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Land Forces Academy Review
Vol. XXIII, No 3(91), 2018

THE REFLECTION OF SPECIFIC ELEMENTS OF TECHNICAL CULTURE IN THE MILITARY MANAGEMENT PRACTICE

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ABSTRACT

This article discusses some key aspects of the military technical culture on the basis of theoretical considerations and on the basis of preliminary research based on the questionnaire, with topics specific to the technical systems management issues. Although specialized literature does not provide enough theoretical evidence to investigate the problem, the setting of characteristics and components based on the military organization's specificity in terms of the theory of capabilities is actually achieved as a national contribution. These aspects are analyzed in the wider framework of modern military managerial practice, while outlining the contribution of a robust level of the technical culture to the achievement of managerial performance.

KEYWORDS: technical culture, military organization, management

1. Place and Role of Technical Culture in Management Processes and Practices

As mentioned earlier, there is little reference in the literature on the definition of what technical culture means. Approaches sometimes use synonymous phrases, such as technical culture, technological culture, and technical intelligence. A point of view worth mentioning in trying to identify a working definition is that of Waldemar Lib (2010, p. 55), who, after examining various opinions, especially at national level, considers that *"... technical culture encompasses the level of social awareness depicting the assessment, opinions and outlooks on the technical system and its particular elements, as well as their results, knowledge, skills and habits that are important for a given society in accordance with the functioning of the system of*

DOI: 10.2478/raft-2018-0026

values". We also considered useful researching various sources in which the organizational culture was defined and we selected, according to the objective of our scientific approach, the definition given by Schein E. (1992), who is frequently quoted in the literature, which highlights a pattern of fundamental shared assumptions by which the group learns how to solve problems of external adaptation and internal integration, how to work well enough to be valid and therefore instruct new members to perceive the action properly, to think and feel the same in relation to the problems they have to deal with. Analyzing the exemplified approach, implicitly, we can see that the problems of external adaptation and internal integration can be and are increasingly linked, due to the current civilizational context and technical aspects, to the fact that the effectiveness of a lucrative approach also depends on the technical level embedded, that the training of new members for the correct perception of organizational processes is in close correlation with a minimal level of understanding of some technical aspects. The products and services, with obvious technical elements contained, are components of the culture of the organization, which through the perceptions and understanding of meanings will also provide feedback on the content of the culture (Burduş, 2012). Generally speaking, it also supports the idea that, from the point of view of the functional areas, the organizational culture comprises, in systemic sense, the technical culture, the financial culture, the ecological culture etc. Also, in arguing the idea of including the technical culture in organizational culture, Morgan's technical highlight can also be highlighted by the metaphorization of the organization as a machine. Last but not least, it can be argued that the developmental nucleus of each determinant wave through which the global society has passed, as expressed by A. Tofler, was built and differentiated also by technical elements.

Returning to the military environment for which the analysis is proposed, we emphasize that in any military process, two elements are essential for the realization of the specific activities, namely, man, in the position of executor or decision-maker in a certain hierarchical structure and the fighting technique, with a diverse typology. The objectives of the military organization can not be planned and realized, regardless of the possible state of society (peace, crisis, war) without proper functionality of this binomial. This further means a certain adjustment of technical possibilities to the possibilities of operation and vice-versa, an adjustment of the human effort to the challenges of the technique, as accepted by this desideratum and within the socio-technical theory. We advance on this branch of the logic of military system performance the idea that there is a need for a minimum acceptable level of technical culture, regardless of the position of the individual in the military hierarchy, age, gender etc. In all training programs of military personnel there are individualized disciplines with technical character, knowledge, exploitation, use in the joint environment, etc. In the theory of military capability, processes, people, and technique are interdependent, mutual interdependencies between fighters and technique in processes contributing to substantiating the transition from capacity to capability.

The technical progress leads to the updating and upgrading of the technical culture, the impact of technical progress on the military phenomenon being that it offers the possibility to make available to several decisional and execution stages, concurrently and in real time, a significant volume of data, which allows both obtaining and selecting the most useful information at every moment and at each level, and creating the premises for taking the most grounded decisions (Epure, 2014).

Before presenting some specific aspects of technical culture in the military

organization, as perceived by a low volume of respondents, the research value we define culture military equipment as all minimum necessary theoretical and practical knowledge, accumulated in an interdisciplinary manner, through personal or institutionalized training, throughout their careers, on the structure, operation and use of technology and military equipment, in particular, in different actionable contexts, internalized by military personnel capable of meeting specific performance standards.

2. Case Study

For the particularization of the theoretical aspects presented above, there are still some results obtained by applying a questionnaire to the participants (30) at postgraduate level courses held in the Academy in the second semester of the academic year 2017-2018. The application of the ANOVA test to verify the statistically significant differences in the level of familiarization of subjects with the concepts under analysis in this questionnaire, depending on their original branch of service (specialization), highlighted the issues presented below.

There are significant differences between the level of familiarization of subjects with the *risk* concept (F = 3.76, p = 0.16). The means obtained by each specialization are shown in the graph below.

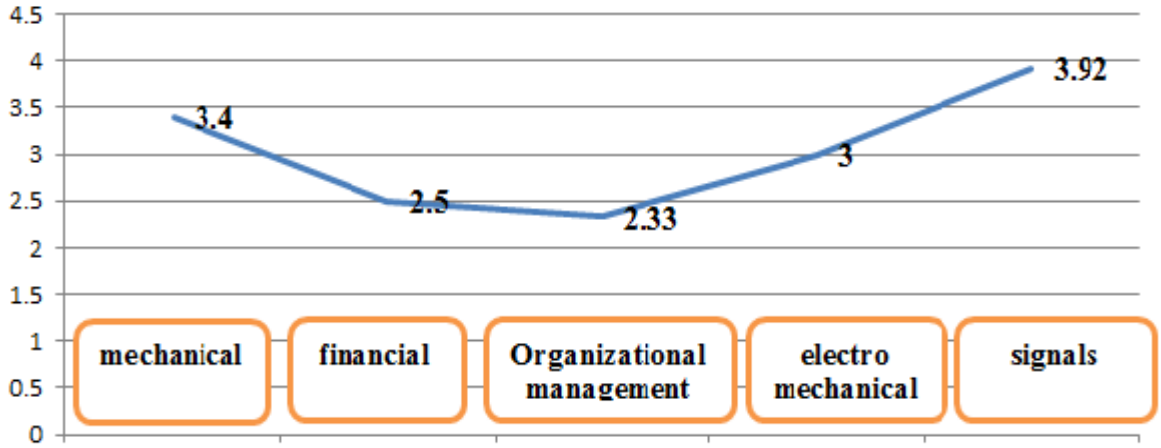

Figure no. 1: Perception of the level of familiarization of subjects with the concept of risk

There are significant differences between the level of familiarization of subjects with the concept of *performance standard* (F = 4.52, p = 0.007), aspect reflected in Figure no. 2.

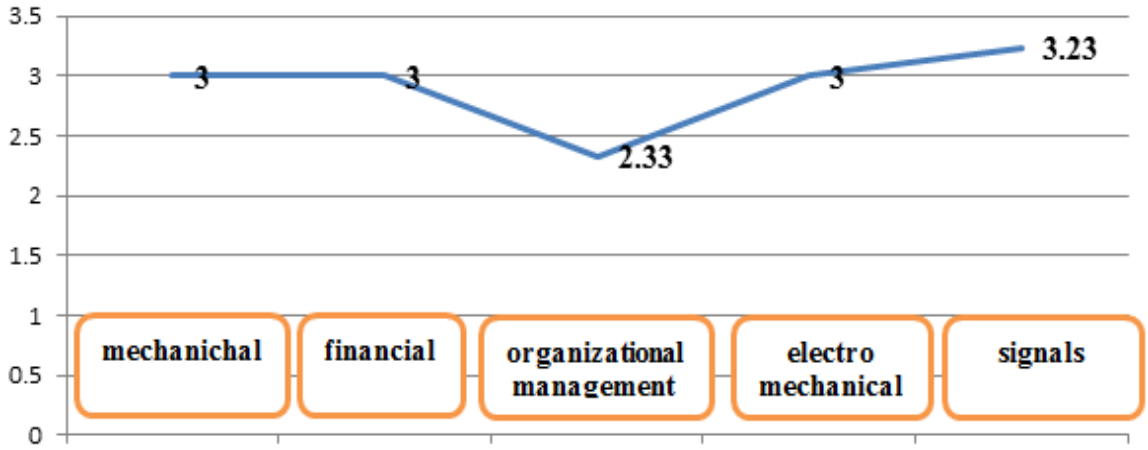

Figure no. 2: Perception of the level of familiarity of subjects with the concept of performance standard

As a result of the ANOVA test, we found that there are statistically significant differences in the *pleasure with which subjects are interested in current technical issues specific to the military environment*, depending on their initial specialization (F = 2.78, p = 0.048). The means obtained by each specialization are shown in the graph below.

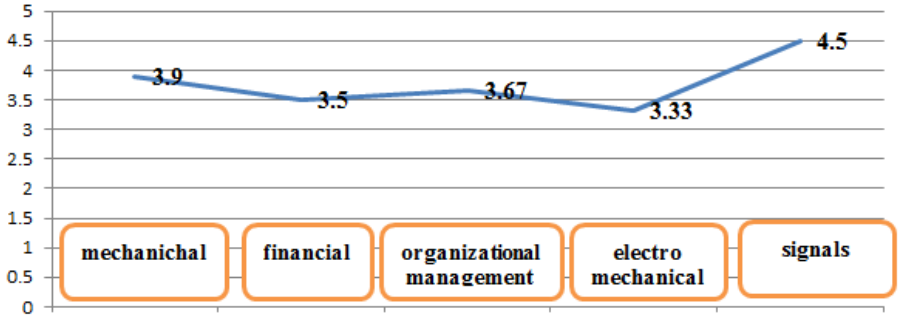

Figure no. 3: Appreciation of interest for topical technical issues

There are also statistically significant differences in the importance given by subjects to the *Technical and Technological Progress* criterion for judicious analysis and highlighting the possibilities to improve the performance of the user-weapon platform-environment system depending on their original branch of service (specialization) (F = 2.79, p = 0.048). The means obtained by each branch of service (specialization) are presented in the chart below.

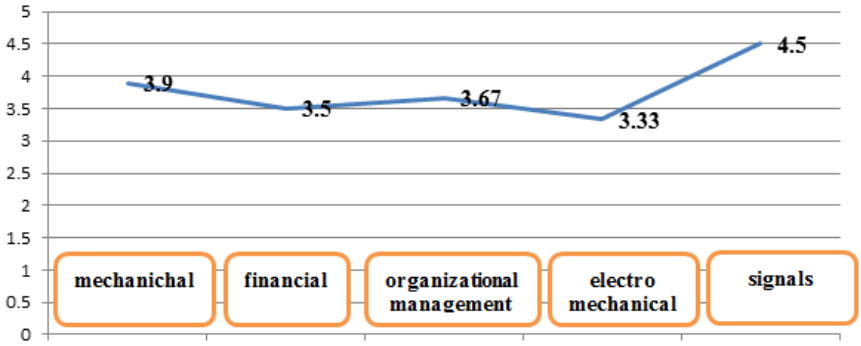

Figure no. 4: Appreciation of the importance of the technical progress criterion in the performance management of military technical systems

As the age of the surveyed persons grows, they are convinced that when designing a safe, operational system, a *system failure should be avoided* (r = 0.48, p = 0.006); also with aging decreases their conviction that *system failure tolerance* (r = –0.48, p = 0.006) should be addressed.

There is a positive correlation between the *experience* of the subjects and *the pleasure with which they are interested in the current technical aspects of the military environment* (r = 0.36, p = 0.049).

As the experience of the subjects decreases, the significance given by them to the criterion *Discrepancy between the possibilities of the human body and the level of the technique development* (r = –0.36, p = 0.047) and the *Risk of injury and the cost of human error from the point of view of progress towards the respective military organizational context* (r = –0.41, p = 0.027) for judicious analysis and highlighting the possibilities for improving the performance of the user-weapon platform-environment system.

The pleasure with which the subjects are interested in the current technical aspects of the military environment correlates positively with their familiarity with the concept of *maintainability* ($r = 0.52$, $p = 0.003$), *risk* ($r = 0.38$, $p = 0.037$) *performance standard* ($r = 0.54$, $p = 0.002$) and *smart defense* ($r = 0.39$, $p = 0.033$).

The higher the level of familiarity of the subjects with the *concept of reliability*, the greater the importance they attach to the criterion called *concentration on the human factor* in the analysis of the mode of occurrence and propagation of human errors ($r = 0.38$, $p = 0.037$).

The higher the level of familiarity of subjects with the concept of *smart defense* is the greater the importance they attach to the criterion called *concentration on the relationship between the technical factor and the human factor* in the analysis of the occurrence and propagation of human errors ($r = 0.39$, $p = 0.031$).

The higher the level of familiarization of subjects with the *concept of resilience*, the lower the importance they attach to the criterion called the *evolution of human conception on professional life and the quality of life in general* in judicious analysis and highlighting the possibilities of improving the performance of the user-weapon platform-environment system ($r = –0.42$, $p = 0.019$).

The more *risk-sensitive* and *smart defense* subjects are, the greater the importance they give to the criterion called *technical and technological progress* in judicious analysis, and highlighting the possibilities to improve the performance of the user-weapon platform-environment system ($r = 0.47$, $p = 0.009$ and $r = 0.43$, respectively, $p = 0.016$).

Persons who believe that *in the university (bachelor's, master's) degree programs the approach to technical and technological issues must be made mandatory by integrating aspects specific to management science,* considers that *greater focus on technical factor* in the analysis of the appearance and propagation of human errors should be given ($r = 0.40$, $p = 0.025$).

Persons who consider *it is better to prevent than to treat* believe that *greater focus should be put on the relationship between the technical factor and the human factor* in the analysis of how human error occurs and propagates ($r = 0.39$, $p = 0.030$).

Persons who *are happy to be interested in the topical technical issues of the military environment* give greater importance to the criterion called the *interdisciplinarity of the methods used* in the judicious analysis and highlighting the possibilities to improve the performances of the user-weapon platform-environment system ($r = –0.38$, $p = 0.036$).

Persons who consider that *the approach to technical and technological problems in the university degree programs (bachelor's degree, master's degree) must be made mandatory by integrating aspects specific to management science* give more importance to the criterion called *interdisciplinarity of the methods used* ($r = 0.39$, $p = 0.030$) ($r = 0.7$, $p = 0.048$) in the judicious analysis and highlighting the possibilities of improving the performance of the user-weapon platform-environment system.

The greater the importance given by the questioned subjects to the criterion called *focus on the technical factor* in the analysis of how human error occurs and propagates, the greater the importance it attaches to the following criteria for judicious analysis and highlighting the possibilities for improving performance of the user-weapon platform-environment system:

- *the evolution of man's conception of professional life and quality of life in general* ($r = 0.49$, $p = 0.005$);
- *technical and technological progress* ($r = 0.39$, $r = 0.030$);

– *interdisciplinarity of the methods used* (r = 0.48, p = 0.007).

The higher the importance of the questioned subjects to the criterion called the *focus on the relationship between the technical factor and the human factor* in analyzing the way of occurrence and propagation of human errors, the greater the importance it attaches to the following criteria for the judicious analysis and the highlighting the possibilities to improve the performance of the user-weapon platform-environment system:

– *technical and technological progress* (r = 0.44, r = 0.015);
– *interdisciplinarity of methods used* (r = 0.48, p = 0.001).

3. Conclusions

The results obtained through questionnaire-based research potentiate the idea of developing complex studies on this segment, a difficulty being the capture of the technical and human interoperability aspects between military specialties. Also of great interest is to divide the research on different areas of experience, with benefits on the transfer of expertise.

Depending on the level of technical development of a branch of service (military specialty), a higher level of technical culture can be assumed. Currently, the IT vector is essential, weapon systems having such a module implemented in different technical manners. A consequence of this development is the need to use e-learning systems in training (Virca, Oancea & Gligorea, 2017), which is a favoring factor for the development of the technical culture. It is to be expected that future generations will have a more developed level with respect to this subcomponent of the technical culture determined by IT development, but the issue that should be had in view is to maintain a balance of performance, between the acquisition of theoretical technical knowledge and the practical part. Many of the results of this study demonstrate this, with respondents in the field of communications and informatics perceiving the technical aspects better (see Figures no. 1 and 3).

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