

THE TEACHING OF LEADERSHIP. LESSONS FROM THE NAVY

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Abstract

A Naval Academy's mission is to train naval officers in the specialties and fields needed for them to perform the assigned duties, and to provide them with the adequate skills to conduct the specific missions of the Navy and the Armed Forces. This implies the individual development for conducting command, directorship and leadership. The purpose of this paper is to show how the Portuguese Naval Academy teaches its leadership model, aimed at delivering highly skilled staff, through the following training components: (i) a robust scientific and technological dimension, aimed at satisfying the professional qualifications essential for carrying out technical functions; (ii) a behavioural training dimension, embodied in solid military, moral and civic education, with a view to developing students in what concerns command, direction and leadership qualities; and (iii) the physical preparation and military training, aimed at giving students the physical fitness and trainings essential for the fulfilment of their missions. The methods used assume the need to address distinct domains of leadership. The team leadership development model followed by the Portuguese Naval Academy, include the development of personal and cognitive behavioural skills including analytical abilities, critical thinking, the ability to conceptualize complex relationships, intuition and reasoning, and interpersonal behavioural skills, which further include knowledge on human behaviour and group processes. Moreover, the ability to understand attitudes, feelings and motivations, teamwork and communication skills, is also part of such model. The education and development of functional leadership skills at the naval academy embodies both theoretical and practical classes. The theoretical side is addressed by the courses on Organizational Behaviour, and Leadership and Teamwork. The practical part is addressed both by field exercises and practical exercises, conducted with the help of a navigation simulator which prompts students to develop decision making capabilities under stress. The results concern multiple years of leadership teaching experience and the most significant lessons learned are shared. The effectiveness of leaders is measured through the productivity of the led teams, which assess if the teams reach the final goal set for each task. As a rule, functional teams' leadership skills (clarifying the situation, clarifying the strategy, coordinating and facilitating learning) are assessed using behavioural observation grids, suggesting practical implications for organizations.

Keywords: Communication, Education, Functional Leadership, Organizational Behaviour, Team Leadership.

1 INTRODUCTION

The Portuguese Naval Academy's (PNA) mission consist of the training and adequate development of the Portuguese Navy future officers, across several specialization profiles, in order to be able to accomplish the assigned missions at the Portuguese Navy and the armed forces in general. Moreover the PNA aims to develop its students across the dimensions of command, directorship and leadership.

In order to fulfil its mission, the teaching model sued by the PNA is characterised by its aim to prepare highly qualified personnel through the following training components: (i) a solid scientific and technological training, aimed at satisfying the professional qualifications indispensable for the performance of technical duties within the scope of each of the specialties; (ii) behavioural training embodied in solid military, moral and civic education, with a view to developing in the students qualities of command, direction and leadership inherent to the military condition; (iii) physical preparation and military training aimed at giving the students the physical resourcefulness and training indispensable for the fulfilment of their missions.

After graduating from the PNA, young officers will work as junior officers on board warships, usually as team leaders. In essence, the exercise of leadership involves leading and managing teams. A useful element in understanding teamwork is to think about the skills that team members need, both to carry out the assigned tasks, to function within an interdependent team and to analyse vast, ambiguous and complex information in order to make optimal decisions. The development of these leadership skills not only plays an important role in lifelong learning, but also helps future officers to respond positively to the

various situations and opportunities they will encounter during their professional careers. This paper comprises five sections. After this introduction the second section provides some relevant background. Section three addresses the used methodology. Section four presents the results; and section five provides a discussion and conclusions.

2 BACKGROUND

The masters degrees taught at PNA are organised according to a specific curriculum plan for each class (or specialization), although there is a common core with a greater focus on Basic Scientific Education in the first two years. The courses that contribute to the advanced technical education of each class are more prevalent in the third and fourth years, providing a body of knowledge that results in technical and behavioural skills being developed. The fifth and sixth years are dedicated to complementary activities, practical training in operational units and the realization of a master dissertation.

On completing the courses, these students will have acquired a set of knowledge and skills. Such master degree programmes therefore aim to impart the knowledge and skills required to carry out the duties of an officer when in the different ranks, which in terms of knowledge covers all the theoretical material needed to carry out the roles, functions or tasks required of the specific rank and specialization.

In terms of competences, the mandatory transversal competences required by law and education regulator's are covered, namely by the Legal Framework for Academic Degrees and Diplomas in Higher Education (*Regime Jurídico dos Graus Académicos e Diplomas de Ensino Superior*, GADES) commonly used in higher education, specifically: (1) Autonomous research; (2) Analysis and synthesis skills; (3) Communication and discussion of results; (4) Multidisciplinary problem-solving; (5) Practical application of knowledge; (6) Computing and specific transversal competences, not required by GADES but relevant to the officer's duties, namely: (i) Team leadership; (ii) Teamwork skills; and (iii) Individual work.

As stated above, future naval officers will carry out team leadership duties as soon as they leave the Naval Academy. It is therefore important to analyse what team leadership is and which leadership skills development model is used by the PNA.

The tendency for organisations to adopt teams as the basic working unit led to the need to understand how 'team leadership' contributed to effective team performance. What does the leader have to do? What are his/her functions? These questions led to the so-called 'functional approach to leadership', in which the team becomes the fundamental element.

Several researchers have suggested the functional leadership approach as a framework capable of overcoming the gaps found within leadership theory when it comes to team leadership [1], [2], [3]. Functional leadership is characterised as a process of solving problems that affect team performance and effectiveness. In this framework, the leader is responsible for: (1) diagnosing the problems that may hinder the achievement of the team's objectives, (2) generating and planning the appropriate solutions, and (3) implementing these solutions in a complex social context through a sequential set of three generic functions: (i) searching for and structuring information, (ii) using information to solve problems, and (ii) managing human and material resources [4], [5].

This team leadership model is based on four leadership competences: (1) the competence to clarify the situation, (2) the competence to clarify the strategy, (3) the competence to coordinate and (4) the competence to facilitate learning, which are adjusted to the sequential phases of a task cycle. In this *three-stage task cycle*, the first stage, the *pre-action phase*, involves situational assessment and strategic structuring. In the second phase of the task cycle - the *action phase* - the actual involvement in the action takes place, i.e. the realisation of the task. In the third phase of this cycle - the *after-action phase* - there must be a reflection on the carried out performance [6].

During the situational assessment, the competence to clarify the situation takes a centre stage. This is expressed in the leader's actions aimed at facilitating team processes, specifically in the processes of analysing the mission and clarifying objectives, and translates into the leaders' ability to get team members to analyse the data and information about the considered problems in a new task, as well as the context surrounding its implementation, in an attempt to create a shared understanding of the problem. In a structured way, the leader creates a situational assessment through a pre-action meeting in which he promotes: (1) clarifying and defining the team's task (i.e. what needs to be done); (2) explaining its purpose and the purpose of the task (i.e. why it needs to be done, what it's for, and for what purpose); (3) characterising the resources available and the constraints or limitations on carrying

them out (i.e. what the boundaries and limits of action are); and (4) discussing this information and enriching it with contributions from team members, leading to a shared understanding of the team's problem, i.e. a shared mental model of the situation or problem. This shared model will subsequently enable everyone to contribute to defining the best strategy to adopt for carrying out the task, because everyone knows the starting data.

The competence to clarify the strategy is manifested through the leader's actions that stimulate the team processes of strategic formulation and planning, through which team members "have to decide how to solve their problem of carrying out their task, discuss expectations, prioritise activities, assign roles and share the plan among all members" [7]. In a structured way, in the second phase of the pre-action meeting, the leader promotes a strategic structuring by: (1) suggesting a strategy, (2) encouraging team members to develop this strategy or alternative strategies, (3) eliciting clarification of roles and the mode of interaction (i.e. who does what and how; who does what and when) (4) clarifying the use of available resources, (5) stimulating the integration of all the above information into a plan drawn up and shared with the whole team, making sure that all members share a common understanding of the chosen strategy (i.e. a shared mental model of the task) and also a common understanding of how the team members will work together to implement it (i.e. a shared mental model of interaction). In the proposed leadership model, the situational assessment and strategic structuring that take place in the pre-action period precisely aim to develop three shared mental models (i.e. the situation model, the task model and the interaction model) which will be an essential support for the action phase where they will function as implicit coordination mechanisms [2].

It is during the action phase that coordination emerges as the central process for performance and consequently for team effectiveness. The competence to coordinate is revealed in the ability of leaders to optimise and synchronise the contributions of members by stimulating the most relevant interaction processes in this phase, namely: monitoring compliance with objectives, monitoring mutual performance and mutual support behaviours [8]. It is also important for leaders to have the ability to adjust the team's actions when necessary and to ensure that all members understand these adaptations [3]. Periods of involvement in the action are highly intensive, creating the conditions for conflicts to arise, and leaders must ensure that the resulting effects are minimised, otherwise the results will be seriously compromised. Hence, in a structured way during the action phase, the leader promotes: (1) coordination of the other members' activities, (2) monitoring and updating the evolution of performance by keeping the team informed, (3) cooperation between members, by assisting and helping members under difficulty and (4) the maintaining of a favourable climate of interaction by limiting conflicts and stimulating motivation using positive reinforcement and stimulating cooperative commitment.

In post-action periods, leaders are in a privileged position to provide the feedback needed to 'regulate' teams, creating the conditions for collective reflection, which should take place in the context of performance, with the aim of detecting and correcting errors that have occurred, verifying coordination failures and integrating new information arising from carrying out the task, with a view to introducing improvements and systematising procedures for future actions, thus creating the conditions to consolidate effective learning opportunities in teams.

The competence to facilitate learning is revealed in the ability of leaders to promote a structured process of critical reflection on the events of the previous phases, i.e. on the assessment of the situation, on the strategic structuring and on the involvement in action, and to promote in a structured way: (1) a reflection on the initial assessment of the situation and the strategy undertaken, (2) a reflection on the involvement in action and (3) synthesise the lessons learned. Among other advantages of the functional leadership approach, we would emphasise the centrality of the team in the leadership process [9], i.e. in a leadership relationship that is focused on team processes. On the other hand, this model is based on the cognitive components of the leadership process [10], moving away from models that are based on leaders' characteristics or that prescribe styles, thus raising the possibility that these leadership functions could possibly be exercised by team members other than the formal leader. No less important is the possibility that the model can be used as a tool for training and developing leaders.

3 METHODOLOGY

The participants under this study consisted of a total of 164 Naval Cadets from the Portuguese Naval Academy. Participants were mostly male (85.3%); female (14.7%); aged between 18 and 21 years.

3.1 Procedure

The functional leadership model currently used at PNA comprises three functional areas (task, group and individual) which the leader has to focus on and develop simultaneously in order to achieve the functional objectives. These three areas overlap and influence each other, and from this intertwining results the need for each individual to participate in the 'group's endeavor' in order to achieve the common task or objective. This model is operationalized through the so-called *Practical Leadership Tasks* (PLT). Assigning a mission/task to a team means that the team is faced with the situation of carrying it out in accordance with the stated requirements and conditions. Once the team has been assigned a task, the functional leadership model develops through the following phases:

Phase 1 (*Initial assessment of the situation*) - In this initial phase, it is particularly important to gather and process information that will enable the leader to clarify the situation.

Phase 2 (*Assessment of the situation by the team*) - This phase begins with the preparatory team meeting where the leader, by clarifying the situation, facilitates the team in terms of sharing, discussing and structuring the information considered relevant for carrying out the task. This leadership skill triggers the team to develop a shared mental model of the situation.

Stage 3 (*Strategic Structuring*) - This stage aims to develop the team's way of solving the task by formulating the strategy and planning activities and is promoted by the leader through the clarifying strategy competence. Team members are confronted with the need to define a work plan and assign responsibilities.

Stage 4 (*Action*) - In this stage, which is essentially behavioral in nature, the team is involved in a series of processes that lead to the implementation of the task and planning, carried out in the strategic structuring stage. During the action phase, the leader's main role should be to facilitate the processes of team interaction, through the competence of coordinating.

Stage 5 (*Reflection*) - Once the task has been completed, the final evaluation stage follows with an after-action meeting. The reflection stage ends with the team collectively analyzing the efficiency of the processes and the effectiveness of the results they have achieved. At this stage, the leader's role is to encourage the team to analyze situations, reflect on them and extract learning and/or lessons learned that can later be used, through the facilitating learning competency.

The study consisted of two phases; the *pre-test* and the *intervention training* phases. During the pre-test phase, cadets were briefed about the purpose and methods of the functional leadership, and they performed the first practical leadership task.

3.2 Assessments

Cadets were then assessed on the following competences:

Communication - check that communication is clear, concise, precise and that the cadet expresses ideas well, putting them in a logical way. Check that the cadet feels confident communicating in front of an audience.

Leadership - checking the ability to influence the group, leading them to follow him/her even under adverse conditions. The objective is to find out whether the cadet is dynamic, flexible in decision making, spontaneous, energetic, takes the initiative and defines his objectives.

Planning - checking that the cadet shows and demonstrates standards of planning and organisation in order to complete the task, managing time effectively and proving to be a competent and flexible manager.

Decision making - checking how each cadet defines the course of action and the direction to follow in order to solve the problems he/she is presented with.

Determination - checking for persistence, resilience and the ability to withstand physical and/or mental stress, standing firm and confident.

Initiative - checking the liveliness, dynamism and constant attention of each cadet, analyzing the spontaneity, diligence and energy they put into setting objectives.

Self-Evaluation - to find out whether the cadet has evaluation skills, takes responsibility for execution, learns from mistakes and is always ready to review objectives and re-plan if necessary.

The effectiveness of leaders is measured through the productivity of the teams they lead, i.e. the extent to which the teams achieve the final objective set for each task. As a general rule, functional team leadership skills (clarifying the situation, clarifying the strategy, coordinating and facilitating learning) are assessed using a behavioral observation grid. Initially, the functional model and the phases that the leader has to carry out are explained. The competences described above are then assessed. As the functional leadership model develops, the cadets are assessed on other practical leadership tasks (PLT's), which become more difficult and deepen the practice of team leadership with the application of functional leadership over the years.

4 RESULTS

A team leadership model was developed and tested, which brings together the basic assumptions of functional leadership, i.e. the resolution of emerging problems in the context of carrying out a team's task, whose cycle is characterised by periods of pre-action, action and post-action in which leaders intervene specifically as promoters and facilitators of the interaction processes most relevant to team effectiveness [7]. Tables 1 to 7 and Figures 1 to 7 provide the results.

Table 1. Communication skills

Skill	Mean	SD	n
COM1	10,16	2,433	164
COM2	11,75	2,357	164
COM3	11,53	2,264	164
COM_Final	13,94	2,759	164

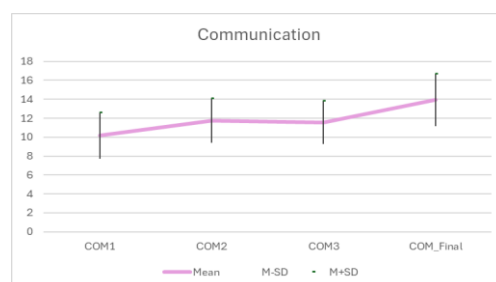


Figure 1. Communication skills

Table 2. Leadership skills

Skill	Mean	SD	n
LID1	9,991	2,404	164
LID2	11,63	2,297	164
LID3	11,43	2,252	164
LID_Final	13,481	2,798	164

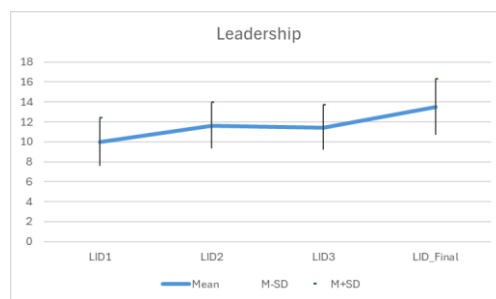


Figure 2. Leadership skills

Table 3. Determination skills

Skill	Mean	SD	n
D1	9,759	2,935	164
D2	11,49	2,554	164
D3	11,66	2,889	164
D_Final	13,64	2,973	164

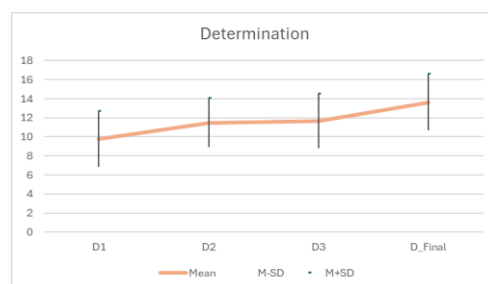


Figure 3. Determination skills

Table 4. Planning skills

<i>Skill</i>	<i>Mean</i>	<i>SD</i>	<i>n</i>
P1	9,384	2,568	164
P2	11,19	2,36	164
P3	11,02	2,472	164
P_Final	13,45	2,968	164

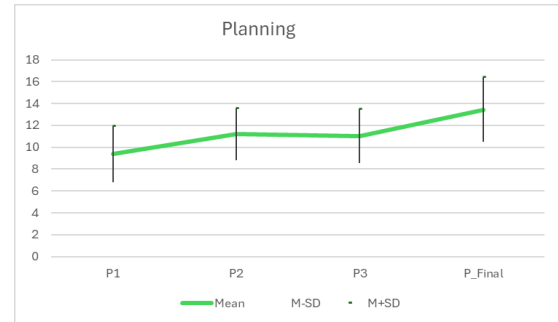


Figure 4. Planning skills

Table 5. Decision Making skills

<i>Skill</i>	<i>Mean</i>	<i>SD</i>	<i>n</i>
DM1	9,773	2,928	164
DM2	11,4	2,467	164
DM3	11,37	2,644	164
DM_Final	14,29	2,89	164

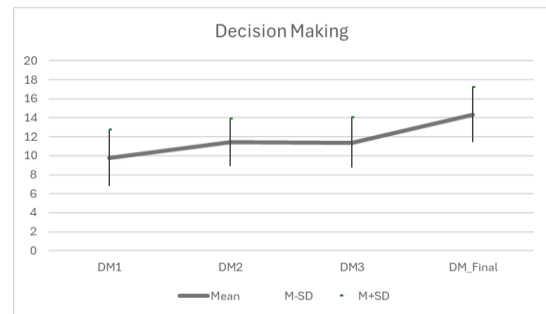


Figure 5. Decision Making skills

Table 6. Initiative skills

<i>Skill</i>	<i>Mean</i>	<i>SD</i>	<i>n</i>
I1	9,299	2,754	164
I2	11,2	2,334	164
I3	10,71	2,628	164
I_Final	14,06	3,181	164

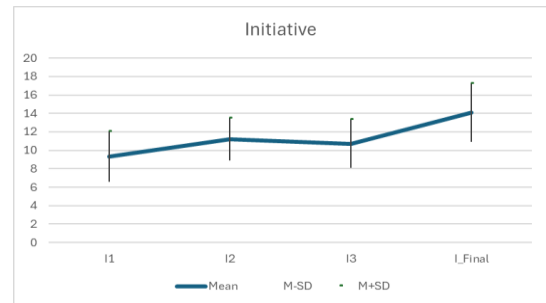


Figure 6. Initiative skills

Table 7. Self-Evaluation skills

<i>Skill</i>	<i>Mean</i>	<i>SD</i>	<i>n</i>
SE1	9,601	2,888	164
SE2	11,47	2,649	164
SE3	10,94	3,353	164
SE_Final	14,496	3,031	164



Figure 7. Self-Evaluation skills

The results showed a general increase in the competences observed (in some competences by almost five points), indicating a strong absorption of the techniques taught, as well as the effectiveness of the functional leadership model.

5 DISCUSSION AND CONCLUSIONS

It was through the studies of Santos et al. [7] that an attempt was made to advance the knowledge regarding team leadership, namely through the mechanisms by which leaders can influence a team's effectiveness, hence showing that functional leadership theory is an appropriate theoretical framework for studying team leadership and analysing its effectiveness; that the leadership model developed can function as an appropriate tool for developing leadership skills and that this development is an effective intervention for improving teams' effectiveness, and that the intervention of leaders through the development of teams mental models is an appropriate mechanism for promoting team effectiveness.

The question “- *is the team leadership model based on a functional leadership approach suitable for analysing team effectiveness?*” can then be answered. Firstly, the theoretical model of team leadership was developed from a framework of team leadership models together with models for developing adaptive capabilities within teams, all based on the functional leadership theory. From this framework four theoretical dimensions of team leadership emerged, corresponding to four categories of leadership functions, which were operationalised in the proposed model as functional leadership competences.

The question “- *is it possible for leadership development to promote team effectiveness?*” can also be answered. Once again, the studies by Santos et al. [7], suggest that the leadership programme that was designed to develop the four team leadership competences, proved to be effective in its purpose. In fact, the results showed that the individuals who took part in this programme had a positive change in their leadership skills when compared to their assessment before undergoing the training programme.

The team leadership model developed on the basis of functional leadership fits into a context of solving problems associated with teams carrying out unstructured tasks that require different contributions from its members. The resolution of these tasks is strongly conditioned by the time factor (i.e. by their urgency or emergency), and such resolution is a critical factor (i.e. by the imperative need for them to be carried out effectively); in other words, the tasks have to be carried out within a short timeframe without the possibility of testing various resolution options.

Another important conclusion to be drawn from this research concerns the impact of the training programme on team effectiveness. There are often doubts as to whether the changes in learning, behavioural or organisational indicators that occur as a result of training programmes is a result of those programmes or a result of other competing factors [11]. The results suggest that the leadership programme led to the development of team effectiveness through the development of leadership competences, mainly through the competences of coordination and clarifying strategy, and to a lesser extent through the skills of clarifying the situation.

In order to answer the question “- *can leaders improve team effectiveness by developing team's mental models?*” in the study and in the leadership model developed, two of the four leadership competences developed (i.e. the competence of clarifying the situation and the competence of clarifying the strategy) were aimed at the leader's intervention in interaction processes of a cognitive nature in order to promote the creation of team mental models. The results support the thesis that leaders can develop teams' mental models through these competences.

Another conclusion that can be drawn relates to the role of “problem solving team” mental models whose impact on team effectiveness occurs through “task carrying team” mental models, supporting the long-held idea that these models act as a frame of reference, or even as an antecedent to “task carrying team” mental models [12].

The model developed is a first contribution to affirming the theory of functional leadership as an alternative capable of explaining how leaders can affect the effectiveness of teams, contributing to the specific knowledge of team leadership, which is an underdeveloped area of knowledge [8] [13].

The results showed that it is through teams' mental models, that the leaders' ability to clarify strategy affects team effectiveness.

The results of this research have shown that leadership can make a major contribution to team effectiveness and that organisational decision-makers should pay more attention to and better understand this process. Based on the tested theoretical model and the subsequent validation of the

skills development programme, the results obtained suggest that this team leadership model is a useful mechanism for improving teams effectiveness.

The model tested showed that the development of the competences of clarifying the situation, clarifying the strategy and coordination, translated into improvements in teams' effectiveness. Particularly noteworthy was the change in the strategy clarification competence that occurred during the training programmes. The results showed that the impact of leadership on team effectiveness before the training was fundamentally based on the leaders' coordination competence. After the training programme, the strategy clarification competency gained equivalent weight to the coordination competency, accounting for a significant increase in the variance regarding teams' effectiveness. Taken together, the results suggest that those responsible for human resources development should focus on leadership development programmes that fundamentally promote specific team leadership competences (e.g. situation clarification, strategy clarification and coordination competences). Practice shows that teams that consistently apply the Functional Leadership Model become more effective even when faced with tasks of increasing complexity.

ACKNOWLEDGEMENTS

The authors would like to thank the Portuguese Navy Research Centre (CINAV) for its support.

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