around, as a calm force of fascination through the courage of not wasting oneself to keep appearances.

4. CONCLUSIONS ABOUT INNER COHERENCE IN LEADERSHIP, LIKE PLEASURE OF EXPRESSING OURSELVES THROUGH WORK

The fact that some people are more congruent than others are poses two problems that need to be solved:

1. The occupation of leading positions, regardless of the hierarchic level, by people who are psychically congruent.
2. The increase of mental congruence within the individual, as a side of personal development of any employee of the organization.

The qualities of a charismatic person may not be perceived in detail, but rather as a WHOLE. Neurolinguistic programming therapists call the inner coherence of persons with leadership skills congruence. The perfect harmony between a person's identity/ convictions/feelings/behaviour indicates the level of inner coherence/congruence of that person's psychic.

The measure of leadership is indeed the fact that the leader is not content to merely defend certain ideas, but will also materialize them in his/her behavior, by virtue of his talent to make/build/ put to application the world of values/beliefs/ aspirations from within his/her mind. Coming out in favor of a thing he/she profoundly believes in, thoroughly developing a project without giving in to obstacles, finding solutions to concrete problems around him/her, that not only affect him/her but those around as well, respecting people and activities starting from the organization of the work and the observation of labor norms are all forms of expression of the inner coherence, easily perceivable in all the gestures/words of a person endowed with leadership skills, who will never cheat, "no" meaning "no", and doubts being expressed with convincing arguments because there are justified/ supported/ "elaborated".

A leader is a happy person, and the source of his/her capacity to the reach this state of mind is in fact the harmony he/she permanently finds himself/herself in, with what he/she thinks and does, the congruence of his/her psychic having the wonderful gift of carrying others away in his positive dynamics (Albrecht, 2007).

This harmony between the thoughts/ emotions/actions of an individual, the congruence, is a marker of the psychical maturity and a state where the ideas form a natural and creative chain, and the emotional experiences are calm, having a self-appreciative inner tranquility. Under these terms, all actions of the individual are effective, consuming an extremely small amount of energy, but with maximum results.

Cognitively speaking, all employees comprehend and are capable of explaining several things, but not all people are able to

apply them in other actions other than those adequate to their biological age.

These methods of increase of the mental congruence will materialize in the personality of the employees of a company in:

- physical and psychical relaxation;
- expression of the personal emotions and opinions;
- honest recognition that the individual 'does not know', 'does not have what it takes', 'lacks the theoretical/practical knowledge' required to solve a problem;
- the choice of simplicity in the relations with the others, renouncing the 'confrontation' with the fellow-creatures and instead choosing to 'offer our values/beliefs', while expressing themselves clearly/bravely/honestly, using metaphors to allow comprehension and to help those around feel intelligent/relaxed/respected, in their capacity of interlocutors.

At the level of the organization, the selection for managerial positions must necessarily be made relying on a battery of psychological tests, with the purpose of employing people with leadership skills, so that any manager, regardless of his hierarchical level, may be a natural leader, which would translate into (Armstrong, 2003:523-537):

- **the fact that the person in question will constrain no one to behave according to a pre-established scenario suiting his/her personal needs**, but will rather impose the observation of the internal organization regulations of the company, the application of the labor norms, of the country's laws and of the principles of Christian morals, by the methods acquired from the management knowledge;
- **the fact that the person is self-confident**;
- **the fact that the person is genuine**;
- **the fact that the person will act according to his/her own values and, by way of consequence, will do what he/she preaches and would not have a problem saying what he/she does**.

As regards the increase of the mental congruence of any employee of a company, it is important for the process of self-development, in terms of the individual's mental maturity, to consist of the following aspects (Goleman, 2001):

- **to work, relying on what we ourselves can do** (and not on what others could do to help us, or worse, by obligating/deceiving those who depend on us in order to use them);
- **to eliminate the 'to be perfect' imperative** that the school/educational system has long forced on generations up to this day and that organizations have sustained by cultivating the 'fear of criticism and rejection';
- **to learn optimism** together with and alongside: 1) the disappearance of the obsession of being perfect (or better yet of appearing perfect) and 2) the diminishing of the stress generated by the fear of being regarded as an impostor;
- **to discover skills/passion/things that may support optimism and the individual's state of happiness**;
- **to reorient the imperative of perfection towards skills/passions/things that support optimism and the individual's state of happiness.**

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THE ANALYSIS OF TESTING PILOTS AND ATCS IN CRISIS COMMUNICATION

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Abstract: *This article explores the attitude of pilots, ATCs and students studying this specialization to communication. The author conducted a survey of the mentioned group to learn about effects of human factor in critical communication situations requiring high attention. The task is to highlight the importance of communication for air traffic control and flight safety. Aviation companies and human factor specialists all over the world realize the need to reveal and solve the problem, and reduce communication errors and then air incidents and accidents. The survey results are, so far partial; the research will continue and depends a lot on air personnel readiness. It is a challenge for them to pay more attention to uncovering the impact of various circumstances on communication, cooperate in completing questionnaires and participate in research interviews.*

Keywords: *communication, flying personnel, CRM, stress, errors, human factor, attention.*

1. INTRODUCTION

The human factor in aviation includes studies of human capabilities, limitations, behavioral and integration of knowledge into a system that is designed for them to improve the safety, performance and generally good system operator. All elements of the human factor influence communication in everyday life and especially at work. It is this factor which is very important for the aviation workplace.

2. GENERAL VIEW ON COMMUNICATION

The communication process is a part of everyday life. The use of both verbal and non-verbal communication is the very basis of how we converse, both on a personal and on a business level. Communication is the exchange and flow of information and ideas from one person to another; it involves a sender transmitting an idea, information, or feeling to a receiver. Effective communication occurs only if the receiver understands the exact information or idea that the sender intended to transmit. Many of the problems that occur in an organization are the either the direct result of people failing to communicate and/or processes, which leads to confusion and can cause good plans to fail.

Studying the communication process is important because you coach, coordinate, counsel, evaluate, and supervise throughout this process. It is the chain of understanding that integrates the members of an organization from top to bottom, bottom to top, and side to side. Effective communication process is important because you coach, coordinate, counsel, evaluate, and supervise throughout this process. It is the chain of understanding that integrates the members of an organization from top to bottom, bottom to top, and side to side.

This paper introduces the research of the communication and has the aim to show the attitude of pilots and ATCs to communication process and a part of the partial investigation in this area.

2.1 Effective and safe communication. Effective and safe communication is a specific task for aviation so aviation companies support the idea to find the barriers to effective communication between pilots, and between pilots and air traffic controllers (ATC) and other flying stuff.

The combination of case examples, empirical research, and studies of literature present the opinion on effectiveness of communication.

2.2 Aviation human factor in conversation. When effective communication is at work, what the receiver decodes is what the sender sends. A breakdown in the communication process may occur if the intended message was not encoded or decoded properly. Comments may be taken the wrong way, a compliment may be taken as an insult, or a joke might be interpreted as a put-down.

Communication problems within aviation are further compounded by the reliance on and need for radio transmissions, which result in a degraded speech signal. Moreover, the cockpit is a noisy environment and the presence of noise makes it more difficult for foreigner listeners in English language as second language to understand speech (Gat, Keith, 1978).

Assumptions and errors of pilots are the largest at the time of an enormous burden on the crew, thus, when individual members must handle large amounts of information, incentives and perceptions but also to take important decisions on the next flight over. Also very stressful is solving of many non routine situations – engine shut down, decompression, reconciling of two aircraft, microburst before the takeoff / landing, cloud base near the decision height and below etc. Loss of so called situational awareness is the most common cause of accidents, which were marked as “human error”.

It is well known that the pilot and crew, as such, are affected by a very large number of stressors, impulses and other factors that affect concentration and attention throughout the flight.

Looking into the statistics of accidents that were directly caused by the loss of situational awareness, however, encounter many accidents that their actions caused the crew with even a high degree of experience.

2.3 Human error in aviation. Human error in aviation is somewhat of a sensitive topic due to the recent tragic events of September 11, 2001. Many of the causal factors that contribute to accidents can be viewed as different “types” of human error. Human error can be defined as inappropriate human behavior that lowers levels of system effectiveness or safety, which may or may not result in an accident or injury (Wickens *et al*., 1998). Technically, the term human error could include mistakes made by humans operating a system, humans who designed the equipment, humans who supervise the worker, and humans who trained or advised the worker. However, the term is usually used to describe operator error, the inappropriate behavior of the person directly working with the system. There are numerous ways to classify and categorize human error. We have a tendency to want to view error at the operator level. First, we tend to blame the individual; second we try to identify any other factors. Shealey (1979) suggests several reasons for why this narrow perspective is taken:

It is in the interests of the company to blame the worker rather than admit deficiencies in their procedures product or system. Operator error is a very common cause of accidents. However, studies of accidents revealed that in no case was human error the only factor. They proposed a model of contributing factors in accident causation – CFAC.

The factors are broad & encompass most factors found in other models. Their model includes and emphasizes management, social and psychological factors. Also, human factors variables are recognized in the categories: Physical environment, Equipment design, and Work itself.

2.4 Different studies on communication studies in aviation. When people engage in a conversation, they typically do so with the intent of making themselves understood. As such, they need to make sure that the other participants are attending to them, actively

listening, and understanding what they are saying. Since unresolved uncertainties can lead to communication errors, people cooperate with each other to establish and maintain the mutual belief that their utterances have been understood well enough for current purposes (Clark, 1996, 1987, 1989). An example of this kind of collaboration is the use of backchannels. When participants in a conversation sufficiently understand an utterance, they will typically give feedback through head nods or acknowledgements, such as "uh huh". On the other hand, if they do not understand, they will attempt to clear up their uncertainties until they have coordinated not only the content of their utterance but also their beliefs about what they mutually understand (Clark, 1996).

In the past decades a lot of research has been performed on communication between controllers and pilots. It is clear that over the years the different studies found similar communication problems and causes of communication errors. One may conclude that despite the studies and recommendations that have been made in the past, controllers and pilots continue to make the same communication errors. This is not surprising because pilot -controller communication is still highly dependent on the human factor. Nevertheless, the 'system' is robust in a sense that millions of instructions are given per year, whereas the number of reported occurrences is relatively small.

Many instances of miscommunication and communication problems are apparently caught and solved by the controllers and pilots, leaving them only with momentary confusion or annoyance. On the other hand, communication plays a vital role in aviation and a breakdown in communication can have serious safety consequences. It is observed in the literature study that most communication problems have causal factor associated with human performance limitations. Factors often mentioned in the various studies are controller workload, frequency congestion, and non-standard phraseology, read back/hear back errors, similar call-signs, message complexity, speech rate, language proficiency and accent.

Matchette searches the ASRS database for records which made reference to nonstandard phraseology and 260 reports were reviewed (Matchette, 1995). Many reported incidents resulted in little more than momentary confusion or annoyance for pilots and controllers.

However, nearly half the reports involved near mid-air collisions, loss of standard ATC separation, runway transgressions or other conflicts with potentially serious safety consequences.

The report gives examples for common non-standard phraseology for each phase of flight and suggests alternate wording which may have prevented the incident.

SCTA is on call sign confusion prevention in France (SCTA, 2003). French air traffic control statistics show that the prevention of call sign similarities by SCTA is very efficient with French airlines working in co-operation. The first way of struggling against call sign similarities is to co-ordinate work at a European level and not at all relies on a random call sign affectation. Longer term, the solution could be a real time call sign allocation in the same way as the slot allocation.

2.5 Communication as a part of crew resource management (CRM). Crew CRM training workshop is from NASA in 1979, which focused on improving aviation safety. NASA research presented that the main cause of most aviation accidents was a human factor and that the main problem was the failure of interpersonal communication, leadership and decision making in the cockpit. Various models of CRM were successfully adapted to various organizations. CRM training encompasses a wide range of knowledge, skills and attitudes including communications, situational awareness, problem solving, decision making and teamwork together with all the sub-disciplines. CRM can be defined as a system that enables the best use of all available resources, equipment, procedures to promote safety and improve safety and traffic effectiveness.

CRM is focused not so much on the technical knowledge and skills needed to fly and operate aircraft, but the cognitive and

interpersonal skills necessary for flight control in an organized system of air. In this context, we can define the cognitive ability of mental processes as necessary to obtain and maintain and situational awareness of the issues and decisions.

Pay Attention is paid to interpersonal relations, communications and conduct of a wide range of activities associated with teamwork. It is not limited to multi pilot aircraft crew, but also applies to single pilot aircraft, where it is necessary to link with other aircraft, ground control to successful flight.

3. RESEARCH ON COMMUNICATION

The dissertation work, which is part of the research of human factor in communication of pilots, air traffic controllers and students studying this specialization, gives partial results.

Research results and number of respondents depends on the willingness of those groups to cooperate. Questionnaires themselves force individuals to think about problems that arise in communication and consider own expression.

3.1 Method used for the research. For this research the method of questionnaires was used to find out the attitude of aviation staff to communication. Especially pilots, air traffic controllers (ATCs) and students studying this specialization have been asked to fill in the questionnaire with 50 multiple questions which have been focused on:

1. Normal communication – (speaking, listening, gestures, focus, stress).
2. Communication in the workplace – aviation communication with a focus on listening.
3. Communication in the workplace – aviation communication with a focus on speaking.
4. Effects of other factors / language used – native or English.
5. Recognition of danger due to miscommunication.
6. Experience in communication.
7. Training, training, knowledge in communication.

They could perform the questionnaire throw internet page www.iankety.sk from their home or work.

Questions have been short and clear like:

- If you believe the information you received is incorrect:

a) you immediately correct the information;
b) first you make sure if it is really incorrect;
c) you correct the information only if you think that is very important;
d) you do not correct the information.

- When listening the information:

a) you always get nervous;
b) you sometimes get nervous;
c) you are never nervous;
d) you cannot say.

- How patient are you when listening to another person?

a) long time;
b) long enough;
c) short time;
d) you have no patience to listen to.

3.2 Partial results of the research. As the research has been in process only some 20 respondents participated in it. As the results show the responses are very similar and it is conceivable given the assumption of further results.

Results are divided into two categories at the impact of human error in communication and the use of foreign (English) language.

78% of managers took part in pilot or ATC professions while the research. When communicating, people sometimes fear to pass information or to receive it. These concerns depend on the circumstances in which it takes place and only 67% is attributed to this fact. The fears are contributing to the person communicating with the listener is nadridený- 77% of respondents felt concerns in an interview with “nadridením”. At each site supervisor and subordinate relationship exists in this respect and mutual trust. Most bosses trust their subordinates’ information - 9% complete and 63% more than not. Group 27% superiors do not always trust information from a subordinate.

An important aspect in communication is to work with erroneous information. Respondents - 54% are dependent in their

work on information from another person or another source - 22%. Not everyone is aware of the seriousness of a failure message, but only 91% correct his mistake now, and only 4.5% to await the response and report that the cast was really wrong. Habits of everyday communication are also reflected in particularly like the attention, nervousness, awareness of the interference environment, memory, facial expressions and gestures and others.

The following table shows the results of communication in the following points:

Table 1. Different impacts on communication

Respondent is a listener:	Excellent 22%	Good 77%	
Prefers	Written message 54%	Information face to face 45%	
When listening to known information	Focused on details 50%	Not always focused 50%	
Nervous when listening	Sometimes 31%	Never 36%	I do not know 31%
Recognizes a nervous speaker	Always 31%	Sometimes 68%	
Remembers information	Long time 31%	Long enough 50%	Short time 18%
Focused on information	Perfectly 40%	Only key words 59%	

Effective communication is not a simple process and preliminary results show that in Aviation, employees realize the seriousness of the transmission of messages, but distractibility and nervousness considerably exist. The next area is quality of hearing which depends on radio transmission, quality of equipment and ambient noise. Half of respondents are sure these mentioned facts lower the quality and reliability of received information.

Important to the pilot is the clarity and speed of information about weather and hazards coming from the air traffic controller, and the rest of his/her team members including copilot, flight engineers, and cabin attendants (Busse, 1999).

Also English language should be mostly used for communication but if they use English only if they have to.

The aviation staff communicates among themselves in native language and they use English rarely, they sometimes have a problem to use English if they do not speak English for a long time - 54%. Some of them - 27% do not have any problems. People come to work from their family background that significantly effects communication at work, concentration positively or negatively (Fig. 1, Fig. 2).

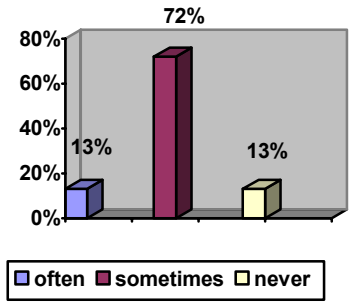

Fig. 1 Family problems affect communication at work

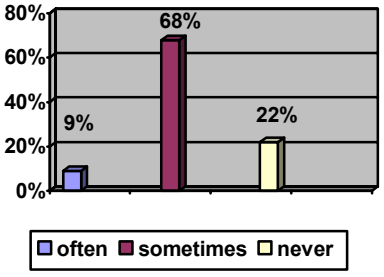

Fig. 2 People come to work from home tired

Finally, the course or special training in effective communication was attended by 18% of respondents, 13% have read something about it and 68% have never been trained. Also the not sufficient English is the result of the lack of English knowledge, not enough courses, and native language interference.

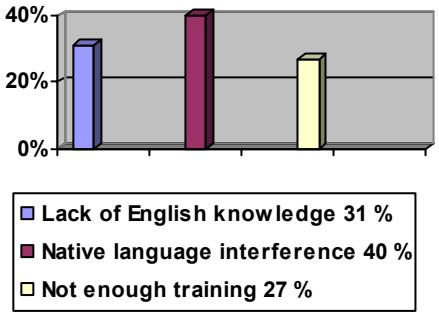

Fig. 3 Not sufficient usage of English language

Language use should be considered as a variable of interest in crew factors. Language is a coping mechanism in that it helps individuals lessen and manage both the causes and the effects of stress. There are links between pilot language use and flight outcome measures.

Language use is dynamic, as it is sensitive to both workload and position, and varies systematically with flight outcome measures. This is in contrast to a more static measure such as "paper and pencil" measurements of personality, which are stable across time and situation.

4. CONCLUSIONS

The results of the research suggest that communication problems pose a threat to aviation safety. Communication is greatly underestimated and is considered a normal human ability. It is necessary to create awareness of pilots and ATC, that communication is a serious process, and spoken words are not easy to erase. This research is designed to emphasize this fact, and after obtaining further results will suggest solving the problems that will result from the research. It is necessary for the pilots and ATC to be aware of the seriousness of the communication process, the importance of each word, the way it is transmitted. Effectiveness of communication depends on many factors, but for the entire human factor must be sought. Nervousness, impatience, inconsistency, poor knowledge of English reduces the effectiveness of communication and seriously endangers the safety of air traffic (Čekan, 2010).

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THE MANAGERIAL CULTURE AND THE UNIVERSITY'S MANAGEMENT

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Abstract: *The managerial culture represents the value system, the beliefs, the aspirations, the expectations and the managers' behavior that is being reflected in the management types and styles practiced within the universities, visibly affecting the content of the managerial culture. The managerial culture regards the objective fulfilling, influencing the internal and external factors that affect the organization and contribute at increasing its competitiveness on the internal and external market. Another important role is foreseeing the apparition of the anti-organizational culture that contains opposite elements of the managerial culture, focused upon the objectives' fulfilling. An important part of the managerial culture is that of protecting the university and the academic community from the multitude of challenges raised by the internal and external environment. Therefore, the managerial culture can be considered the basic component of the quality increase of the education. The present paper presents aspects regarding the way in which the university's management is being integrated within the managerial culture.*

Keywords: *culture, management, university, education, quality.*

1. INTRODUCTION

Nowadays the management represents an essential feature of life and mainly of the academic life. The management as a particular type of activity comes from the very existence of the university. It is a system, a mixture of elements and actions.

Their normal running not only depends upon their nature but also upon their interrelations. It also depends upon the assembly's organization and interdependence between its components.

The academic management nowadays becomes an element of the managerial culture, as a mixture between art and science. In such an environment the university managerial process has specific features and functions (Voiculescu, 2004: 35-40).

It comprises informational, decisional and motivational elements. Their meaning and percentage varies from one domain to another, in a specific ratio. The university management must own and use the motivational factors' mechanism.

In the academic education the managerial art often prevails the managerial science.

The manager's personality and self-example play an important role in accomplishing the system and the university's objectives at the highest performance level.

The activity's success depends on the orientation, the organization, the guiding and the motivation capacity belonging to the university corpus – teachers and students.

2. THE MANAGERIAL CULTURE

2.1 Notional boundaries. The managerial culture represents a system of values, beliefs, aspirations, expectations and behaviors belonging to the managers that sensibly mark the content of the organizational culture as well as its performances.

The managerial culture aims at fulfilling the objectives by influencing the internal and

external factors that affect the organizations and contribute to the growth of its internal and external competitiveness.

Another important role is the foreseeing of the anti-organizational culture – elements that are opposite to the managerial culture – focused upon fulfilling the objectives.

Regardless of the way in which the managerial culture manifests itself, a crucial factor is the manager's personality, especially the one belonging to the superior level.

In most cases, the managerial culture is being built according to the style imposed by the general manager.

He represents a role model for the rest of the managers.

The stronger the manager's personality and leadership is, the better the managerial culture reflects the conception, the potential and the managerial particularities.

Upon the managers' experience the specialists have identified a series of features – psychological and intellectual – that actively influence the success. No leader should own all these features, because not all of them are useful.

They manifest themselves differently, from one case to another: practical skills, adaptability, risks taking, intelligence, flexibility, concern towards the personnel, creative and innovative vision, etc.

In any strong organizational culture, the top managers gather a series of common abilities and share the same set of beliefs, values, behaviors that directly regard the way in which the organization must be guided (Petrescu, 1998:14-15; Voiculescu, 2004: 71-75).

The managers' personal values influence the employees' perception, decisions and behaviors determining a major impact upon the organization's activity.

In such cases, the managerial culture is a strong one; one that is extremely well implemented.

The new employees that make contact with this cultural environment adopt is as a consequence of their formal and informal manifestations.

One of the most important values of the top managers regards: the organizational efficiency, the labor productivity, a pleasant and stimulating climate, an attractive organizational image.

2.2 The dimensions of the managerial culture. The specialty literature mentions a series of pair dimensions of the managerial culture, from which we will highlight the ones that seem more important (Petrescu, 1998: 15-16).

- *Large/Short power distance* depending upon the way in which the resources and the power are distributed within the society. In the cultures that are characterized by a large power distance we can notice big inequalities in its distribution within the society members and all the way round. This distance is being reflected in the sizing and distribution of the authority and motivation within the social system, in the centralization of the managerial systems.
- *High/low risk avoidance.* It is represented by the people's position towards the fact that time flows in only one direction and the future is rough and difficult to anticipate.

The cultures having high risk avoidance place their accent upon building well-defined organizational systems, upon ensuring a strong hierarchy, upon planning promotion as a means of anticipation and preparing the future.

The cultures having low risk avoidance present a less intense or detailed planning and organization. The accent is being placed upon creativity, upon the creation of the safety feeling and upon continuity within the organization

- *Individualism/Collectivism*. Taking into consideration the intensity of the relations between the component parts of a collectivity we can see individualist managerial cultures in which the relations are less intense. Here we have a higher degree of individual freedom within decisions and actions. People are being preoccupied by accomplishing the individual objectives.

In the collectivist culture he human relations are very strong. A mixture is being manifested in pursuing the individual and group accomplishments whereas the problems are frequently faced and solved in a moral vision.

These dimensions have a determining and leading role for any managerial activity.

The way in which these dimensions work is strictly depending upon the general and specific elements of any organization.

3. GENERAL AND SPECIFIC WITHIN THE HIGHER EDUCATION MANAGEMENT

In the beginning we mentioned a few problems belonging to the managerial culture because we consider that mutual relations are being established between this culture and the university's management. Therefore, they determine and condition each other providing contents, methods, means and purposes.

"The problematic of the higher education management receives a special meaning in a rapidly changing social and political environment. In this change, nearly all the educational aspects, especially the ones of the higher education, starting with the ones of financing, contents, quality, systems' efficiency and educational activities are being questioned" (Petrescu, 1998:22-27).

As a consequence, the problem "*what kind of managerial environment is appropriate for the academic education at the beginning of the XXIst century?"* becomes a central one for the efforts of developing the education.

In answering this question we start from the following general premises:

- the general management, regardless of the way it is conceived, defined or practiced is also found in the field of education, with all its elements, dimensions and functions that it has in any field of activity;
- within the education, it is present in a rapidly changing social and political environment when the technical progress is stronger and deeper as well as the informational revolution. This impact is also felt by the society's general equilibrium and by the manner in which we perceive the surrounding world.

On the other hand, a series of specific elements of the higher educational management are governed by a multitude of external and internal factors that affect and influence the educational systems and progress. Among them we can find:

- the development and the transformation of the contemporary knowledge, a process that triggers deep changes in the academic education, in the interdisciplinary relations and between the departments belonging to different organizational structures and between the fields of research;
- the problems raised today by the available resources of financing the academic education that affect the "expansion" and that often determine the "compression", the access to education as well as its costs;
- *the global evolutionary tendencies of the academic education,* with political and power factors that, participating in financing the education have the right to ask for an efficient and adequate use of the resources;
- all these within the frame in which the vocation of the academic education is that to produce, disseminate and present knowledge and values through educational activities, research and continuous training. Therefore, it has to organize itself and function on specific grounds regarding both the intellectual autonomy as well as the freedom of action and thought, establishing both the objectives and the educational practices;
- finally, the general picture of the academic management is marked by the fact that the academic "production" is represented by the cultivation and praising of the human resources, of humans and not of the material goods; education is being realized in knowledge based institutions that also produce and disseminate knowledge.

"The most adequate model of the contemporary educational management is considered to be the cybernetic model characterized by:

- constant answers and adjustments made in continuously changing situations;
- cybernetic control based on feed-back;
- corrective and spontaneous action of the different individuals belonging to the institution not through a rational agent but through an omniscient one;
- harmonic work within a common organizational culture;

- organic mixture of the interests and individual reason through their subordination to the organization as a whole" (Petrescu, 1998:31).

We must mention the fact that such an approach of the higher education management is adequate only in performing it in normal conditions. In versatile conditions we can notice the need for a competent academic management because a complexity of changes may appear changes with secondary effects that are totally unproductive.

4. THE PRESENT STATE OF THE ACADEMIC MANAGEMENT

The contemporary Romanian universities find themselves in versatile situations and so they have to find appropriate leading models for the universities. This effort is marked by common and general conditions that nowadays affect the academic education. These conditions derive from precise states of action:

- the academic management was left behind the new requirements;
- it aims at becoming a stop in front of the transformations produced in the academic education;
- the simultaneity of the managerial transformations is an imperious requirement for the risk reduction and the transformation diminution of the university reform.

Added to all these we have the fact that the main transformations that are being performed in order to move on to a centered managerial system, one that is based on academic autonomy. These trigger radical structural transformations but also practical and mental managerial ones (Voiculescu, 2004: 52-60).

We are forced to build such an objective by mixing the decentralization and the autonomy with the judicial responsibilities belonging to the Education, Youth and Sports Ministry, through new communicational routes within the leadership of several educational institutions.

Professionalizing the academic managers and administrators represents a crucial necessity.

It imposes the accomplishment of all the preceding actions with rigorous and precise efficiency criteria, quality and performance, within a coherent thinking ad strategy upon the contemporary academic development.

The key word that highlights the present evolution of the academic management is *the change.* It must not be made only for the change's sake. One must not give up a series of component elements, strategies, technologies.

Whether we mention the necessity to change the management techniques or methods used to lead the universities or significant changes of the environment in which the university evolves today it is obvious that the academic environment faces great challenges.

Its previous evolution depends upon its adaptive capacity for the next century.

Few of the questions it needs to answer are mentioned below (Petrescu, 1998:33):

a) Can we accomplish the Romanian academic education reform upon long-term projects and strategies? Will they be correlated to the European one?

b) How do the universities manage their own image?

c) Will the great companies take over some of the university's functions? Will they be involved, financially speaking, when qualified personnel will appear on the labor market?

d) Could we align the academic management strategy to the European standards?

We could continue enumerating such questions due to this complex and specific managerial process.

But, we will stop here, at the last question, trying to present strategies and procedures regarding the quality management for the education within the Romanian military universities.

5. STRATEGIES AND PROCEDURES

The Romanian universities function upon the University Charter and the Internal Rules and Regulations that were approved by the Senate. The university's leading is being organized by the academic senate. The

operational one is ensured by the Senate Office.

According to the stipulations of the Romanian Government's Decision number 1418/2006 regarding the approval of the External Evaluation Methodology, of Reference Standards and Performance Indicators' List belonging to the Romanian Agency for Ensuring Quality to the Academic Education, within the universities we elaborated and implemented the System that Ensures the Quality of the Educational Services.

It comprises a series of academic policies and strategies, procedures, competences and responsibilities adopted by the senate and applied by the involved components in order to: improve the educational services' quality regarding the initial and continuous training. Facilitate the mutual recognition at an European level of the academic diplomas and studies; protect the beneficiaries' interests regarding the graduates' performance quality and standards; make proof of the institution's responsibilities regarding the way in which the financial resources were used in order to accomplish the mission and increase the transparency and the mutual understanding of the educational offer (*Metodologia evaluării externe instituționale,* 2006).

Within the university we have "The Commission for Evaluating and Ensuring the Quality" that functions upon a regulation approved by the Senate.

This commission takes part in implementing and developing an educational culture according to the national and international standards.

For a good development of the specific activities and for ensuring the efficiency every compartment was assigned with several people responsible for ensuring the quality and having precise duties.

According to the "Methodology of internal audit for the quality of the educational process" we see that universities have a "Commission for internal audit regarding the quality of the educational process".

For each academic year a "Plan of internal audit regarding the quality of the educational process" was established.

Each evaluation is finished with a Report of internal audit.

Ensuring the quality for the academic activity represents several components:

- *The quality of the didactical process*: therefore the necessary measures were adopted and applied in order to ensure the quality of the didactical processes, to respect the indicators and the performance standards required by the Romanian Agency of Ensuring the Quality within the Academic Education. The universities promote activities for ensuring the quality for the teaching-learning-evaluating processes. They provide them with the status of reliable competitors at an European and national level, competitors that are able to attract students through a varied and attractive educational offer that allows the graduates to be integrate on the labor market.
- *The quality of the scientific research*: is accomplished by increasing the efficiency and the prestige of the didactical personnel by gathering national and international publications, international conferences, by publishing the research results within the didactical act, by increasing the evaluating experts' number by involving the students in research activities and in international conferences organized by national and international universities.
- *The quality of students' life*: accomplished by showing a constant preoccupation for providing them with the best educational conditions, the best didactical and material grounds.

This system of ensuring the quality of educational services represents the gathering of all academic strategies and policies, procedures, competences and responsibilities embraced by the academic senate and applied in all involved components (*Metodologia evaluării externe instituționale,* 2006).

Coordinating the evaluation processes and ensuring the quality at an institutional level represent activities performed by the Commission for Evaluating and Ensuring the quality. It supports the creation of the quality culture and ensures the teachers and students' involvement within the activities performed in order to ensure, evaluate and improve the performance indicators.

6. CONCLUSIONS

After analyzing the facts mentioned above we can depict the following conclusions for the academic managerial activity:

- the managerial culture represents a strong motivational factor in obtaining performances;
- the managerial culture represents a strong motivational factor in promoting the organizational changes;
- the managerial culture provides the managers with a vision and an affiliation to a particular social category;
- the lack of culture with elements embraced by most of the managers that act for the organization's progress would directly influence – positively or negatively – the organization's success;
- the managerial culture ensures a balance between the values of the organization; therefore it ensures a dynamic balance between the organization's values and the ones of its members;
- the managerial culture plays a major determining role in obtaining the competitive advantage;
- the managerial culture favors the organizational learning process.

The quality of the educational processes can be constantly improved also by the suggestions' content, suggestions that came from the graduates and the beneficiaries regarding the level of competences and knowledge acquired during the academic studies.

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LEADERS AND THEIR CHARISMA

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***Abstract**: Leaders play a particular role in any field of activity that is why transformation process should take it in too. A leader's charisma means more than an image because it generates the power that musters the followers' desire for realizing the leader vision. Charisma has a dual nature because it is usually associated with power which sometimes corrupts and destroys the leaders. A leader with charisma but without integrity becomes a negative character. A successful leader is that one who "makes investments in the future".*

***Keywords**: leadership, charisma, transformation, vision, team spirit, decision process.*

1. WHAT IS CHARISMA?

Dual nature of charisma has given rise to various opinions about its substance and definition which cover both image-making (what Anglo-Saxons call "appearance" or "look") and deeper aspects going beyond the image and reflecting the human personality. No reputable specialist will define charisma as personal charm raised from the attractive features of the face and physical qualities.

There still is implemented in the subconscious of most of us the association between physical beauty and angels, which cannot be otherwise than good. On this line, the most relevant are, probably, Romanian fairy-tales where heroes are Prince Charming and Cinderella. It is also true that heroes of the Romanian fairy-tales are **characters**, people who fight for ideals and principles, without giving up their dignity and honor in order to upstart or to get material benefits. At the same time, they feel compassion for their neighbors, try to understand and help them, join them in their suffering, and usually they win the fight with evil forces just because they are pure, unselfish, strong – mainly morally – and do not give up on fighting until reaching the goals they aim at.

Therefore, a beautiful image (charm) is only a component of charisma, meant to make a good impression which is to be confirmed by the other individual qualities designed to energize the followers, to muster up their optimism and draw them into realizing the vision (ideal, program, objective etc.).

Charisma dual nature originates in human nature which has contradictory sides. This aspect of dualism may be found both in ordinary people and leaders. Ordinary people seem too concerned of their problems and are not always willing to look beyond appearances, or image. This is why there are so many people for whom the first impression is that it counts. They follow their instincts, the emotion aroused by a charismatic character at their first meeting through a simple hand-shaking, few words exchanged or just as a result of a speech during a public event. Most frequently the first impression is influenced by the environment.

Based on these aspects and also on other aspects not so relevant but capable of determining the extent of the impact a leader's charisma may have on the public opinion, a new subject of study appeared – science of using images – and a new profession – public image specialist.

A public image specialist is generally an expert in mass psychology who analyses the character whose image has to be improved, surveys the community to be influenced and

develops the strategy to follow. After completing the study, image specialist finds out the community expectations, problems it has to face, educational level of its members etc.

Following the study of "audience" (community, organization etc.), image specialist puts a plan of meetings with community representatives and members to the leader suggesting him topics to be approached, solutions to community problems, proper behavior on different occasions, appearance (haircut, clothing, shoes), gestures, facial expression etc.

Excessive concern about creating a favorable image associated with character features is the most important criteria generating the dual nature of charisma. Thus, a leader with negative qualities will be interested in a favorable public image and, therefore, will show "the man we need", "man of Providence", etc. But such a leader only pursues his own interests in his secret plans. Such individuals are referred to as "two-faced" (like Shakespeare's Jago or Bareface in Romanian popular tales) and they reveal their purposes only when they think nobody and nothing can touch their interests.

One of the most interesting descriptions of charisma dual nature belongs to Patricia Sellers who said: "*Charisma is a tricky thing. Jack Kennedy oozed it – but so did Hitler and Charles Manson. Con artists, charlatans and megalomaniacs can make it their instrument as effective as the best CEOs, entertainers and presidents. Used wisely, it's a blessing. Indulged, it can be a curse. Charismatic visionaries lead people ahead – and sometimes astray*" (Sellers, 1996).

2. CHARISMA AND LEADERS

One of the tendencies in leadership modern theory is the attempt to shift away the emphasis from the leaders toward the **relationship leader-performers** and team spirit which leaders should encourage (Rose, 1993:102). From this perspective, the leader role is subjected to slight changes because he should rule from inside the team and the team members should feel him like one of them. This type of leadership is not easy to accept and adopt for a traditional charismatic leader and especially for a leader of hierarchical structures like military ones because he has got into the habit of being the "leader", "commander", "chief" or "boss."

Although the servicemen are often labeled as rigid and conservative, there are numerous examples of military commanders who knew how to approach their subordinates, to motivate, encourage and lead them to fulfill the assigned missions.

A significant role in building the team spirit is taken by mutual trust based on training, common values such as honor, dignity, responsibility, integrity, mutual respect grounded in a system of relationships which "*should not necessarily be either that between a superior and a subordinate, or master and servant, or teacher and student*" (Cohen, 2001:79), as Lieutenant General John A. Lejeunne, US Marines, declared.

It is obvious that lack of formalism (a non-rigid attitude) in commander (chief) – subordinates relationship will be beneficial to working environment by reducing the stress specific to rigid hierarchical relationships. On the other hand, commander (chief) should not be the "good guy" who ignores defaults and disorder just to gain in popularity. It is a firm obligation for any leader, pre-eminently a military one, to demand his people to obey the law and specific regulations. Actually, a real leader must be a good example, justified when saying "Do as I do!"

A charismatic leader is that who succeeds in turning his native qualities to a good account in order to influence (inspire) people, to find the shortest way to their minds and hearts, to discover those hidden triggers inside the human beings which activate and use unanticipated resources of energy, initiative and inventiveness. This enables ordinary people to be encouraged and get adequate support in topping their part and achieving goals, even at personal level, that they would never reach by themselves.

A charismatic leader should have the power to persuade those whom he leads that the distance between the starting point (initiation of an activity, program, plan etc.)

and the arriving one (goal) is shorter than it seems. Thus, people self-confidence increases; they do not feel weak, helpless, inefficient or self-conscious any more, and prove superior capabilities to those they show in an environment less favorable to displaying initiative and innovation.

As far as military area is concerned, self-consciousness and fear may be eliminated through knowledge and training leading to competence, performance and unity of concepts and actions.

All these qualities may be achieved through hard work and first-class training (Cohen, 2001:136), the latter leading to physical and particularly mental status improvement, i.e. a mentality of a winner who is "able to make the difference" by shifting the victory balance in favor of those most determined to win (Rourke, 1991:231).

It is almost a truism to say a leader needs a vision, but this should be more than creative imagination and good intentions because, to achieve something important, experience, tenacity, competence, courage and a winner mentality are required. A successful leader must be creative, animated by good intentions and, at the same time, must have the ability to assess new trends in his area of expertise, know his own and his subordinate structure capabilities, forecast evolving environmental tendencies and set realistic goals and timetables for them.

A well-known military leader in leadership theory said *"there are no bad organizations but bad leaders"* (Marshall, 1996:252). A similar point of view comes from antiquity, from Philip of Macedonia who considered *"an army of stags led by a lion is more dreadful than an army of lions led by a stag"* (Cohen, 2001:80).

An insight into the gallery of the greatest personalities of the world will show us that all leaders of high caliber had and still have something in common: charisma. The way they use their charisma and individual qualities, make their personality unique.

The American President **Abraham Lincoln** had a distinctive personality thanks to his moral strength. Although in the 19th century media and information transfer technology were not so advanced, Lincoln made his mark through his imposing stature (almost 2m), his baritone voice, ability to address the large bodies of people and progressive ideas he advanced. Due to his strength of character proved by his deeds, tenacity in pursuing his creed - slaves emancipation and human rights - he succeeded in gaining people admiration and respect. The ideas he promoted and followed made him many enemies whose interests were to maintain slavery.

They strongly believed that physically eliminating President Lincoln would have led to slavery re-establishment that is why abolitionism hostile forces paid a murderer who shot him while at the theatre, shortly after the Civil War

Winston Churchill, British prime minister during World War II, was skilled at eloquence and persuasive discourse. Animated by his desire to focus British efforts on supporting the fight against German Nazism in its full expansion, Sir Churchill shifted the feeling of frustration, even treachery, caused by French capitulation in June 1940, to pride. Restoring the British self-confidence and dignity to go on fighting and even die to prevent Nazis from conquering their country, the prime minister gained the British adherence to his vision and made them endure extreme privation, scarcity and German bombing and led them to victory in "Battle of Britain" (Iulian, 1968:264).

Charismatic leaders have normally a strong will, courage to take risks and ability to make their visions known in few words that may express an easy-to-perceive and comprehensive enough impetus to people from various social categories.

Such a personality was American pastor **Martin Luther King**, who succeeded in mobilizing millions of people, both black and white, with his *"I have a dream"* speech against racism. His dream became true but, similar to President Lincoln, King lost his life for daring to rise against Ku-Klux-Klan and apartheid followers.

Among those remarkable leaders tragically ending just because they wished their dream come true **Mohandas Gandhi** must also be retained. Most of the people remember him as

Mahatma (the Great) Gandhi. He militated for human rights (abolishment of apartheid) and India's independence through passive resistance (ahimsa) and soul strength (satyagraha) (Knauer, 1996:53). However the movement he led drove them to victory, the result was independence without unity because the British Crown made the decision to create two states: India, where most of the population is Hindu, and Pakistan where most of the population is Muslim. This outcome drew extremists to hate him and one of them, Hindu Rashtra newspaper editor, shot Gandhi.

Charisma dual nature is easier to notice when studying negative leaders' evolution. They have qualities that support them in their efforts to become famous, even to lead a nation. Unfortunately, their abilities and skills are only employed to fulfill their vanity – get the power. At the beginning of their development some of these leaders militated for noble goals such as: liberty, equality, democracy but after getting the power they turned the political regimes in their countries into personal dictatorships (Stalin, Mao, Castro (Accoce, Rentchnick, 2000:28-31)), promoting the cult of personality and murdering their political opponents (Pol Pot, Duvalier (Accoce, Rentchnick, 2000: 153-162), Sucarno) in the name of some noble ideals.

3. TRANSFORMATION OF LEADERS

In this century of transformation and information, traditional leader and pyramidal decision-making structures (rigidly hierarchical) have to adjust to the new trends. The course of transformation is given first of all by promoting a new type of relationships between the leader and those to be led similar to a partnership. At a first glance it seems nonsense that the leading individual be a partner of those to be led but only if traditionally (i.e. rigid hierarchy) approach the subject. Considering the current theory of leadership in its spirit, **team work** and **authority delegation** enable the partnership between a chief and his subordinates.

Team work has been often blamed during the communist epoch due to its association to lack of effectiveness and responsibility (there still subsist in some of us minds the idea that "if you want a goal not to be fulfilled then assign the task to a working group (!)" Team work makes goal achievement fail unless animated by the team spirit which is mainly defined by working together as colleagues, competence and wish to reach high performance.

Team spirit is not to be mistaken for caste spirit, gang spirit or fraternization (The Military Commander and the Law, 1998: 101-104). This spirit is based on a new approach of the relationships within a collectivity (organization, military structure) focused on efficient goal accomplishment, not on formalism or rigid hierarchy.

Leader partnership with those to be led does not mean to deny (turn upside down) hierarchy by diminishing the due respect to the leader (commander) or the leader to give up his prerogative.

This new type of relationships aims at improving communication, increasing permeability of hierarchical barriers by giving the performers a better access to the leaders and a faster exchange of opinions. To communicate strictly through hierarchical channels is time-consuming and frequently leads to opportunity loss.

Time has always been a barometer for effectiveness and, therefore, shortening the information-decision cycle will allow sooner and faster debates on and achievement of new projects. The more rings decision-making chain has, the longer time is wasted through hierarchical bureaucracy. Any delay could cause critical effects, particularly during warfare.

In general, *"an efficient leader correlates subordinates' and organization objectives"* (Organizational Behavior and Human Resources Management, 2002:32). On the other hand, *"subordinates will reject a leader whose behavior is perceived as useless and who does not support them"* (Organizational Behavior and Human Resources Management, 2002:32).

Any individual needs certain independence when accomplishing his job. The leaders take active part into personality, responsibility and initiative developments of those whom they lead through partnership and authority delegation.

Understanding and especially a proper application of centralized command and decentralized execution principles will be a significant step forward in transforming the leader and execution personnel mindset. It has been already proven that information blowup may cause decision-making mechanism to be overloaded or blocked unless a pre-selection of information is done. Any individual who is part of the organization (community, military structure), not only the leading team, should perform such a selection. Information "filtering" by leading team only could act like a brake, and that is why delegation of authority and assignment of responsibility to every employee is required. Some information has to be submitted directly to the leader if it critically impacts on the course of action. Consequently, communication channels should be established thus enabling information to be timely delivered to the decision-maker by using real-time collection, processing and transmission technology. Particularly when dealing with military operations, information delivery and decision-making in due time may lead to victory or prevent casualties. Otherwise, fights, battles or even wars may be lost and, implicitly, many human lives.

Transformation of leaders and leadership in general entails both to reconsider the relational system between the members of the organization (military structure) and to re-assess their competence. To this end, delegation of authority will eliminate micromanagement and sometimes almost functional dependency between the leader and his subordinates. When approaching leadership this way, the leader bears major responsibilities in developing the vision and the strategy for it (that well-known phrase WHAT MUST BE DONE) and subsequently in evaluating evolutionary trends of those factors that may act upon his area of activity as well as adjusting the strategy, if required. Another important responsibility of the leaders is to ensure the correlation between objectives and allocated resources and to adjust objectives in the event that those resources significantly change in amount.

Leaders' style should be dominated by **flexibility** to allow permanent adaptation to situations and by **determination** in pursuit of the objectives. Maintaining the objectives makes the operation and perspective more substantial and coherent but they may change if initial data basically change.

The leaders should not take over the subordinates' right of deciding how to accomplish the assigned objectives (Guidelines for Command, Air University Press, 2003:25) but have the obligation to control their activity in order to evaluate the implementation status of the strategy, plans, and programs, and to intervene, if required, for improving efficiency, reset timescales, or re-ordering priorities.

4. CONCLUSIONS

Traditional leader mainly differs from that leader who is to control transformation of the military by the way they approach the leading process. The first places the emphasis on individual leading while the latter bases on a team and has also responsibilities in facilitating the process conducted within the structure (organization) he (she) leads, as well as in motivating and stimulating his staff to improve their knowledge and skills and become proficient. Partnership with subordinates and team work do not exonerate the military leader of responsibility. It is him who makes major decisions and controls their implementation. But, taking advantage of a larger participation of his subordinates in information or in decision-making process as well as in identifying the solutions to increase their work effectiveness, it will be easier for him to reach a more durable **unity of concept and action**.

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11. **** (2003). *Guidelines for Command*. Alabama: Air University Press. Maxwell Air Force Base. p. 25. (General George C. Patton: *"Never tell people how to do their job. Just tell them what to do and you will be surprised of their ingenuity"*).

THE CRISIS AS A TERM COMMONLY USED INAPPROPRIATE IN ORGANIZATION MANAGEMENT

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Abstract: *The enhance of the complexity of life under economic and social impact of the transition to a economy market, the deepening social division of labor, the need for the effective use of resources, like utility participation in favorable international division of labor, are some of the main factors which have led to raising concerns to study theoretical – applicative basis of crisis.*

Keywords: *management, organization, social, crisis, development.*

1. INTRODUCTION

The origin of the word crisis is found in ancient Greek. For Plato's contemporaries, the verb meaning of krinein are, "to judge", by, separate, then, to discriminate or, finally, "to decide". The term Greek krisis -, "court" or, "decision" - transforms as times goes by. In Medieval Latin became crisin, crisis in the sixteenth century and later crisis. It follows that point of word etymology lies in decision term. In the core of any definition of useful and rigorous understanding of the phenomenon of crisis, is included the obligation to decide. Without the need to take a decision and, therefore, without a prior court, there is no crisis.

Referring to the fact that all the authors discusses the concept of notes etymology Greek krisis, the decision Michel Jacqueline Baruse and colleagues argue that this etymology doesn't signify a priori notion of a crisis as we understand normally (Barus *et al*., 1998). Assuming a definition of the Petit Robert, deciding means, to adopt a definitive conclusion on (a contentious point). The authors consider that this involves a deliberation, arbitration between the two sides in balance. Indecision, the difficulty of choosing prior to the decision that cut. It then enters the stage of solving; take a decision which put an end hesitance or failure to which the unit was reduced during the crisis. This means that a crisis is a profound reassessment, raising issues of survival in cohesion and continuity of the unit in question, who can not return to a dynamic viable only through decisive choice. Concluding, the authors show that the crisis is determined by the duration of incapacity decision, while the structure of the unit taken into account (individual, group...) is compromised. They and another reference to the crisis which may be regarded as a decisive effect, created a rupture of an event that appears to radically transform the conditions of existence. The event may be just a decision taken by a minority and supported by a group which lacks modes of adaptation. In all cases it highlights the inability to maintain a known state, usually due to the scale transformation context, ebullient and ad-lib.

The study crisis is a phenomenon as old as it the new. With roots in ancient Greek, then you find in Medieval Latin in the sixteenth century, so in the form of international crisis to appear as a recent phenomenon just half a century old.

The first synthesis dates from middle early 70's. The United States of America under the influence of the Cuban missile crisis have opened the door. The new discipline for the study of international relationships crisis-management-has its origins in studies performed in that time.

Staying in the international crises field we find that after the first efforts of analysis, the two issues outstanding are materialized: the crisis in international relations is a singular phenomenon of exceptional importance; quasi-total lacking of a consensus on what it inaccurately. Such a paradox is elucidated by Jean Louis Dufour (Dufour, 2002) in two ways: first, absolutely everything is recorded on the extraordinary complexity of the phenomenon, then, is studying the considerable crisis arises in the twentieth century, in relation to authors and definitions taken from the most restrictive in the most extensive, this number is quite high.

2. THE CRISIS AS A TERM COMMONLY USED INAPPROPRIATE

The enhance of the complexity of life under economic and social impact of the transition to a economy market, the deepening social division of labor, the need for the effective use of resources, like utility participation in favorable international division of labor, are some of the main factors which have led to raising concerns to study theoretical –applicative basis of crisis.

The word, "crisis", as Jean Louis Dufour (Dufour, 2002) underlines, after a real abusive utilization, whether it was defined or not, has become a cliché, a word thrown easily and in a speech. The author quoted considers this state as a linguistic and intellectual fiasco, and specifies that those responsible have generated a: first, the journalists are the most guilty, otherwise they are the most in the spotlight because they did not know to preserve the strict sense of the word, followed by specialists in any field, who use it without discrimination and in the broader context too, and last but not least, historians who have it without precautions ... or, conversely, are out to use it (Duroselle, 1992).

Also like the word, "crisis" itself is dangerous: corrupt and weak, as a tool of analysis it has been depreciated. And yet! Even if you use unadvised is likely to compromise the intelligence of a minimum debate, it remains one of the words most frequently used word.

The trends of increasing use are visible. Thus, inspired from previous land use of the term, is the metaphor useful in many areas for explicit, in particular, the most acute phases of international relations. Thus, there are qualified, as "crisis" some moments of tension between states, such as the period of intense diplomatic activity in the summer of 1914, the so-called crisis in Sarajevo or the missiles in Cuba in 1962.

The positioning of these crises within the six crises of the twentieth century is found in Table 1.

Table 1 Chronological presentation of the six crises of the twentieth century (according to Dufour, J.L. 1999)

Nr. crt.	Name - specific crisis	Year / when the crisis was produced
1.	Boxer`s rebel revolt and the deployment of an international forces	1900
2.	The first crisis between France and Germany on behalf of Morocco	1905
3.	Bosniac crisis	1908
4.	Attack from Sarajevo and the crisis in the summer of 1914	1914
5.	Armenian Genocide	1915 - 1919
6.	Seisure Ruhr region by the Franco-Belgian troops	1923
7.	The incident at Wal-Wal and Ethiopian crisis	1934
8.	Remilitarization of the Renania	1936
9.	Armed *Pronunciamiento* from Spain: to intervene or not?	1936
10.	Munchen	1939
11.	Berlin`s blockade	1948 - 1949
12.	Hungarian insurrection	1956

13.	The nationalization of the Universal Suez Company	1956
14.	American intervention in Lebanon	1958
15.	War for Jinmen Islands / Quemoy?	1958
16.	Katangai seccesion and intervention of United Nations	1960 - 1963
17.	Crisis of American U2 spy plane	1960
18.	Franco-Tunisian dispute from Bizerta	1961
19.	The Bay of Pigs rocket crisis	1962
20.	Gabon coup d`etat and french intervention	1964
21.	"War of the six-day" and the international community reactions	1967
22.	"The Prague Spring" and Soviet intervention	1968
23.	Bangladesh secession	1971
24.	War for Jinmen Islands / Quemoy?	1973
25.	Turkish landing in Cyprus	1974
26.	Penetration of Syrian forces in Lebanon	1976
27.	Incidents between Djibouti and Somalia, French intervention	1976
28.	French Jaguar planes intervention in Mauritania against the Polisario Front	1977
29.	Confrontation between Somalia and Ethiopia	1977 - 1978
30.	Israeli intervention in southern Lebanon and creating FINUL	1978
31.	Invasion of Shab province and French intervention in Kolwezi	1978
32.	Flip of Emperor Bokassa and operation, "Barracuda"	1979
33.	Taking as hostage U.S. Embassy staff in Tehran	1979
34.	Soviet intervention in Afghanistan	1979
35.	"Gafsa affair" and French intervention	1980
36.	"State of war" in Poland	1981
37.	The incident in the Gulf Syrta of S.U.A. and Libya	1981
38.	Crisis and war in the Falkland Islands (Malvinas)	1982
39.	The crisis between the United States and Grenada and American intervention	1983
40.	The conflict between Chad and Libya	1986
41.	Attack in Berlin and the U.S. raid împotniva regime in Tripoli	1986
42.	Serious incidents in southern Lebanon	1986
43.	Rebellion in Suriname and French precautions	1 986- 1992
44.	The first crisis in the Persian Gulf / Arabic	1987
45.	The crisis between the United States and Panama and operation, "just cause"	1987- 1989
46.	"The October War" of Rwanda and French intervention	1990- 1991
47.	Disorders in Gabon and French intervention	1990
48.	Invasion of Kuwait by Iraq	1990
49.	Yugoslav crisis breaks at 25 June 1991	1991
50.	Disorders in Zaire and the intervention of Franco-Belgian military	1991
51.	Somalia: anarchy, famine and international intervention	1992
52.	Condemnation of Israel and the Intifada	1993
53.	Ultimatum in Sarajevo	1994
54.	China-Taiwan: a crisis for nothing?	1996
55.	Iraq-United States: a deliberate attack (fall-winter 1997-1998)	1997- 1998
56.	Kosovo: the crisis announced (January-March 1999)	1999

The latter meaning of the concept of crisis does not resolve the problem of defining it. In fact, the word is applied too easy to any tension, any vexation political, economic, financial either that is a disaster or just a small problem. The term is used, as well, to describe any change or transformation taking place during some periods.

It is used so, to describe persistent economic difficulties, the collapse of civilizations or a continuous degradation and environmental concern (but it is invoked in accidents in the monetary system, the sudden multiplication of oil prices, the collapse of stock markets). These trends are converging to a lack of understanding and uncertainties, and all in one place, incite to deepen knowledge of this singular phenomenon, which we will try to do next.

3. CRISIS, AS THE ACCOMPANYING BUSINESS ORGANIZATION

One wrote a lot about the organizations. They tried numerous definitions, some of the most successful, others less. The most used is one which presents the organization as a ring extended spread with a variety of roles in the economic system generally. The variety of roles is determined by how core features are its own, namely: independence and autonomy of economic, organizational integrity within the limits determined by internal and external environment, the existence of a specialized information, the possibility for the breakdown of the results of the general organization of work (Pânzaru, 2007a).

It notes also that one can make some notable examples of organizations: the stock company or the company itself, bank, company (insurance, tourism, transport, water supply, methane gas, electricity etc.) and structural units of state managerial system.

These are modern forms of organization and conduct of economic and social activities, with influence on the human factor. They develop constantly and take place at certain times, to be established in order to just solve management problems involved (Ştefănescu, 2010).

In connection with the problem of widening crisis appears necessary for managers to make timely responses to two major issues: first to outline what period of development of the organization may manifest crisis, secondly, to determine the risk of crisis, with possible manifestations in the field of risk generated by changes that may occur in the organization itself, through the condition related to the economic environment in which the organization operates.

Under the general influence of economic environment, the practice adopts ondulatory movements, and by reference to the crisis it shows the rate of development of each organization separately, witch usually does not coincide with the rhythms and social development of other organizations. In turn, external factors characterize the condition of the economy in which organization works. It is in a relationship of dependency with external factors to the effect that if the economy is in a state of crisis, then this is reflected in the functioning of each organization. Note that the directions and ways of expressions are different from one organization to another, depending on the property of the organization, the activity, professional and economic potential of it (Pânzaru, 2007b).

Awareness of the crisis level allows the trader to resolve the situation created by the choice and implementation of the existing alternatives. In this way the crisis is presented as a form of a trader's activity. When faces uncertainty through alternative process that can take to achieving the desired results. The essence of crisis is typically represented through financial crises.

4. FACTORS THAT INFLUENCE THE STATE OF CRISIS ORGANIZATION

Specialists in the field believe that the state of crisis of the organization appears as a result of the negative influence of internal and external factors that are manifested in the development of business in market economy conditions. Currently, it is widely accepted that in practice the state of national crisis and international vision of financial organization

danger of instability appears due to external factors to the extent of 25-30% and under the influence of domestic factors to the extent of 70-75%, mainly as a result of an irrational management and unscientific. These proportions may vary in case of economically developed countries, as follows: external factors represent 10-15%, while domestic factors amounts up to 85-90%.

Within the limits of these proportions few underline is becoming. Thus, we hold that, in general, and in the practical way, organizations influence over external environment negative factors is weak or absent. Things are not the same regarding the domestic influence mainly as a result of managerial decisions adopted by the Board of Directors or by the committee management.

Looking at situations analysis and agreeing decision to eradicate or diminish the influence of domestic it is desirable that the process itself should be conducted on the basis of taking into account the influence of external conditions on the activities of the organization. On a similar approach based on practical factors influence of a group or another on the worsening financial status of the organization, to establish the causes of concrete state of crisis of the organization, as well as directions and ways of curing and financial measures out of state of crisis (Ştefănescu, 2009).

The external environment factors are grouped as follows:

- general economic, that determines the influence exercised by the state economy country;
- state, which included precise factors that influence taxation and others on the work organization;
- market, meaning the influence of factors that belong to and depend on the market;
- other factors.

In return, related to the development of the organization is grouped as follows:

- operational factors, which include the production and management;
- financial factors - occurring and is manifested as a result of irrational financial policies;
- investment factors, generate the investment policy inefficient organization;
- other factors.

In an indication, interpretation and analysis, setting directions and methods of counteracting a special place is held by the sources of insurance products. The systems differ. While the significance of change for the external factors are periodic calls to the media, information brochures that include financial and economic journals, in the case of determining the significance influence domestic factors it is used financial records analysis, economic accounts, productive activity, sources managerial and tax.

The complexity and significance of the issue dealt earlier entails the need for generalization factors mentioned and of a partial conclusion that, in most cases worsening financial condition and the bankruptcy are caused by:

- lack of management system located in efficiency plan and competence in top management;
- poor concentration on the changes outlined in the basic state of the market (demand, competitors, pricing policy and others) and those relating to potential industrial and financial group;
- embezzlements applied to top management;
- the practice of an abnormal production from economically and technologically point of view.

The business organization in concrete, the efficiency and capacity to pay is subject to the interests of different groups of people involved in the production process and its management.

In terms of interest, to which we referred above, we hold that the influence of the most profound and powerful is exercised by the owners of the organization and their collaborators, suppliers and customers, creditors and competitors, the state controls and regulations and others.

The goals, interests and the types of structural units of cooperation and their representatives in the process of influencing the results of the productive and commercial activities are extensive. In the light of practical experience, the reality of national and international management will highlight the finding that different groups of owners,

employees, customers and suppliers have different interests in cooperation with the organization, but in every part there is a general attitude of interest to the organization work as a sign of financial stability and profitable manner. The competing firms don't adopt a position of carelessness, but instead are interested even as the fight took place between them and increased ownership in their own production company.

And everything remains in the realm of interest, it is appropriate to show that in practice, in some organizations, can be found groups of people and animated interests contrary. We consider those who seek to, "destroy" the organization in various ways. Thus, the owners and staff may pursue seizure heritage customers to acquire production organization without payment, suppliers to provide raw materials and low quality, competing firms to stop the normal functioning of the enterprise, etc. Accordingly, there is a need that all these interest groups to be thoroughly analyzed by the general manager and team management and if it finds changes for the opposite purpose, to react with efficiency and professional competence.

5. CONCLUSIONS

We find that the idea that a crisis can be the equivalent of a progressive labor is less supported today, although still present. Not only in evolutionary-analytical approach, but also the pragmatic one can think that a crisis is positive fact it can take a sociology who studied the events in their duration, integrating periods of progress and regression, and concern, as Auguste Comte to a philosophy of history convinced of the existence of social progress. Should realize that in the twentieth century has crossed the two world wars combined with a serious economic crisis, is at the beginning of the century XXI less safe and no longer considers that the change would be synonymous with progress.

Moving now in the field of social psychology, we will approach the concept of optical social clinical psychology, deliberately standing with the actors, which evoke the catastrophic nature of the crisis. In this regard we will orient less to give prejudices the outcome of them, essentially always unpredictable and we see more to let us know how it is lived. It should realize that an external point of view may lead to considering the existence of crisis and the ones crossing organizations as normal by an observer who has seen some others. But player's experience, full of surprises, of disturbances, or disorders of the doubt, is always associated with feelings of misunderstanding, of uncertainty, anxiety and fear of a catastrophic result.

Finally, the crisis do not go unnoticed, its violence makes it obvious in the eyes of witnesses and especially in the eyes of those who support it. The crisis is an event that lasts a certain time. It is marked by moments, stages, and phases. It marks a step. After it, things are not what they were before. Duties achieved require a change or cancel the entire structure, namely a set of interrelated and sufficiently coordinated elements to always have of course, the relative autonomy of a structure.

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CULTURE OF LEARNING – LEARNING ORGANIZATIONS IN CONDITIONS OF NATO MEMBER COUNTRIES

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Abstract*: At present lifelong education as well as learning organizations are the engines of any society. The authors of this article work at the department of management and deal with the issue of human resources, culture of organization, organizational behavior, managerial communication and creative managers and human resources development on its whole range of focus. The authors consider lifelong education an ongoing continuous process of learning that goes on during human's life and they also represent the Armed Forces Academy of* General *M.R. Stefanik as the only state military university and its mission. Furthermore the authors of the article point to personal life experiences with the organization of lifelong education courses that the department of management organized in terms of the AFA of* General *M.R. Stefanik for the fifth consecutive year entitled "Key competencies of managers".*

Keywords*: Lifelong education, learning organizations, training of managers, managers, key competencies of the managers, lifelong learning courses in terms of the Armed Forces Academy.*

1. INTRODUCTION

Lifelong Learning (LLL) is understood as a continuous, ongoing process of learning that takes place during man's lifetime. Although this idea is not new, it appears ever since the times of J. A. Comenius. In the second half of the 20th century it began to point to the need for lifelong learning as a lifelong necessity under the influence of the onset of scientific and technological revolution.

As milestones in this area can be considered the year 1970, declared the International Year of Education, when the theory of lifelong learning was gradually formed. In the 80´s it began to be reduced to the training aimed at acquiring specific knowledge relevant to professional growth in the profession, but already in the 90´s the look at lifelong learning has changed.

An Impact of new technologies is reflected in a rapid change of advanced economies, especially in their transition from production orientation to service orientation. Much more emphasis began to be put to the methods and process than on factories, machines and natural resources what was displayed in the change of LLL mission.

There were talks about the society based on knowledge, about society which is learning and therefore about lifelong learning.

The fundamental characteristic of lifelong learning has therefore become its orientation to a man as the initiator and executor of all changes and processes in the economic, social, cultural and political spheres of society, especially on it's inside motivation and need to learn. To the forming of the conception of lifelong learning significantly contributed various international conferences on lifelong learning as well as various statements oriented to a learning society, the various declarations but primary *the Memorandum on Lifelong Learning* (the memorandum) which was released in Brussels, 30.10.2001.

For further development of lifelong learning and the education system had great importance the Council of Europe meeting in Lisbon in March 2000, considered as a decisive moment for the future direction of European education policy, whose main principle has became the lifelong learning. Its

findings show that Europe has moved into *the era of knowledge* with all the consequences that this entails for the cultural, economic and social life. Since learning styles of life and work are vigorously changing, the individuals must not only adapt to them, but also change the usual ways of working, which is not possible without life-long learning. Memorandum considers the lifelong learning *any targeted educational activity whose purpose is to constantly improve the knowledge, skills and global competencies* - as the guiding principle for the provision of opportunities and participation in education in its diverse contexts for every European citizen. It is also a certain direction in NATO member countries in training of military professionals. **Lifelong learning** - is actually the thing to do. Memorandum considers enforcement of lifelong learning into practice as a top priority for the EU, stating the following objectives:

a) support of active citizenship – enabling of active participation of all citizens in all areas of social and economic life and the opportunity to influence the society in which they live;

b) support of employability - developing the ability to secure and retain employment.

Today there are still the measures for support the lifelong learning resonating, so-called 6 key messages.

It's the most important chapter of the Memorandum, as indicating the direction the European policy on lifelong learning should keep:

- Key Message 1: New basic skills for all.
- Key Message 2: More investment in human resources.
- Key Message 3: Innovation in Teaching and Learning.
- Key Message 4: Evaluation of learning.
- Key Message 5: A new approach to career guidance and counseling.
- Key Message 6: Bringing learning to the homes.

All of the above materials played an important role in shaping the concept of nowadays education and lifelong learning strategies in the Slovak Republic. They reflect mainly in the National Program of Education in the Slovak Republic for the next 15 to 20 years - known as the Millennium, in the Concept of further education in the Slovak Republic (approved by the Government in 2002) as well as in a new law on LLL No... In our organization we try to apply the laws of learning organization:

1. Today's problems are the consequences of Yesterday's "solutions".
2. The more inaccessible promoting of something is, the more it defies system.
3. Before the functioning worsens firstly it improves.
4. Easy solutions usually ends up in the back.
5. The treatment can be worse than the disease itself.
6. Faster is slower.
7. Cause and effect don't relate in time and space.
8. Small changes can bring the great success – but the areas where their effect is the strongest, are often the least noticeable.
9. You can have your cake and eat it - but not all at once.
10. We do not obtain the two small elephants by slashing the one.
11. There is no-one to blame.

In the context of lifelong learning there often occurred the term *key competencies* - it means knowledge which enables the man, at that point quickly, responsibly and competently makes decisions and reacts and copes with changes in the profession, social and personal life. They are not tied to a particular profession and they are the basis for further learning.

These include:

- ability to communicate and collaborate;
- ability to solve problems;
- creativity, independence and performance;
- ability to take responsibility;
- ability to think and learn;
- ability to justify and evaluate etc.

Lifelong learning should be closely linked with the acquisition of these competencies. Based on the above knowledge and NATO member countries and specifically AFA proceeded to address the development of the key competencies, organized by the Department of Management for the fifth year for the needs of people development and their responsibility in terms of AF of SR.

2. THE ARMED FORCES ACADEMY (AFA) AND ITS CURRENT MISSION

The public is not familiar with the role and future direction of this institution, so I would like to preface a few known facts. Armed Forces Academy of General Milan Rastislav Stefanik (AFA), based in Liptovsky Mikulas, was established by the Act No. 445/2004 Coll. AFA establishing educational institution as a successor to the former Military Academy. It is a State College - Military College of university type.

Further education centre is a part of this institution, which provides education and career training courses and various other short-term vocational courses in terms of lifelong learning. This institution is responsible for implementation of career education, as well as other specific needs of military life under special regulations. AFA is the top of the educational and scientific institutions and the only military college of university type that prepares officers for AF of SR in two levels of higher education:

- The accredited bachelor degree programs of study;
- Fields of study in engineering and a Master's degree under current regulations.

Higher education takes place at the AFA. In three bachelor degree programs, covering most of the skills of junior officers from OS SR system of disciplines:

- Transport machinery - curriculum Machinery and equipment;
- Electronics - curriculum Electronic Systems;
- Management - curriculum Management.

Lifelong learning in AFA is realized in addition to areas center for further education and training in the workplace - the departments and institutions. Department of Management is the youngest department at school. It is involved in training of future officers for our department and participates in varying degrees in all degree programs than any department of management in Slovakia. It teaches courses in an accredited bachelor degree program 3.3.15 Management, as well as in the master's program 8.4.2 Economics and Management defense resources.

3. LIFELONG LEARNING COURSES - MANAGER´S KEY RESPONSIBILITIES

Knowledge of teaching in this subject is properly utilized within the lifelong learning courses, which the Department organized the fourth consecutive year, entitled "Key competencies of the managers". The content is modular built and is focused on capabilities that are for managers in AF of SR very necessary. These modules include the teaching of knowledge, competence and competencies needed in the current management. Specifically, the development of these core competencies within our proposed individual modules:

1. Effective management module;
2. The communication skills of the manager;
3. Module Teamwork - team building and leadership;
4. Stress and psycho-hygiene of the manager;
5. Social contact and label of the manager;
6. Module New Trends in Education Manager.

An organization of these courses is a 3 - day training camp in length: one module = 24 hours (1 lesson 45 minutes). Maximum number of participants per course is 20 people. Between modules is a monthly break. During the input of professional instructors from the ranks of university teachers and lecturers of external participants in the courses they take the issue through active social learning. There are theoretical inputs in addition to various forms of teacher active learning by example, surveys, tests, questionnaires, model situations, workshops to prefer particular experiential learning and dialogical forms of teaching by applying to the active forms of employment.

The course participants are looking for possible solutions of problems during the discussion with lectors and they suggest creative - innovative techniques by practical experience. Theoretical inputs are combined with knowledge and practical experience of course participants in AF of SR, so all management training is getting a sense of efficiency.

Each participant is issued a certificate of the subsequent completion of a training

module in the intentions of the laws of another adult and lifelong learning.

At the end of the course (module), Course participants completed a questionnaire, which assessed the educational module. We try to seek by an anonymous way the views of completed course i.e. on its content, form of education, access to tutors and also to collect their comments and recommendations for improving the quality of courses.

This feedback is a very valuable source of information and also some incentive to improve the courses. Return of the questionnaires within each module is relatively high, ranging from 85 to 100% which shows the interest of the parties to participate in improving management training courses.

Rating is available to the public part - AFA Annual Report, evaluation of course participants and their observations allow improving and enhancing these services and contribute to the total satisfaction of all concerned. The aim of this paper is not only to acquaint the general public with experience in teaching management subjects but also with the results and practical experience in management courses organization for 2009 in terms of AFA - specifically the Department of Management of the AFA in Liptovsky Mikulas. Detailed analysis of the various modules based on feedback (questionnaire and individual interviews) in those courses attended by a total of 86 participants (see detailed Table 1).

Table 1 Composition of participants in courses

Module	Term 2007	Number of entered	Number of participants	Average age	Prof. soldiers	employees	University study	USO study
1	19.-21.1.	20	17	34	12	5	11	6
2	26.-28.3	21	16	31	14	2	10	6
3	23.-25.4	22	12	32	8	4	11	1
4	18.-20.6	21	17	33	12	5	14	3
5	17.-19.9.	24	15	35	9	6	11	4
6	26.-28.11.	15	9	36	6	3	9	0
together	6 modules	123	86	33,5	61	25	66	20

Chart 1 Composition of participants in courses

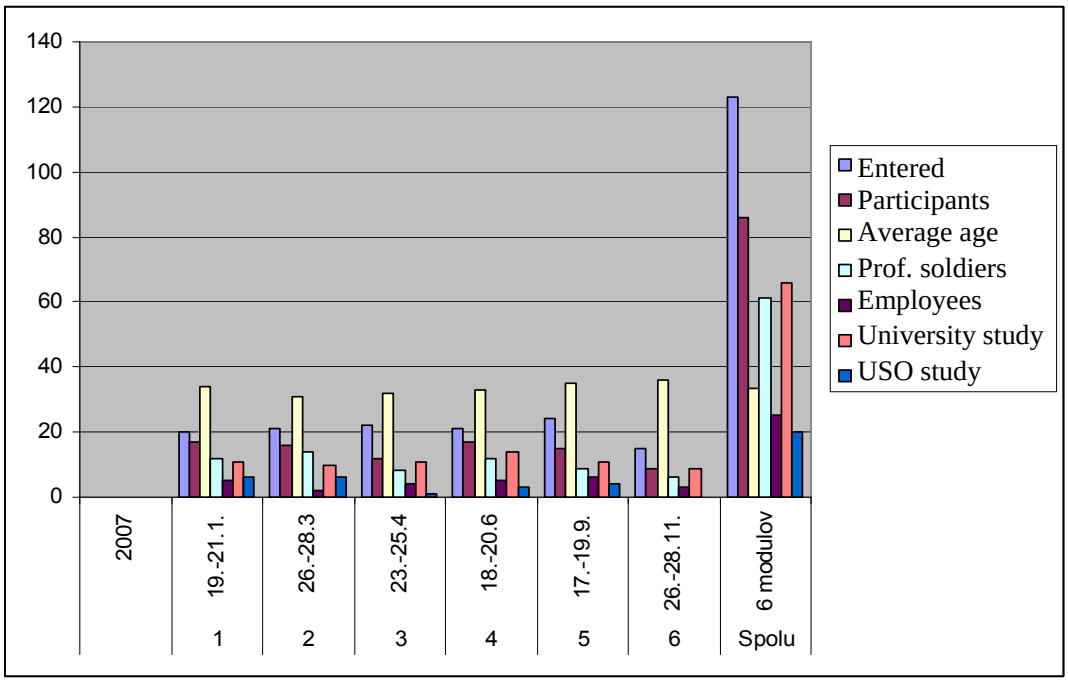
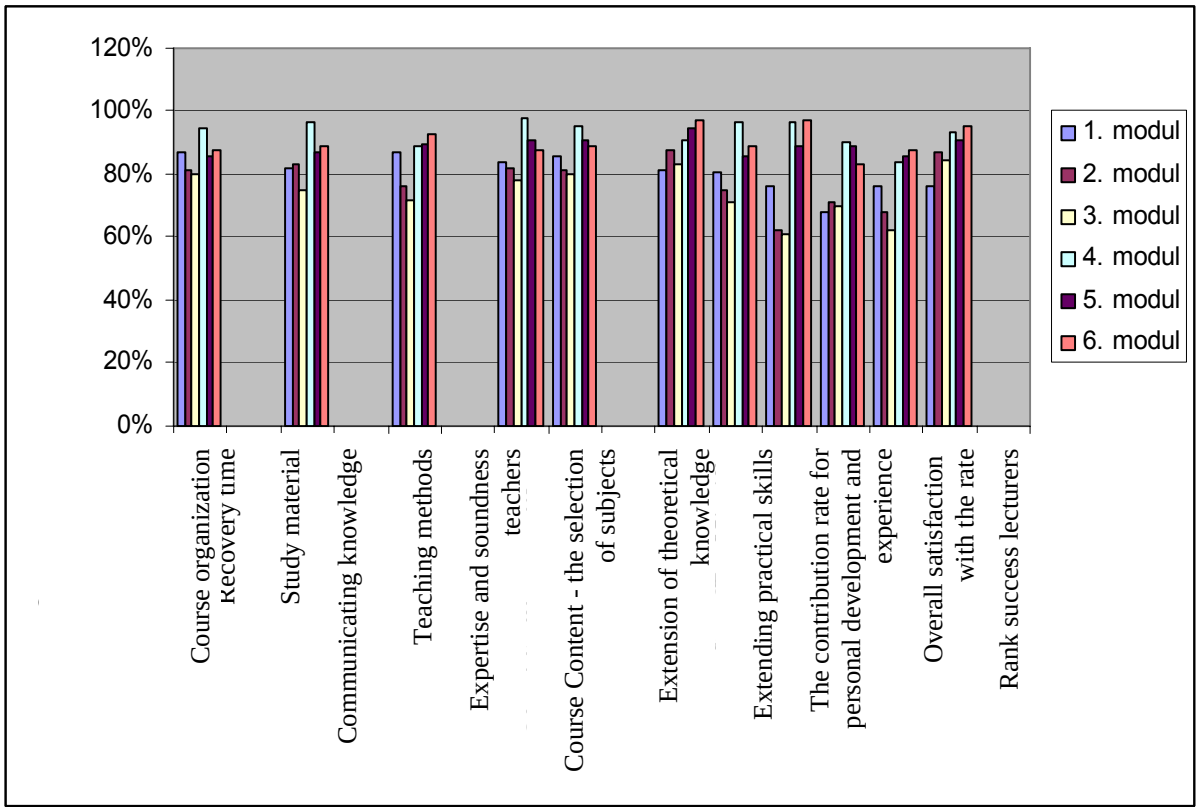


Table 2 Analysis courses

Module	1. module	2. module	3. module	4. module	5. module	6. module
Course organization	87 %	81,2 %	80 %	94,3 %	85,7 %	87,5 %
Recovery time	82 %	83 %	75 %	96,2 %	86,8 %	88,8 %
Study material	87 %	76 %	72 %	88,8 %	89,8 %	93 %
Communicating knowledge	84 %	82,2 %	78 %	97,7 %	91 %	87,5 %
Teaching methods	86 %	81,2 %	80 %	95,5 %	90,5 %	88,8 %
Expertise and soundness teachers	81 %	87,5 %	83 %	91,1 %	94,9 %	97,2 %
Course Content - the selection of subjects	80,5%	75 %	71 %	96,3 %	86 %	88,8 %
Extension of theoretical knowledge	76 %	62,5 %	61 %	96,3 %	89 %	97,2 %
Extending practical skills	68 %	71 %	70 %	90,3 %	89 %	83,3 %
The contribution rate for personal development and experience	76 %	68 %	62 %	83,7 %	85,4 %	87,5 %
Overall satisfaction with the rate	76 %	86,8 %	84,2 %	93,6 %	90,9 %	95 %
Rank success lecturers	6	4	5	2	3	1

Chart 2 Detailed analyses of evaluation rates



4. CONCLUSIONS

The above analysis shows that the greatest success can be found in module No. 6 “New trends in education managers” and the least popular module was No. 1. “Effective management” but on the other hand, 76% overall satisfaction with the level of the course is by no means small. Again, it is confirmed that the quality of the course also depends mainly on the quality of teachers, a fact that the Department of Management, the organizers are clearly aware of.

A new challenge for further Training managers is particularly open and offers individual modules (courses) for the civil sector - organizations (companies) in the region of Liptov.

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DIACHRONIC ASPECTS OF ENGLISH MILITARY TERMS

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***Abstract**: The present paper focuses on presenting some aspects related to the use of military terminology, from the moment they were inferred as a necessity of the time up to the XXth century. The intention is to deal with military English terminology where the military phenomenon played an important role in the evolution of language and in its shaping and development. In recent years, numerous dictionaries have been compiled in the attempt to ascertain and record the often ephemeral vocabulary, associated with specific wars – not only weapons terminology and technical jargon, but also the slag that inevitably characterizes every war zone.*

***Keywords**: military system, runes, borrowings, word-building, change of meaning.*

1. INTRODUCTION

To study the evolution of a language implies, first of all, a research of its evolution, its characteristics, the way in which it has enriched its vocabulary and the factors that influenced it. Although no invader succeeded in invading the British Isles since 1066, this did not immunise them. For example, the major means of defence has always been the task of the Navy. With such a rich military heritage, great captains of war abound in every period.

The physical skills and abilities of Alfred or Richard I are compared with the skilful touch of tacticians like Marlborough and Wellington. From Tudor times Britain's Admirals and captains ruled the high seas, suffering few reverses. Rank, discipline, pay, regimental structure, tactics and weaponry belong to the military system and, together with them, uniforms have fulfilled many functions in the past. They have provided protection and a means of identification in the very heat of battle. At sea the canvas bell bottoms of the ordinary seamen were simple and functional, while in the army perhaps uniforms also reflected glamour, pride and decoration.

2. THE OLD ENGLISH PERIOD

It represented a period starting with the year 450 when the first Germanic were attested to 700 – 1100 known as a period of with full inflections and a very complicated language found in manuscripts of the time.

Speaking about this period, the Anglo-Saxon language used the writing system of runes or the runic alphabet (written by monks within monasteries) which consisted of a secret alphabet of 24 symbols and angular letters. It served for putting down various inscriptions. The name came from *run* meaning *secret*. This alphabet was derived from the Greek alphabet and the letters were designed so that they could have been used to write on wood, that's why they are angular. The oldest records in Old English are only inscriptions and it is an inscription on a golden horn, found in Schlesning.

When they came to Britain, the Anglo-Saxons didn't bring with them any written accounts, but war-songs, war-poetry (the only one that survived being *Beowulf*) and sagas that were transmitted orally. *Beowulf* is a testimony of Old English, including terms that came from German continental pre-English. In this poem we find descriptions of social life

(of garments, customs, arms, etc.), manners of the Anglo-Saxons before they came to England. The poem also contains references to old Scandinavian boats, described with the help of common nouns as: *scip* (eng. *ship*), *bat* (eng. *boat*). The third song gives a detailed image of a military-naval expedition of those times with terms like: *afloat, boat, weapons*, *armor.*

The poem abounds in military terms, due to the war-like society that is described: *fastness* = fortress, stronghold (Ist song); *worsted* = defeated; *brand* = sword; *targe* = shield (arch.); *war-weeds* = armours (VIth song); *falchion* = broad, curved sword (XIIth song); *host* = band of warriors (XVth song). (Poruciuc, 1995:27)

Besides words found in this poem, there are also accounts of terms denoting sword equipments found on inscribed objects:

1. *Ash Gilton*, (Kent) that was a pyramidal gilt silver sword pommel, dated back to the VIth century. It can be seen in the Liverpool City Museum.

2. *Chessel Down II*, (Isle of Wight) which is a silver plate attached to a scabbard mouthpiece of a ring sword that dates back to the 6th century. It was found in a rich man's grave. It can be seen in the British Museum of London.

3. *Seaxes* meaning knife or cutting tool.

4. *Thames scramasax* meaning a single – edged knife.

5. swords and sword-sheaths Vimose chape, Vimose sheathplate, *Thorsberg chape*, that is a bronze piece belonging to a scabbard.

We also consider the Irish-Latin alphabet known as the Insular Script. It was a medieval script system originally used in Ireland, then Great Britain, that spread to continental Europe under the influence of Celtic Christianity.

The Old English dictionary had about 20,000 words with 85% of the Old English vocabulary of Germanic origin. Thus, the basic word-stock of the language has remained mostly Germanic. Implicitly, names of tools and weapons are also of Germanic origin (*bewerian* meaning *to protect from, to defend against*; *onfeohtan* meaning *to attack, to fight with*). Three main foreign influences have been identified by researchers in the evolution of English language as follows:

2.1 The Celtic influence: the Celts were the first warlike invaders that came after the Iberians from the upper Rhineland. They were not exterminated when the Anglo-Saxons conquered England. Celtic words in Old English come from three identifiable sources – from the continent (usually words associated with conflict and battle – the Celts were often used as 'armies for hire'), loans taken over after settlement (usually place names), and words from Ireland frequently associated with the Christianisation of Britain. Thus, we encounter place names like *Canti* (meaning Kingdom of Kent), names that designated rivers: *the Thames*, *the Avon*, *the Exe*, *the Wye*, the Usk, etc. and other present-day names such as: *Devonshire*, *Cornwall*, etc.

2.2 The Latin influence. The contact with the Romans was commercial, military, religious, and cultural: **agriculture** and **war** were considered the main occupations of the age. We encounter the first Latin words due to the contacts between the Roman and German tribes on the continent, like: *camp* (OE) = *battle*, *mil = mile*, *seþu=banner*, *flag*, *weall = wall*, *pil = pointed stick, javelin*, *pund = pound*, *mangian = to trade*, *pytt = pit*. The Christianization of England (before this event, the Anglo-Saxons learned words from the Celts): *caster/chester = castrum* (Lancaster, Manchester, Leicester [lestE], *Gloucester* [glAstE], *Winchester*, *Colcester*), *port=portus* (Devonport, Port Harbour), *munt=mons* (mountain), *torr = turis* (tower). The conversion of Britain to Roman Christianity (597-1100) was also an important historical event of the time. Throughout 500 years Latin words entered the English Language: *abbot, angel, candle, disciple, hymn, minster (cathedral), pope, shrine (altar), temple*, etc.

2.3 The Scandinavian influence, mainly Danish one (the Viking Age), was a period of Scandinavian invasions that *`(...)constituted an important military and political event, which exerted a powerful influence on the Old English language`*(Iarovici, 1970:8). In the VIIIth century a series of events influenced the language of the time: the Scandinavians started to attack and plunder, the Swedish established

a kingdom in Russia, the Norwegians colonized part of the English Isles (the Faroes and Ireland), the Danes founded a dukedom in Normandy and conquered England; hence, the Danish influence was the most important. We encounter names denoting places: *-by* (*Rugby, Derby, Grimsby*), *-thorp* (*Althorp, Bishopthorp*), *oft* (*Brimtoft, Eastoft*). Other English words of Scandinavian origin are: *hand, bank, birth, dirt, kid, egg, leg, root, sky, sister, window, etc*. According to the same author, *`the first Scandinavian loan-words (...) relate to* ***war*** *and especially to the* ***navy****, e.g. orrest (battle), drenþ (warrior), hoflinþ (chief, ringleader), fylcian (to collect or marshal a force), liþ (fleet), barda (typical boat used by the Vikings), cnearr (small warship), scæp (boat), siþp (warship)`* (Iarovici, 1970:43).

3. THE MIDDLE ENGLISH PERIOD

It dates back to the period from 1150 to 1500, known as a period of many historical events, like:

3.1 The Norman Conquest, after the Battle of Hastings in 1066, that had a great impact on the English language, mainly on vocabulary. We can trace a line between the old Saxon England and the new Norman England. The Norman Conquest imposed French as the spoken language, and, as a result of this penetration of French in England, was a language also called Anglo-French. It was a literary language of the higher social classes, while the English language known as Middle English, was spoken only by the lower classes. More than 200 years after the Norman Conquest, French remained the language of communication among the upper classes, but the language of the masses was still English.

3.2 During the early XIIIth century, Normandy was lost to England (1204). The French and the English peoples fusion determined their bilingual nature. There were people in England who spoke French, more who spoke English, but there were also people speaking both languages. During late XIIIth century the English language started gaining importance.

3.3 The period 1337-1453, with the One Hundred Year War, turned the people's attention to the continent, being one of the causes contributing to the disuse of French. Chaucer in his *Canterbury Tales* (one of the oldest surviving poems in English) makes a lifelike portrait of his period, in a realistic manner. He had knowledge of military phenomenon and terminology as he joined and served the army led by The Black Prince in 1359. He was even a prisoner, caught somewhere near Reims. He was accounted again in the military system in 1369 and later on, he was sent abroad into diplomatic and even secret missions. We encounter in his writing terms like *yeoman*, *the squire*. At the end of the XIVth century over 10.000 French words were found in manuscripts. Of all these, 75% are still in use today.

3.4 Throughout the XVth and XVIth centuries, the importance of English increased, but the laws in England were still in French and the letters sent to ladies were written in French by gentlemen.

Thus, French influenced the Middle English vocabulary due to literary writings that were still written in French. The French-speaking aristocracy had the control of the army, and especially the navy. Thus, there are terms that refer to army and the military life that belong to that period, and are still in use today, such as: *army, armes, bataille, combat, siege, defense, regiment, lance, (coat of) mail, banner, harness, pees (peace), victorie, sergeaunt, lieutenant, aid, challenge, danger, escape, enemy, spy, stratagem, march, captain.* There were two important ages of the process of penetration of French words into Middle English: an Earlier Age up to 1250, in which borrowings are far less numerous (about 900 words) and an age from the year 1250 onwards in which borrowings are very numerous: *army and navy words: soldier, enemy, arms, battle, etc.*

4. THE MODERN ENGLISH PERIOD

4.1 Renaissance (1550-1650) when new factors come into play in the first part of the Modern English period: the apparition of the Printing Press (invented by Caxton in 1476) which led to the spread of popular education, an increase in communication, the growth of

specialized knowledge, the emergence of different forms of self-consciousness of language. Books were reproduced in thousands of copies which led to a standard language. Modern English faced 3 main problems during the XVIth century:

a) Recognition of language in the fields where Latin had been replaced for long time: translations from Latin and Greek writers: Caesar, Tacitus, Plutarch, Aristotle, Virgil, Ovid, Horace, etc.

b) Necessity to establish a more uniform orthography: spelling rules were needed: Thomas Smith (a 34-letter alphabet), John Hart *An Orthography*, William Bullokar *Booke at large for the Amendment of Orthographie for English Speech* (1580), *Bref Grammar for English* (1586) and *Pamphlet for Grammar* (1586), Richard Mulcaster *Elementarie* (1582), was considered the most important treaty on English spelling.

c) It was a period of enrichment of vocabulary with an increased activity in all fields: America was discovered, church was reformed, and Copernicus launched his theories that represented a revolution in thought. Greek and Latin literature was revived bringing new activities in modern languages. Hence, a great number of borrowings from Latin, Greek, French, Italian, Spanish and Portuguese. Old English itself was a source of enrichment. Thomas Wilson was against borrowing words versus Dryden who was in favour.

Thus, we have examples from: Latin *exclusion, illusion, instructus-instruct, anti-aircraft*; Latin and French: *to consist* from Latin *consistere* or/and French *consister, intruire-instroy, fatigue, pilot, rendez-vous (originally a military term)*; Italian: *stanza, grotto, balcony, algebra, battalion, brigade, infantry (the last three ones being introduced through French);* Spanish and Portuguese: *alligator, mosquito, banana, tobacco, cannibal, hurricane, etc.*

It is considered that Shakespeare had the largest vocabulary at the time, with over 20,000 word, fact that `*reflect the various means by which the vocabulary was enriched in Early Modern English:* ***borrowings, word-building*** *and* ***change of meaning***` (Iarovici, 1970:182). It is a vocabulary rich in military terms, too. `*For Renaissance England, Shakespeare produced good writing; for posterity, he produced great literature. Nevertheless, without considerable changes in style, he wouldn't last long, even on a low-level staff (...). Giving genius its due, we might suppose that Shakespeare could come to terms pretty quickly with the repertoire of defense establishment forms and formats and with the techniques of producing good writing. Without stretching the point, we might even suppose he would do so intuitively*` (McIntosh, 2003:IX). If we consider Shakespeare`s writing *Henry V*, we notice a great use of military terms, but much of that language has limited or no applicability to the present armed forces.

The other way round is also possible, that is, much of present-day military literature has no more applicability to our immediate situations than Shakespeare's.

4.2 The Appeal to Authority (1650-1800) also known as The Augustan Age faced other major historical events, like the English Civil War in the 1540s and the Restoration of Charles II in 1660. Efforts were made in search for stability and regularity in language aiming at refining standardizing, fixing it. English needed a systematic grammar so as to codify the language, to direct its course, to fix the language permanently, to refine it by adding improvements, to ascertain the language.

The idea of the English Academy appeared at the end of the 17th century. We remark the contribution of Samuel Johnson (1755) – *A Dictionary of the English Language* (2 volumes, of great achievement due to the fixed spelling), Joseph Priestly (1761) – *The Rudiments of the English Grammar* (he focuses on the importance of usage), Robert Lowth (1762) – *Short Introduction to English Grammar*, G. Campbell (1776) – *Philosophy of Rhetoric* (aiming at ascertaining the language just like Dryden and Swift). During the second part of the XVIIth century, many military terms were borrowed from French, like: *barracks, cannonade, dragoon, espionage, fusilier, parade, parole, pontoon, sortie*.

5. THE XIXth AND XXth CENTURIES

The enrichment of the English vocabulary continued. Te events that took place had also an important influence on the vocabulary. Among them, we can mention: Nelson's famous victory at Trafalgar (1805) when Napoleon was defeated and England remained the undisputed leader on sea; the War in Crimea (1854-1856); the Conquest in India when the English language turned its attention to the East (influences from China, Japan, India).

Great Reform Measures were taken: the reorganization of the Parliament, the revision of the Penal Code, restrictions on child labor. All these influenced the development of language. In 1816 the first cheap newspaper appears an in 1840 – the cheap postage. More, means of communication and travel improved: telegraph, the railway and steamboat were invented. There was also a great progress in science which influenced the vocabulary: *nuclear weapon*, *chain reaction*, *space craft*, *space shuttle*, *anaemia*, *orthodontics, AIDS, iodine, screen, camera, movie, motion, network, soundtrack,* etc. By that time all the previously mentioned words were known only by specialists, but nowadays they are all familiar to us. Some words acquired new meanings: *to park cannons – to park cars*, words that belong to the first and second World Wars: *air raid, aircraft, tank, anti aircraft gun, alert, radar, evacuate, blackout, Blitzkrieg*, *cold war, air raid, biological warfare, blitz, black-out, camouflage, sabotage, evacuation, evacuee, liaison officer, paratroops, phoney war, tank, war crime, WRNS (Women's Royal Naval Service).*

6. LANGUAGE AS A MIRROR OF PROGRESS

It is a period when new words enter the language: *fundamentalist, feminist, Freudian, oil field, questionnaire, heavy metal*. Beside this, a great number of borrowings penetrates the language. There are words from: French: *aileron, cadre, empennage, fuselage, nacelle*, *chauffeur, chef, garage*; from Italian: *ciao, confetti, grafitti*; Spanish: *fiesta, rodeo, patio*; Mexican-Spanish: *chilli, burrito, tequila, tortilla, curry*; German: *Bildungsroman, Weltanschauung*, *Zeitgeist*; Russian: *perestroika, putsch, vodka*; Hungarian: *goulash*; Indian: *Karma*, *pyjamas*; Chinese: *Ying, Yang*; Japanese: *Shogun, samurai, sake, geisha*.

There are also terms formed by: self-explaining compounds: *e-mail, junk-food, jet leg, acid rain, green house effect, sky diving, life style*; affixation: *transoceanic, superman, transformer, post-modernism, postgraduate*; coinage: *Kodak, Xerox, Kleenex*; acronyms: *aids, radar, laser, scuba, ASAP*; blending/ portmanteau words: *brunch, chunnel, transceiver, paratrooper, Franglais, Germish, Spanglish*; common words derived from proper names: *sandwich* (Earl of Sandwich), *Tabasco* (river), *Camembert* (village in France), *limousine*/ *limo* (province in France), *boycott* (Captain Boycott), *raglan* (Lord Raglan); narrowing of meaning: *artillery* used to designate *catapults, slings, arbalests, bows* acquire the meaning of *mounted guns*; old words acquiring new meanings: *skyline* (New York Skyline) meaning horizon, cabaret first shed (drinking place/club).

7. CONCLUSIONS

The military language is very productive and in a continuous change when it comes to particular terms used in a specific country. Thus, war and violence have both played a major part in shaping the destiny of Britain. Thus, the evolution of English language may be understood as a result of different historical factors and influences that led inevitably to the development of language, with certain quantitative and qualitative changes (from grammatical ones to changes in meaning).

English is the language most frequently used in international military operations (peacekeeping, peace enforcement, peace support). NATO represents the main organization that comprises the use of most military terms.

It has been noticed that British English military terminology is very different from the American one due to certain historical

moments that make the English terms develop differently, from region to region. Thus, American English military terminology evolved much more than the British one, mainly due to the involvement that USA has had in the military phenomenon, as superpower.

But, English language has developed not only due to the major historical events, but also according to the needs encountered by the non-native speaking countries.

`Between 1947 and 1949 a series of dramatic political events brought matters to a head. These included direct threats to the sovereignty of Norway, Greece, Turkey and other Western European countries, the June 1948 coup in Czechoslovakia, and the illegal blockade of Berlin which began in April of the same year. The signature of the Brussels Treaty of March 1948 marked the determination of five Western European countries – Belgium, France, Luxembourg, the Netherlands and the United Kingdom - to develop a common defence system and to strengthen the ties between them in a manner which would enable them to resist ideological, political and military threats to their security`. It is one of the two official languages of NATO, alongside with French. It is the language used in the theatres of operations, the language of STANAG (Standard Agreement) tests those students of Romanian Academies (and not only) have to pass in order to become officers. Nowadays, having knowledge of British/American English is a must in the military system, as the penalties for failure might be vital.

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RECOMMENDATIONS FOR IMPROVEMENT OF MANAGEMENT OF OUTSOURCING

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Abstract*: The pressure on a decrease of financial resources which are assigned from the state budget on provision of public services forces the managers working in a public sector to look for modern managerial methods, which would lead to effective use of disposable sources. One of such methods is also outsourcing, which is being used not only in the business subjects, but also in the armed forces on the present. The goal of this article is to introduce the results of outsourcing research which was performed in subjects of government department of the Ministry of Defense of the Slovak republic and introduce also the proposal of methodology for implementation, management and assessment of outsourcing performance.*

Keywords*: outsourcing, armed forces, management methodology.*

1. INTRODUCTION

The key issues in public sector are currently connected with effective provisioning of operations. Regarding the impact of the economic crisis, state budget deficit and increasing indebtedness of the states, the managers of public sector face with the basic question, how to proceed in case of allocation of disposable sources.

The problem of effective allocation of sources in the public sector belongs to the serious theoretical and also practical questions. Managers try to use more often not only conventional but also new methods, tools and techniques, to reach the predefined goals. One of the modern managerial methods, which could be successfully used for improvement of management and for increase of value of the company, in both, private and also public sector, is outsourcing.

Outsourcing means the system of intentional and purposive transfer of an activity to the external partner, which is subsequently responsible for delivery of the activity to the organization. Outsourced are usually those activities, which are secondary, usually do not create any added value, but still are necessary for the organization. Outsourcing means such situation, when the input, which was previously produced or performed internally, is now bought from other entrepreneurial subject as a service, or as a product (Lednický, 2004). Outsourcing includes the whole "life cycle" of cooperation between outsourcing partners, including relationships, monitoring, crisis management in case of emergency situations, but also termination of the outsourcing contract.

2. THE RESULTS OF OUTSOURCING SURVEY PERFORMED IN THE REZORT OF THE MINISTRY OF DEFENSE OF THE SLOVAK REPUBLIC

The implementation of outsourcing is characteristic for the reforms which are performed not only in the NATO armed forces, but also in the armies of the former post communistic block. This managerial method become popular also in Armed Forces of the Slovak republic based on positive experiences with the implementation of outsourcing in armed forces in developed

countries. Regarding the implementation of outsourcing in armed forces we observed several problems, and due this reason, was on Department of Management of Armed Forces Academy of General M. R. Štefánik in Liptovský Mikuláš solved the research study "Increase of efficiency of realization on outsourcing in area of logistics services in the resort of the Ministry of Defense of SR". The goal of this study was to contribute to the improvement of outsourcing management.

Within this research study we performed in year 2009 the survey on outsourcing, which was based on questionnaires and on interviews. The target groups for the survey were internal organizational units: army units, army offices and other units from the Ministry of Defense. The scope of the sample consisted of 34 internal organizational units. Based on the analysis of the data received in the performed survey, we consider as the most serious the following findings (Jirásková, 2010: 163):

2.1 Main factor leading to implementation of outsourcing was deficit of internal (financial and personal) resources. Based on the trend of the expenses of the Ministry of Defense of SR and on the relation to the expenses of the state budget, we could note that the amount of financial resources aimed on provisioning of defense increased (in total numbers), the percentage of expenses in comparison with GDP decreases and is lower than recommended 2% out of GDP. Also the ratio of capital and current expenses could be considered as very low to the need of modernization of depreciated and obsolete military equipment. The shortage of personal resources resulting from the reform in the armed forces (radical decrease of number of employees) and also from professionalization of the army (professional soldiers do not performing supporting services).

The data from practice show that the use of external providers in the public sector depends on character of budgetary measures and increase when the resources allocated for provisioning of public services decrease.

2.2. Realization of outsourcing on partial activities in area of military logistic resulted from strategic decision of the highest authorities. In the Armed forces of SR outsourced are services connected with feeding, cleaning, laundry, reparation of clothes, facility and physical security, power/water and heat supply, sewerage water treatment plan, transportation of dangerous wastes, maintenance of exteriors and of roads, reparation and revisions of non-army equipment; service, maintenance, cleaning and other services connected with fleet management; facility management, chemical rest-rooms for military trainings and medical treatment for selected employees.

2.3 Implementation of outsourcing did not lead to decrease of costs for delivered service. The hypothesis, that the implementation of outsourcing leads to decrease of costs, was not confirmed in the survey. We found that the costs decreased after outsourcing in 5 cases, which creates 17,24% out of the examined sample, in 10 cases (34,48%) the costs increased and in 6 cases (20,68%) the costs remained on the same level. Up to 27,60% of respondents were not able to compare the costs before and after the implementation of outsourcing. The reason was that they were not able to calculate in detail the costs when the activity was performed internally. The absence of proper cost allocation complicates the measurement and assessment of outsourcing efficiency. This situation is similar to the situation in other subjects in public sectors in SR.

2.4 The majority of internal organizational units are satisfactory with the external form of services supplying. The respondents were in 5 cases very satisfied with supplying of services (17,24%), in 20 cases were more satisfied than not satisfied (68,96%), in two cases were more not satisfied than satisfied (6,90%) and in two cases were respondents completely not satisfied (6,90%). The positive effects of realization of outsourcing in the area of military logistics are objective (focus on key activity – providing of military training) and organizational (simplifying of managerial wok or of organizational structure).

2.5 The practices of outsourcing management are not being applied very

often; the practice fall behind the theory. The weaknesses of management of outsourcing relationship are following: the average duration of outsourcing contracts were 2,18 year, while the contracts signed for one year predominate (60,60% of signed contracts). This status is not in line with developed countries, because the optimal duration of outsourcing contract is within the period from 5 to 10 years. The project management of outsourcing was applied only in 31,03% cases. As not satisfactory could be considered also the level of employees' knowledge, they participate on outsourcing implementation. The professional training was performed only 62,06% of subjects. Some reserves are also in area of monitoring on quality of delivered services, where in 96,55% of internal organizational units the quality of service was regularly controlled and assessed, but only 17,24% of subjects elaborated also the system of metrics for outsourcing evaluations, which could ensure an objective assessment of existing status. The instruction, how to perform the activities, were missing in case of 27,59% contracts. As not satisfactory could be considered also the monitoring and management of risks connected with outsourcing (48,27% of subjects) and assessment of positive and negative effects of outsourcing (48,27% of subjects). In 34,49% of contracts were missing any agreement with the supplier for monitoring and control on performed services, in some cases (6,90%) in the contract missing any responsibility, sanctions or rights resulting from breach of the contractual conditions.

2.6 Increase of the knowledge requirements which are put on commandants increased in the area of law, economy and outsourcing contract management. It is necessary to improve the knowledge of military commandants and employees they participate on management of outsourcing relationships, to implement courses, trainings and also continual education process. While the implementation of outsourcing changes the established processes in area of military logistics, it is necessary to implement new knowledge requirements also into the content of course of studies for military university education.

2.7 Specific problem characteristic for outsourcing in armed forces is created by the conflict between two different organizational cultures. The commandants/ managers consider, as the most significant negative factor which is connected with the implementation of outsourcing, the impossibility to apply directive method of management to the supplier's employees. In the armed forces is applied the directive management style based on the principle: directive – submission. In the business subjects is mostly supported the team work with democratic management style, also different motivation of employees is preferred. The professional soldiers need to adapt to the different business practices, what is connected with another emotional problems related to management work, what could negative influence the total working performance.

3. METHODOLOGY FOR SUCCESFUL OUTSOURCING IMPLEMENTATION

Based on the study of academic and specialized sources and based on the surveys on outsourcing performed in business subjects and in the Slovak Armed forces it is possible to draft the methodology for implementation of outsourcing in the organization. This methodology should lead to increase of efficiency of outsourcing management, do decrease potential risks connected with its realization and also to achievement of defined goals.

The concise proposal of standard methodology for implementation, management and evaluation of outsourcing project, which could be applied in both, business subjects, as well ass in organizations belonging to public sector is following (Milecová, 2010:150):

Phase 1 Definition of current boundaries of organization. Definition of current boundaries of organization means identification of these activities, which are performed internally and externally. The goal of this analysis is to define the organization's boundaries in the supply and customer chain. Several models could be applied for mapping

and determination of activities, e.g.: Porter's value chain model (Porter, 1991) "The value shop model" (Stabell, Fjeldstadt, 1998), "Value network model" etc. Very often are practically used also the process maps, which display the graphical visualization of single activities and of their interconnections. Analysis also enables to understand the connections among activities and to allocate the costs.

Phase 2 Analysis of importance of single activities from perspective of value or competitive advantage creation. During this phase the organization should identify and analyze the importance of single activity from perspective of value or competitive advantage creation. It is necessary to identify and to understand the company's activities, which could be divided at least into three categories: key, critical and supporting activities. Important is to recognize the key and critical activities. For example, salary processing done in time and correctly is very important or critical for every company, but for many companies this is not a key task. Key activities or "core business" are based on unique internal knowledge and competence of the organization, which differing the organization from other subjects. The identification of the importance of activity for the company is a principal problem of outsourcing.

Phase 3 Assessment of internal capacity of organization for providing of relevant activity. For identification of supporting activities can be used value chain analysis (Pollak, 2005: 148), which contributes to identification of processes creating unproductive costs. In case of outsourcing decision the company should analysis its own competences and possibilities within single activity and also compare own abilities with potential external sources – suppliers or competitors. We recommend use the benchmarking method for this assessment. It is important also to perform the costs analysis of single activities.

The activity, which does not operate very well, or which shows some costs or qualitative reserves, could be a right candidate for outsourcing.

Phase 4 Analysis of possible solutions for providing of relevant activity. Based on the results of costs and value analysis, the organization should decide whether will perform the activity internally or externally. For outsourcing are suitable supporting activities, not critical or key activities, which are performed internally but not on a sufficient level. These activities are not directly connected with the core business and external partners are able to perform these activities cheaper or also better. In case of problematic activity (which is performed on very low quality level), this should be stabilized internally first and outsourced subsequently.

Phase 5 Analysis and management of risks connected with outsourcing. One of the benefits of outsourcing is very often stated also a possible risk sharing with suppliers, but, single project of outsourcing implementation means for the organization creation of new risks consist in different areas. According to the results of the performed surveys, the attitude of subjects, which use outsourcing, towards risk management, is very different. The situation is being changed upon the size of the organization. These subjects, who dispose with sufficient personal resources, insist on the analysis and management of risks. Such analysis of risks connected with outsourcing contains risks scenarios and plans for risk management. In case of smaller subjects risk analysis are not being performed or are very simplified. The risks connected with outsourcing should be managed, while the risk management could be understand as a process, which goal is to minimize and eliminate existing but also potential negative impacts and to take advantage of possible positive events. One part of the risk management is also decision making process which draws on identification and analysis of risk. After the assessment of economical, technical, technological, social, legal, political, ethical, ecological and other factors, a manager generates, analyzes and compares possible preventative measurements. Selected are those measurements which minimize existing risks (Smejkal, Rais, 2003:270).

Phase 6 Selection of supplier, implementation of outsourcing. The first five

phases of the proposed methodology is focused on process of decision making in case of outsourcing. Following phases are applied only in case that the organization decided to outsource some activity. Project on implementation is elaborated; employees responsible for the project are nominated, organization is looking for outsourcing partner and subsequently negotiates and signs the outsourcing contract and shift the activity to the partner. During this phase it is very important to choose the right supplier. We recommend performing a multi-criteria assessment for the supplier selection and considering several factors as: total price, quality, complexity of services, flexibility, financial stability of supplier, innovation potential of the supplier, number and the expertise of the employees and references.

Outsourcing should be performed on the contractual basis, while the contract should include also detailed specification of outsourced activity, quantitative and qualitative parameters of its measurement and assessment, procedures in case of suppliers default, protection of goodwill etc.

The outsourcing project brings to the organization a deep change, in the processes and also in the organizational structure. A successful outsourcing implementation requires participation of financial and personnel managers, lawyers, tax consultants or It specialists, while the whole process should be managed the top management. The management of an outsourcing project is very demanding and the manager should be professionally and also personally prepared. Manager responsible for outsourcing project should be responsible, reliable, focused on the result, not only on the process, should be able to solve very complicated situation and be very flexible. He or she should be able to provide a constructive feedback, to learn and to lead a team.

Phase 7 Assessment of efficiency of outsourcing project. The area of assessment of outsourcing efficiency and effectiveness is not described very well in the theory. Usually are measured and compared the costs connected with the outsourced activity. Quite often are measured and compared also the quality of delivered services and the response time and the flexibility of the supplier.

The baseline for outsourcing assessment is proposal of some indicators or metrics, which will be used for measurement of the quality and quantity of outsourced services. This baseline is also a basis for the pricing. The metrics should be clearly defined before the activity is outsourced. In the practice the metrics used for measurement of outsourcing efficiency are called KPI (abbreviation means key performance indicator) and allow the company to measure and assess whether the expected goals of outsourcing were really achieved.

Metrics should be supported by relevant methods for their measurement, also periodicity of measurement and the employees responsible for the measurement should be agreed. Outsourcing metrics should be monitored, compared and regularly communicated with the supplier. Correctly set metrics help with outsourcing management, are a basis for pricing and billing, are useful in case of legal disputes and give information about efficiency and effectiveness, enable better comparison in case of change of supplier and also create and built trust between the outsourcing partners.

4. CONCLUSIONS

The global economic conditions have been changing, due to the economic crisis, fundamentally. One of various conditions of successful business is to be able, in the long term, to focus the effort and the resources on the core company activities. It means not to waste time with the activities, which are not directly connected with the main focus of the company, but which are necessary for the company operations. The way how to solve this situation is implementation of outsourcing.

The outsourcing must be well-considered and managed. The organization should, before outsourcing decision, performs several serious analysis and considers this decision properly. Moreover, it is very important that the managers dispose with sufficient theoretical knowledge about the management's technique

and are prepared to manage actively the process of outsourcing.

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NE BIS IN IDEM – A PRINCIPLE OF PARAMOUNT IMPORTANCE IN THE EUROPEAN UNION AREA OF FREEDOM, SECURITY AND JUSTICE

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Abstract: *The 'ne bis in idem' rule is a general principle of criminal law and also an internationally acknowledged human right, according to which no one is to be prosecuted or punished twice for the same offence. The present paper highlights the interpretation and application of the principle in the context of the European Union acquis, including the relevant case law developed by the European Court of Justice. Thus, out of the multitude of aspects involving this principle, the paper will mainly touch upon the following pieces of legislation: Articles 54 to 58 of the Convention implementing the Schengen Agreement, Article 50 of the Charter of Fundamental Rights of the European Union, the Green Paper on Conflicts of Jurisdiction and the Principle of 'Ne Bis in Idem' in Criminal Proceedings as well as the Council Framework Decision 2009/948/JHA on prevention and settlement of conflicts of exercise of jurisdiction in criminal proceedings.*

Keywords: *ne bis in idem, res judicata, human rights, European Union law, European Court of Justice.*

1. INTRODUCTION

The sources of the *ne (non) bis in idem* principle can be traced back to Greek, Roman, and Biblical times (Conway, 2003:217-244). The substance of the principle is twofold, consisting, by and large, of the following aspects: '*nemo debet bis vexari pro una et eadem causa* (no one should have to face more than one prosecution for the same offence) and *nemo debet bis puniri pro uno delicto* (no one should be punished twice for the same offence)' (Vervaele, 2005:100-118).

The aim of this principle is, as it has been affirmed (Chiriță, 2007:430), to assure all parties involved in a finalised criminal trial that the situation shall not be placed again under discussion, thus safeguarding the security of legal relations in criminal matters.

The rationale of the *ne bis in idem* principle has in view not only the interest of the litigant, but also the general interest, since the ruling is invested with an indisputable authority (Renucci, 2009:527).

As it is outlined in the Opinion of Advocate General Ruiz-Jarabo Colomer, delivered on 8 June 2006, pertaining to the *Van Straaten* case (C-150/05) resolved by the Court of Justice of the European Union (ECJ), 'the *ne bis in idem* principle is a fundamental right of citizens, linked to the right to due process and a fair trial; it is also a structural requirement of the legal system and its lawfulness is founded on respect for *res judicata*' (par. 57). In other words, '(…) respect for the *res judicata* (*pro veritate habitur*) of final judgments is of importance for the legitimacy of the legal system and of the state' (Vervaele, 2005:100-118). The *res iudicata* rule refers to matters which have already been conclusively decided by a court and are, thus, presumed – by means of an absolute legal presumption – to reflect the truth.

In the American law, the prohibition to re-try a person for the same offence is called 'double jeopardy'.

The *ne bis in idem* principle has been recognised within numerous legal instruments,

both at international level (for instance, Article 14 par. 7 of the *International Covenant on Civil and Political Rights*, adopted by the UN General Assembly in 1966) and at regional level (besides the provisions adopted within the European Union, which will be presented in the following sections, see the instruments adopted within the Council of Europe, namely Article 4 of *Protocol No. 7* to the *European Convention of Human Rights*, Strasbourg, 1984, and also Part V, Articles 35-37, of the *European Convention on the Transfer of Proceedings in Criminal Matters*, Strasbourg, 1972).

This multitude of legal sources may convey the general impression of fragmentation, thus preventing a consistent interpretation and application (Van Bockel, 2010:12); however, the effort to clarify all the implications of this highly important principle appears to be a constant, especially for the European Union common area of Freedom, Security, and Justice.

2. THE *NE BIS IN IDEM* PRINCIPLE ENSHRINED IN THE EUROPEAN UNION LAW

The coming into effect of the *Treaty of Amsterdam* (May 1999) has marked the integration of the Schengen provisions into the *acquis*, the *ne bis in idem* principle being included into the Third Pillar referring to the area of Freedom, Security, and Justice (Vervaele, 2005:100-118).

Title III, Chapter 3 (Articles 54 to 58) of the *Convention implementing the Schengen Agreement of 14 June 1985 between the Governments of the States of the Benelux Economic Union, the Federal Republic of Germany and the French Republic on the gradual abolition of checks at their common borders*, signed on 19 June 1990, deals with the application of the principle under discussion. Article 54 of the Convention states the following: 'A person whose trial has been finally disposed of in one Contracting Party may not be prosecuted in another Contracting Party for the same acts provided that, if a penalty has been imposed, it has been enforced, is actually in the process of being enforced or can no longer be enforced under the laws of the sentencing Contracting Party'.

The subsequent article stipulates the exceptions from this principle. Thus, a Contracting Party is not bound by Article 54 in one or more of the following cases: 'the acts to which the foreign judgment relates took place in whole or in part in its own territory; in the latter case, however, this exception shall not apply if the acts took place in part in the territory of the Contracting Party where the judgment was delivered'; 'the acts to which the foreign judgment relates constitute an offence against national security or other equally essential interests of that Contracting Party', or 'the acts to which the foreign judgment relates were committed by officials of that Contracting Party in violation of the duties of their office'.

The provisions comprised in Article 56 of the *Schengen Convention* refer to the deduction of the previous sentence: 'If a further prosecution is brought in a Contracting Party against a person whose trial, in respect of the same acts, has been finally disposed of in another Contracting Party, any period of deprivation of liberty served in the latter Contracting Party arising from those acts shall be deducted from any penalty imposed. To the extent permitted by national law, penalties not involving deprivation of liberty shall also be taken into account'.

Article 57 of the same *Convention* regulates the process of information sharing, according to which, when a Contracting Party charges a person with an offence and its competent authorities have reason to believe that the charge relates to the same acts as those in respect of which the person's trial has been finally disposed of in another Contracting Party, those authorities shall, if they deem it necessary, request the relevant information from the competent authorities of the Contracting Party in whose territory the judgment has already been delivered. The information requested shall be provided as soon as possible and shall be taken into consideration as regards further action to be taken in the proceedings under way.

Finally, Article 58 stipulates that the provisions outlined above 'shall not preclude

the application of broader national provisions on the *ne bis in idem* principle with regard to judicial decisions taken abroad'.

The *ne bis in idem* principle is also provided for in Article 7 of the *Convention on the Protection of the European Communities' Financial Interests* and Article 10 of the *Convention on the fight against corruption*.

The *Charter of Fundamental Rights of the European Union* (2010/C 83/01) has enshrined the right not to be tried or punished twice in criminal proceedings for the same criminal offence in Article 50, stating the following: 'No one shall be liable to be tried or punished again in criminal proceedings for an offence for which he or she has already been finally acquitted or convicted within the Union in accordance with the law'.

The *Explanations* relating to the Charter (2007/C 303/02) make reference to the provisions encapsulated in Article 4 of *Protocol No. 7* to the *Convention for the Protection of Human Rights and Fundamental Freedoms* or, in short, the *European Convention of Human Rights* (ECHR). As stated in the document mentioned above, 'in accordance with Article 50, the *non bis in idem* rule applies not only within the jurisdiction of one State but also between the jurisdictions of several Member States. That corresponds to the acquis in Union law (…)'.

As far as the former situation is concerned, i.e. the application of the principle within the same Member State, the guaranteed right has the same meaning and the same scope as the corresponding right in the ECHR. For this reason, in order to convey a comprehensive image, it is necessary that the provisions of Article 4 of Protocol No. 7 to the *Convention* be presented in brief.

The aforementioned Article provides for the following: 'No one shall be liable to be tried or punished again in criminal proceedings *under the jurisdiction of the same State* for an offence for which he has already been finally acquitted or convicted in accordance with the law and penal procedure of that State' [our emphasis].

The provisions of the preceding paragraph shall not prevent the reopening of the case in accordance with the law and penal procedure of the State concerned, if there is evidence of new or newly discovered facts, or if there has been a fundamental defect in the previous proceedings, which could affect the outcome of the case' (par. 2). As mentioned in the *Explanatory Report* of Protocol No. 7 to the *Convention*, 'the phrase "new or newly discovered facts" includes new means of proof relating to previously existing facts. Furthermore, this article does not prevent a reopening of the proceedings in favor of the convicted person and any other changing of the judgment to the benefit of the convicted person' (par. 31).

The final paragraph states that 'no derogation from this Article shall be made under Article 15 of the Convention', namely in time of war or other public emergency threatening the life of the nation, which means that it has an absolute nature.

Article 4 applies exclusively to trial and conviction of a person in criminal proceedings and so, it 'does not prevent him from being made subject, for the same act, to action of a different character (for example, disciplinary action in the case of an official) as well as to criminal proceedings', according to par. 32 of the aforementioned *Explanatory Report*.

3. THE *NE BIS IN IDEM* PRINCIPLE IN THE CASE LAW OF THE EUROPEAN COURT OF JUSTICE

Together with the entry into force of the EU *Treaty of Maastricht* in 1993, which introduced cooperation within the Third Pillar, namely Justice and Home Affairs (JHA), and of the aforementioned *Treaty of Amsterdam*, the European Court of Justice – which had already established a series of principles belonging to Community law, the area of criminal law and criminal procedure included – has been given a wider jurisdiction, having the possibility of developing general principles in new domains, such as fundamental rights (Vervaele, 2005:100-118).

The Court of Justice of the European Union has ruled on the application of the *ne bis in idem* principle in criminal matters for the first time in 2003, in the Joined Cases *Gözütok and Brügge* (C-187/01 and C-385/01), since

then this area being 'the most consistent' of the European judicial authority; at the same time, the present judgment is the first in the interpretation of the 1990 *Schengen Convention* (Gorunescu, 2010:99-116).

In this case, the Court has extended the interpretation of the expression 'finally disposed' in Article 54 of the *Schengen Convention* to 'procedures whereby further prosecution is barred, such as the procedures at issue in the main actions, by which the Public Prosecutor of a Member State discontinues criminal proceedings brought in that State, without the involvement of a court, once the accused has fulfilled certain obligations and, in particular, has paid a certain sum of money determined by the Public Prosecutor'.

The Opinion of Advocate General Ruiz-Jarabo Colomer, delivered on 19 September 2002, relating to the joined cases of *Gözütok and Brügge*, is extremely relevant as it gives more general explanations regarding the issues brought about the *ne bis in idem* principle. 'This rule of law, in order to protect identical legal rights and in respect of the same unlawful conduct, prevents a person from being subject to more than one penalising procedure and, possibly, being punished repeatedly, in so far as that duplication of procedures and penalties involves the unacceptable repetition of the exercise of the *ius puniendi*', states the Advocate General in par. 48.

The principle rests on two pillars, namely legal certainty and equity (par. 49). As far as legal certainty is concerned, it 'requires that decisions adopted by the public authorities, once definitive and final, cannot be challenged *sine die*' (par. 119).

Hence, as outlined in par. 122-124, in order to fulfill the objective of establishing an area of Freedom, Security, and Justice in an integrated Europe, the effectiveness of foreign decisions must be guaranteed between the Member States, which certainly requires enhanced cooperation, mutual trust and mutual recognition of judgments in a genuine 'common market of fundamental rights'.

In the *Kraaijenbrink* case (C-367/05, 18 July 2007), the Court decided that the relevant criterion for the purposes of the application of Article 54 of the *Schengen Convention* is 'identity of the material acts, understood as the existence of a set of facts which are inextricably linked together, irrespective of the legal classification given to them or the legal interest protected; (…) it is for that national court to assess whether the degree of identity and connection between all the facts to be compared is such that it is possible, in the light of the said relevant abovementioned criterion, to find that they are "the same acts" within the meaning of Article 54 of the *Convention implementing the Schengen Agreement*'.

The Opinion of Advocate General Colomer, delivered in the *Van Straaten* case (C-150/05), comprises a majestic observation: 'even when one State may not deal with a matter in the same or even a similar way as another, the result will be accepted as equivalent because it reflects the same principles and values. In a project as ambitious as the European Union, the States must trust in the adequacy of their partners' rules and also trust that they apply them correctly, accepting their consequences, even though they may produce different outcomes; that concept implies taking those outcomes into consideration, one corollary of which is the *ne bis in idem* principle' (par. 62).

Other frequently cited cases in which the European Court of Justice approached the *ne bis in idem* principle are the following: *Miraglia*, C-469/03, 10 March 2005; *Gasparini*, C-467/04, 28 September 2006; *Bourquain*, C-297/07, 11 December 2008; *Turanský*, C-491/07, 22 December 2008, and so on.

4. THE GREEN PAPER ON CONFLICTS OF JURISDICTION AND THE PRINCIPLE OF *NE BIS IN IDEM* IN CRIMINAL PROCEEDINGS

The intention of the *Green Paper on Conflicts of Jurisdiction and the Principle of 'Ne Bis in Idem' in Criminal Proceedings* [COM (2005) 696 final], presented by the Commission, was 'to launch a wide-ranging consultation of interested parties on issues of conflicts of jurisdiction in criminal matters, including the principle of *ne bis in idem*'.

As shown in the background considerations of the Green Paper, the internationalization of crime is likely to determine positive conflicts of jurisdiction due to the fact that several Member States have criminal jurisdiction to prosecute the same case. There are, as the Green Paper identifies, several drawbacks of multiple prosecutions: they 'are detrimental to the rights and interests of individuals and can lead to duplication of activities. Defendants, victims and witnesses may have to be summoned for hearings in several countries. Most notably, repeated proceedings entail a multiplication of restrictions on their rights and interests, e.g. of free movement. They increase psychological burdens and the costs and complexity of legal representation'. And, of course, these difficulties are unsuited for the EU area of Freedom, Security, and Justice.

The necessity to establish an efficient system for attributing cases to an appropriate jurisdiction is made clear: without such a mechanism, '*ne bis in idem* can lead to accidental or even arbitrary results: by giving preference to whichever jurisdiction can first take a final decision, its effects amount to a "first come first served" principle'.

The mechanism which the Commission has in view is tripartite, made up of the following steps: identification and information of 'interested parties', consultation/ discussion, and dispute settlement/ mediation.

The debate regarding the *ne bis in idem* principle refers to the need to clarify certain elements and definitions (as, for instance, the types of decisions which can have a *ne bis in idem* effect, and/ or what is to be understood under *idem* or 'same facts'), the application of the principle – considering that cross-border enforcement now takes place through the mutual recognition EU instruments – as well as the necessity to preserve the current possibilities for derogations from it.

5. COUNCIL FRAMEWORK DECISION 2009/948/JHA

As it is known, since the coming into force of the *Treaty of Amsterdam*, decisions and framework decisions have replaced joint actions in the field of police and judicial cooperation in criminal matters. A framework decision is binding on the Member States solely as to the result that is to be accomplished, leaving the choice of form and methods to the national authorities.

The *Council Framework Decision 2009/948/JHA on prevention and settlement of conflicts of exercise of jurisdiction in criminal proceedings* was adopted on 30 November 2009 (published in the *Official Journal of the European Union* L 328/42, 15.12.2009) and is due to be implemented by the Member States by 15 June 2012.

The aim of this Framework Decision is, as stated in point 3 of the Preamble, 'to prevent situations where the same person is subject to parallel criminal proceedings in different Member States in respect of the same facts, which might lead to the final disposal of those proceedings in two or more Member States', at the same time attempting to prevent the infringement of the *ne bis in idem* principle, as set out in Article 54 of the *Convention implementing the Schengen Agreement*, as interpreted by the European Court of Justice.

The Framework Decision emphasizes the need for direct consultations between competent authorities of the Member States in order to reach a consensus and, thus, avoid the adverse consequences arising from parallel proceedings and also the waste of time and resources. The direct consultations can be carried out with the assistance of Eurojust.

Direct contact between competent authorities should be seen as the main principle of cooperation under the present Framework Decision.

The exchange of information between competent authorities should imply a minimum set of information, especially relating to the identification of the person concerned and to the nature and stage of the parallel proceedings, which should be mandatory.

The contacted authority has the general obligation to reply to the request submitted by the contacting authority, respecting, if possible, the deadline imposed by the latter. There should be special consideration given to the situation of a person deprived of liberty throughout the procedure of taking contact.

Since the provisions under this Framework Decision are meant to prevent unnecessary parallel criminal proceedings which could result in an infringement of the principle of *ne bis in idem*, its application should not generate a conflict of exercise of jurisdiction which would not occur otherwise. For this reason, 'in the common area of freedom, security and justice, the principle of mandatory prosecution, governing the law of procedure in several Member States, should be understood and applied in a way that it is deemed to be fulfilled when any Member State ensures the criminal prosecution of a particular criminal offence' (point 12 of the Preamble).

In order to eliminate unnecessary red tape, in situations where more flexible instruments or arrangements exist between Member States, the Framework Decision allows them to prevail.

6. CONCLUSIONS

All things considered, the safeguarding of the *ne bis in idem* principle proves essential in the common Area of Freedom, Security, and Justice, in which key concepts such as enhanced cooperation, mutual recognition of judicial decisions, mutual trust, and safeguarding the fundamental human rights, need to express a common standard of criminal justice.

Future work should correlate the EU provisions with the legal instruments developed within the Council of Europe and the dynamic case law of the European Court of Human Rights in order to obtain a panoramic view of the *ne bis in idem* principle as it is interpreted and applied in the European context.

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THEORETICAL MODELS AND METHODS OF ACTION ON THE DEVELOPMENT OF PROSOCIAL BEHAVIOR IN ROMANIA

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Abstract: *This article presents the main theoretical assumptions underlying the development of social behavior based on psychology research (applications of cost-benefit analysis, management rewards, explanations affective) and sociological (adequacy of social norms, social learning). These were carried out under a series of steps designed to ensure the emergence of educational pro-social behaviors, especially in school education.*

Keywords: *pro-social behavior, education, intervention.*

1. THEORETICAL MODELS AND METHODS OF ACTION ON THE DEVELOPMENT OF PROSOCIAL BEHAVIOR IN ROMANIA

Concluding the research aimed to identifying an "altruistic personality type", (Chelcea, 2006:83) note that as there isn't a natural born killer type, there is no altruistic type by birth: "altruistic individuals are not different people, but people socialized differently". In literature, there is a wide range of theoretical approaches on the development of pro-social behavior, both psychological type (started from the cost-benefit analysis, management rewards, explanations affective) and sociological (adequate knowledge of social norms, social learning).

The analysis of cost-benefit has many consequences applied in psychological level of explanation, including highlighting the importance of benefit in developing pro-social behavior. Because the role of past rewards aid in future has been tested experimentally, it requires a practical recommendation: pro-social acts must not be overlooked, but also recognized and appreciated, social validated.

In this context, it is known that the emotional rewards (positive and negative) are those who incite to action in favor of others, and material rewards without increasing self-esteem have a low motivational force.

As far as it concerns the emotional explanations given to altruism, they are linked to individual needs and enhance self-esteem and keeping a good opinion about their own person.

The greater the effort to achieve an activity (in this case, a pro-social activity), the more the willingness to help others in future will be, and if the individual gets an inner conviction that is a „good man", once gained confidence, he will be motivated to maintain this image by other pro-social activities (Wosinska, 2005: 261).

Not by coincidence, in some countries where the incidence of volunteering at adults is high, there is in compulsory education the discipline of „community practice", which consists in providing aid to individuals or groups in need (such are ecological actions, home care, etc.). What at first is a school duty later becomes a life habit, being by internalizing motivation producing these behaviors. In Romania this model began to be promoted in high-schools, by the Order no. 1734/2007 of Ministry of Education, Research and Youth, whose aim is to ensure the development of *National Strategy of Community Action*, which aims to incorporate the volunteering in the curriculum.

Sociological research has also revealed multiple applied consequences, materialized by promoting proper social norms. These approaches refer both to promoting accountability and reciprocity rules, and to proper interpretation in emergency situations other widespread social norms, which may result inhibition of the grant aid (for example, social justice and the nonintervention norms), as well as certain categories of victim „humanization".

For example, when observing a manifestation of domestic violence, the population of Romania is significantly more lenient than other European countries, as certifies „*National research on domestic violence and workplace – Romania 2003*" realized by *Center for Equal Partnership*. This tolerance for domestic violence „generates, in many cases, considering the violent behavior as normal behavior", and this type of behavior, „disguised as normal is transmitted from one generation to another" (Centrul Parteneriat pentru Egalitate, 2003:8).

Interpretation as „normal" situations of domestic violence blocks, frequently, pro-social intervention. To remove this way of perceiving situations are necessary steps that rule of nonintervention (widespread in our country) is required so nuanced and explained not to act on behalf of aggressors.

„Humanization" of different categories of victims is successfully practiced in case of negative social phenomena that can be changed only by overcoming a strong cultural resistance (such as domestic violence in Romania). Is trying „to define" the victims in terms designed to limit their culpability for the situation where there are. Other nationally significant example is that of helping people with mental health problems, where social stigma is so clear and is heavily promoted in the media.

Iluț (2004:84-85) shows that as far as it concern social learning pro-social behavior should be considered first formation and cognitive development theories of morality, due to J.Piaget (transition from the heretonoma to autonomous morality) and to L. Kohlberg (description of stages: preconventional, conventional and postconventional). Practical corollary of this statement is obvious : there are „critical ages" in which pro-social learning should be concentrated.

2. THE ROLE OF EDUCATIONAL INFLUENCES

Stimulation of the aid with the young children is based on the fact that they „do not need to learn altruism" (Sigelman, 1984: 310), but should only be encouraged in this regard. In other words, potential relief is innate, and the simplest measures of education are bearing fruit: public appreciation of altruism by giving evidence preschoolers significantly increases the incidence of such acts.

Using mass media (especially, television) to pro-social educate children proved to be a success. Often cited studies based on a highly successful television series for children, „*Lassie"* (Lippa, 1994: 498; Franzoi, 1996: 310), in which aid was implemented successfully from movie to real life.

Frequently mentioned category in the personal determinants of pro-social behavior refers to positive or negative mental states (whose influence on their mood can be changed). In this context, starting from the existence of „critical age" for pro-social behavior learning, is easily supported the role of child education based on emotional intelligence – especially the one in the family – further production of humanitarian relief acts (Elksnin L., Elksnin N., 2000).

R. Coles (1997, *apud* Iluț, 2004:82) highlight two important aspects of parents' actual behaviors (both towards their own children, and to other persons) in emotional intelligence development: 1) parents manifestations are much more effective than abstract moralizing sermons; 2) despite increasing media influence, parental determination of how kids operate on emotions is decisive. The same author says that although all the learning experiences of childhood in terms of pro-social behaviors are important, only during the elementary school are crucial.

A completely different situation is that of educational approaches which can be taken as a result of knowing the effects it has the presence of other people in the context of

psychosocial intervention. J. Beaman (1978, *apud* Franzoi, 1996:310) displayed Bibb Latané and John Darley's model to some groups of students and record almost twice as many of their interventions in crisis situations than their colleagues of the year which has not been presented the model. Limiting bystander effect can be achieved through a series of practical measures: facilitate communication between eyewitnesses; clear definition of the situation; non-restricting access to social information.

Providing relief patterns can be done indirectly, especially through television. On this issue can be explicitly designed programs with pro-social content (for e.g., children's television series *Lassie*, which took effect above) or included reports of pro-social behaviors or in other programs (first of all, news bulletins). TV presentations of different types of situations in which people help each other "can lead to the creation of social norms to guide behavior to support social values, to charity" (Chelcea, 2006:73).

3. THE IMPORTANCE OF SITUATIONAL FACTORS IN THE EMERGENCE OF PROSOCIAL BEHAVIOR

Unlike the fictional models offered by the small screen, direct observation of pro-social behavior significantly increases the chances of granting aid: "The more we will promote social values through our actions, the more we will powerful influence on others in terms of achievement of pro-social behavior" (Chelcea, Ţăran, 1990:201).

Exposure to actual patterns of action was made in the experiments which showed that increases the probability of observing a pro-social model to provide aid, regardless of person's age who observes pro-social act, as standard gives prominent social responsibility, help to define the situation as an emergency one and allows the observer to estimate the cost of intervention. Although the previous statement has been proven rigorously only in terms of emergency situations, it is almost certainly true for the pro-social behavior with a longer duration.

Analysis of the factors interact in the context of the prosocial behavior were formulated following a series of recommendations in the context of the aid request. For e.g., Wilhemina Wosinska (2005: 266) recommends the use of replicas that will lead to strengthening the sense of community similarities or affirmation «us» through social connections with the person that is going to seek help. Septimiu Chelcea (2006) underline the conclusion of several common experimental studies, according to which "moderation in aid support is more effective than insistence", in order not to produce the phenomenon of "psychological reactance".

The key recommendation on situational factors influence is found in almost all literature consulted and refers to the need to reduce ambiguity situation, so that it can be correctly and quickly identified as a request for help. The ambiguity can be reduced by requiring a specific definition on the emergency aid by the victim (*„I feel like a heart-attack!"* instead of undifferentiated *„Help!"*); addressing the request of help to a single person, to make her responsible (*„Man with blue shirt, please call 112!"*) or organizing the intervention by witnesses, by setting and division of concrete tasks.

An example of organizing a pro-social intervention is that of passengers and crew members on *United 93*, the last plane crashed on 11.09.2001. Because, the passengers and crew members diversion eluded the outcome of the other three aircraft have organized a response that in the end led to plane crash by terrorists. This case can be considered as a collective pro-social behavior, because many of the passengers and crew members announced their families their intention to regain control of the aircraft, mentioning pro-social motivation of their gesture.

Different ways that can be favored the producing of pro-social behavior above presented (by practical consequences of adopting the pro-social intervention model or by operation of social intervention) are strongly influenced by socio-cultural context in which one would like to encourage the production of pro-social behavior.

In post-Revolution Romania can be seen that is a sharp promotional material existence values, encouraging consumption as a form of absolute individual „fulfillment" and social certification success almost exclusively in financial terms.

In these circumstances, Serge Moscovici's remark (1998:61-73) under which selfishness is the norm and altruism is deviance in West is well illustrated in Romania's case, where the adoption of capitalist economic model was done with enthusiasm, but also with an obvious disregard for the assumption of social responsibility practices at company level or individual level. In this context, pro-social behaviors are still a rare species, encouraging the production of pro-social behaviors is a goal and a challenge in today's Romanian society.

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INTERCULTURAL COMMUNICATION – THEORETICAL NOTIONS

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***Abstract**: Intercultural communication is a field of interest born out of other fields, such as: history, geography, anthropology, and sociology. It has become an independent science branch during the last years, along with the functioning mechanisms taken from practice. My article attempts to examine some important terms for this field: multicultural education (very active under the circumstance of establishing the European Union), stereotypes connected to their birth and preservation mechanisms, acculturation and its manifestations, and the adaptation to today's world's ideology.*

***Keywords**: multicultural education, stereotypes, acculturation, identity, otherness, migration, minorities.*

1. INTRODUCTION

Intercultural communication is a hybrid, artificial domain born at the end of the last century. Its contents resulted from the combination of the two terms, that is, culture and communication. Essentially, the term "culture" refers to "all the material and spiritual values created by mankind in the process of social-historical practice, as well as the necessary institutions to convey these values. In other words, having extensive knowledge in various fields" (*Dictionarul limbii romane pentru elevi*, 1982:199). At the same time, "communication" means "notice, news, reports, relationships, bonds, presentation of a paper in an inner circle (*Dictionarul limbii romane pentru elevi*, 1982:199).

Intercultural communication as theory and practice is accomplished by means of several sciences. History offers the oldest information regarding human life on earth. Also, historical convulsions (wars, plagues, natural or human catastrophes, etc.) as well as interpersonal communication are historically proven. Borders changes as a consequence of human and natural factors accounting for migration (or colonization) has also been identified by historians.

Myths and their corresponding rituals and the birth of the world's first religions belong to the field of history of religions. Ethnology offers data concerning human cohabitation in a limited area, forms of private life preservation, or, on the contrary, and the extinction of certain occupations. The preservation of traditional aspects is particularly relevant to communication.

Sociology studies the evolution of social relations, of the relations between political power and various social categories, and their social manifestations and quantification in a particular natural or legal framework.

Anthropology, a more recent field of activity (associated until the last century with history and demography) analyzes certain communities' behaviors and the preservation or transformation of some mundane habits.

Beside these well defined fields of interest, others have appeared recently, such as historical demography, human geography, socio-anthropology, demographic statistics, etc. All these subject matters provide us with information necessary to develop the arguments for intercultural communication.

As a curricular subject matter, intercultural communication was imported from the North American territory, where it started to be studied during the 60's. European thinking, at least two millennia old and based on two pillars – the French and the English schools – was reluctant to accept this new field of

interest. The fast social-economic changes occurred during the last decades, as well as the media evolution and the creation of new European structures (i.e., European Union) catalyzed the acceptance of intercultural communication in Europe during the 90's.

In Romania, it became a part of the curriculum of communication schools, and is prone to substantial developments in the years to come.

2. FUNDAMENTALS OF INTERCULTURAL COMMUNICATION

There are numerous theoretical tools used in this field of knowledge. We have selected some which I considered to be most important, as follows: cultural education, cultural stereotypes, migration, ethnicity, acculturation, and identity.

2.1 Cultural education is shaped in two sequential environments: family and school. The first knowledge comes from the family, and is related to traditions, language, blood connections, and religion. First such information comes from the parents, regardless of whether one belongs to a majority, or to a minority established in a state. In the case of ethnicity, the preservation of language and religion is accomplished inside the family. The subjective perception of cultural education has led to many conflicts such as racism or apartheid. Therefore, at the middle of the last century some laws and application methodologies were developed in order to protect the minorities' cultural rights. The wider framework is regulated by the UN Chart (1949), which states the protection of human rights regardless of race, gender, sexual preferences, and religion.

The internal laws of each state, Constitutions, reiterate these rights along with the organization principles linked to minorities' cultural manifestations, with an emphasis on respecting the differences in others.

Another significant educational framework is school. In the Middle Ages' Romanian territories such as Transylvania or Banat, education in German or Hungarian was a reality.

As far as studying the minorities' history and culture is concerned, this has been justified and done at the same time. However, one can notice the danger of identity closing in some European areas. An example was set by Canada, where numerous laws have been passed in order to avoid discrimination and to protect linguistic diversity. "Intercultural education means the recognition of values, ways of life, and symbols to which human beings related at a certain moment in time" (Dasen, Perrgamu, 1999:145).

2.2 Cultural stereotypes are based on prejudice, which is why the two terms are frequently used interchangeably. As far as the former is concerned, Montesguien said: "I would be the happiest mortal if I could do something in order to heal people of prejudice. By prejudice, I don't mean ignoring certain aspects, but ignoring ourselves" (*Dictionarul alteritatii si al relatiilor interetnice*, 2005: 627). Prejudices are inherited or acquired during our lives.

Every historical age has had its own prejudices: in the pre-Christian age, believing in more than one God was a reality (which becomes the Roman empire's justification to persecute Christianity and its supports), underpinned political power (e.g., in ancient Egypt, the pharaoh was the embodiment of Ra, the most powerful Egyptian god), or justified attacking another country (Hitler's Arian doctrine, which led to invading Czechoslovakia and Poland followed by hunting down the Jews).

Popular traditions are the fertile soil for prejudice, also called superstition. Their existence accounts for events or phenomena that ordinary people could not explain, such as the prejudices related to pregnancy, child birth, werewolves, or evil spirits. Although nowadays we have scientific and logical explanations of these phenomena, prejudices have remained. At the same time, most of us have prejudices linked to things we cannot logically explain.

Stereotype is an evolved form of prejudice "initially used in printing to designate a matrix made of lead in order to make a cliché. In 1922, the term is used in humanistic sciences by Walter Lippmann, who thus referred

metaphorically to ready-made and quickly-elaborated opinions" (*Dictionarul alteritatii si al relatiilor interetnice*, 2005:11).

According to our degree of knowledge, we often tend to label the people we hardly know. We do not give them the chance to act and communicate, and we disregard and ignore them from the very beginning. This reaction is triggered by over-sizing our own identity, which blurres our perception of others. One may also talk about certain mentalities that apply even to peoples: Germans are disciplined, English are conservative, etc. As for Romanians, our self perception is positive, whereas others define us by means of three elements: chaos, lack of organization, and laziness. Consequently, the stereotype creates a general picture starting from a particular situation, and has negative effects as it induces isolation and false judgments. Stereotypes come from our families, and may disappear in time and be replaced with others. Nevertheless, the adults' capacity to preserve some stereotypes is much greater than the children's.

Throughout years, cultural stereotypes have caused numerous conflicts, such as: crusades – economically sustained, although the Catholic Church claimed its superiority to the Eastern Church, the conquest of Central America by the Spanish conquistadors, which resulted in the local population's spiritual destruction and their embracing Christianity, etc. More often than not, stereotypes lead to exclusion and discrimination.

2.3 Acculturation is a phenomenon that accompanies migration. "Promoted by the cultural school, it designates the learning and socialization mechanisms, and the individual's integration in an unfamiliar environment by interactions or direct contacts with different ethnic groups during invasions, colonizations, or migration" (Dasen, Perrgamu, 1999:103).

When approaching the phenomenon of acculturation, scholars regard it as a spontaneous process consisting of several acculturation stages: "1. reinterpretation or adoption of the features and models of the dominant culture of the public sector, 2. synthesis, which generally affects the second generation of children, 3. syncretism or the birth of an entirely heterogeneous nation, 4. assimilation – a negative phenomenon which results in destroying the initial values, 5. counter-acculturation or the process of brutal and sudden rejection of the emerging culture in a colonial situation" (*Dictionarul alteritatii si al relatiilor interetnice*, 2005:14).

Invasions and colonizations are the oldest forms of acculturation. Territorial conquests took place for economic and political reasons and incurred a state's establishment or consolidation of political power. The contact with other civilizations is now achieved by imposing the conqueror's characteristics (i.e., language, administrative structure, etc.). At the religious level, syncretism took place by combining the local gods with the newly come gods.

Colonization occurred mainly for economic reasons, that is, the lack of food in a certain territory made a part of population to migrate to another geographical area. This is why colonizations did not impact as negatively upon the new territory as invasions. The best known example is that of the colonies organized by the Greeks on the Black Sea and Mediterranean coasts in the 7th century BC. These colonies represented the original towns at a smaller scale by bringing along the Greek language, traditions, and administrative structures. The contacts with the locals were peaceful, and the colonies' economic potential helped the neighboring areas to develop.

Migration is the process of one population's moving from the original areas to other locations. The best known example is that of the great migrations from central and southern Asia to Europe during the 3rd – 9th centuries. Thus, new peoples were born (the Angle-Saxons, Celts, and Francs formed the English or French kingdoms), or the migratory populations mixed with the Latin populations (in the Italian peninsula or Spanish kingdom).

Emigration refers to an acculturation phenomenon that started in the 17th and 18th centuries. It consists of the migration of a large number of individuals to remote areas. The phenomenon had numerous causes:

- religious (the reformed discrimination due to the counter-reform reaction). Therefore,

many Irish and French people left Europe for the New World,

- economic (the reduction of food supplies in Europe led to massive migration to North America, Canada around the year 1900,
- political (Eastern Europe's totalitarian regimes) made the Polish, Romanians, Hungarians, etc. leave for the USA and Canada.

When discussing emigration, one may notice both a slow assimilation of the characteristics of the new civilization and their complete rejection. The new state can offer the proper conditions for the new-comers, but they still bear the characteristics of the original civilization. Therefore, one may encounter phenomena such as counter-acculturation, inadaptability, and rejection. The second generation of emigrants has a different perception, though, since their identity was born under new circumstances.

2.4 Identity. Identity is the quality of being the same with yourself. Within the Nations' Society, in 1920, the concept of minority is first defined as a community's identity. This definition has resulted in three attitudes regarding minorities:

a. Pluralism – various identities living together in the same area by preserving their own characteristics.

b. Assimilation – the act of coercing minorities to give up on their specificity.

c. Segregation – maintaining minority groups in state of isolation and separation.

Every state must acknowledge and respect minorities' rights.

Every individual is defined by means of their belongingness to a certain social group and according to its values. In its structure, identity may take three forms:

- Natural belongingness (by gender, race, etc.),
- Born belongingness (ethnicity, religion, nationality),
- Gained belongingness (intellectual development or organizational belongingness).

Identity exists in three main forms:

1. Cultural identity – manifested by means of traditions and customs specific to each minority. Part of it is due to the family environment, and education. Every state stipulates the constitutional right to ethical structures' freedom of speech and cultural manifestations.

2. Religious identity – as a form of communities' cohesion and resistance, e.g., the Jews' mosaic religion, which helped them withstand all the difficulties regardless of the geographical or historical conditions. Also, every state must guarantee its citizens' right to religious freedom.

3. Linguistic identity – as a method to preserve the community. As history evolves, old languages disappeared, and new languages were born. Minorities' right to use their own languages is a right that every minority enjoys nowadays.

Identity represented both by belonging to a community and individuality within it is a value actively displayed in Europe during the last years. As a result, identity is born at two levels: real one – territorial frontiers, common language, etc., and an imaginary one – identity with the ancestors and historical myths.

2.5 Otherness – is a "quality or essence of the other" (Cucos, 2000:136).

This perception has always existed, but the theoretical concept is rather recent. In delineating its conceptual features, one may notice five pillars:

a. The child's perception of the other. The parents explain the child who the others are and what makes them different. In most cases, the child is shy and reluctant to interact with strangers. Freud studies these reactions in detail, and put them down to the people's general preservation instinct.

b. Each individual's alter-ego, which psychologists describe as our second personality or consciousness, which makes us choose our actions. Its manifestation depends on each person's imagination, and is more present in childhood. This explains why many children have imaginary friends to play with. This inner reaction is refrained in adulthood.

c. The other one is seen as an enemy or the rival that threatens one's own position. This perception underpins numerous military conflicts throughout the history.

d. The other one is perceived as another form of otherness. All religions urge us to honor the strangers coming into our homes

based on the peaceful attitude that governs this perception.

e. The other one is seen as your friend who needs support. It is the manifestation of charity and mercy for orphans, widows, or poor people. This sustains the nuns' congregations from Western Europe staring from the 18th century, as well as the establishment of the Red Cross.

3. CONCLUSIONS

Collective memory leads to the development of myths materialized in national holidays, commemorations, etc. that bear special significance in people's minds. Culture and its educational nature can become a manipulation weapon or a tool to distort reality, e.g., racist or communist theses, which enjoyed significant support at certain moments in time. Building a European consciousness is a painstaking endeavor due to several impeding factors such as nationalism or xenophobia, to name but two. The most negative form of nationalism is the one that justifies one social groups' action against its own nation. The ideologists of the universalist conception attempt to disseminate the idea according to which identity culture should give in to a unique, universal culture. This ideology has been imported from across the Atlantic, where it was possible in a state born from various identities about two centuries ago. In Europe, on the other hand, there are bigger ambitions, as well as stronger tendencies to identity preservation.

A more plausible option would be for the identity culture to manifest in a larger European or worldwide environment. This is neither a fast nor an easy process, as we have witnessed for some time. Moreover, the progress is even slower in Eastern Europe, including Romania. Among the Romanians that have left the country during the last two decades, one may notice two opposite trends:

- The former denies identity and leads to uprooting and alienation.
- The latter exaggerates one's own identity, which results in inadaptability and cultural shock, for the emigrant tends to judge the new realities from his/her original standards that are often inappropriate.

Adaptation is the desired attitude and involves learning new languages, new social codes, and new values specific to the new culture. Compromising the two trends is the right way, but it is a hard process.

Intercultural communication is another coordinate of today's world "by perceiving the new culture through the lens of that particular culture". This is achieved by intercultural education, which comprises aspects such as: human rights, democracy and civic spirit, tolerance, environmental protection, peace, etc. These topics have been included in academic curricula across Europe for a long time, and lately have become relevant in Romania, too. The fundamentals are taught in the educational formal framework, but their actual assimilation and growth take place in adulthood.

European values, which initially generated various reactions, are still valid by means of dimensions such as Christianity, humanism, or Romanism. In Romania, they have gained specific connotations, since all the aspects of intercultural communication change and evolve permanently.

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WOMEN IN THE MILITARY

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***Abstract**: Women in the military are no longer a novelty still; they are not a common image yet. Their role, especially as fighters, is a controversial one and only recently women have been offered the possibility to train in the same place and for the same purpose as men. Traditionally, men are the ones who join and have a career in the armed forces since being a military is an exclusively masculine occupation. Apparently this idea originates at the beginning of human king when men hunted and waged wars while women took care of the household and the children. This perception had been modified very little until the 20th century when most of the mentality and social changes occurred, especially in the last three decades of that century, thus allowing women to have a more active role in this organization.*

***Keywords**: female militaries, combat role, war, controversies.*

1. INTRODUCTION

We have long been accustomed to the claim that women just aren't suited for life in the military, that they should only stay at home and take care of their families, that this is no life for them because violence and hard physical training are more than a woman can take. But is this really true? Women have been present in the military for quite a long time and they have played many roles, from ancient warrior woman to present day combatants; still, women in the military, though not a new image, are not common and despite their long time presence in the armed forces, their role as combatants still creates controversies. Women have only recently been offered the possibility to train in the same place and for the same purpose as men but, this is only the beginning and it can be said that by all accounts, women in the military have come a long way although it's been a slow, much contested fight to gain the right to go into combat.

2. TRADITION VS. MODERN TRENDS

Traditionally, working in the military was seen as an occupation for men, this idea has its roots at the beginning of humanity when men hunted and waged wars while women stayed at home doing the housework and raising their children. Along the ages there have been times when women took part in the battle, for instance 1429 Joan d'Arc led the French troops into battle against the English, the American women who fought the U.S. Independence War or Ecaterina Teodoroiu, but every time this was possible due to a trick, these women being disguised as men. Military culture is a masculine culture and the women who worked in the armed forces were usually nurses, secretaries, telephone operators, cooks or, on some occasions, they took care of the logistical elements but they were never combatants and they could not even train for such a role. In "The Feminine Mythtique" (*Gazette on the Net*, 15th May 2002), Col William T. Hewes, US Marine Corps (Ret) stated that a country's military is not an "equal opportunity employer" and that it must be looked at in a different manner than the civil society (which meant that it must be exempt from civil rights legislation an idea that is inherently incorrect because we pride ourselves on the fact that we live in democratic societies where women are equal to men. This conservative position is based on an old but still strong philosophy and set of values: that

the military has its own separate rules and that women do not pertain to this world.

Along the years women's military roles have expanded. Until the early 1990s, women could not fly combat aircraft or serve on combatant ships and they are still not allowed to serve in ground combat roles, technically speaking; however they do take part in dangerous missions in Iraq and Afghanistan because of the nature of combat in an insurgency in which there are no distinct front lines. Lawmakers' efforts made in recent years to limit women's roles were rebuffed by the U.S. Army, which told the Congress it cannot afford to exclude women from serving in various capacities. This new situation means either that mentality has changed or that the driving force for women's full integration into the armed forces has been manpower shortage.

World War I was the event that posed the greatest challenge to the military male bastion. With the war moving from the battlefields into the civilian zones, women gradually worked their way into medical units and by World War II, their position in the military was enhanced. Although women in the United States' armed services did not serve in direct combat, if we take a look at the American armed forces we can notice that only recently, after 1990s, they started to be more open towards the idea of having servicewomen. Looking back into their history we see that the first time women were accepted in the military was during the WW II, when in 1942 auxiliary military troops for women were created in the United States of America. A step further on this road was taken in 1948 when President Truman signed Women's Armed Services Integration Act which allowed for women to be part of the armed forces; still, this act limited the number of women to 2% of the total number of militaries. According to the traditional military culture model women are allowed to occupy only non-combat positions, mainly in logistics, administration and nursing because their participation in battle was considered to be disturbing and would have diminished the readiness of the troops.

During Desert Shied (1990) and Desert Storm (1991) campaigns, more than 40.000 women participated in the Gulf War. After the conflict, the U.S. Defense Secretary Richard B. Cheney stated that women had a major contribution in that war, that they were very professional and that the victory would not have been possible without them. Women performed various combat roles in the Gulf war - they flew refueling planes, flew troop transport aircrafts and helicopters, fired Patriots that destroyed Scud missiles, supplied mechanized brigades with fuel and ammunition, loaded bombs, operated radios, radar, and military vehicles. They marched through mine fields, maintained aircraft, guarded perimeters, accepted the surrender of Iraqi soldiers and subsequently pulled guard duty. Women were taken prisoner and some lost their lives in the Gulf. As an appreciation of their distinguished service in the 1991 Gulf War, it was decided to expand combat assignments for women in uniform. In 1994, an order signed by then-President Bill Clinton allowed women on combat ships and fighter planes.

During Desert Storm the first woman pilot gave her life while flying in a combat zone. Major Marie T. Rossi died at age 32 on March 1st, 1991, when the Chinook helicopter she was piloting crashed near her base in northern Saudia Arabia. She was the commander of a unit which was among the very first American units to cross into enemy held territory flying fuel and ammunition to the rapidly advancing 101st and 82nd Airborne Divisions. Lt. Kara Hultgreen, the Navy's first fully qualified female fleet fighter pilot, was only 29 when her Tomcat slammed into the Pacific Ocean in 1994 - making her the first woman combat pilot to die in service.

3. THE WAY TOWARDS THE BATTLEFIELD

Many arguments, for and against women becoming combatants, have been brought up along the years; most cons used by the conservatories started from the physical differences and old fashioned mentality, women being perceived as weak, and also from the possible negative effects mixed troops could have upon the training and war activity because women in combat units

endanger male morale and military performance as Elaine Donnelly said, 2003 CMR (Center for Military Readiness) president. On the other hand we have the evolutionists who support the idea of allowing women in the military; they admit that women can take part in battle that they can kill or they can march and accepting them would enlarge the selection pool since the number of men who want to become soldiers is decreasing.

A big debate started in the American society and in Congress about women's participation in battle after the Gulf War. This debate had as a result the Defense Authorization Act or the Public Law 102-190 from 1991 which legitimizes a commission to analyze the laws and policies which limited women access as combatants in the armed forces and to study both points of view, that of the liberals and of the conservatories. The issue and the debate on whether to let women perform combat roles have been even more contentious. Although the Air Force and the Navy have opened up virtually all combat jobs to women, servicewomen are still officially forbidden from serving in combat on the ground. The United States Air Forces became quite open towards women when a law from 1989 forbade establishing a certain percentage of seats for the women who wanted to enlist. The interdiction which said that women could not serve in combat was annulled in December 1991 and finally women could start training on fighter planes. Lt. Jeannie Flynn graduated on February 15th, she was the first woman pilot on fighter planes.

Since 1994 the Army has increased the number of servicewomen accepted, they were even accepted as pilots on combat helicopters or fighter planes still, there are some special units, like the special forces, where they are not accepted. Even the Navy made some modifications and in 1994 the law which forbade women to work on combat ships was abolished. In March 1994 they passed a law which allowed women for the first time, to work on the USS Eisenhower carrier. The number of women on that carrier and on other combat ships was between 400 and 600; the Navy also accepted women pilots on fighter planes. In February 2010 U.S. Defense Secretary Robert Gates sent a letter to lawmakers notifying them of the decision reached by the Navy, which allowed the first women on nuclear submarines the next year (2011). The Marines have the smallest number of women but they say they will increase it in the future years.

Another example of women in the militaries is the Australian Armed Forces which has a very long tradition in this area. Even here, the beginning was made with women working in the auxiliary troops when the Nursing Service for Women was established in 1899. Then, on 1st July 1903, the Australian Army Nursing Service, which was actually a reserve troop, was created. The Service was made up of volunteer civilian nurses who would be available for duty during times of national emergency. Members of the Service participated in both the World Wars, providing medical personnel for medical facilities in Australia and overseas. In 1949 the Service became part of the Australian Regular Army and it is now known as the Royal Australian Army Nursing Corps (RAANC). In 1941 due to the shortage of servicemen there were established troops staffed with women: Women's Australian Auxiliary Air Force (WAAAF) which was disbanded in 1947, Women's Royal Australian Naval Service (WRANS) which was disbanded at the end of WWII and a medical service for the Army, Australian Army Medical Women's Service (AAMWS). Later, between the 1950s and 60s, the Government setting up again troops made up of women who could join the Armed Forces provided that their number did not exceed 4%. These troops were instructed and commanded by women.

In 1969 women were allowed to remain on active duty even after marriage, and starting with 1974 servicewomen who were pregnant stopped their service, being automatically excluded from it. Since 1975 women have been allowed on active duty still without being permitted to take part in direct combat. 1985 was the year when women were given permission to serve at sea and in 1987 the first two female pilots graduated. Starting with 1990 women could serve in combat missions.

Women have played an important role in the British Armed Forces for many years, too. During the Second World War, for example, women were employed in a wide variety of roles, mainly nursing and other administrative jobs, behind the front lines. 7,000 women joined the Women's Army Auxiliary Corps (WAAC) (1917-1918), later Queen Mary's Army Auxiliary Corps (1918-1920). The WAAC was formed of four sections: Cookery; Mechanical; Clerical and Miscellaneous. Most women stayed on the Home Front but around 9,000 accomplished their duty in France. The women in the WAAC were not considered real militaries and did not enjoy such a status. They could enroll but, they were not enlisted militaries, and discipline problems were dealt with by civil, not military, courts. The ranks were divided into Controllers and Administrators (the officers) and Members (the other ranks). The Members were: forewomen (sergeants), assistant forewomen (corporals) and workers (privates). WAAC was renamed the Queen Mary's Army Auxiliary Corps (QMAAC) in April 1918. And when the Royal Air Force (RAF) was created in 1918 a number of WAAC volunteers entered the Women's Royal Air Force (WRAF). The Queen Mary's Army Auxiliary Corps disbanded in September 1921. In 1949 a new law was passed and it allowed women to have a military career within Army, Women's Royal Army Corps (WRAC) which, in 1992, was integrated in the Royal Army Corps. Women's Royal Air Force (WRAF) is an auxiliary organization of the Royal Air Force founded in 1918 and it provided female mechanics. WRAF was disbanded in 1920 and revived in 1949. WRAF and Royal Air Force merged in 1994. Since the beginning of the 1990 women have been fully integrated into the military, still there are some special units, like direct combat units, submarine or engineer teams or where they are not accepted.

The IDF (Israel Defense Forces) is another example of a military where women became more and more involved in combat action. Though women could serve in support and combat support roles in the IDF, they have, until recently, not been allowed to engage in actual combat. This situation has changed after a Supreme Court ruling which upheld the petition of a servicewoman (Alice Miller) to be allowed to apply for Flight School. The Defense Service Law was made in 1995 to let servicewomen attend Flight School, and woman recruits serve in units outside the IDF ORBAT (order of battle); women may thus serve in the police force and in the border police in such roles as paramilitary border police in combat positions, border post inspectors, etc. Along the years, the number of military occupational specialties open to women in the IDF has increased and today most military professions are open to women. Women have long served in technological and administrative positions, intelligence, operations and training. At the same time women can be found servicing IDF computerized systems, working as computer programmers, smart weapons systems operators, electronics technicians, etc. In February 1998 for the first time in its history, the IDF allowed women to cross into enemy territory while they were on military missions. The decision was reached by the Air Force and the IDF human resources branch and it involved only airborne female physicians.

Romanian women have been part of the military for more than 30 years. Similarly to the examples presented above, in the beginning the women who worked in the military took care of the medical, administrative or secretarial matters. From 1973 to 1990 women were accepted in the military service on active duty but they were not allowed to attend higher military education institutions thus the impossibility to attain promotion to higher ranks. After 1990 the situation changed and in 2001 the Ministry of National Defense started a recruitment and selection program for women. In 2004 the schools for NCOs offered for women 11 seats out of 58, meaning 19% of the total number of seats. Also, 30 women were accepted in the school for officers where 159 seats were offered, again 19%. The Military Academy had 171 seats occupied by women out of 307, this time there was not fixed number or seats per gender. All the entrance examinations (except for the sports exam) took place under the same conditions for both genders.

Nowadays the percentage of women in the military is of 5%, and 71% of them have a higher education. 36,1% of the female officers have administrative jobs and 31,3% are combatants. 19,3% work in the medical field, 10,74% are specialist officers, 0,86% are engineers and 1,4% are commanding officers. It is true that the percentage of women on positions of command is small and this is due to the male military culture which does not consider a woman to have the skills to command troops or to plan the activity of the units; but in time, along with the acceptance of women as combatants and with their participation in international missions their numbers as commandants will increase. During Enduring Freedom, KFOR and Iraqi Freedom women started to take part in international operations as volunteers; they were 10 officers and 27 NCOs who proved that they can be as a military as a man can be. In 2009 another premier took place in the Romanian Armed Forces, on the 13th of March Lt. Simona Măierean flew M.I.G.-21 LanceR. This young woman is the first female pilot to fly a supersonic plane.

3. CONCLUSIONS

To conclude I can say that yes, it is true that in most militaries, training accentuates essentially male characteristics; it is true that the recruit is encouraged to develop strength and aggression, while the stereotypical female attributes like sensitivity and compassion are considered to be a sign of weakness; the well-trained solider wants to fight because it is in battle that he asserts his dominance. Yet the women have taken a step further and have made their presence felt even in the U.N. peacekeeping missions and they have had quite a positive impact. The peacekeeper is supposed to keep aggression in check and to take the path of conciliation and communication. In peacekeeping, violence signifies failure that is why the evidence suggests that women might indeed make a difference. In recent operations, just 1.7% of military peacekeepers deployed by the UN were female. Yet, in almost any conflict 80 % of the refugees are women and children. In addition to the problems of rape and prostitution, the preponderance of males causes difficulties. In many cultures, women are forbidden by social convention to talk directly to male strangers. Yet communication is essential to effective peacekeeping. Women seem to be better at controlling violent tendencies and they are also perceived as less of a threat by the local population and therefore less likely to provoke violence. So, the recent integration of women into combat in many Western militaries has proved that stereotypes have no validity and that women can be good even at this difficult job.

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FROM PRINTED TO DIGITAL MEDIA: THE POETRY OF ANA MARIA URIBE

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Abstract: *This article presents some aspects of the trajectory of Ana Maria Uribe (1944-2004)´s poetic works in the printed and digital media, indicating that the use of digital media meant an enrichment for her poetic communication.*

Keywords: *Ana Maria Uribe, Tipoemas y Anipoemas, El circo: El grand desfile, Escaleras y otros Anipoemas.*

1. OPENING WORDS

How is the reading of digital poetry? How to choose a poet or some poetry in order to present an overview of this kind of poetic creation, which brings artistic and technological aspects, in addition to poetic aspects?

We still have a few printed books on the subject in Brazil and in other countries there are many electronic publications such as articles, chapters and some books, but the approaches are quite varied and cover many poets, a lot of digital poems and, in several cases, the material that is found in floppy, CD, CD-ROM, DVD, sometimes difficult to access or to operate, especially when it is designed to a Macintosh and not to a PC.

Among the many existent possibilities of reading, this article was an option to study a course of a poet who passed through the printed and digital media, who knew how to exploit them properly and to produce a significant work.

The first version of this text, whose title was "Os (de)graus da poesia: do impresso ao digital [*The degree of poetry: from printed to digital media*]" (Antonio, 2005/2006), was written while Ana Maria Uribe (1944-2004) was alive, soon after an interview given to the author of this reading (Uribe, 2003). She read this article in its original form, she liked the focus, and began translating it into Spanish and English, but unfortunately, she did not finish her project.

Some time later, "Ana Maria e a dança das palavras [*Ana Maria and the words' dancing*]" was published (Antonio, 2004), shortly before her death, which occurred on March, 5. There were several international honors, some of them headed by Jim Andrews, other ones by people related to *Rhizome*. In 2005, the Mostra Internacional de Poesia Visual e Eletrônica (Mostra Internacional, 2005) [*International Exhibition of Visual and Electronic Poetry*] paid her a tribute. This article has also become a tribute to the memory of the Argentine poet Ana Maria Uribe (1944-2004).

2. INTRODUCTION

A work in three media - two handmade books, two editions of CD-ROM and a website - which began in 1968 as a printed visual poetry that became animated visual poetry in digital network and on CD-ROM from 1997.

The author, Ana Maria Uribe, was born in Buenos Aires, Argentina, in 1944. In the late 1960s, she created the *Typoems*, written with the typewriter Lettera 22 and Pica type. In

1997, she created the *Anipoems*, which were hosted on the Internet. She was a member of the international e-group *Webartery*[1] and participated in a number of national and international exhibitions, both real and virtual. To better understand the ideas and work of the author, the (e-)reader can enjoy the interviews, in English, given to Megan Sapna (Uribe, 2002), and/or to the author of this article in Spanish, English and Portuguese (Uribe, 2003).

In a very friendly language, the Canadian poet Jim Andrews, at that time coordinator of *Webartery*, then announced the beginning of the participation of Ana Maria in this *e-group*.

> Does anyone know this website?
> http://orbita_starmedia.com/~amuribe/typoems.html
> Anipoems of Ana Maria Uribe
> A number of works of visual poetry, varied and animated. It is in English and Spanish. I am surprised by not having accessed this work before[2], and it is online since 97.
> This is one of the pleasant surprises from the web, isn't it? There are always more artists around creating interesting works than you know[3].

In other occasion, Jim Andrews said:

> I received an Ana Maria's CD some time ago. It is like her website, but it is a full screen. The full screen is very well-used, in such way that the author catches our fully attention. In addition, the poems are very humorous and filled with a sense of the possibility of hand gestures. The gestures we make ourselves as humans, gestures of mutual understanding and acceptance, when we are in our best moments. Moreover, she has an amazing sense of the carnivalesque, and the poem on the screen as a performance (Andrews, 2002).

The delicacy of the small fonts and the sobriety of colors make the work enjoyable in several different ways: the book brings the charm of printed visual poetry, suggesting incursions into other media and languages; the access to the CD-ROM, in the two editions, is easy and pleasant; and the network browsing brings the same setting that invites to the reading.

3. THE BOOKS

URIBE, Ana Maria. *Tipoemas y Anipoemas / Typoems and Anipoems*: 1968-2001. Buenos Aires, Argentina: author's handmade edition, 2001. The cover has a white background, the typefaces are black and containing a set of words in various colors, with a title that arouses our curiosity: typoems (typographical poems?) and anipoems (animated poems?) At the bottom of the book cover, there is a frame of the work *The Circus*, which is not included in printed work.

The notes at the foot of each page are a kind of journal of the poems, always with a reference to the passage from the printed to the digital media. "En 1998 se convirtió em Anipoema./ In 1998, this became an Anipoem" (p. 7)[4].

The entire work is a sort of path that represents the three fundamental traits of the

[1] The Webartery egroup was funded in 1995, groups about 200 artists and poets from several countries and was coordinated by Jim Andrews (Canada): <webartery@yahoogroups.com and http://www.webartery.com/>.

[2] The surprise of Jim Andrews is real, since he is a great expert in art and digital poetry from several countries and browse a lot on the web.

[3] Translation and publication authorized by the sender of the email.

[4] Information about the poem "Burbujas".

poetry of Ana Maria Uribe: words to be viewed animated and voiced, which were printed and migrated to the digital medium, giving the idea that the web and hypermedia were the natural paths for her poetic expression. The animation is not just using the resources of a program like Flash, but it is the materialization of the gestures that letters and words produce, with the aim of producing meaning in addition to the aesthetic aspect of the use of white space, the transformation of letters and words in people and objects. The use of human voices sounds and noises complement this significance that shows the presence of the poet in her world.

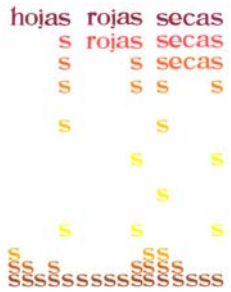
The black background of the site and CD-ROM is replaced by the white pages of the book that the author printed, sewed and glued by hand in order to be distributed to friends. In a bilingual edition (Spanish/English), the book gathers poems from 1968 to 1969 (Tipoemas/ Typoems) and 1997-2001 (Anipoems/ Anipoems), 27 poems in 50 pages.

The printed version of *Tipoemas y Anipoemas* presents the matrix Ana Maria's poetic creation: A word that points to the sound and to the visual, especially by the graphic-spatial use of the paper.

A concise language of few words, but great semantic density, this work covers various aspects of the society, in a language predominantly playful, sometimes comical, gentle, which leads to surprise, reflection and empathy.

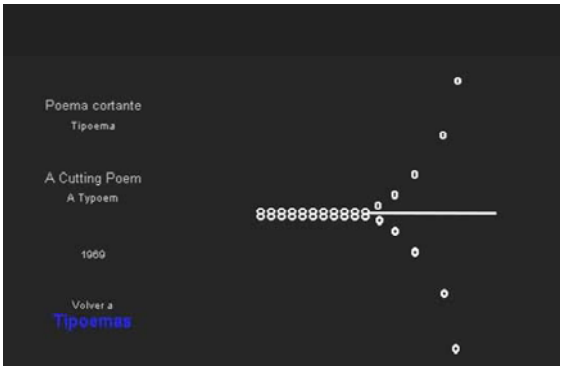
They are poems apparently simple, but of great significance, which produces surprise, delight, which provoke a smile, which seduce, intrigue, offer what is lucid, catch us by the simplicity, delight us by the lightness. They are aspects of the reality summarized in some words like: Bubbles, A View from a Train, Gimnasia, Se largó, A Train in Motion, Autumn, From Parmenides to J.-P. Sartre, Bowling, Guggenheim Museum, Red Dry Leaves, among others. Each word contains a theme that can be understood as a word-theme or word-world.

The poems are more than just printed words: in "Hojas Rojas Secas [*Dry Red Leaves*]" (p. 16), for instance, the colors (maroon, red, yellow and brown) and graphic-spatial distribution of words indicate the passage of time and leaves' movement.

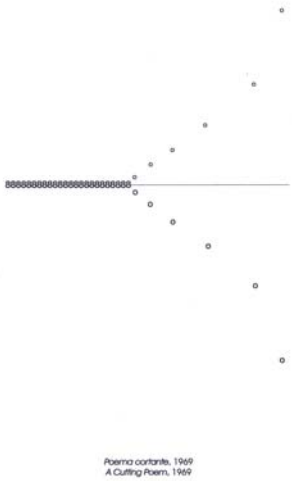


Hojas Rojas Secas, 1968
Dry Red Leaves, 1968

Este poema fue escrito inicialmente con una Letterа 22 con el tipo Pica y más tarde estampado con sellos de goma como afiche en colores. Finalmente se transformó en un poema animado.
This was first typed with a Letterа 22 in the Pica font and later stamped with rubber blocks as a color poster. In 1997 it evolved into a Web animated poem.

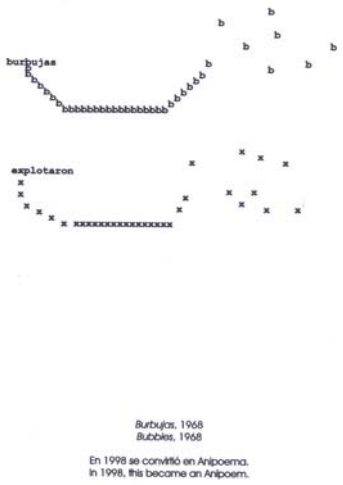


"Poema cortante / A Cutting Poem" represents the limit of the media and the fusion of languages, aspect that characterizes the work of Ana Maria: A set of letters "o" forms the handle of a blade (knife? dagger? sword?) formed by a long dash, while from both sides of the hand of the blade the letter "o" is formed. Is it an "o" (= oh!) of admiration because of the discovery of languages fusion?

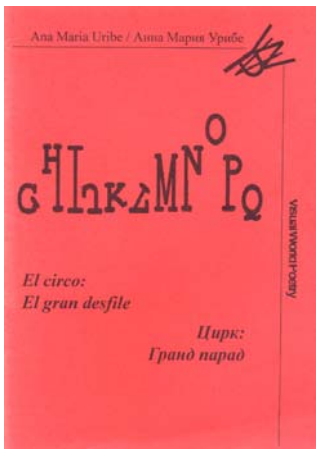


Poema cortante, 1969
A Cutting Poem, 1969

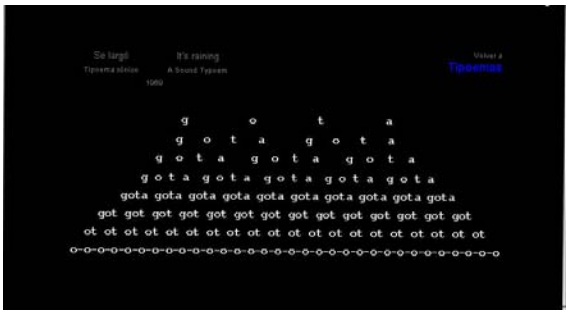
"Burbujas/Bubbles" embodies the meaning of the words (Burbujas explotaron), so that through the spatialization on paper emerge word-images. In the mind of the reader, it is implicit the sound and motion, enabling a view that is completed with the sense that the reader will create based on a set of signs with plurisignification.



URIBE, Ana Maria. *El circo: El grand desfile*. St. Petersburg, Russia: limited edition from Eter Panji, [2003]. "Visual World Poetry" collection.



Black letters on red background on the cover, Roman characters that mingle with the Cyrillic characters from Russia, one of several unnumbered volumes of the "Visual World Poetry" collection, edited by Ether Panji, limited publication of 50-60 copies, which runs the country as an alternative work of the authors such Clemente Padin (Uruguay), E. M. de Melo e Castro (Portugal), Friderich Achlietner (Germany), Heinz Gappmayr (Austria), John M. Bennett (USA), Klaus Peter Dencker (Germany), Lawrence Upton (England), Thiago Rodrigues (Brazil), among others.



Ana Maria chose sixteen poems from *The Circus*: *The Grand Parade* to present her visual poetry, now in printed medium. As in her Argentine book, here the cyber/reader observes verbal structures distributed on the white space of the sheet of paper and determine meanings through his/her view. Often neither the title nor the lyrics give us clear meanings: they are built from our entry into the Uribe's world of letters.

It is obvious in this case that the visual poetry exists and, in some ways, is independent from the animated poetry existing at the website of Ana Maria Uribe.

4. THE CD-ROM

Ana Maria Uribe. *Escaleras y otros Anipoemas: poesia visual animada / Ladders and other anipoems: animated visual poetry*. (Buenos Aires, Argentina, author's edition, 2001) 1 CD-ROM. Windows 95/98/ME/XP.

This CD is characterized by an economy of color and words, a moderate use of Macromedia Flash. The resources of hypermedia are the means of expression, a way of communicating the art of the word, not an effect in itself.

Works reread, retaken, and selected by the author herself. A reflection on her own poetry: what is left and still worthy, since 1968? An anthology of her own work. The reader-browser, even knowing this, can just enjoy the poems and not pay attention to this aspect.

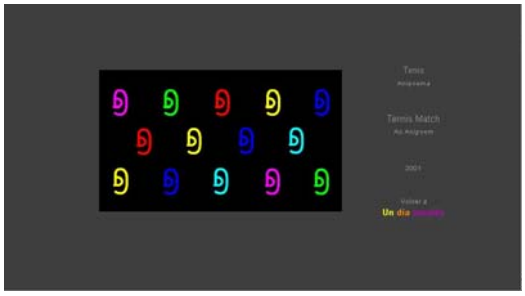
This CD-ROM gathers works of Typoems (1968-1969), Anipoems (1997-1999), Anipoemas y un tipoema tardio (2000-2001), The Circus (2000-2001), totalizing 61 poems.

What is different in the almost the same work on CD-ROM? What elements can the hypermedia add to the visual poem that already exists? Let's use as an example "Burbujas/Bubbles": on the printed book, the letters indicate that there is/was/will be movement, while on the CD-ROM the movement is materialized and is emphasized by the sounds of bubbles popping, which the reader has to imagine while reading the visual poetry.

Instead of turning pages, the reader-operator clicks on links that indicate ways in the cyberspace of the hypermedia page.

The same spaces are reread and become different. It was a meta-linguistic exercise for the author and may be something similar to the reader who has the CD-ROM, website and book. For those who use the CD-ROM or web, the experience is unique, and we can say that the work will please even without the proportional comparison provided by different media.

The advantages and disadvantages of using the CD-ROM and website remain: the first is a "book" that we keep on our bookshelf and can be "reread" at any time while the website depends on the possibility of access, but provides us a work that is constantly updated, but that is so volatile that can "disappear" (if the server stop providing access, and we are not able to reread it, unless we record it in our PC or Mac).



URIBE, Ana Maria. *Escaleras y otros anipoemas: poesia visual animada / Ladders and other anipoems: animated visual poetry*. 2.ed. Buenos Aires, Argentina: author's edition, 2002. 1 CD-ROM. Windows 95/98/ME.

The second edition consists of the following works: Typoems (1968-1969), Anipoems (1997-1999), Some Anipoems and a Late Typoem (2000-2001), The Circus (2000-2002), A Busy Day (2001-2002), totalizing 69 poems. New poems are added to *The Circus*: *anipoema por entregas / An Anipoem by installments*, and the author presents *A Busy Day*.

The translation into Portuguese of *The Circus: An Anipoem by Installments* (O Circo: um poema em episódios) where is presented once again the synthesis ability of the author, because life in episodes, for her, is a structure of some words, sounds and movements in the printed, digital and multimediatic media. These few words, structures, and several associations of ideas and meanings are shown to the reader-operator through the titles of the poems: The Grand Parade, Skirmish, Malbaristas, Trapeze, Balance, Balance2, Trapecio, Los animales, Los payasos, Los zancos.

5. THE WEBSITE

URIBE, Ana Maria. *Tipoemas y Anipoemas*. Buenos Aires, Argentina; author's, 1997-2003. Translation: Markko

Niemi (Finnish) and Adrian Lesenciuc (Romanian). Available at: <http://amuribe.tripod.com> and also at: <http://www.vispo.com/uribe/index.html>

The work was translated into English by the author. In 2004, Markko Niemi translated into Finnish the whole website , and Adrian Lesenciuc translated the *Typoems* into Romanian.

A *homepage* divided into five lexical units: Title (Typoems and Anipoems), followed by the name of the author, the indications of a bilingual work (English and Spanish), plus the publication date and copyright. In a quick reading, the reader-browser gets to know the entire content of the website accessed. The other link presents the poem and provides the path forward or backward to another poem, new or not.

The *homepage* is almost a page of a book cover, a lean "cover" with black background and text in white and lilac-gray, almost because there are animations and sounds that do not "belong" to the printed book.

The ticking noise of the clock marks the reading time. It is a loud and repeated noise that invites the visitor to continue their path, not to stop, to read more and more. The title and the details of the English versions scramble and make then legible, which draws the attention of the cyber-reader.

The graphic design of the typography used and the colors present letters (N, P, H) in colors (light blue, dark blue, lilac, green, red) that indicate joy and humor in the printed media. The sound and movement of them offer the circus.

A website of easy navigation: The links takes us very quickly to the pages that we want through icons; The hypertext is developed this way, in the sequence of readings that our interest delineates. Accessing the parts of the website seems to be the concern of the author: the paths are clear, easy and enjoyable. There are no large files that take too much time to be loaded/accessed. The same simplicity is expressed in concise words and effects and is repeated in the preparation of the website, which reveals softness, sweetness and an invitation: the electronic reader wants to see more. The few clicks recommended by Jakob Nielsen (2000) to get the information in a commercial website seem to fit the kind of poetic communication that the author intends to achieve.

Sounds, noises and voices accompany all spatialized words moving. It is curious that the repetition of sounds at the end of each animation leads us to seek other paths, somehow motivates us to see the whole website, and also invites us to follow the dynamic pace, but not hit, of the animations. And the click-read (which is not like turning the pages of the book) is an adventure of spatialized words, sounds and images filled with many cultural references.

6. THEMATIC GROUP

A thematic group runs through the Typoems and Anipoems: a course by the aspects of life through words-titles and words-images, since the visual, sound and animation produce another syntax (it would be the digital or hypermedia syntax, the result of interacting links and languages?). Thus, we have the nature (Waterfall, Autumn, Winter, Spring, etc.), the city, the circus, the discipline, the tennis, the orchestra rehearsal, the train in motion, the busy day, episodes seemingly fragmented of our daily hlife. The look of the author creates a kind of journal by keywords.

The shift from printed to electronic media was not only an update of media, but also a need for poetic expression and

communication. Uribe would certainly write object-poems in the third dimension, poems-sculptures, maybe she would turn them into videopoems if she had not chosen the digital medium.

Similar procedures can be noticed in the work of E. M. de Melo e Castro, Jim Andrews, Augusto de Campos, Sérgio Capparelli and Ana Claudia Gruszynski, Arnaldo Antunes, David Daniels (1933-2008), Clemente Padin, among others, who joined the digital medium in order to make it an ally aiming at improving the form of poetic expression.

The work of Ana Maria Uribe, in any media, is aimed at students of the Languages Course, at scholars of contemporary poetry, at people who appreciate good poetry, regardless of the classification it may have. Two titles of her works - Typoems and Anipoems - contribute to the new names of digital poetry, such as "vpoem" or virtual poem (Ladislao Pablo Györi, Argentina), click poetry (David Knoebel, EUA), "infopoetry" (E. M. de Melo e Castro, Portugal), langu(im)age (Jim Andrews, Canada), Palm Poetry (Fatima Lasay, Philipines), "interpoetry" (Philadelpho Menezes e Wilton Azevedo), among others.

A world in words and of words seem to be the synthesis of the author's work, whose four editions reveal the same aesthetic aim over time, pointing to the transformative power of the poetic word in many different means.

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NOTES FOR AUTHORS

When editing the articles which are to be published in the review some rules will be respected as follows: the whole paper must be written with no free space between lines using the Times New Roman CE; the margines of the text: Top – 28mm, Bottom – 20mm, Inside – 25mm, Outside – 20mm, Header – 18mm, Footer – 15mm, Mirror margines activated, Paper format A4 210X297)

The paper will have an even number of pages (maximum 6). All pages will be sent to the e-mail address of the Academy.

The title will be printed in Upper cases 14pt, bold, centred.

The name of the author will be written two free spaces below the title of the paper: First name, surname, font 12pt, bold, centred. A free space (12pt) below the name will be left before writing the name of the institution of the authors', font 11pt, centred.

Papers must be prefaced by a brief abstract in English up to 150 words. The text will be written in 11pt high, Italic, justified, left-right alignment.

A number of maximum 8 keywords will be written 12pt below the abstract. The words will be 11pt high, Italic, lef alignment, separated by a comma.

The text of the paper will be written in English two free spaces below the keywords devided into two columns separated by a 5 mm free space. The characters will be 12pt high, justify (left-right alignment).

The main parts of the paper will be introduced by numbered titles with Arabic figures and printed in capitals, font 12pt, bold, centred. A free space will be left above the text and another one below it. Paragraphs will be 6mm indented.

Drawings diagrams and charts will be separated by a free space from the text and be printed as close as possible to the first reference. Their width will not exceed that of the column they belong to. Should this be impossible to achieve then they will be printed across the whole breadth of the page either at the top or the bottom of the page.

Diagrams and charts will be numbered by using Arabic figures and will be accompanied with captions. Ordinal numbers and figure captions will be printed leading of free space 8pt below the drawings, centred, font 11pt.

Ordinal numbers and the charts explications will be printed above the chart, right alignment, font 11pt.

Mathematical formulae will be printed 6mm left alignment. Ordinal numbers will be printed within round brackets right alignment. Characters will be Times New Roman straight: Full - 12 pt.; Subscript / Superscript - 9 pt.; Sub-Subscript / Superscript - 7 pt.; Symbol - 16 pt.; Sub-Symbol - 12 pt.

Long mathematical formulae will be broken up so as not to be wider than the column or they can be printed integrally on the whole width of the page either at the top or bottom of the page.

Names of firms will be printed in Upper case, straight and the names of military technology products in Upper case, Italic. Neologisms, already accepted and registered in DEX will be printed in regular characters. Those which have not yet been registered in DEX will be printed in Italic.

Bibliography will be printed in the alphabetical order at the end of the article and will be numbered in Arabic figures. The text will be left alignment, 6mm indented. The titles of the reference articles, books and papers will be printed in Italic.

Bibliography will be printed alphabetically, for the first author of the quoted papers. In case of quoting a paper in its editio princeps, the year of publication will be printed between round parentheses. In case of quoting a different edition, the year of the editio princeps will be printed between square parentheses and the quoted edition should be printed between round parentheses. In case of quoting translations, the name(s) of translators will also be mentioned. In case of quoting an author more than once, papers will be ordered as follows:

(1) the year of the editio princeps,

(2) name(s) of co-author(s).

In case of quoting an author with two or more different papers published in the same year, the papers will be mentioned as they appear in the paper by adding *a, b, c etc.* in front of the year of publication.

Bibliographical references will be inserted within the text, using Arabic figures and following the order of their quotation, between round parentheses, according to the Harvard system – "author-date": (Name of the author, publication year: page/pages). Examples: (Cook, 2001:14), or (Cook, 1975/2001:14), or (Harris, Johnson, 2010:167-180), or (Mattis *et al.*, 2008:98), or (Walter, 2009), etc.

The authors take full responsability for the contents and scientific correctness of the paper.