Game Based Learning Improving Leadership Skills

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Abstract

This research intended to identify leadership skills in Game Based Learning (GBL) context that were developed in the project GREAT implementation. This project was developed within an international partnership including Portugal, Austria, Italy, Romania and Turkey and the main product was a GBL course.

The course and the learning process was supported on the SimCity Social game. The trainees had to assume the Mayor role with the goal to construct and manage a city with 5000 inhabitants, assuming a leadership style encouraging the collaboration of the others trainees to accomplish their the learning goals.

The main findings of this research were the diverse skills of leadership that emerged from the reflections of the trainees on the discussion forums about the game situations and the analogy they made to real life in organisations.

1. Introduction

The main goal of this research was to analyses project management leadership skills in game based learning context, during the international project GREAT. The research was developed according qualitative methodology – namely content analysis using the information shared among the participants of several GBL courses with SimCity Social as a mean to accomplish the goals of the learning process.

This paper structure begins first with the introduction explaining the main goals of this research and the structure of the paper. Second the literature review on GBL and leadership styles are presented followed by the research methodology and the analysis and discussion. Finally the trainee's skills development and the conclusions pointing out the main findings from the research.

The research process occurred from 2011 to 2013 and was funded by Leonardo Da Vinci Program, European Commission.

2. Literature Review

2.1. Game Based Learning Concept

Game based learning is a concept that is structured around a learning process that uses as the main pedagogical tool a specific games which helps to arise and develop skills.

Games can foster soft skills and also technical skills. They can provide several kinds of contexts and scenarios for the learners.

Several game scholars like Gee, Kurt Squire, Constance Steinkuehler, David Williamson Shaffer often refer to the learning component in game based learning as games for higher order thinking and social skills [1] [2].

There are three perspectives according to games based learning the first and also the identified as the dominant conceives game based learning as a learning approach driven by game technologies [3] [4] [5] – the learning occurs predominantly as a result of the game played.

Another perspective assumes that game based learning process is driven not only by game technologies, but also by pedagogies. The learning process takes place within a game, but also through several defined activities that are

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created around the game and that are complementary to the game.

The third perspective assumes that game based learning is more a pedagogical/learning innovation driven by game design principles. This perspective gamifiy the learning process using game mechanics like role-playing, achievement, competition and reward system [6].

The project Great assumed the second perspective and created a course around a social game – SimCity Social with the goal to develop leadership skills.

2.2. Leadership Styles in Theory

In reviewing the literature general management literature considers leadership a success factor in organisations and that specific leadership style can lead to better performance.

In this paper context it is important to analyse the leadership styles identified by the most relevant schools of thought and also the main authors.

According to Levin there are three major leadership styles [7]:

Autocratic leaders, make decisions without consulting their team members. This can be appropriate when decisions need to be made quickly, when there's no need for team input, and when team agreement isn't necessary for an outcome. However, this style can lead to high levels of absenteeism and staff turnover.

Democratic leaders, make the final decision, but they include team members in the decision-making process. They encourage creativity and employees are often highly engaged in projects and decisions. As a result, team members tend to have high job satisfaction and high productivity.

Laissez-faire, leaders give their team members a lot of freedom to do their work, and to set theirs deadlines. They provide support with resources and advice if needed, but otherwise they don't get involved. This autonomy can lead to high job satisfaction, but it can be difficult if team members don't have knowledge, skills, or self-motivation to do their work effectively.

The contingency school [9] [10] [11] [12] suggest that what makes an effective leader would depend on the situation. They tend to follow the same pattern:
1. Assess the characteristics of the leader;
2. Evaluate the situation in terms of key contingency variables;
3. Seek a match between the leader and the situation.

This theory exhorts the idea that the leader need to help the team in order to find the path to their goals and help them in that process. Path-goal theory identifies four leadership behaviours:
— Directive leaders
— Supportive leaders
— Participative leaders
— Achievement-oriented leaders

In more recent studies, Kirkpatrick & Locke identified the following personality characteristics of leaders [13]:

— Drive and ambition
— The desire to lead and influence others
— Honesty and integrity
— Self-confidence
— Intelligence
— Technical knowledge

The behavioural school also assumed that effective leaders adopt certain styles [14] [15] [16], specially the ones studied in theory X and theory Y [17]:

Theory X managers believe that the average employee has an inherent dislike of work and will avoid it if possible. Because of this, most employees must be coerced, controlled, directed, or threatened with punishment to get them to put adequate effort to achieve organizational objectives, they avoid responsibilities and have relatively little ambition.

Theory Y managers believe that the expenditure of physical and mental effort in work is something natural, and the average employees, under proper conditions, learns not only to accept but to seek responsibility. Employees will exercise self-direction and self-control to achieve objectives to which they are committed. They have the capacity to exercise a relatively high level of imagination, and creativity in the solution of organisational problems.

Meanwhile Bass identified two types of leadership, transactional and transformational [17]. Since the late 1990s, the emphasis has been to study the complexity of the contexts where leaders emerge and researchers have acknowledge that transactional leaders emerge in situations of low complexity and transformational leaders in situations of high complexity:

Transactional leadership, the leader rewards followers for meeting performance targets. These kind of leader focuses on the role of supervision, organisation, and group performance.

Transformational leadership, the leader exhibits charisma, developing a vision, respect and trust. Gives consideration to employees, paying personal attention to followers and provides intellectual stimulation, challenging followers with new ideas and approaches.

In this research we tried to find several types of leaders in game context and make an analogy to the real life in organisations.

3. Research Methodology

The methodological approach of this research was qualitative - intensive analysis. The qualitative analysis allows a better knowledge of the situation and privileges an interpretative approach.

Regarding the specificities of this research the main technique used was content analysis from the Course forums. It was used to determine the presence of certain words or concepts within texts to analyze the reflections of the participants and the development of the skills applied in all phases of the game. The process implied

inference about the messages of the trainees.

4. Analysis and Discussion

4.1. Project Great Developing Skills

The project Great[*] main goal was to equipping educational agents of methodologies and tools for the proper use of games in the learning process through the transfer of innovative methodologies previously developed by a Leonardo Da Vinci program - Engage Learning Project[†]

GREAT was a transfer of innovation project with the aim to transfer innovative methodologies in learning and training, to enable trainers to improve their work performance, by enhancing their creativity and innovation through game based learning [18] and project management skills.

Traditionally, training systems promote an educational paradigm focused on the trainer as the center agent of the action, and less as a facilitator/mentor of knowledge and learning experience. In this sense, game based learning includes paradigm for the future of learning and takes importance on the E&T 2020 strategy, as part of informal and non-formal learning that promotes every dimension of these activities.

The specific objectives of Great project were the following ones:

— Document methodologies for developing and implementing game-based learning for training and higher education actors and for the learning community in general.
— Production of needs analysis assessment instruments for developing and implementing game-based learning for training and higher education actors.
— Production of learning content and training methodologies (b-learning) for trainers and teachers developing and implementing game-based learning.
— Production of assessment instruments in accordance with the methodologies for developing and implementing game-based learning.
— Develop a course for supporting trainers and practitioners in learning activities supported by games.

4.2. The Great Course Structure

The main product of the project is a course that uses the GBL – Game based learning methodology. The course was structured in three modules, each one with several learning activities associated to the game selected in order to help developing the leadership skills.

[*] Project GREAT (http://www.projectgreat.eu/project)
[†] (www.engagelearning.eu)

Table 1. Course Programme

MOD 1 - Forum	The MOD 1 integrates the activity plan and Videos about GBL and also several articles.
MOD 1: Activity Plan	
MOD 1 - activity 1	
MOD 1 - GBL videos	
MOD 1 - activity 2	
MOD1 - articles	
MOD 1 - activity 3	
MOD 2: Forum	Module 2 includes the Social SimCity Game Exploitation Pedagogical Guide.
MOD 2 - Social SimCity Game - Exploitation Pedagogical Guide	
MOD2: Activity	The activity of Mod 2 is playing the game according to the trainer orientation.
MOD3: Leadership Resources.	Module 3 encompasses the resources from the leadership skills.
Do You Have What It Takes To Be A Leader?	
Activity: Leadership Fiedler Model	
MOD3: Forum Leadership	

There were 8 editions of the train the trainer's course in all the countries of the partnership and almost 150 trainees in the course.

All participants worked collaboratively in order to accomplish the goals of the course and several of them developed many activities in the project assuming a dynamic role.

5. Trainees Leadership Skills Development

5.1. Context

The skills development occurred in GBL context and the trainees learning process was based in a social and collaborative online game – SimCity Social on Facebook. The online version of the game is a more simplified version of the city-building simulation game series developed by Electronic Arts [19]. The social version on Facebook can be played in a collaborative way. With the Facebook app, it was possible to play with other players and watch the cities construction in different ways based on the decisions made by the trainees.

The players could visit one another's cities building alliances - assuming positive or negative actions while visiting the other player's cities.

During Great Project pilots each group of trainees included at least 15 participants/players and they had several challenges to overcome as a team. The main goal was to reach 5000 inhabitants in two weeks, with a time constraint - they only had one hour per day to play. It was important to define individual and also group strategies in order to share resources, energy and also to accomplish several activities helping each other's.

The main idea was to create an analogy of the game with the organisational life within a company and identify skills they needed to use to overcome the obstacles and to be successful.

5.2. Leadership Types

The course main goals were to develop three skills in project management. One of these skills was leadership and in game context participants needed to assume a role as Mayor of a virtual city.

Figure 1. SimCity Social: Types of Mayors

The first challenge of participants were to decide what kind of leader skills was important to develop according to the role they would assume (Levin, Fielder, and Blanchard):

Autocratic leadership the Mayor assumed complete power over the followers, the neighbors in the city. When

the Mayor assumed this style of leader accomplished goals associated to routine and unskilled activities.

Transactional Leadership the Mayor assumed a controlling and paternalistic leadership style and clarifying roles and responsibilities.

Democratic/Participative Leadership the Mayor made the final decisions, but include team members/the neighbors help in the decision process. The main goal of the Mayor was engaged the team members in city construction and in the decisions.

Laissez-Faire Leadership the Mayor allow their neighbors to play on their own, being only a spectator.

Transformational Leadership the Mayor led to high productivity and engagement from all team members, constructing big cities in a little time.

All of these leadership types are associated to specific skills that emerge according to the type of leader assumed in specific situations.

During the project development and implementation several kind of leaders emerged from practice and also framed by theory. In the next point of this article we will present and discuss leaders types associate to a set of skills that were identified through the methodology approach used in this research.

5.2.2. Leadership Skills

Kets de Vries and Zaccaro find in theirs research's several types of skills [20] [21]:
— Cognitive
— Behavioural
— Emotional
— Motivational

Framed by this types of skills this research identified the leader skills in game and also in organisations context, decurrently from the reflections of the trainees about the analogies made among the game and theirs organisations.

Therefore several kind of leaders and skills emerged from the research.
— Coach (coaching team members)
— Facilitator (developing the skills of team members)
— Change agent (promoting creativity, eliminate resistances)
— Communicator (feeding back team and individual performance)
— Motivator (motivating using a combination of intrinsic and extrinsic rewards)
(i) Facilitator

The leader facilitator challenges the employees thinking and creates lists of important points to discuss and realize. He promotes knowledge sharing helping to solve problems and raises questions to bring out different viewpoints. Guides discussions, but does not lead it - provides constructive criticism. He understands the goals of the organisation and keeps the group on the agenda and moving forward, involving everyone in the organisation activities and makes sure that decisions are made democratically.

Figure 2. Leader – Facilitator

The main skills identified for this kind leader were:
— Capacity of communication from management to meet goals.
— Capacity to motivate employees and enhance productivity and efficiency through communication.
— Results orientation.
— Focus on the big picture and delegate smaller tasks to the team to accomplish goals.
— Capacity to take advantage of the differences.
— Capacity to anticipate and influences change.

(ii) Coacher

Coaching is a collaborative partnership centered on achieving goals and the primary objective of coaching is to develop the person being coached. It is a way of leading that supports guides and challenges to individuals maximize their potential and performance, through the following activities:
— Identifying strengths and challenges;
— Motivating and delegating;
— Relationship/team building;
— Providing feedback;
— Resolving everyday workplace challenges;
— Helping employees become more self-aware;
— Change problematic behaviours or seize opportunities to grow and improve;
— Believe in workers abilities;
— Willing to invest time in the workers development;
— In exchange for the trust and investment, the coacher expect workers to try their hardest.

Figure 3. Leader - Coacher

The main skills identified for this kind leader were:
— Capacity to analyse workers profiles and to realize who the employees are that learns best and what are their strengths;
— Capacity to delegate;
— Capacity to transform errors in learning opportunities;
— Capacity to help the employees to learn how to solve problems.

(iii) Change Agent

The Change Agent acknowledge the need to change and give immediately feedback in order to overcome employee's resistances.

This leader understands the common pitfalls that can lead to derailment and is targeted for training and people development.

Figure 4. Leader – Change Agent

In order to be a change agent the leader must:
— Create and foster a vision of a new future.
— Face up to behaviours, values and norms in current culture that must change.
— Initiate and lead the change.
— Create a willingness to separate from the past.
— Build shared ownership through organisation-wide participation.
— Communicate the changes and new cultural messages
— Model the behaviour that supports the new vision
— Reward behaviour which supports the new vision
— Maintain focus on the goal
— Bring in resources who uniquely add value to the change effort by modelling new ways to act, think and view things

The main skills identified for this kind leader were:
— Capacity to give feedback to employees as part of the organisational change;
— Capacity to share power;
— Capacity to acknowledge employee limitations and strengths;
— Capacity to put the interest of the team ahead of personal ambition and self-interest;
— Capacity to access both employee emotional and rational sides;
— Capacity to project a positive, and optimistic outlook.

(iv) Communicator

The communicator uses continual feedback to enable progress and refocus the efforts of all. He expresses the organisational culture in numerous ways, including:

— The formal statements of philosophy, values and goals.
— The criteria used for reward, selection, promotion, and termination.
— The stories, legends and myths about key people and events.
— Critical incidents and crises and norms.
— Organisational design and structure (reporting).
— Organisational systems and procedures.

Figure 5. Leader - Communicator

The main sources of feedback from the leader communicator include:

— Interviews with co-workers.
— Performance appraisals.
— Employee attitude surveys.
— Management style assessment.
— Teambuilding sessions.
— One-on-ones with leader.
— Assessment centres.

The main skills identified for the communicator leader were:

— Presentation skills;
— Capacity for asking effective questions;
— Capacity to listening;
— Capacity for facilitation and problem solving;
— Capacity for conducting high impact conversations;
— Coaching and mentoring skills.

(v) Motivator

Motivation is a goal-oriented characteristic of the leader that helps employees achieve his objectives.

The leader motivates employees and helps people to find courage, knowledge, and skills to make the needed changes. He provides the following support:

Psychological Support—help employee deal with their doubts and fears. Build employee's confidence. Affirm their talents and determination to succeed. Remind employees of their previous successes.

Training support—help people to learn and acquire new knowledge and skills. Help people use and apply their new skills.

Reward and recognition—provide frequent recognition and rewards for employee's efforts and accomplishments.

Feedback support—give frequent feedback about performance that reinforces desired behavior and defines when new behavior is needed.

Figure 5. Leader - Motivator

The leader behavior can influence the employee's motivation:

— Matching the employee's goals with the organisational ones.
— Recognition and rewarding are key motivators to influence employees to achieve the defined goals.
— Being a role model that influences employees to accomplish their goals.
— Encouraging employees to get involved in organisational life.
— Developing moral and team spirit.

The leader make their employees feel that they are performing an important work that is necessary for the organisation success.

The main skills identified for this kind of leader were:

— Capacity to build employee confidence;
— Capacity to help employees to use and apply theirs skills;
— Capacity to drives employees development;
— Capacity to being supportive.

6. Conclusions

Project Great was a spill over from Engage learning project with the goal to transfer innovative methodologies in learning and training, to enable trainers and teachers and training provider's representatives to improve their work performance, by enhancing their creativity and innovation through game based learning.

Using GBL methodology was tried to use games not serious thus seeks to find games available on the Internet and at no cost, but that helped to accomplish the desired goals. The selection of SimCity Social was, at the time, the best game for the

project aims – developing leadership skills in project management.

The major question of the learning process through the course was "What style of leader have you been in the game process?"

To identify the style of leadership developed some threats were open to discussion about the gaming process and also organisational life:

a) Identify and explain one situation of the game when you applied the autocratic or transactional style of leadership.

b) Identify and explain one situation of the game when you applied the participative/democratic style of leadership.

c) Identify and explain one situation of the game when you applied the *laissez faire laissez passer* style of leadership.

d) Identify and explain one situation of the game when you applied the transformational style of leadership.

The main findings of the research were the following kinds of leaders and the skills associated to them:

— Coach (coaching team members)

— Facilitator (developing the skills of team members)

— Change agent (promoting creativity, eliminate resistances)

— Communicator (feeding back team and individual performance)

— Motivator (motivating using a combination of intrinsic and extrinsic rewards)

Finally it's important to acknowledge that the skills development was not only associated to leadership, but also to the learning process with parallel acquisition of other skills that initially were not expected.

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