Leadership styles and skills developed through game-based learning

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A R T I C L E   I N F O

A B S T R A C T

Game-based learning (GBL) as a universal approach to developing leadership skills have been winning attention from researchers and practitioners. There are numerous studies which support the positive effects of games on learning and knowledge development; however, more research is needed regarding how games may influence development of leadership skills. This paper examines recent literature regarding game-based learning influence in leadership skills development and if new leadership styles can emerge during a collaborative gaming process. The research questions were: 1) what were the leadership skills developed, during a GBL course? Moreover, 2) what kind of leadership styles emerge in the gaming context? The methodological approach was quantitative and also qualitative, privileging the interpretative approach and the primary technique used was content analysis from the forums of discussion of 8 GBL courses with 15 participants in each course summing a total of 120 individuals and also factor analysis based on data collected by a questionnaire about the leadership skills developed, and which conducted to the identification of the leadership styles. The findings suggest that a game-based learning approach is an effective approach to leadership skills development and the primary skills developed were: motivation, facilitation, coaching, mindset changing, and communication. The significant originality of the research was the analogy process between the games situations and the organisational life resulting on the creation of a leadership typology.

1. Introduction

Game-based Learning is a pedagogical methodology currently used in a vast range of different domains. Games can be designed to potentiate the training process through a virtual world promoting the social interaction and competencies development. The main techniques in games are simulations, narrative or storytelling. According to Keesey and Smith-Robbins (2010) "the most successful organisations prepare their employees for the intricacies of virtual world collaboration through substantial cultural orientation experiences" (p. 41). Kessey & Smith-Robbins also refers that "a virtual world solution may offer an invaluable new opportunity for your training program" (p. 49).

Games can be used as training systems across some sectors such as government, non-profit, commercial and social sectors inclusive of military, healthcare, education and other fields. Games provide play-like simulation with the additional criteria of learning and or improving a functional proficiency and social interaction.

In training processes of project management, a multiplayer game can re-enforce the social, cultural or organisational value in a short period for the participants. Michael and Chen (2005) highlighted the success of "simulation, beyond teaching the basics of project management, where the team also wanted the game to promote better relations between project managers and engineers" (pp. 94–95).

In the education sector, Michael and Chen (2005) citing Beck and Wade state "gamers were more creative, more ambitious, and more optimistic about their abilities and circumstances" (p.116). With games, there is an improvement in "cognitive skills, including improved visualisation and mental maps" (p. 117).

In resume, GBL is a learning methodology supporting effective learning (Connolly, Boyle, MacArthur, Hainey, & Boyle, 2012; Wouters, van Nimwegen, van Oostendorp, & van der Spek, 2013), enhancing the thinking process (Sánchez & Olivares, 2011; Yang, 2015), and increasing problem-solving skills (Akcaoglu & Koehler, 2014; van de Sande, Segers, & Verhoeven, 2015).

According to this current and global context in learning, this research presents the results of the evidence-based pedagogy of GBL in project management leadership skills development. The primary activity of learning was a GBL course using a Social game on Facebook. The participant needed to use leadership skills like organisation, decision making, resources management, and financial skills, to decide

what kind of city was under construction: more ecological or more industrial or even more targeted for entertainment or education.

The collaboration and the active participation of all students and trainees were critical to accomplishing all goals defined by the trainers and the project managers itself.

2. Literature review

2.1. Game-based learning to improve leadership skills

Game-based learning is a concept that is structured around a learning process that uses as the primary pedagogical tool a specific game which helps to arise and develop skills. It is well-known that games can foster soft skills and also technical skills because games 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 the game based learning as games for higher order thinking and social skills (Schaffer, Squire, Halverson, & Gee, 2005Steinkuehler & Duncan, 2008).

The GBL methodology has the main advantage over classical education which is that practice precedes theory and in this assumption, the learning process is developed to solve situational problems, whose emergence is controlled by the training environment. The learning process is defined according to a strategic plan organised by phases and pre-defined goals focused on the identified of problems, involving step-by-step learning. Following this idea, we can state that GBL pedagogical model is very different from the traditional training systems that promote an educational paradigm focused on the trainer as the main agent of the action, and less as a facilitator/mentor of knowledge and learning experience.

There are three perspectives according to the Game Based Learning theory: the first and also identified as the dominant conceives game-based learning as a learning approach driven by game technologies (Gee, 2003; Prensky, 2003; Sousa & Costa, 2014) – 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 created around the game and that is 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 gamifies the learning process using game mechanics like role-playing, achievement, competition and reward system (Kapp, 2012).

This learning process under research assumed the second perspective and created a course around a social game –with the goal to develop leadership skills.

In respect to leadership, the management literature significantly explores the importance of this concept, defined by McCauley, Moxley, and Van Velsor (1998) as "the expansion of a person's capacity to be effective in leadership roles and processes" (p. 4). Leadership developmental interventions have used different general leadership theories such as: the leader match concept (Fiedler, Chemers, & Mahar, 1976), the decision making theory (Vrom & Jago, 1988), the situational leadership model (Hersey, Angelini, & Carakushansky, 1982), the leader-member exchange theory (Scandura & Graen, 1984) and the transformational leadership theory (Bass, 1990). Furthermore, Kozlowski and Ilgen (2006) pointed out that leaders need to create conditions for the team to "synchronise their knowledge, skill, and effort to be effective as a team" (p. 109).

This main research goal was to use a game that could provide several kinds of contexts and scenarios for the learners as proposed by Schaffer et al. (2005); and Steinkuehler and Duncan (2008) to develop their leadership skills.

Considering the lack of empirical validation for the theoretical models of leadership skills development using GBL, this study tried to fill this critical gap in the literature by testing the impact of a leadership training program, based on the GBL methodology for leadership skills development. To achieve this, we trained the participants of the training program and expected it would improve the effectiveness of the learning process. Thus, our first research question is:

RQ1. Which were the leadership skills developed in the game context?

2.2. Leadership styles

Leadership is discussed widely in the management literature as a soft skill and individual knowledge (Kimble, de Vasconcelos, & Rocha, 2016; Kinkus, 2007; Vasconcelos, Kimble, & Rocha, 2016). According to Dobbins and Pettman (1997), leadership is the ability to motivate people to work towards achieving common goals, to make ordinary people display extraordinary performance. In short, leadership has been related to a person's skills, abilities and degree of influence to get people moving in a direction, making decisions and doing things that they would typically not have embarked on (Kets De Vries & Florent-Treacy, 2002). Different styles of leadership are adopted by project managers, depending on the circumstances - teamwork may result from consensus building between project managers and team members rather than adopting a dictatorial style (Zaccaro, Rittman, & Marks, 2001). According to Lewin, Lippit, and White (1939), there are three major leadership styles:

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 is not 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 much freedom to do their work and to set their deadlines. They provide support with resources and advice if needed, but otherwise, they do not get involved. This autonomy can lead to high job satisfaction, but it can be difficult if team members do not have knowledge, skills, or self-motivation to do their work efficiently.

The contingency school (Fiedler, 1967; House, 1971; Krech, Crutchfield, & Ballachey, 1962; Robbins, 1997) 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 regarding key contingency variables; and, 3. Seek a match between the leader and the situation.

This theory exhorts the idea that the leader needs to help the team 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 their studies, Kirkpatrick and Locke (1991): Drive and ambition; the desire to lead and influence others; honesty and integrity: self-confidence: intelligence; and technical knowledge.

The behavioural school also assumed that effective leaders adopt specific styles (Adair, 1983; Blake & Mouton, 1982; Hersey & Blanchard, 1988), especially the ones studied in theory X and theory Y (Bass, 1990):

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 organisational 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,