

Organizational learning: How learning models can be more effective under the shadow of fiscal crisis

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The current financial crisis in Greece has led to the creation of an unfavorable external economic environment for all the organizations, threatening directly their sustainability. This study, through a critical literature review and an empirical study, examined the learning process in the case study of the Hellenic Army Land Forces and reached the conclusion that a structural transformation and the adoption of a modern concept are required in order the learning process to be facilitated and become more effective and efficient. However, the particularities that the Armed Forces present as organization, require further research for the development and implementation of a military learning model. The study provided the theoretical background and proposed appropriate methods and tools that can potentially be used in the examined case indicating that there are strong evidences that the Hellenic Land Forces has the proper infrastructure that could facilitate the restructure and development of a relevant learning model. Nevertheless, the adoption of special management processes are required enabling Army to correspond to current learning needs.

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1. Introduction

The continued economic crisis in Greece has influenced in different ways and various aspects all sectors of Greek society with substantial negative effects at all levels. The crisis situation unavoidably has affected all kinds of organizations and especially the governmental ones, among them Armed Forces, mainly because of severe state's budget cuts. It is worth mentioning that the overall cuts between the fiscal years of 2010 and 2016, for the Ministry of Defense (MoD) were almost 25%. Nevertheless, Armed Forces consisting one of the major factors for state's high strategy, have to remain powerful not only by preserving their current operational status, but also by increasing continuously their effectiveness and capabilities. However, one of the main factors for a successful Army mission completion is the training and learning. So the key question focuses on the implementation of effective and efficient training and learning process, which enable Armed Forces to obtain the required capabilities. Army training is a really complex, multi-dimensional and costly issue. It is a continuous process, never ends. It includes various levels and stages, spanning from initial basic military training for those who first time join the army, to gradually increased training

for the acquirement of high competence and the process of its sustainment and maintenance. Moreover, the insertion of new technologies, new army tactics, the continuously changed security environment and the need for education on matters out of the military sector, demand for further training and learning as well as a continuous adaptation and change of culture. Another factor that affects training is the differentiation regarding the Army personnel composition. Indicatively, Hellenic Armed forces include non-permanent personnel who obliged to serve in army for a certain time period; officers and noncommissioned officers (NCOs) with various professional relationships as well as male and female Soldiers. Additionally, training in Army most of the times requires significant dedication and spending a lot and various resources, such as bulk consumption of fuels, ammunitions and use of expensive equipment.

Modern practice strongly proposes that organizations must be in a continuous process of changing towards adaptation to their external environment, in order to become more efficient and effective for fulfilling their mission and achieving their goals more successfully. In the case when organizations are challenged to operate within a crisis environment, the need for fast changing and adaptation is getting extremely necessary, aiming first of all to their viability and survivability. To this end, current literature and researches indicate that organizations have to learn continuously. As research findings on learning in Army, as learning organization, are very poor this constitutes a challenge for further study on it. The challenge is getting bigger when we try to explore the issue with regard to a nation's Army specifically. Easily we can find out that although there are similarities, there also substantial differences among different nations' Armies. This by itself constitutes a specific research field. Considering that in related literature there is almost nothing about military organizations that have to operate in peacetime period but have to deal with a crisis which affects dramatically its operations, whereas, related literature on the issue is too rich concerning other than military organizations. Due to these facts, the topic was examined through a two folded approach: 1) How organizations in sectors other than military ones, react under crisis situations focusing on learning process, 2) Secondly, at what extent Army presents similarities to the above organizations in order to use their experience for adapting/improving its learning model. The above two approaches, it is believed, when they are linked together might lead to a theoretical platform that can work as a general context for the development and directions for appropriate courses of action, that Hellenic Army Land Forces can be based in order to improve their learning model. Under these views, the research does not intent to gauge the current learning capabilities and shortfalls of Hellenic Army but mainly to show whether it has at its disposal the background, infrastructure and culture, fulfilling the appropriate assumptions to improve its learning capabilities. Of course, the issue is very broad and must be examined from many different and specific aspects; a fact that triggers for further research on the field with regard to the Greek reality.

1.1 Research questions & objectives

The aim of the research is to examine the learning model of Hellenic Land Forces (referred also as Army from now on) and what could be the methods, assumptions, mechanisms and tools that could be used in order this model to be improved, as well as to reduce cost and work as a force multiplier. The main research questions are:

- Does the Army organization present any similarities with other business organizations?
- Does the current learning model facilitate and fulfill its goals?

- What are the modern trends on organizational learning and how these could be applied in the Hellenic Army Forces?

The objectives of the study are:

- To provide the theoretical background on learning management in organizations and how it can be extended to the Greek Army,
- To propose a methodology in order Hellenic Army Land Forces not only to reduce and save resources that reflect to economic limitations but also to achieve results that eventually can upgrade their learning and operational capabilities.

Regarding the methodological approach, this study mainly falls into the qualitative research, due to the fact that it attempts to investigate the topic “*from inside out*” (Jonker and Pennink 2010, pg.77). Additionally, qualitative research approaches are more accepted in social sciences and business researches based on the assumption that humans’ and organizations’ behavior cannot always hold and be isolated as in the positive sciences occurs. The present study tests existed theory following to some extent a deductive approach (Greener 2008, pg. 16). The applied instrumentation regarded a questionnaire, utilization of secondary data, a case study. This research is organized in six sections: 1) the introduction, 2) general literature review, 3) review of organizational learning and learning organization concept and the main elements for organizations’ transformation namely, leadership and culture, 4) review of the contemporary trends of learning in the military context, 5) presentation of the case study and findings 6) Conclusion The key conclusion of the study is that learning within organizations is a critical element in order they to increase their competitiveness and be adapted faster in their environment. It proposes benchmarking and imitation methodologies at the initial stages taking under consideration the inherited reduced cost and lower risk implementation.

2. Literature review

2.1 The organization’s environment & organizational crisis

The continuous and fast changing today’s environment force organizations to examine continuously the environments within they operate. The *external environment* involves all the outside factors that can affect the organization. It can be conceptualized as having two layers. The outer environment includes the economic, legal, political, international, natural and technological factors. The layer that is closer to the organization includes the factors that influence immediately the organization’s performance and routine life. These are: the competitors, the suppliers, the customers and the labor market. With regard to the army environment the external environment in military terminology is known as “*operational environment*” and examines the security aspects and threats to a nation. The *internal environment* concerns all the factors that affect an organization and they are located within its boundaries. It involves the corporation culture, the management functions and the organizational members (Daft, 2009). Although many scholars have defined the term of organization crisis, there is not a dominated definition concerning the organization crisis (Simola 2005). (Burnet (1998 p.g. 476) defines it as the “*disruption that physically affects a system as a whole and threatens its basic assumptions, its subjective sense of self-existential core*”. Crises might have direct and severe impact on an organization (Pearson and Clair 1998; Wang 2008) where a prolonged crisis period is possible to provoke a general “legitimacy crisis” as long as the influenced individuals start withdrawing their support and loyalty towards their leaders and decision makers (Shrivastava et al 1998). Although it is considered unlikely to develop principles that can be implemented to all kinds of crises in order to

avoid or manage them, there is a sufficient portion in literature that proposes comprehended analyses that can be applied to most types of the crises. (Burnet 1998) refers to a sequence of events about how a crisis can be evolved. He argues that, a crisis is beginning with an *incident*, going on with an *accident* being followed by a *conflict* situation and eventually it is concluding with *crisis*. According to analyses of related case studies there are common difficulties associated with an organizational crisis and its management. These difficulties mainly are condensed in the side effects of a crisis (individual psychological issues, political, social and economic implications), the insufficient time to learn and plan. The latter can explain satisfactorily the paradox of crises. While there is a full awareness of the negative effects when a crisis is broken out, there are not certain or defined strategies to confront it. This is the reason why many organizations find themselves in weak position when crises occur. (Pearson and Clair 1998), (Simola 2005), (Woeste and Heath 2007), (Wang 2008).

Concerning the above, crises' analysis can be based on key aspects focusing on 1) Causes, 2) Consequences (Shrivastava et al 1988), 3) Cautions, 4) Coping (Prugsamatz, 2010). Another thing that characterizes a crisis situation is that in the most of the times its causes are identified in clear performance gaps (Kim, 1998). There are plenty of case studies provide us with findings where organizations and their members appeared a trend of changing during their lifetime losing gradually their capability and capacity to learn; create and assimilate new knowledge. During a crisis period the organization starts a conversed course form the performance mode to a learning one (Simola 2005), by becoming more flexible, moving away from formal structures and opening communication among organization members. In this context, it can be said that while a crisis is a negative situation and unpopular phenomenon in management, it can offer excellent opportunities for an organization driving to the better by offering powerful triggers for changes and learning. (Kim 1998). Learning contributes to an effective crisis management through which individuals and organizations shift towards to changes of their behavior and culture (Wang 2008). This happens because, normally, during a crisis new information related with the created situation insert in the organization. For example, constructive and thorough analysis of crisis causes, can add new knowledge in organizations since members are getting more motivated and more open to adopt and proceed with changes in order to reduce the forces that maintain the present behavior of organization (Cumming and Worley's 2005; Wang 2008). All in all, an organization which adopts a learning culture is equipped with new knowledge and skills, enables it to cope with current or future potential crisis.

2.2. Training, knowledge and learning

Training is the process whereby people try to acquire new capabilities and skills. (Michiotis 2005). In the frame of an organization the training efforts aim at increasing employees' contribution to the achievement of its goals and objectives (Dessler 2002). In a broader meaning an individual is undergone training in order to gain specific knowledge and skills as for use in his current and future jobs (Dessler 2002). In the today's environment that is characterized by rapid changes, especially in the area of technology, training plays an important role in organizations' success, requiring from their members to learn continuously new skills. To this end, it is essential a modern organization to provide its members with well-planned and effective training. A well designed training process includes the following steps (Noe et al 2010): training need assessment, readiness for training, plan of training, implementation of training, evaluation and follow up for improvement.

Knowledge is what we know at a certain time. (King 2001). It can be acquired through (i) *explicit* knowledge, which is the knowledge that is obtained through codified and transmitted language, such as books, technical manuals and specifications etc. (ii) *tacit* knowledge that is the knowledge that is difficult to be codified and communicated and it is acquired mainly through experiences stemming from observation and/or practice. (King 2001), (Kontoghiorghes et al 2005). Tacit knowledge is the core of an organization's knowledge and in fact, it is what is used by its members. This knowledge is transferred from person to person and constitutes the pivot point to individuals' learning strategy (King 2001).

Learning is linked to knowledge as the act for acquiring knowledge (Curado 2006). While knowledge is what we already know at a certain time, learning is the process of accumulating and modifying what we know. Learning must not be confused with training, although the latter is considered the heart of learning. It is a common mistake trainers and supervisors to assume that just only by presenting pieces of information; can be enough in order one to learn. Actually, learning is something much broader. "*Learning is a change in behavior or performance that occurs as the result of experience*", (Daft and Lane 2009, pg. 394). It is the process during which information is received, understood, and internalized through a conscious effort that results to a behavioral change (Dessler, 2002). This process can generate creation of new knowledge and conditions for innovation. (Kim 1998). In the frame of an organization, learning means effective implementation and better strategies, better decision making process, reduced and more efficient allocation of available resources (Prugsamatz 2010). It is located in an entity and dominates its ideas (Nystrom and Starbuck 2015) and this is exactly the reason that justifies of what it has been learned it is difficult to be unlearned (Curado, 2006). The general model of learning process includes the following steps: A person experiences an event, then he/she proceeds with thinking and reflective observations which lead to abstract conceptualization and conclusions when active experimentation takes place, while the process cycle can restarted again (Daft and Lane 2009).

2.3 Leadership and organizational culture

In order the topic to be approached in a better way, it is essential to consider the meaning of leadership and organizational culture. Leadership and culture are the most important elements for the organizational transformation and success. Schein (2004) argues that leadership and culture are "*the two side of the same coin*" (pg. 11). It is difficult one to be understood without the other since leadership has the responsibility for the appropriate organizational culture development and establishment of a management towards this direction.

Leadership can be defined "*as the ability to influence people towards the attainment of goals*" (Daft and Lane 2009 pg. 410). Torrington et al (2004 pg. 300) adopts the following definition that is believed fits better in the military case: "*Leadership is the process in which an individual influences other group members towards the attainment of group or organizational goals*" The analysis of leadership definition leads to four different aspects: (i), it is an ability; (ii), it occurs among people and groups; (iii) it involves influence and; (iv) includes common goals. In this sense effective leadership can raise organization's employees' productivity (Mihiotis 2005). The today's discussion about distinguished differences between management and leadership functionalities, leads to see them through different aspects. (Daft and Lane 2009). The management deals with stability, order and problem solution by using the existing tools and procedures. Leadership on the other hand, promotes the vision of the organization, innovation and changes, meaning the questioning of current situation and any

outdated, unproductive norm that does not work well have to be replaced in order to meet the new challenges. Culture is defined “as a set of key values, beliefs, understandings and norms shared by members of an organization” (Daft and Lane 2009, pg. 77). Shein putting culture into the organization context considering it as a process that socializes and integrates organizational members and allows organizations to adapt to their external environment (Shein 2004 pg. 17). Organization culture can be described by three distinguished dimension layers which are the visible *artifacts*, the *intermediate* one regards the less obvious elements such values, norms and beliefs., and the *last layer* refers to the most hidden, deep and underlined assumptions that people are no longer aware that they obtain them. These assumptions are those that subconsciously guide behaviors and decisions (Johnston et al 2003; Daft and Lane 2009). The above can be an approach fitting well enough in order one to understand and analyze the issue of culture in Army (Gerras et al 2008).

2.4 Army as an organization

Although there is an extensive literature regarding the development of organizations little space has been dedicated specifically to the application of the organizations’ theory, ideas and practices within military institutions (Stothard et al 2013), (Dahanayake & Gamlath 2013). On the contrary, businesses have borrowed a lot of army concepts having found effective implementation in the corporation sector (Keller, 2009). The absence of related researches by the organizational scientists, probably originates from reasons such as the unfamiliarity with the sector, the quite difficult access to acquire related data (Dahanayake & Gamlath 2013) and the general idea that army is a hierarchal and bureaucratic organization characterized by a rigid and inflexible structure as well as the shared image that army is simple a “*routine-ridden machine*” (Visser, 2008 pg 127). Additionally, it seems difficult for the most of the people to understand what the exact requirements are, in order an army organization to develop similar to business learning concepts and what exactly the sector of competitiveness is referred to. Kim Cameron and Robert Quinn (Gerras et al 2008) in their model called as “*Competing Values Framework*” that concerns the character of organizations according to the flexibility’s differentiation, classify Army (as it was expected) to organizations with strong hierarchical structures. Traditionally, these kinds of organizations approach a more bureaucratic culture from a strict to a rigid chain of command and control. However, the model explains the existing military paradoxes for strict and close command and control and the need for decentralized operations which in a crisis or war environment changes very quickly and initiative spirit, adaptability and innovation are necessary and essential elements (Gerras et al 2008). Difficulties are also presented in modeling army organization mainly for three factors: (i) The *heterogeneity* among military unit cultures, (ii) the *limited access* to performance data and (iii) and *difficulties in modeling* the production process and define the kind of the produced outcome. (Hanson, 2012)

Taking under consideration the above mentioned, it can be safely stated that substantial differences and similarities exist between Army and corporation sector. First of all, the pursuits and objectives and how these entities realize the meaning of effectiveness differs regarding the approach and results. From business aspect effectiveness most of the times reflects the capabilities to be more efficient by creating higher profits, company’s expansion, be more competitive in its market sector and to satisfy customers. (Meroise and Lee 2010). Army’s objectives are related mainly with nation’s security aspects. (Bucur et al, 2009). This security environment is characterized by threats that are ranged from minor and of low (Hellenic Army Doctrine on Policy and Organization 2015). When we are talking about military victory, mostly we are talking about war fighting and loss of lives. In the

business area, we are talking for victories on adversaries in the competitive sector, even if it contains the loss of fortunes and the jeopardy of stakeholders (Keller, 2009). In this respect, it is very difficult to define what effectiveness and efficiency are for Army. For this reason there is not a globally accepted definition that can describe precisely the Army's output and outcome. (Hanson 2016). The UK MoD has established a system to count the army readiness as the produced military outcome. (Hartley 2012) Anagboso and Spence (2009) suggest that the better approach to count military output is by measuring the sum of armed forces' capabilities. Regarding strategic planning, Keller (2009) mentions that strategic is a process for diagnosing the external and internal environment of an organization in order to develop and implement its vision, mission, objectives, allocate resources and achieve goals. This approach can be said that corresponds well enough to both business and military strategic thinking not identically but very closely. Finally, what is a remarkable difference that must be put under consideration is the matter of culture. The nature of the military environment makes the cultural changes within Army structures, a rather more complicated issue, than that of the business (Johnston et al 2003), (Gerras et al 2008).

3. Organizational learning and development

3.1. Organizational learning concept

- *Context of Organizational Learning Concept*

Many organizational leaders and researchers have viewed learning as a key element for organizations' development, by increasing and maintaining their competitive advantages (Kontoghiorghes et al 2005), (Curado 2006). The concept of organizational learning became popular since it had been considered as a principal means for organizations' viability and survivability enabling them to become more effective and efficient in achieving their goals (Wang 2008). The term probably first mentioned by Garret in 1987 (Oternbland 2007) and widely popularized by Peter Senge's book "The Fifth Discipline" in 1990 (Dahanayake and Gamlath 2013). Miller (1996) defines organizational learning "as the knowledge acquisition made by actors (individual and groups) when these can and are available to apply it, in the decision making process, or use it to influence others within the organization". (Curado 2006 pg. 28). Organizational learning can be regarded as a natural process that takes place in every organization. Remarkable, is the case that when they act into turbulent environments, then they are enforced to learn. (Fai Pun and Nathai Balkissoon, 2011). The essence of the organizational learning process is comprised by a set of activities, focusing first and foremost on individuals' learning (Kontoghiorghes et al 2005). However, while the individual learning is a necessary factor for organizations learning, it is not enough for an organization to be considered that also implements the concept process. In other words, the meaning of shared knowledge among an organization's members is not just the simple sum of individuals learning skills and capacities (Kim 1998), (King 2001), (Marsick and Watkins 2003), (Curado 2006). Organizational learning must be conceived as a social process (Mokhtar et al, 2013) which facilitates communication, coordination, and promotes the learning among individuals. To this end, when individuals increase their capacity to learn, the organization's performance is also enhanced as long as the organization is receptive to individuals' efforts to use their knowledge and skills. For that reason, an organization has to develop appropriate mechanisms and proper knowledge management enabling it to encourage, support and reward its members, to use what they have learned (Marsick and Watkins 2003).

- *Organizational Learning Development*

Several models have been developed regarding learning in organizations. Argyris and Schon (1978) argue that an organization learns through three different loops or levels as follows (Torrington et al, 2004b): 1) Level 1 or *single loop learning*: It focuses on how we can do things better. 2) Level 2 or *double loop learning*: It focuses on the why we are doing these things and not the others and eventually whether there is a need to do different things. 3) Level 3 or *triple loop learning*: It focuses on the purpose, principles and values of the organization, by exploring whether they are the appropriate ones. According to Garvin (1993) the learning process within an organization can be developed through three different consecutive levels: The *cognitive level*, The *behavioral level*, the *performance improvement*. Apparently, the conception aims at three different learning targets within the organization: The organization's individuals, the teams and the organization as a whole. This interaction also indicates the dynamic nature of the organizational learning concept. (Saint - Onge and Armstrong 2004). Pawlowsky has presented a simple and comprehensive model regarding the organizational learning process (Curado 2006). His model includes four distinctive steps; 1) the *identification* 2) the *exchange and diffusion* of knowledge, 3) the *integration* of knowledge, 4) the *transformation* of knowledge into action. Another interesting model has been presented by March (1991). The model is based on the adoption and development of two managerial strategies: The *exploration* and *exploitation*. These strategies are corresponding and combined with the organizational learning flows of: *feed-forward* and *feed-back* (Crossan and Hulland 2002), (Curado 2006). More specifically: The *Exploration* strategy refers to the development of learning routines in order to facilitate the development of new processes. The *Exploitation* strategy refers to the learning routines by refining pre-existed processes and knowledge. The *Feed-forward* flow refers to knowledge which is transferred from individuals to the organization. The *Feed-back* knowledge flow, refers to the process of refining and reusing of the already existed knowledge within the organization.

3.2 The context of learning organization

- *Context of Learning Organization Concept*

Learning organization can be defined as an organization that is able to develop strategies for encouraging learning and through these strategies to facilitate organization's members' behavior to this direction. (Kim 1998), (Gonzalez, 2010). To this end, a learning organization is able to expand its members' skills and abilities and motivate them towards a desire to create and develop through a collaborative spirit and on the how people learn together (Dahanayake & Gamlath 2013). A learning organization is characterized by a continuous transformative effort to adapt itself to its external environment. It evolves abilities to create, acquire and share knowledge and at the same time to modify its behavior reflecting the acquired knowledge (Kontoghiorghes et al 2005), (Dahanayake & Gamlath 2013). However, the above definition can be considered as insufficient for not providing the obtained gains from organization's "expanding knowledge capacity". Thus the definition must be completed by the idea that it (the organization) focuses on development by using its information and knowledge capabilities in order to increase its value improving the bottom-line and organizational results. In a nutshell, the above can be condensed in the phrase: "*Better Knowledge for better behavior for better performance*" (King 2001 pg.3). While all organizations are considered as learning systems and learning within an organization is a natural phenomenon, a learning organization needs effort to be developed and built. While in organizational learning concept, knowledge resides in the individuals' heads; in the learning organization, special memory systems are needed to be developed to reposit and store the acquired knowledge, which finally belongs to the organization. (Torrington

et al, 2004b). While organization learning is a process, the learning organization is the organizational structure, through which knowledge is based, improved, created, distributed, communicated among organization's members and groups and eventually is integrated through organization's strategy and management into routine and practices (Kim 1998).

- *Building a Learning Organization*

Leadership and *culture* are the catalytic elements in order an organization to be in position to be transformed into a learning organization (Dahanayake & Gamlath 2013). To this end, its willingness for changing must be clearly integrated in its vision, mission statements and the adopted management strategies. Additionally, various tools must be in place, to associate with transformation process and the diagnosis whether an organization is or is becoming a learning organization (Kontoghiorghes et al 2005). Kontoghiorghes et al (2005) in their article argue that a learning organization must have at its disposal or to develop instruments and procedures such as open communications channels, willingness for risk taking, mechanisms to support and the recognition for learning, availability of resources to perform the job, existence of teams supporting collaborative work, existence of rewards for learning, development of appropriate training and learning environment. The same authors add that that learning organizations must be characterized by: (i) *Change adaptation* that refers to the extent an organization is able to be adapted to its environment changes, (ii) *innovation* that reflects the organizations' capability and flexibility to insert new procedures, and develop new products and services (iii) *bottom line performance* which is associated with the accountability and measurability of the outcome of performance. Kim (1998) adds also additional characteristics, necessary in the effort of building a learning organization. These are: (i) the ability to *imitate* other successful learning organizations (at least at the initial stages) and (ii) the ability to *absorb* knowledge. Indeed, imitators argue that by adopting imitation strategies they avoid to sustain the high risks that most of the times innovators have to undertake in "*their research in unknown territories*" (Valnadi and Arbore 2010, pg 202). In such a way, imitators can reduce costs by learning from others' mistakes, decreasing financial efforts regarding initial research and development, needed systems engineering cost, education expenses and by taking advantage by the accumulated innovators' experience (Valnadi and Arbore 2010). However, it must be considered that what makes a business successful is its uniqueness. So imitation under the aspect of cost saving cannot regarded as a complete strategy for a business growth. So it must adopted in cases when there is a need to catch up successful business models and then to surpass the original one passing to innovation strategies (Frery 2006).

As far as the absorptive capacity is concerned it can be defined as the organization's capability to assimilate knowledge when applying imitation strategies (while the capacity to solve problems through the creation of new knowledge reflects to innovation strategies) (Kim, 1998). This capacity pre-assumes the existence of two elements: Appropriate "Knowledge base" that is the already accumulated prior knowledge and "Intensity of effort" that is the amount the individuals in an organization put in order new inserted knowledge to be embodied and internalized within this organization. Organizations that are characterized by high knowledge level but of low intensity of effort are condemned to lose absorptive capacity since prior knowledge is gradually getting obsolete, creating knowledge gaps. On the contrary, organizations with low level knowledge base but putting higher intensity of effort will be able to acquire progressively higher absorptive capacity. (Kim 1998. Garvin (2003) argues that in order a successful organization to be built, should be considered: (i) the *available time*, in order management procedures and attitudes to be cultivated properly (ii) the

encouragement of ideas exchange, raising the boundaries that inhibit the free flow of information. Moreover, an organization which desires to adopt learning organization's practices, must be skilled in five key actions, accompanied with special mind-sets, tools and behaviors (King 2002), (Curado 2006), (Nystrom and Starbuck 2015). These are: *Systematic problem solving, experimentation, learning from past own experiences, learning from others, transferring and sharing knowledge*. King (2001) suggests a sequence of strategies and required actions need to be assumed. Although, these strategies can be considered as significantly different, in fact they are linked and mutually supported by each other. These are: the *information infrastructure strategy*, the *intellectual property management*, the *individual learning strategy*, the *organizational learning strategy* the *knowledge Management strategy*, and the *innovation strategy* (Thomson et al 2009).

3.3 Evaluation of organizational learning effectiveness

- *Evaluation of Organizational Learning*

"If you can't measure it you can't manage it". This is a maxim managers have well to know that is as true of learning as it is of any other corporative objective. (Garvin 1993). The effective measurement of organizational learning process and the successful learning organization implementation can only become through the measurement of the outcome and the produced results. However, despite, the extensive literature regarding organizational learning and learning organization little can be found regarding the measuring. As mentioned above the organizational learning can be defined mainly through three overlapping stages: (i) the *cognitive* (ii) the *behavioral* and (iii) the *performance improvement* stage. (Garvin, 1993). The latter, in essence, is the stage that tangible, measurable and quantified outcomes can be observed, such as higher productivity, better quality and lower production cost, higher profits etc. Nevertheless, since all the learning stages are linked together (in the sense that cognitive and behavioral stages can define the success of performance stage) the evaluation of learning process must include all those stages. Regarding cognitive stage the evaluation must focuses on the attitudes and depth of understanding. As far as the behavioral stage is concerned, the evaluation must be concentrated on the "proof in the doing" accessing employees' behavioral in action (on job). Finally concerning the third stage learning curves and manufacturing progress functions indices can be used as measuring tools, ensuring that the preceded steps (cognitive and behavioral changes) have actually produced results.

- *Evaluation of Learning Organizations*

While the learning organization can be evaluated, the problem which remains is whether an organization is on the right track being transformed into learning organization. Several tools are provided that can be used for measuring the learning organization effectiveness and assist in evaluation. (Stothard 2014). In the current paragraph a brief mention is given on each of the available instruments. Among them, the case of *Dimensions of Learning Organization Questionnaire (DLOQ)* tool presents a specific interest for reasons as analyzed below. Those tools are: the *Organizational Learning Survey (OLS)*, the *Learning Environment Questionnaire (LEQ)*, the *Learning Organization Survey (LOS)*, the *Dimensions of Learning Organization Questionnaire (DLOQ)*.

3.3.1 The Dimensions of Learning Organization Questionnaire (DLOQ)

The instrument was developed based on research and practice. The developers argue that it can be considered as a reliable one, stating that it has been tested in more than 200 companies and "they have seen a correlation between the learning organization dimensions and knowledge and financial performance" (Marsick and Watknis 2003, pg. 136). The DLOQ is consisted by 55 questions divided

into nine segments, with regard to the various levels of learning (individual, Team or group, Organization levels). These dimensions are: *Creation of Continuous learning opportunities* ,*Promotion of inquiry and dialogue* ,*Encouragement of collaboration and team learning* ,*Creation of systems able to capture and share learning* ,*Empowerment of people towards a collective vision* ,*Connection of the organization to its environment* ,*Provision of strategic leadership* .. The key results are:

Financial performance by stating the financial health of the organization and the use of available resources for growth, and, *Knowledge performance* by the improvement of products and services due to the learning and obtained knowledge.

3.4 Evaluation of organizational culture

The existence of a methodology that would enable researchers to make assessments regarding the culture status of an organization could certainly assist to the organization transformation efforts. Most of researchers argue that culture evaluation should include qualitative as well as quantitative methodologies. While there is an extensive literature regarding the organization culture, approaching both mentioned researching methodologies, little can be found as far as the military culture is concerned and even less regarding how it can change. However, the issue can be approached well enough; through other associated research models and methods with regard to corporation sector (Gerras et al 2008) as follows: Cameron and Quinn have offered (wordpress.com website, 2010) a quantitative method of assessing an organization's culture, known as "*Organizational Culture Assessment Instrument*" (OCAI). The tool uses a validated questionnaire, in order to make a diagnosis on current and preferable organizational culture (Bremer 2010). The *Global Leadership and Organizational Behavior Effectiveness Research Program*" (GLOBE) as it was improved during the 90s by Robert House (House and al, 2004) is another tool that can be used for this purpose. The methodology results to the identification and quantification of nine major segments (*Performance Orientation, Assertiveness, Future Orientation, Humane Orientation, Institutional Collectivism, In- group Collectivism, Gender Egalitarianism, Power Distance, Uncertainty Avoidance*). Schein (2004) provides a model for a systematic transmission of culture that fits in the army case. The model practically is based on the GLOBE model and its value is exactly that quantifies the military culture. It uses two kinds of mechanisms that Schein calls, *embedding mechanisms* that refers to the actions that should be taken for inserting a culture change within an organization and *reinforcement mechanisms* that have to do with stabilization and maintenance of the inserted changes. (Gerras 2002) and (Gerras et al 2008).

3.5 Benchmarking

In business, benchmarking can be defined as "*the process of improving performance by continuously identifying understanding and adapting outstanding practices and processes found inside and outside of an organization*" (Kelessidis 2000, pg. 2). Another similar definition given by Gregory J. Balm of IMB is: "*Benchmarking is the ongoing activity of comparing one's own process, product, or service against the best known similar activity, so that challenging but attainable goals can be set and a realistic course of action implemented to efficiently become and remain best of the best in a reasonable time*" (Institute of Management Accountants 1995, pg. 2). Benchmarking is rather focuses on the exploitation of "best practices" of a benchmark organization than measuring its performance, it regards systematic gathering of information from one organization and to be applied properly in the recipient one in order to gain benefits (Kelessidis 2000). In general, four types of benchmarking are recognized: *Competitive benchmarking, internal benchmarking, Process benchmarking, generic benchmarking*. Planning, analysis,

integration and action, maturity are all required for the development of a benchmarking technique. Unfortunately, there is still a considerable confusion regarding the requirements of successful benchmarking (Garvin, 2003). Moreover, in spite of the benefits as mentioned above, benchmarking does not come without a cost and time consuming. However, surveys on the issue indicate that the knowledge gained is worth the investment. (Kelessidis 2000).

3.5.1 Summary and critique on learning organization in terms of Army

The practices and the concept of learning organization and organizational learning respectively are summarized in the following table:

Table 1 Summary on the learning organization and organizational learning concept

Focus	Organizational learning concept	Learning org. practices
Individual learning	Organization's members feel that they experience an abnormal and problematic situation within the organization in order to reduce the forces that provoked it	Training personnel and development
Processes and systems	Organization learning is a process that manages the inserted information and the organization know -ledge and experiences	Processing of the acquired information in order to increase problem solving capabilities
Culture	The organizational culture calls for collective learning to improve organization's performance common processes retain, generation and leverage of knowledge, monitor and improve performance	Creation of such a culture through collaborative work and individuals' encouragement to use their skills and knowledge within the organization to its benefit
Knowledge management	Focuses on knowledge acquisition, refinement dissemination, sharing, and its exploitation by putting it into practice. Associates knowledge with past failures and successes for future use	Facilitates the interaction and strengthens the organization knowledge base
Continuous improvement	Increase of individuals learning in order the organization continuously to be transformed and be adapted in its environment	Adopts total quality management practices

Source: Based on Wang and Ahment (2003)

While the concept of learning organization and organization learning has been flourished extensively, some researchers and practitioners consider that there is space for critique on the issue (Wang and Ahment 2003). The term of learning organization is a very broad, the concept does not take under consideration the human factor with regard to emotions, ethics and irrationality (Torrington et al 2004). It is also based and expects a lot from leadership side. The question is how realistic such an expectation is, since each leadership may conceive the concept from different aspects, and how individuals are willing to be integrated into organization's vision. (Torrington et al 2004). The dependence of learning organization on the individual factor guides to the conclusion that individual learning may sometimes not to be that a positive contribution to the organization, in cases

for example, the individuals learn just for improving only themselves and for organization's improvement, or whether their learning contribution has negative effects to the organization (Wang and Ahment 2003). With regard to the productivity results of a learning organization the question that is raised is whether the adoption by an organization of such a concept is beneficial to it. Popper and Lipshitz (2000) rhetorically answer with another question "*when the organizational learning likely to be productive?*" (pg 186) and they argue that the organization's productivity depends on its culture. To this end, they recognize several values that must be in place and be under consideration these are: (i) *Valid information*, (at what extent the related information is complete or distorted and how it can be validated?) (ii) *Transparency* (for example, are individuals ready to accept honest feedback?) (iii) *Issues orientation rather than personal orientation* (is the inserted information properly evaluated? Is it valid and relevant with the examined issue or is it under the attributes of the individual that provides it?) and (iv) *accountability* (how and at what extent the individuals accept responsibility for their action and the following consequences with regard to learning?).

Additionally, the only clear message with regard to the competitiveness advantages the concept provides the notion that the one who learns faster is able to obtain such advantages (Wang and Ahment 2003). Having in mind, that the today's competitive and turbulent environment, where the viability of organizations depends on the innovation factor, the concept must be focused more on this. Regarding the issue of the productivity of a learning organization Stokke (2008) connects productivity and organizational growth with three factors: (i) the innovation (ii) the technological adoption by the organization and (iii) the learning organization process, under the following equation:

$$\hat{A} = f(h_i) \frac{A}{A^*} + g(h_a)K(o) \left[\frac{A}{A^*} - \left(\frac{A}{A^*} \right)^2 \right] + l(o) \left(1 - \frac{A}{A^*} \right) \quad (\text{pg. 767})$$

Where \hat{A} is the productivity growth, " h_i " and " h_a " are the labor's force allocation with different levels of education, (e.g. tertiary and secondary respectively), " o " is the degree of organization's openness, " A^* " is the technology frontier beyond this the organization can start taking advantages from technology it obtains and A/A^* is the technology gap between the existed organization's technology level and the aforementioned technology frontier. The first term of the right part of the equation represents the innovation's contribution the second one the contribution from technology and the last one the contribution from organizational learning. The above argument leads to the notion that organizations that are influenced by unfavorable economic environment and backward economies the organizational learning development constitutes an imperative factor for further productive growth (Stokke, 2008). To this end as analyzed above in this chapter, this entails the adoption of strategies related to imitation as well as application of benchmarking methodology approaches. Army as a "total" institution (Kier, 1995) it is a close system which means that the learning process is restricted within itself. Such a learning status may keep the organization out of learning that originates from the outer environment, not allows adapting faster in it. Knowledge must be acquired widely and for this reason the organizational management has to approach practices from the outside organizational paradigms as well.

In the whole production approach it is interesting to see the Hansons' (2012) approach who suggests a military production model structure in order a troop to be able to achieve its task and objectives. In this, the training process is the assumption to be fulfilled in order the troops to reach the proficiency standards and the appropriate quality. Although the model is referred to the Norwegian Army it can be generalized for the Hellenic Army as well. Regarding the evaluation of

organizational learning and learning organizational, in spite of the fact there is a portion of literature regarding the diagnosis with regard to learning performance, very little has been found concerning the learning performance in Army. Dhananjaya Dahanayake & Gamlath (2013) used the DLOQ with minor changes (in fact by removing only the last two segments that referred on the impact of organizational learning on financial and knowledge performance considering that Army does not aim at commercial profits) exploring its application to Sri Lanka Army. However, they recognize that DLOQ have to be improved in order to fit better to this Army purposes. Shothard et al (2013) mention in their article the development of an Army Learning Organization Questionnaire (ALQO) which was developed from a modified version of DLOQ and OLS fitting well to the Australian Army units. According to the authors the results led to useful and safe conclusions regarding learning behavior at different levels (ranks, formations, culture) but fitting specifically for this army culture only.

Concerning the evaluation and assess of organizational learning the mentioned related models and methods provide with satisfactory answers and conceptualizations perspectives on the definition and the kind of organization's culture, but they focus rather on diagnosing than to contributions with proposition concerning the way a culture can change (Gerras and al 2008). There is also a doubt at what extend these methods can be applied to Army organizations' culture, taking into account Army's idiosyncrasies and concerning the nature of human activities and one's basic orientation to life. Based on Schein's organizational culture analysis, the same authors suggest a model arguing that fits better in Army's case. However, their analysis is based on the U.S. Army culture and personnel idiosyncrasies. This limitation restricts it's applicability in other Armies, in general. On the issue of learning performance and culture status evaluation, change and transformation assessment, any related questionnaire and methodology must be based on the particular idiosyncrasies of the examined and researched Army. For this reason the related topic must be considered as a topic for further research for fitting in Greek Army individually.

4. Army as learning organization

4.1 Current Hellenic Army learning approach

According to the "Greek Joint Doctrine on Operational Training", deterrence of enemy can be achieved through the existence of powerful military forces which must be fully trained and equipped and of high operational readiness. Analyzing the current Army training frame (HAGS, 2014), actually, it is orientated towards the deterrence and confrontation of a particular threat concentrating the following characteristics regarding the related theory: 1) It is almost based on traditional methodologies of training based on live exercises, 2) The encouragement for use of simulation and other methodologies that can substitute live exercises is rather limited, 3) Does not encourage systematically the use of contemporary technologies for training purposes, 4) Follows traditional instructional methodologies based on the instructor -centered approaches with lecturing and power point training subjects' presentations and physical class -presence of the trainees, 5) It can be said the issue of feedback is not stress to the required extent, 6) Does not provide a clear methodology and the appropriate tools for the knowledge integration, 7) There is not a systematic and scientific approach regarding the increase of effectiveness and efficiency of training and learning process, 8) There is not the expected and a clear reference to the learning organization practices and organization learning concept. In the updated "Greek Army Policy and Organization Doctrine" (2015) (still draft in the late of 2015), training is defined as a systematic process through which the

Hellenic Land Forces, acquire, maintain and improve knowledge, skills and experience, develop spiritual, physical and moral abilities in order to be capable to accomplish successfully any assigned mission during peacetime/crisis and war time. To this end, it is necessary the training objectives to be clearly defined giving every time the chance to count the level of their achievement.

4.2 Modern trends on Army Learning Models

General views

Lieutenant General Flowers (U.S. Army Corps of Engineers Commander) in the preface of "Learning Doctrine" (2003) makes a clear reference in organizational learning as an embedded and main factor to the effort of US Army transformation process. General David Petraeus has referred repeatedly on his writings and speeches, on learning process stressing out its significance and importance in order Army executing more successfully its warfare missions (Petraeus 2007). General Kostarakos stresses the need for the development, of immersed training environments, simulation training centers, e-learning centers and of updated training programs in the context of economy scales (Kostarakos 2013).

- *The U.S. Army learning concept*

The new "US Army Learning Concept for 2015 and beyond", recognizes the outdated of the traditional training approaches that were based on lecture and power point presentations training approaches that were corresponded in peacetime periods, without defined enemies. The concept surely reflects to a precise establishment of a learning organization structure and the adoption of organization learning concept. General Martin Dempsey defines the mission of the concept as "an important component for our effort to drive change through a campaign of learning (TRADOC, 2011 p.g. i) The concept is characterized as *Learning-centric* stressing on the need for shared learning, shared training responsibilities among .The central idea of the concept is based on adaptability that permits soldiers and leaders operating from tactical to strategic level, by making sound judgments under the stress of the contemporary operational environment. To achieve these there is a need for: *conversion of the today's classroom experiences, exploitation and tailoring previous individuals' experience and competence through proper pre-assessments, dramatic reduction of "slide presentations lectures"*. Also, taking under consideration all the operational factors that concern the U.S. Army, increasing at the same time learning productivity. Also, important factors are not neglecting the previous training and learning methods but exploiting the accumulated experience using it as a platform for the further development of the process.

- *The NATO learning concept approach*

The North Atlantic Allied Organization is characterized by multi-nationality. This character has as a result NATO as an organization to put certain efforts in order to integrate all those different military cultures. Unavoidable this factor influences its training and learning approach. In fact, NATO mainly integrates its training policies at higher and joint level, during international exercises and other related activities. To this end, NATO responsibilities, in general lines, are confined towards the collective and organization levels, while individual training remains largely on NATO and partner nations' responsibility. Nevertheless, the existing NATO concepts regarding designing and planning, exercise execution, and assessments (evaluations and lessons learned concepts) (NATO Bi-SC 80-6, 2013) is a clear organization learning approach that is in direct line with respective theory. (NATO Bi-SC 75-3, 2015)

5. Case study

The purpose of this case study is to indicate at what extent the related theory can be applied in practice in the Hellenic Army Land Forces. In spite of the fact, that the Hellenic Army Land Forces have started taking steps towards a change regarding the improvement of its learning model, it can be said that the whole process is still in a premature stage. However, it was considered as necessary to be examined in practice, whether the Hellenic Army obtains capabilities and capacities to adopt a modern learning concept or how far it is from this goal. To this end, during the development of this research, there was an excellent opportunity for observations in terms of the topic during a real exercise a training event. The activity took place, in a real Greek military high readiness formation at brigade level.

The above mentioned military formation's command group had come to the conclusion, after the analysis regarding the training program of the upcoming years, that the prolonged economic situation in Greece and budget restrictions might bring difficulties to its effective implementation, by encountering funding limitations. Additionally knowledge and training gaps among personnel could be appeared with the inherit difficulty not to be covered quickly in the future. Due to the above reasons, there was an apparent need for a new training approach to be developed regarding exercises, in order to tackle with potential problems and to overcome any future budget restrictions. As a solution, the design and execution of a Computer Assisted Exercise (CAX) was proposed¹. The reason for this choice was that the concept has started to be applied in other armies and in NATO (Joint Warfare Center/NATO).

5.1 Actions taken to overcome challenges

In order to overcome the challenges the following actions took place:

Exercise preparation: 1) All coordination meetings and pre-training activities with the remote exercise actors were taken place through Video Teleconferences (*cost reduction, blended training, and confirmation of the existence of robust Information Systems*), 2) The commander of the formation publicly announced his support on the project and declared that it was included among its main priorities and of top goals of the formation. To this end, his intention was to strongly support it (*Leadership support and strong signs for the need of culture change*), 3) A new exercise core planning team, was shaped with new staff officers younger at age was employed, different than the current nominated planners. The officers worked in groups, under the exercise officer's in charge supervision, and they were fully encouraged to propose problems' solutions by thinking "out of the box" (*New culture development creation, sharing and establishment, of new knowledge, innovation, learn to unlearn approach*), 3) Before the execution of the exercise all the information systems underwent extensive capacity tests proving their robustness, adequacy and their classifications capabilities with the final results fully satisfactory. I-cloud technologies also were used. (*Information systems infrastructure existence and adequacy*), 4) the exercise planning and execution was based on NATO and other foreign bibliography adapting to the national and the particular exercise needs (*imitation and benchmarking methodologies*).

Exercise execution: 1) The information systems were corresponding perfectly to the requirements of the exercise (*information systems existence and adequacy*), It was ensured the virtual reality conditions for the training audience by working in their real command posts' environment or in appropriate

¹ The CAX are exercises that are executed with the assistance of electronic tools

response cells simulating real conditions (*cost reduction, training reality*), 3) During the exercise the training audience was taking feedback on their exercise operational actions from the exercise control element and vice versa in order to fill procedural and design gaps mainly concerning the planning dysfunctionalities and the “how it goes” (*Lesson Learned collection by After Action Review technique*), 4) During the above procedure everybody was strongly encouraged to contribute in a free way to lessons learned collection regardless the rank and the position. Moreover, it was made clear that during the whole development of the exercise the asking goal is to fill learning gaps and correct mistakes (*Culture change, Power distance*), 5) Special NATO computer applications were used for exercise control purposes and counting the percentage of exercise goals achievement (*technology existence, information systems, qualitative and quantitative counting of the results*).

Exercise evaluation: 1) Exercise debriefings were taken place immediately after every day exercise end (*Lessons learned collection by After Action Review technique*), 2) An exercise questionnaire was delivered to the participants focusing on the exercise needs and exercise objectives’ (*qualitative and quantitative counting of the results*), 3) Further official reports were forwarded to higher echelons regarding the results of exercise and for their further assessments and actions.

5.2 Exercise Data Validation

Framework and aim of the research

The statistical analysis of the exercise was developed in the framework of the (CAX) with the purpose to extract useful elements concerning the learning value of the activity. Moreover, many of results were coming from observations and discussions with the participants. The aim of the research was to record information data related with the effectiveness and utility of army computer assisted exercises and proceed with a first appraisal regarding training and learning benefits by using other concepts, procedures and practices for national purposes.

5.2.1 Methodology

The research, a qualitative one, was based on the combination of qualitative and quantitative data that were collected through different ways as bellow is mentioned. The data analysis was done with the assistance of STATA13.1 statistical application, the MS office xls and the statistical function of a dedicated for this purpose NATO computer application. The related data were collected as below: A special evaluation team was constructed with subject matter experts who acted under a special collection plan with mission to concentrate and validate observations. After Action Review technique was extensively used. Debriefings were taking place immediately after the end of every training day. A questionnaire was delivered to all participants in order to capture remarks from all the engaged personnel. The majority of the questions used a five point scale from “Highly disagree to highly agree” The five point scale was preferred in order to mitigate the neutral tendency. Additionally there were a number of closed question where only a “YES or NO” respond was required as well as open questions where the participants were requested to express their opinion freely. A special NATO computer application was used to gauge the fulfillment of the posed training objectives statistically. Personal interviews were taken from key personnel regarding their views in terms of the value of the exercise mode.

Validity, Credibility, Reliability

The collected information from different resources was crosschecked to the extent that it concerned the fulfillment of the exercise objectives; the total number of distributed questionnaires

was 122 but eventually 112 questionnaires were fully completed and included in the research. Regarding the consistency of the questionnaire the researched focused in the training segment since it was considered the most homogeneous regarding the sample and closer to the research inquiries Cronbach Alfa was above the 0.70 recommended level (0.79 in fact), which demonstrates an acceptable level of statistical reliability. As far as the rest of the questions are concerned they had a different direction towards reporting reasons and not for statistical research.

5.2.2 Demographics

In the survey only military personnel was participating from Lieutenant Colonel to private soldier rank. All the officers had been graduated from the military academy and at least the military staff officers' school. Those who had graduated from the respective military academy and those who serve in army as professional Soldiers and obtain special technical skills and specialties (table 2). All the participated units' commanders and the heads of the exercise various teams were included.

Table 2. Exercise Demographics

Higher Officers	Rank	Lower Officers	Rank	NCOs Academy	Military graduated	NCOs Academy	non graduated	Military	Private soldiers
17		33		6		50			8
15%		29%		5%		44%			7%

Source: Author

5.3 Research findings

Although the exercise objectives were focusing on the needs of this particular military formation, much information were extracted with regard to organizational learning and learning organization's concepts, giving serious affirmative evidence for further development to this direction. It is worth noticing that the outcome of the exercise was characterized as very successful from the military training aspect, by fulfilling all the pre-posed objectives and assumptions to a high extent. In particular, with regard to the research's topic the results can be considered as encouraged, since it was achieved a high percentage of its goals regarding its learning purposes indicating evidences for further improvements under the today's financial conditions. The personnel's background and cognitive level as well as the available infrastructure reduced the cost and the requirement for additional resources to the zero level. However, as a general remark barriers to the process were recognized indicating the need for changing the current knowledge management processes and procedures.

Based on the segment structure of Dimension Learning Organization Questionnaire (DLOQ) and the Army Learning Organization Questionnaire (ALOQ) (Stothard, 2014 pg 10 and 17) the information from observations and interviews' responses that were obtained during the exercise can be assessed as below:

- *Individual level findings*

Dialogue and inquiry: robust discussion and asking questions. The initial resistance and the raised objectives regarding the results and the utility of such a kind exercises mainly by higher rank officers who insisted on the traditional training ways can be said that created barriers at the development and establishment of a learning culture. However, the built of a new core planning team charged

with the responsibility of the exercise design and the challenge of participation as training audience motivated personnel to work and study individually contributing with knowledge to the exercise.

Continuous learning: opportunities and resources for learning, training and education.

The issue was not able to be accessed with regard to this particular activity. However, it was stressed that the implementation of similar activities at higher levels anticipates for further knowledge on the subject. This view is enforced by the observed lack of the related experience regarding the design of such exercises, mainly from technical and methodological prospective.

- **Team level findings**

Team learning and collaboration: support within teams for sharing information and supporting each other's learning. It is a fact, that the activity promoted the knowledge sharing among the participants during all stages of the exercise. Characteristically is mentioned that 71% according to the questionnaire survey claimed that learned from their peers, while a 73% had the opportunity to apply processes that they already knew but they seldom had had the chance to practice them adding by this way new knowledge to themselves and peers. The after action review technique and other lesson learned collection means contributing to the knowledge sharing during and after the exercise process. Additionally, the confirmation by the command group that "made mistakes" are rather learning opportunities than causes for negative remarks and the promptness for innovative thinking encouraged exercise members to participate more actively.

- **Organizational level findings**

Leadership supporting learning: extent of leadership enables learning by practice and by resourcing. The leadership support can be characterized as the milestone and for the successful implementation of the project. The commander's intention to put the project among his high level priorities passed to its staff a clear message for changing culture regarding the way of exercise planning and execution. His contribution was also decisive from the aspect that he leaved the necessary space for initiatives and innovation and by supporting the activity with the needed resources.

Embedded systems: information systems access and utility. The available information and other command and control systems worked and supported the exercise perfectly. The available infrastructure was proven more than adequate. This had as a result to reduce dramatically the cost of the activity since there was no need for further infrastructure establishments. Additionally, the war-gaming computer applications that were employed for simulation reasons accommodated very satisfactory the purposes of the exercise. The new inserted for use, NATO based electronic command and control systems for the exercise control were proven user friendly to the participants and were characterized as useful tools. The combination of training before and during the exercise, locally and remotely by using the available information systems proved the potential capabilities as well as the effectiveness of blended training. The fact that 68% had a clear vision of the exercise organization and their mission enforces this view.

System connections: does the organization support broader perspectives. The exercise design required the use of resources and systems that were located outside the formation location and mainly regarding staff elements and information systems infrastructure that they eventually were afforded. From this aspect it can be said that the capability for broader perspectives is potentially in place. However, it was observed that the current systems regarding the knowledge management was not compatible to the required extent. Moreover, the formation forwarded the exercise specifications, requirements and results to higher echelons, supporting the implementation of the project for similar activities at broader level. The analysis of the training results using statistical methods and specific

computer applications gave strong evidence regarding the utility of such tools, since they facilitated, the process of recognizing performance gaps through a more scientific and objective approach.

Shared vision and empowerment: degree of autonomy and engagement with the organization's mission and vision. The initiative from the formation's leadership side to undertake such an activity, under budget restrictions adapting to its own needs proved the flexibility of decentralized organizations. However, the activity was totally integrated with the Army's mission and the vision. It worth mentioning that a percentage of 87% the questioned personnel suggested that the exercise should be inserted in the annual exercise program. However a big portion 75% believes that there is much space for further improvements.

Innovation: The exercise itself can be characterized as an innovative action. The leadership initiative to undertake the risk for the implementation of the project promoted the learning process although many times innovation contains the stake of failure having spending resources in vain. The statement towards the engaged personnel to "think out of the box" motivated it even more. It is worth mentioning that junior officers and younger personnel were more open to accept innovations and different ways of thinking even at the operational level, while the higher rank officers appeared a resistance to changes. This can be explained because of the formers' familiarity with new technologies and their cognitive level enabling them to assimilate faster new knowledge and information.

6. Conclusion

The environment that has been shaped due to the economic situation in Greece has created many negative implications in the country's society leading economy backwards. Hellenic Army within this environment has to deal with the challenge to keep being in position to correspond effectively to its mission ensuring the country's security within an unfavorable economic environment. Although Hellenic Army is not an organization that concentrates characteristics of an organization in crisis, the continued budget restrictions may influence in the future its operational capabilities and its readiness status. It is not impossible more funding reductions to follow under the consideration that resources currently dedicated to the Army to be allocated in other sectors of the economy.

To this end, Hellenic Army must be proactive enough in order to be more effective which means to be in position to execute its mission, tasks and objectives and at the same time to be more efficient by being less costly reducing the currently required resources. An effective training process definitely can assist to this direction. The current learning model must be updated since is still based on traditional methods which require the physical trainees' class -presence, lecture presentations, be instructor-centered, big number of live exercises that requires a respectable amount of resources. However, organizations that act in turbulent environments are enforced to learn in any case. The same happens with Hellenic Army that has started to take steps forward. The updated approach on training as it has been expressed in the "Greek Army Policy and Organization Doctrine" (2015) moves to this direction giving strong evidence for substantial improvements in learning process, embodying a lot of critical elements of the learning organization concept. Nevertheless, the whole procedure have just started and cautious and conscious steps must be done from now on. Appropriate restructure is required aiming at the facilitation of learning process by being transformed towards a learning organization. While the existent literature and practices in corporation sector is actually rich, little can be found concerning military. In fact, the adoption of

such a concept very recently has started to flourish within army context globally. In spite of the fact, that business organizations could work as paradigms for the military particular difficulties are encountered. These difficulties stem from the nature of the army organization which is a close and "total" organization with strong hierarchical and bureaucratic structure. These traits have direct implications to the culture of the Army and in the effort to changes.

Additionally, there is still a lot of discussion about how the concept of organization learning and learning organization can be successfully implemented. The fact that it is based on the individuals' learning behavior either from leadership or learners' perspectives as well as the appropriate knowledge management is concerned; raise a lot of considerations that have to be researched further. Nevertheless, the theory and practice teach us that successful learning organizations are getting more effective and competitive by saving resources. Moreover, organization learning constitutes an imperative factor for development, in particular for organizations which operate within backwards economies and a strong assumption for production growth by applying policies that promote innovation. Learning organization and organization learning concept has recently been inserted in army as a complete concept. The U.S. Army concept for 2015 and beyond adopts a clear direction towards the aforementioned learning concept, presenting all the necessary mechanisms for a changing learning culture to the operational and financial benefits. NATO also moves in the same line at different level though. The trend for adoption of such learning policies globally offers to Hellenic Army a lot of opportunities to develop similar policies.

6.1 Limitations and recommendations

The study was limited to the management planning aspects, the data that contains military (international or national) information was emanated from open sources and from officially unclassified documentation, the theoretical framework, background and analysis were based on the management and crisis theory and related military documentation, the results that regard the case survey and army activities are released to the extent that was related with the topic as long as they do not provoke any security violation. Finally, the exercise was designed in order to accommodate specific training needs of a specific military formation and not to meet the objectives for this research. Regarding the research findings, there is not clear evidence about the current capabilities of Hellenic Land Forces and how fast they can move towards an army learning organization transformation. However, the presented case study strongly indicates that there are a lot of the related capabilities already in place, being supported by substantial information systems infrastructure. The case study also indicated that the majority of the personnel are open to accept innovative learning methods due to their familiarity with new technologies. However, adaptation and reconsideration is required as far as the knowledge management is concerned in order to be more compatible with the existent related procedures. The scientific approach of results' analysis with the use of statistical tools facilitates the performance gaps to be identified objectively and be defined the proper remedy actions that need to be assumed by using comparative methodologies.

The research aim was to contribute to development of an initial theoretical background towards the improvement of learning model in the Hellenic Army. It provided the theoretical background of organization learning and learning organization, proposing the appropriate tools and methodologies for adoption that can work as a basis to the development of an effective and efficient training model. Systematic steps through robust and adapted management processes is essential to

be adopted. At these initial stages, towards a learning transformation, imitation and benchmarking methodologies are proposed since they can provide fast and safe steps, taking under consideration the indications that Hellenic Army has already at its disposal many of the needed instruments. The adoption of innovation strategies are not strongly proposed as long as the assumption of high costs may be required especially when they are associated by a high risk of failure. These issues can be subject of further research in the field.

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