Developing Project Management Competences using Role-Playing Games: A Case Study

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Abstract

This paper presents a Project Management Training Framework that simulates the project life-cycle concept based on PMBOK® guide, its approach and dynamic, used in real-life case studies, both in business and educational environments, driven by a Role-Playing Game designed to support the development of competency in project management.

Keywords: PMBOK®; Role-Playing Game; Knowledge, Performance and Personal competences.

Introduction

For many organizations, project management has been placed on the strategic agenda worldwide as one of the pivotal elements to improve organizational execution. Such points to an important issue to strengthen organizational capabilities regarding project management: developing and strengthening the competences in this field in a way that the individuals can cope with the challenges of the daily-life routine within the organization.

Developing and strengthening project management capabilities encompasses, amongst other aspects, training individuals in organizations in project management disciplines. Considering that the pursuit of effectiveness and efficiency in project management plays an important role to improve organizational execution in order to use the resources in an appropriate manner – which David L. Cleland denominated "prudent and reasonable project management" – the learning model to be adopted must take into account both "the use of proven, contemporary project management theory and practice in planning, organizing, leading, and controlling the use of project resources" (Cleland 1985); as well as consider what the target audience in that model is (functional and project managers, technical experts, experienced employees, amongst others), in order to create a *space* in which the individuals may use their experiences, thus fostering the conditions for the learning process to allow "people do learn from their experience" (Kolb 1984). Experiential learning is a model in education that considers people's experience.

A project management training model that incorporates both the "prudent and reasonable project management" as the experiential learning concept contains important ingredients to establish consistent and solid project management training and make the difference in the mobilization of an institution to improve organizational execution. This article presents an approach and dynamic to support the strengthening and development of project management capabilities.

A Project Management Training Framework was developed to provide a roadmap for implementation, encompassing both the approach and the dynamics. The results and conclusions from the application of that framework in real-life cases studies, both in business and educational environments, were analyzed with the following question in mind: In what aspects are the proposed approach, dynamics and developed framework efficient to strengthen Project Management Capabilities?

The approach
Two dimensions have been adopted to structure the approach and are interrelated (see Table 1). The first is related to the 4 elements in Kolb's cycle of Experiential Learning: concrete experience, reflective observation, abstract conceptualization and active experimentation. The second, in the sense of the "prudent and reasonable project management", adopts the project life-cycle concept based on Project Management Institute's methodology described in PMBOK® guide, as well as the standards described in the Project Manager Competency Development (PMCD) Framework, also developed by PMI.

The concrete experience is centered on the simulation of a project's life cycle, which allows learning from specific experiences when going step-by-step through the group of processes and areas of knowledge in the methodology developed by the PMI – Project Management Institute (see Table 2). To support the production of the deliverables, participants are made to read theoretical material or to listen to explanations related to the practices described in PMBOK® guide, which concerns the abstract conceptualization.

Throughout the simulation, they practice the elaboration of deliverables such as: project charter, work breakdown structure, project schedule, and so forth: the active experimentation element in Kolb's cycle. As participants progress in the simulation (concrete experience), they access theoretical material (abstract conceptualization) and produce the deliverables specified by the methodology (active experimentation); they reflect, watch other participants, share experiences and associate to their previous experiences, thus complementing the cycle defined by Kolb: the reflective observation.

Table 1 – The interrelationship between the two dimensions in the approach

Elements of Kolb's cycle of Experiential Learning	Prudent and reasonable project management
concrete experience	Going step-by-step through the main project management discipline
abstract conceptualization	Theoretical material is made available as participants progress through the disciplines
active experimentation	Participants elaborate the main documents and plans
reflective observation	Self-reflection

Developing competence in project management disciplines involves both the dimension of the method as the dimension of the *Self and the Other*: the dimension of relationships. While the first deals with knowledge and skills of a technical nature (hard skills), including subjects related to themes such as planning, control, tools, amongst others; the second deals with knowledge and skills of a behavioral nature (soft skills), which include subjects related to communication, influence, policies, negotiation, leadership, motivation, team building, not to mention the most complex and relevant of all: the Ethical nature of our actions. Project management training may include courses on technical as well as behavioral subjects. An organization's needs will determine the level at which such subjects must be approached in its

training programs. Nonetheless, it is "prudent and reasonable project management" to strive for balance between both. This approach was conceived to address both of them.

As participants in the training:

- go step-by-step through the main project management disciplines, they have the concrete experience;
- access theoretical material made available as they progress through the disciplines, they realize logical analyses through abstract conceptualization; and
- elaborate the main documents and plans, they take on an active role in the action and realize the how-to, through active experimentation.

The combination of the items above sets an environment conducive to personal involvement, thus facilitating address the behavioral subjects. The subjects adopted in this approach follow the Personal Competencies in the PMCD – Project Manager Competency Development Framework – which organizes them in six units of competence: achievement and action; helping and human service; impact and influence; managerial; cognitive; and, personal effectiveness.

Table 2 – The subjects related to Process Group and Knowledge Areas approached during the Game

The 5 Process Groups	The 10 Knowledge Areas	The main deliverables produced along the simulation
Initiating	Project Integration Management	Project Charter Stakeholders Mapping
Planning	Project Scope Management	Scope Statement WBS
Executing	Project Time Management	Schedule
Monitoring and Controlling	Project Cost Management	Budget
Closing	Project Quality Management	Definition of quality criteria
	Project Human Resource Management	RACI Matrix
	Project Communications Management	Communication Plan Monitoring and Control Rituals
	Project Risk Management	Risk Matrix
	Project Procurement Management	Acquisition plan
	Project Stakeholders Management (added in the 5th edition)	Stakeholder analysis

To promote the implementation of this approach, a group dynamics based on a Role-Playing Game was created. The *game* is controlled by a board, and is the tangible element that aims at encouraging insights related to participants' personal experiences, as well as at simulating the life cycle described in PMBOK®.

The group dynamics
The group dynamics aims at treating both technical as behavioral subjects in a playful manner. For such, the goal of the experience-based learning was centered on the simulation of a project, from start to completion. The proposed project is the solution of a 3-D puzzle.

The group dynamics is structured in 5 rounds that are associated to the groups of processes in the PMI methodology. As the group dynamics evolves, participants perform tasks

following the flow in the project management life cycle. The ultimate result is a project planned, executed and monitored as per the PMI (Project Management Institute) methodology. Figure 1 provides an overview of the group dynamics.

The game develops over 2 days.

1 At the start:

A need is presented and a Project is outlined:

Participants are then invited to join the game and, on the board...

2 ...the game develops:

The 5 participants play roles as:
- ✓ Project Manager
- ✓ Project Team
- ✓ Sponsor

Theory and practice are integrated, and...

4 At the end of the game:

- ✓ 1 project: planned, executed and monitored using the PMI methodology
- ✓ 1 kit with the key documents
- ✓ Competences and critical success factors are identified and discussed

3 ...over 5 rounds:

The cards lead participants through the methodology and to discussions of the critical success factors and competences.

Figure 1 – The Role-Playing Game supports the simulation of the life cycle in project management

Each round has a specific goal and definite tasks to be performed, as to provide hands-on experience of the methodological particularities, both related to the groups of processes as to the areas of knowledge. At that moment, the focus is on PMCD's knowledge dimension.

As to effectively simulate a project, roles must be played, including the project manager's, the team's, and the sponsor's. Each participant will play one of those roles, following a set of instructions described on cards. As project management is a process-oriented methodology, the sequence of the cards steers the group dynamics, simulates the flow of the processes involved, and directs participants to move pieces that refer to the areas of knowledge involved in the group of project management processes focused on in the round, read the theoretical sheets and draw up plans following the PMBOK® guidelines.

Throughout the 5 rounds, the participants – players – perform the activities required by the methodology, are supported by sheets whose content provides technical knowledge, and elaborate the most important project-management documents.

An artifact, a game board (figure 2), was develop to enable the group dynamics. The game board controls the rounds.

A facilitator supports the group dynamics throughout the training. Participants are encouraged to bring to discussion situations experienced in their daily routines as the situations present themselves during the group dynamics. Such environment fosters and promotes discussion about the personal competencies and critical success factors related to project management. Such critical factors and competencies are customized to the reality of the organization, and are pieces the participants-players move along the rounds. At that moment, the focus is on PMCD's personal competencies.

Figure 2 – The game board developed to control the simulation: a) The rounds associated to the process groups are the triangles on the board; b) the areas of knowledge are the pieces moved by the participants

The group dynamics (figure 3) directs participants to *experience* the elaboration of the most important documents associated to the groups of processes and areas of knowledge in the PMI methodology and establishes the connection to the competences required to apply the methodology.

The "prudent and reasonable project management" must consider the Ethics as a catalyzing and conductive element between the technical e behavioral competences. That reflection takes place at the end of the group dynamics. Participants are invited to discuss the theme.

A project gathers people around a common goal and imposes the need to interact. That daily interaction in the space of the project raises, therefore, the question concerning the convergence of expectations. The convergence of personal expectations and expectations towards the project poses a fundamental question: the inner order that will steer the group behavior. When thinking about that inner order, we enter the realm of moral and ethics, as "the delicate fabric of moral concerns the individual at the deepest of one's 'conscience', while binding the individual to those persons one interacts with." (Aranha 2003)

In the space of the project a kind of clarity of conduct must be pursued and fostered. It is necessary to tackle the dimension of ethics and moral in the scope of projects with the same degree of importance we tackle the methodological dimension of management, and strive for balance between those two dimensions.

PMI's Code of Ethics and Professional Conduct sets forth the conduct to be followed by project management professionals. That code sets forth the core values to be fostered: Responsibility, Respect, Justice and Honesty.

Why discuss values if not to address the fundamental question of how to live with the other, bringing to light the proper clarity of conduct, not only to reach the project goal, but mostly to establish new long-lasting liaisons? How, then, to tackle and apply responsibility, respect, justice and honesty? Are responsibility, respect, justice and honesty alone enough for clarity of conduct? Or is more needed? And, how is that notion of "clarity of conduct" associated to the competences defined in PMCD?

There is no final answer to that question. What remains here is both the exercise of the reflection as of the action. Action that not only sets in motion the *thinking about it* – which is much in itself – but that also transforms through that thinking. It is to effectively use the potency of that thinking – characteristic of what is human – along with the potency of acting, since "not only does the active being act according to the reality, but activates the reality itself, setting it in motion in a way that, without the active being, would never have happened. " (Savater 2004)

(1) Instruction to participants-players

(2) Facilitator

(3) Plan of the completed 3-D Puzzle Project.

(4) Executing the proposed plan

(5) Monitoring and Controlling

(6) Executed Project

Figure 3 – An overview of the group dynamics during the 5 rounds.

Project Management Training Framework
The approach was conceived to focus both on technical as behavioral competences; the group dynamics encourages insights related to participants' personal experiences and simulates the project life cycle, and the game board is the tool designed to control the activities for planning, organizing and monitoring projects, from beginning to completion. All these were conceived in order to provide the means to: a) experience the situations provided by the simulation of all phases of the project-management methodology; b) think about the need to develop individual and corporate competences throughout the game; c) provide an environment to facilitate the experience of proactive learning; and, d) provide hands-on experience, processes and templates to support the development of project management capabilities.

The Project Management Training Framework (figure 4) was conceived to direct the implementation of the required stages to develop the competences associated to the planning,

organization and oversight of projects based on the aforementioned approach, group dynamics, and game board.

Stage A aims at identifying which technical and behavioral subjects must be emphasized throughout the training, and cards and pieces are customized on stage B.

Those two stages intend to add strength to the mobilization strategy to improve the organizational execution, from the institutional standpoint. These stages involve the organization's HR Managers and Senior Management.

During Stage C, the approach and group dynamics described above take place, with participation by the participants-players and representatives from the HR area. At the end of the training, stage D, Assessment, is carried out both by the participants-players as by the HR Managers and Senior Management. The assessment allows establishing how individuals will continue the development of their personal competences, in addition to assisting in the evolution and continuity of the development process of the competences in the organization, from the perspective of improving organizational execution.

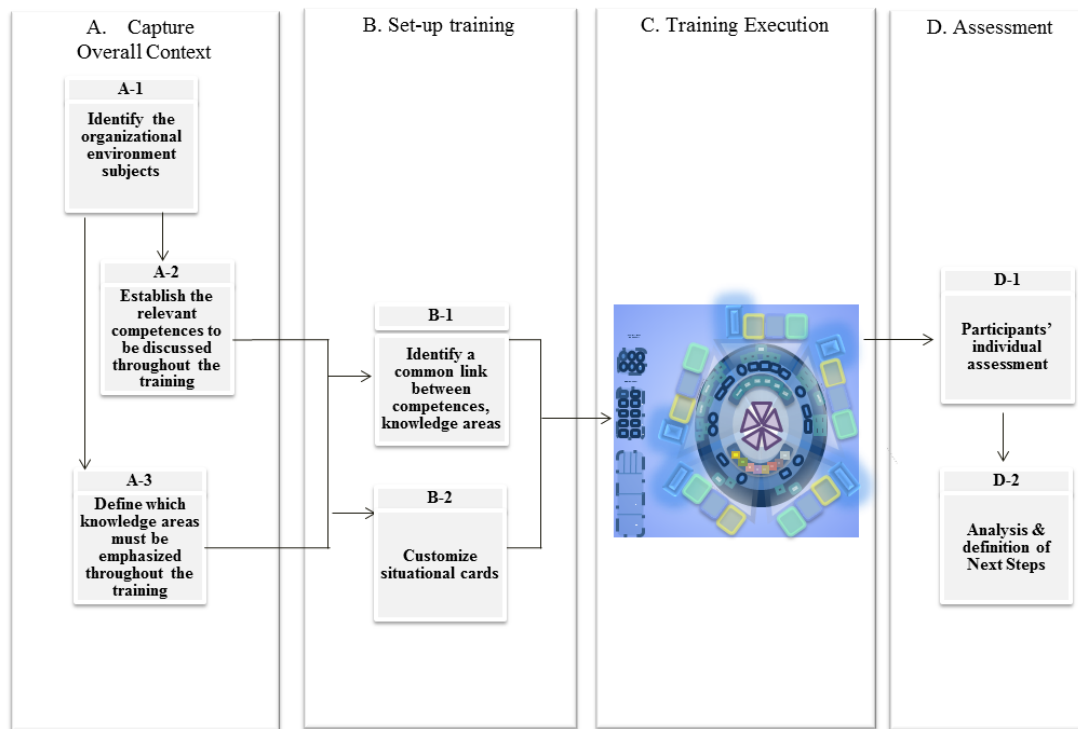## Project Management Training Framework

Figure 4 – The Framework aims at organizing and structuring the application of the proposed approach and group dynamics

Results

The framework has been applied to organizations in the financial industry, consultancy, and educational services (MBAs, post-graduate and graduate courses), totaling 122 participants-players. The qualitative assessment applied at stage D in the roadmap requests the overall opinion of the training based on the Project Game, as well as in what aspects the approach and group dynamics are more efficient compared to a conventional training. Table 3 presents the assessment summary.

The training approach was regarded as a differential for the learning process and, according to participants' testimonials: it made it easier to learn concepts; facilitated understanding of the steps required to manage a project, as well as of the importance of planning, and of the aspects related to communication to give visibility to the project. Additionally, the approach was recognized as a facilitator to establish analogies with day-to-day situations.

It was observed that the participants engaged in the proposed group dynamics. Out of the reports obtained at the end of stage D in the roadmap, the recognition that the *space* provided by the group dynamics was conducive to expressing their personal and professional experiences stands out as a conducive factor for such engagement, which facilitated the integration and connection of the theory to the practice as the situations simulated throughout the *game* arose.

From the organization's standpoint, stages *A* and *B* in the roadmap were highlighted as important elements to the training effectiveness. At that stage, the competences and areas of knowledge to be emphasized during the execution of the training were defined, leading to a result of practical and real sense to the participants, making "learning more effective and dynamic", as highlighted in one of the assessments. According to one of the organizations, "the application of the approach was more efficient compared to a conventional training as the understanding of the company's reality and needs turned the learning environment into an extension of the working environment, and the aided discussions led participants to reflect on each area's daily routines", as reported by the HR management. In the case of the application of the approach to the educational environment, each learner defined 5 themes considered relevant from their personal viewpoints, which served as base for stages A-1 to A-3 in the roadmap.

In one of the organizations, the impact on the daily routine was object of assessment 3 months following the training. A noticeable improvement was reported in the commitment and participation of the individuals involved in activities related to the projects under way within the organization.

The observation and analysis of participants' testimonials indicates that the combination of the application of the framework and the design of the game board facilitated the understanding of the importance of using project management processes to execute a project, in addition to structuring the learning of when and how to deploy processes, tools and templates, "making the methodology clearer to apply in future projects", according to one assessment.

Conclusion

As presented at the start of this article, the approach and the dynamic was conceived to discuss the importance of both technical as behavioral competences and encourages insights related to participants' personal experiences; and, the game board was designed to control the simulation of the activities for planning, organizing and monitoring projects, from beginning to completion.

The analysis of the cases contemplated the following question: In what aspects is the developed framework efficient to strengthen Project Management Capabilities? The main findings point to:

- the combination of the adopted approach, the group dynamics and the game board fostered the conditions to provide an environment to facilitate the experience of proactive learning; sensitize participants to the importance of using a methodology with a start, middle and end, conducted in an organized, standardized and controlled manner;
- it provides hands-on experience by stimulating an individual's set of Knowledge, Performance and Personal competences as outcomes;
- encouraging insights related to participants' personal experiences;

- it directs project members' awareness of their attitudes bearing a direct impact on the success of the project;
- it raises willingness to communication across areas; and,
- it fosters participation by creating a learning environment as an extension of the working environment.
  The benefits recognized as resulting from the application of the approach include:
- fostering knowledge acquisition, construction and application;
- bringing to light the importance of both of technical as behavioral competences;
- aligning participants' understanding of the advantages of properly applying the project management methodology;
- the reflection on the importance of each role in the development of a project; and,
- the discussion about the roll of competences required for a project's proper execution and success.

Table 3 – Summary of the assessments applied on the case studies

Learning is more effective and dynamic.	It teaches the whole flow of a project in a practical manner.
Greater participation and involvement by participants.	The game clearly shows the path we must follow. The game made the methodology clearer to apply in the coming projects.
Very good group dynamics, making it easier to learn important concepts. The training helped to understand day-to-day situations that make all the difference in the success of the project.	It allows understanding the stages in the project and the methodology to be deployed to achieve success in realizing a project. All that was very well exemplified when we set the project in motion.
Brings to real life.	The whole training was very valuable because, as the processes were carried out, we understood the importance of planning.
The simulation of the practice certainly is the differential.	The aspects related to communication, to give visibility to a project.
It engrosses the learner in learning and participating.	The opportunity of seeing the execution of each stage of the project in practice, from conception to final delivery, was essential to understand the steps required for the success of a project.
It is easier to learn concepts.	It makes us think about the current situation and possible action plans.
It was possible to understand the theory while applying it to the planning and execution of a whole project.	The reflections on Ethics.
	Raised people's awareness of the best Project Management practices.

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