The effectiveness of game dynamics in cooperation networks

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Abstract

Purpose – In line with the recent adoption of game dynamics to promote motivation and engagement in business contexts, the purpose of this paper is to analyze how gamification tools (i.e. points, levels, challenges, badges and ranking) are used to manage cooperation networks.

Design/methodology/approach – To develop this purpose, an exploratory case study is conducted on the RedeMac Qualifying Program as a set of tools to enhance customer service in RedeMac, a cooperation network of hardware stores in southern Brazil.

Findings – The results showed the motivating role of gamification in engaging associates to the network's decisions. The findings also indicated the effectiveness of points and badges in engaging members and highlighted opportunities to apply tools of challenge. In addition, the paper argues about the constraints for ranking in cooperation networks.

Research limitations/implications – The study reinforces literature assumptions that stand for the motivating potential of points, levels, badges and challenges. However, the case study highlighted the constraints to adopt the ranking tool in cooperation networks.

Practical implications – From the managerial point of view, the study informs managers about the adoption of gamification tools to promote motivation and engagement of associates in cooperation networks, facilitating the achievement of collective goals.

Originality/value – In spite of the growth of empirical literature in applying gamification to business contexts, there are no reports of research about the adoption of gamification tools on cooperative relations in a network organization.

Keywords Cooperation, Networks, Gamification, Small firms, Cooperative strategy

Paper type Research paper

1. Introduction

Any game is a voluntary activity or occupation, exercised under certain and determined limits of time and space, according to rules freely consented, but absolutely mandatory, endowed with an end in itself, accompanied by a feeling of tension and happiness and by a conscience of it being different from ordinary life (Huizinga, 1998). The dynamic of games provides intense interactions that stimulate the involvement of participants playfully and without the need for monetary incentives (Burke, 2014). Hence, the use of game dynamics for

motivation and engagement in social interactions has received the attention of researchers from different fields (Hamari and Koivisto, 2015; Deterding, 2015). Gamification is an emerging term to describe the set of strategies, mechanics, styles and techniques of game design to involve people to solve a problem or reach a certain goal (Zichermann and Cunningham, 2011).

Since the popularization of the term gamification, studies have been broadening the scope of game design for a number of applications (Negruşa *et al.*, 2015; Seaborn and Fels, 2015). In the business context, gamification has been adopted to increase the engagement levels of customers and employees (Mollick and Werbach, 2015; Robson *et al.*, 2016). The tools that have originated from this evolution of gamification allow the adoption of the logic of games in activities that are not games *per se* but can benefit from these tools to motivate participants (Nacke and Deterding, 2017). Nonetheless, according to Nacke and Deterding (2017), there is a dearth of studies comparing different tools in terms of process quality and outcome quality. Moreover, the application of gamification tools in B2B relationships is still under-researched.

Cooperation networks bring together small and mid-sized companies to work together, to boost their individual results (Verschoore and Balestrin, 2011). The associate companies operate in the same business segment and share similar difficulties and opportunities. Based on these similarities, they align their strategic actions to achieve economies of scale and market recognition. Many times, those networks are encouraged by state initiatives and, because of such dependence, they fail to establish an autonomous network management (Verschoore *et al.*, 2018). In this context, cooperative, voluntary and non-hierarchical relationships among firms make it difficult to obtain results from the efforts of carrying out the established directives. The competence of transforming collective decisions into actions performed individually by associates is one of the elements highlighted by studies that take a deeper look into management and control in network forms of organization (Milward *et al.*, 2006; Provan and Kenis, 2008).

One of the difficulties indicated by this analysis is finding ways to motivate participants to follow and apply the collective operational standards without creating dissent or destabilizing the relationships among firms. To circumvent this problem, cooperation network managers have avoided punishing non-aligning firms and have sought to motivate firms to follow the collective operational standards by means of offering benefits and rewards (Wegner *et al.*, 2017). In such scenario, gamification tools as points, challenges, badges, levels and rankings have been adopted to overcome the difficulties faced by cooperation networks to apply standards established collectively. This phenomenon gave opportunity to analyze gamification applications in a B2B context. In light of recent advances on gamification, the research question that guides this study is: How are gamification tools used by cooperation networks to motivate the associated firms to follow collective standards?

For this purpose, a case study was carried out in the RedeMac Qualifying Program. RedeMac is a cooperation network of the retail industry established in the year 2000 that brings together 72 independent hardware stores in the state of Rio Grande do Sul, Brazil. The RedeMac Qualifying Program came about from one of the main collective objectives of the network: to make a difference in the matter of customer service. During its existence, from 2001 to 2008, the RedeMac Qualifying Program had to address the inherent difficulties of the weak engagement of its associates, even though the firms themselves chose it as a relevant strategic action. With the intention of overcoming this obstruction, the network used non-monetary motivational instruments, but it did not assess the instruments' use or results.

This study is justified by its theoretical contributions both to the established knowledge on management and motivation in network forms of organization and to the recent research on gamification. Above all, this work is justified by its managerial implications, which advance the understanding of gamification tools and contribute to research on the use of game dynamics in a B2B context. The paper is structured in eight sections. After this introduction, the next three sections present the theoretical background of the study: management of cooperation networks, gamification and gamification tools. Section 5 details the research design and methodological procedures performed in the case study. The RedeMac Qualifying Program is described in Section 6. The results of the study are analyzed in Section 7, followed by Section 8, which presents the concluding remarks, limitations and suggestions for future research.

2. Management of cooperation networks

Cooperation networks among firms have been a topic of research and discussion in academic and professional circles since the end of the past century (Oliver and Ebers, 1998). The search for tools to direct the objectives and individual competitive strategies of associated firms, aligning them with collective objectives without losing their identity, is the principal challenge of management. The search to understand what explains the interest in network cooperation among firms can be found in the new competition discussed by Best (1990), in which firms no longer dispute alone but incorporate global cooperation networks to respond quickly to changes in the market and, in this way, achieve outcomes.

From this perspective, according to Jarillo (1993), cooperation networks are created to reduce uncertainties and risks, organizing economic activities by coordinating firms. For Verschoore and Balestrin (2011), cooperation networks are a way for firms to come together with the objective to favor the activity of each one without having financial ties forced among them. Firms in a cooperation network complete each other on the technical level (means of production) and commercial level (distribution) and decide to mutually support one another as a priority (Wegner *et al.*, 2017).

Cooperation networks are complex entities that require broader discussions than those commonly found in organizational theory. A critical component of this extended comprehension is its emphasis on management (Provan and Kenis, 2008). When including greater objectives, cooperation among firms in a network becomes more intricate. Therefore, instead of leaving actions and results to chance, the network is planned, coordinated and controlled by managers with the aim to extend the profits of the firms (Verschoore *et al.*, 2018). In some networks, a firm with more resources, competence and legitimacy takes on all the responsibility of management. When a network does not have such a managing firm, a common solution is to share the management among the participants, making themselves responsible for managing internal relationships and network operations. Anyhow, it relies on the involvement and commitment of the participating firms, and it is particularly efficient in networks that are constituted by a small number of strongly interrelated participants (Provan and Kenis, 2008). In cooperation networks with a greater number of participants and more complex objectives, self-management does not have the same efficiency. In these cases, participating firms establish an independent administrative entity to which the principal functions of management and activities of the network are delegated (Provan and Kenis, 2008). Thus, the network coordination becomes a responsibility of professional external managers.

The coordination of actions is accomplished, in general, with the participation of all those involved. Social safeguards guide relationships, establishing the basic rules of conduct. On the other hand, contractual safeguards clarify rights and duties, conserving individuality,

seeking the compromise of those involved and avoiding the emergence of privileges or unbalances among the firms (Blumberg, 2001; Woolthuis *et al.*, 2005). In other words, social mechanisms are the aspects of individual behavior of entrepreneurs and social relationships that influence cooperation and collective accomplishment of decisions and actions in the network (Wegner *et al.*, 2017). The contractual aspects are defined as the formal and legal matters that compose the statute, the rules of behavior established in the internal regiment and the norms and procedures of the network (Verschoore and Balestrin, 2011).

Thus, firms' motivation to get involved in the network is driven by their comprehension of offered benefits and the importance of their active participation in the network decisions and actions. As highlighted by Verschoore and Balestrin (2011), individual behaviors of entrepreneurs and social relationships are the aspects that influence the cooperation and the collective accomplishment of decisions and actions in a network. This interaction increases when firms' degree of motivation is increased. However, this process is the reaction of the development and, moreover, the social embeddedness among partners (Blumberg, 2001). In cooperation networks, contrary to vertical and hierarchical organizations, traditional instruments of motivation, such as wages, bonuses or even career progression, are not present (Wegner *et al.*, 2017). The specific form of the horizontal and collaborative relationships among firms requires other motivational tools. The inclusion of games' dynamics in the relationships among firms could constitute an alternative to achieve the necessary motivation. Gamification, its concepts, its evolution and its principal tools will be the theme of the next section.

3. Gamification
The incorporation of technologies through constant technological innovations took the gamesome being, provided with great intelligence, to create new equipment that ever more brings the universe of games into the daily lives of people (McGonigal, 2011). The fundamental characteristic of any game is its participative nature, and technology might create possibilities to participate anywhere at any time. According to Ghozland (2010), the importance of the experience of a game depends on how much interest it can generate. Creating and maintaining the interest of the players is the way to manage their motivation. The player's motivation is the factor that will determine whether a player will continue to play after a few minutes, how long the player will play and whether the player will finish the game.

The use of game dynamics in other contexts has become more widely discussed and adopted in recent years, above all in internet-related firms (Penenberg, 2013; Burke, 2014). The attention toward the evolution of games is ever increasing, and its concept has broadened to videogames, portable games, social games, telephone applications and tools for personnel recruitment, among others. The expression gamification is frequently used in different contexts. The idea of incorporating game dynamics in other contexts has incited the interest of firms. They have perceived opportunities for non-monetary motivation to stimulate the sense of competition and cooperation (Zichermann and Cunningham, 2011).

Gamification as a term originated in the digital media sector. The first documented uses of the term go back to 2008, but its adoption became generalized in the second semester of 2010, when researchers related to the game industry used it in various conferences on the subject. Gamification is usually defined as the inclusion of the mechanics, style, thinking and design techniques of games to involve people in resolving a problem (Zichermann and Cunningham, 2011). However, according to these authors, because of its characteristics, gamification is used for motivation, as the winners are those who can execute a task, follow the rules or be the fastest. Thus, gamification can also be defined as "using the mechanism

of games for contexts that are not games with the intention to improve and involve the user" (Deterding *et al.*, 2011, p.12).

According to Bunchball, Inc (2013), motivation is the essential mechanism derived directly from games. Although the term gamification is relatively recent, its use in combination with other terms, such as motivation and management, is not a new idea. For many years, the mechanisms of games have already been in use in many sectors of the economy (Deterding *et al.*, 2011). Gamification tools are stimulation mechanisms used to make any activity a game. When gamification tools are combined, they allow the involvement of the participant in the experience (Bunchball, Inc, 2013). In the next section, the principal tools of gamification are addressed.

4. Gamification tools

There are many game tools that can be used in highly diverse applications (Zichermann and Cunningham, 2011; Zichermann and Linder, 2013). However, the authors present as the main tools points, badges, levels, ranking and challenges. Points, as a reward when an objective is obtained, are understood as motivational elements and serve to measure the performance of a single user when in comparison with other users, thereby increasing the motivation to earn as many points as possible (Sailer *et al.*, 2017). According to Bunchball, Inc (2013), people love points; they like to win them and work to obtain them. Levels are presented as progress indicators. They are used to motivate users to increase their effort and to seek greater and quicker progress in the context in which they are set. Ranking is used to verify one's position in relation to other participants. Challenges are missions or objectives given to an individual, consisting of activities that the user must accomplish in the application, such as commenting, sharing or voting in contents and then be rewarded with trophies, badges or medals. Completing a challenge and receiving a reward is considered a personal success or outcome.

A single firm can encourage people to act when defining desired actions and attributing them rewards in points. One example of games created with this system is client fidelity programs, such as miles programs, in which airline companies attribute points to flights that can be exchanged for new free flights, seeking to capture clients' attention and gain a long-term commitment from them (Bunchball, Inc, 2013, 2013; Penenberg, 2013). According to Robson *et al.* (2015), the use of game mechanisms could change the stakeholder behavior by tapping two drivers of human behavior: reinforcements and emotions. Because of this, the use of gamification tools should contain elements that enable their application to obtain results, e.g. the goals must be clear, feedback must be immediate when possible and the opportunity and the capacity of those involved should always be assessed to avoid demotivating factors, such as unattainable challenges.

Finally, according to McGonigal (2011), all games are basically defined by four essential aspects: objectives, rules, responses and participation. The objective possesses the specific finality for which players should fight. The rules and mechanisms establish limits for players to achieve the objectives. The response system tells players how close they are to reaching the objectives. Voluntary participation determines that all players know and accept the objective, the rules and the feedback system. Gamification shares elements of game design to support common purposes, such as to launch challenges, to use strategies, to obtain points to reach certain objectives, to gain visibility and to earn rewards such as badges (Groh, 2012; Sailer *et al.*, 2017).

In the next section, the methodology that orients the field research will be detailed. Due to the nature of the matters studied, the qualitative emphasis of the case study method was chosen to achieve the objectives proposed in this work.

5. Methodology

This paper seeks to understand a complex social phenomenon: how gamification tools motivate the associated firms to follow collective standards. The study follows a qualitative and exploratory approach (Klein and Myers, 1999), with analysis focused on five tools adopted by the RedeMac Qualifying Program. The case study was selected as the underlying method by its appropriateness in answering questions of "how" or "why" from a contemporary set of events over which the researchers have little or no control (Yin, 2013). The RedeMac case study allowed the researchers to address a broad variety of evidence in two stages of data collection.

In the first stage, primary data were collected through unstructured interviews, visits and field observations. The empirical subjects of this exploratory stage was composed of specialists, managers and entrepreneurs from cooperation networks who were not directly involved with RedeMac. This stage aimed to identify the gamification tools adopted by networks to overcome management challenges and took around six months. Based on this exploratory stage, the researchers were able to select the five most usual gamification tools: points, levels, challenges, badges and ranking.

The second stage of data collection was carried out by gathering information directly from specialists, managers and entrepreneurs associated to the implementation of the RedeMac Qualifying Program. Based on the evidences from the exploratory stage, five interviewees were selected intentionally. Two of the employees were entrepreneurs and owners of hardware stores associated to the RedeMac network since its foundation in the year 2000. Both entrepreneurs have participated in the Qualifying Program since its inception. The third interviewee was the specialist hired to develop and maintain technical support to the Qualifying Program. The specialist took part in the Program almost throughout its existence. The last two interviewees were RedeMac managers. One of them was the executive manager. This manager has helped to establish the RedeMac network and, since then, has been performing the executive function. The other was the head of the customer satisfaction team. Due to his position, this manager played a leading role in the implementation of the RedeMac Qualifying Program. In this paper, the interviewees were randomly named E1, E2, E3, E4 and E5, so their identity could be preserved.

To carry out the interviews, a semi-structured script was elaborated in accordance with the literature reviewed and with the evidences observed during the exploratory stage. The script was divided into two parts. The first part concerned questions about RedeMac and its management challenges. In the second part, questions aimed to identify the existence of gamification tools and how they were adopted to motivate the associated firms to follow the collective standards. Before the interviews, the script was presented to a specialist, to verify the appropriateness of the terminologies and the execution time. Thus, two redundant questions were removed and the remaining questions were revised to become more effective for the ends it was constructed. Interviews were previously scheduled and lasted approximately 50 min. All interviews were recorded with the permission of the interviewee and subsequently transcribed.

Besides interviews, data were also collected through in loco observations and gathering of documents. The observations were oriented by a protocol in which gamification tools were listed. The researchers sought to take a position as a stranger to the organization to have a contrast between the vision of the organization's members and the impartial vision of the researchers. The documents collected included the history of RedeMac and internal publications. Many different media and materials were gathered, such as meeting minutes, communication manuals and the quality program guidebook. These secondary data helped to verify the application of gamification tools in the RedeMac Qualifying Program.

Thematic analysis was adopted to explore and examine data collected in both stages. Thematic analysis is a method of identifying and analyzing themes that organizes and describes the data set in detail (Braun and Clarke, 2006). The data set of this study consisted of 12 documents, the interview transcripts and 7 observation field notes. Initial codes were generated deductively based on the theoretical background and data collected at the exploratory study (Step 1). Following Nowell *et al.* (2017), codes were fit into a framework to provide detailed analysis of particular aspects of the data. This coding framework provided a manual that included detailed theme descriptions and the game dynamics associated to each theme (Bunchball, Inc, 2013), which was useful for the researchers. Table I presents the coding framework of gamification tools.

The three data sources were triangulated, to increase the probability that the research findings and interpretations could be found credible (Nowell *et al.*, 2017). This procedure was divided into two steps: data exploration and data interpretation. Data exploration was carried out by reviewing the code extracts for each theme. The interview transcriptions and the documents collected were cut into register units, according to themes and game dynamics framed in Table 1. In Step 2, following Nowell *et al.'s* (2017) experience, a detailed analysis for each individual theme was carried out. Data interpretation captured the latent and manifest of the five themes in all the material collected to answer the research problem. Research meetings were held to discuss the findings about each theme and its related game dynamics. The main task was to investigate where the findings supported, contradicted or added to the body of knowledge and the gamification practice. The findings were compared to the theoretical background and other literature to support the arguments of this study. Shorter quotes within the material were also selected to highlight the findings discussed at the research meetings. Finally, by interpreting the findings from the perspective of thematic analysis, it was possible to report how the gamification tools were used by RedeMac to motivate the associated firms.

Themes/description	Game dynamics/description
Points The payoffs a player can earn during a game. They are designed to encourage motivation. Points are also used as a way to highlight the accomplishment of an objective	Reward Measure the participant's accomplishments in relation to others and act to maintain the participant's motivation for the reward or the next level
Levels Function as an accumulation indicator of a certain level of activity or the accomplishment of a specific objective in the network or community. Levels can represent respect and status in the context in which it is applied	Progression Idea of giving players the feeling of advancing within the game
Challenges Challenging tasks that can be simple or complex and that can involve individual activity or require a group to complete them	Achievement They prolong the activities and the game itself, motivating the players to find solutions and complete all of its challenges
Badges A symbol that represents a type of social status. They are earned after the participant has completed many tasks or challenges, which can be easy or difficult	Status It anchors the performance expectations higher and triggers social comparisons
Ranking A classification system that indicates individual performance, providing to the user statistics on himself, colleagues and networks	Competition It creates goal commitment and increases self-efficacy

Table I.
Coding framework of gamification tools

6. RedeMac qualifying program

The RedeMac Qualifying Program was created based on the network's need to differentiate itself in terms of customer service. This necessity originated the customer satisfaction team that worked on elaborating and carrying out training courses for managers and employees of the network. The first course was offered in 2001. In 2003, the first RedeMac servicing guide was presented to the associates. The guide was elaborated with the objective of standardizing store servicing, which was motivated by new firms entering the network. It could be considered the origin of the RedeMac Qualifying Program.

In 2004, the customer satisfaction team started to discuss the creation of a quality program, in the frame of the Rio Grande do Sul Quality and Productivity Program (PGQP). Then, it was necessary to adapt the PGQP frame to the reality of a hardware store. The adaptation of the PGPQ was carried out by a contracted advisor, coordinated by the leader of the team and followed up by the network executive. According to one of the participating interviewees:

> I mean, he took the PGQP methodology and adapted it for what we understand as the minimum standards, [...] in that which we created, strategically defined what the stores should be in the RedeMac network. (E5).

As the same interviewee stated, the main objective was to motivate the firms to grow together:

> The objective of all this is to have the stores evolve and create a homogeneous form so that they evolve together on the same track, from the standards that RedeMac created collectively (E5).

After the beginning, matters of marketing, the brand RedeMac and a mix of products were being incorporated. In summary, the standardization of the network of stores was pursued:

> There was a whole process of learning behind it. Standardizing stores on one side, learning on the other, and the exchange of experience on the other. So it was these three aspects that inspired the development of the RedeMac Qualifying Program (E2).

In March 2005, the program was presented to the associates and approved by the majority of firms in the assembly. On the same occasion, 15 firms were invited to participate in the program's first pilot test. At the end of the year, when the pilot test was finished, the program underwent some adaptations. In 2006, a new version was launched with the firms that advanced to the second level of the program, those that stayed at the first level and new voluntary firms. In all, 19 firms took part in the second version. Starting in 2007, the program left the experimental phase and became mandatory for the firms. As stated by one of the interviewees:

> [...] adhesion was voluntary in the first two years; afterwards, it was mandatory. But this was already thought since the beginning. Why initially voluntary? Because those participating in the program were interested in improving the performance of their stores (E2).

In the Qualifying Program, three levels of assessment were established. When the firms joined the program, on the first level, they received a guide manual and participated in training courses. To facilitate the commensuration of the participating firms, the role of a program multiplying agent was created inside each firm. The multiplying agent was the person responsible for maintaining contact with the Qualifying Program team and coordinating the work of calibrating the firms. According to interviewee E5, assessments for changing the level in the program were conducted by external evaluators, along with the multiplying agent. There were two external evaluators, from firms that were at the same level as the firms being assessed and an internal evaluator, who would also be an external

evaluator in another firm at the same level. According to interviewee E2, the objective of this system of assessment was to enable the exchange of information between participants of the Qualifying Program and to maintain transparency in the assessment of firms.

Until 2006, only one firm assessment was conducted at the end of each year. Starting in 2007, a preview assessment was systematically conducted in the middle of each year to issue a diagnosis and take corrective actions. Therefore, the network contracted a specific professional who acted as an integration agent responsible for conducting a preview assessment of the program and for connecting the firms to the qualifying team. While the integration agent elaborated on the assessment reports, he established a channel of communication that made it possible, among other benefits, for the solutions to return to the firms evaluated. In spite of this support, only three firms reached the third level, demonstrating the program's high demands for a firm to be rewarded. According to interviewee E2 "the result between the number of firms that participated and those that reached the maximum level was three from a total of 72 stores." The program was very selective:

> Even because a store that reached level three would be a model for the other stores and would obtain a maximum degree of prestige in the network and in the relations of power (E2).

The RedeMac Qualifying Program was, therefore, a very demanding program. The firms had to reach 90 per cent of the total points to advance a level. On the third level, there were 257 items of assessment that made it difficult for participants to understand the standards. In addition, according to interviewee E4, the program had high costs for the firms to maintain a structure of following up and the commensuration of items. As time went on, the program was considered outdated for RedeMac's objectives because it did not adequately assess the associates. Therefore, the program ended up being reduced to awarding once a year the stores that were outstanding; it was unrecognizable from the model proposed at its creation. In the next section, the way gamification tools were used in the RedeMac Qualifying Program to motivate the participation of its associates is analyzed.

7. The adoption of gamification tools
The analysis of the RedeMac Qualifying Program indicates that points were tools adopted to motivate the associates to reach the collective standards. Based on what E1 reported, there were 230 assessment items that needed to be scored at least 90 per cent for the firms to advance to the next level. Evidence gathered from interviews demonstrates that participants were engaged in earning points. Interviewee E2 highlighted that the desire to be rewarded was ceaseless and that all people involved ended up working for it. What facilitated this drive was the fact that points were distributed through task accomplishment, through reaching assessed the collective standards and even through simply participating in a RedeMac event. This was shown by, among other things, the statements of interviewee E5: "[. . .] such that simply participating in the assembly already rendered rewards, and this made it unmissable, since points would be loss by not participating [. . .]." Therefore, it can be stated that using points as a tool in the Qualifying Program, in alignment with the theoretical propositions of gamification, promoted a motivating experiment for participants (Dickey, 2007).

However, the motivation could have been stronger if an evolving scale of points had been taken into consideration. The high demand of the RedeMac Qualifying Program represented more of an obstacle than a motivation and only few associates were able to earn the necessary points. When adopting points as a tool, managers should observe a balance between opportunity and capacity of players to avoid disengagement factors, such as

unattainable scoring (Yang *et al.*, 2017). RedeMac could have made it the beginning of the process simpler or less demanding and allowed a gradual advancement until the 90 per cent required in all levels was reached. This would have been a more adequate procedure because according to McGonigal (2011), the more points participants obtain in the first phase in a game, the more they are motivated to go on to new phases. Another proposition of gamification that could have supported motivation in the RedeMac Qualifying Program would be the exchange of points obtained for products and services of the network in a type of bonus rewards (Bunchball, Inc, 2013). The exchange of points could elevate the level of participants' motivation and even have an effect on associated stores' employees. Nevertheless, evidence of this study merely indicated the use of points in assessing associates.

The evidence analysis demonstrated that the RedeMac Qualifying Program was conceived with only three progression levels. All associates participated in the first level, under the premise of an initial stage. After obtaining 90 per cent of the points proposed for the level, they continued on to the second level. Those who reached the third level, the highest, were again assessed, to stay in the last level of the program. These complex game dynamics hindered most of the associates from having a trajectory of evolution in the program; in all of its history, only five associates reached the third level.

Although levels played an important role in stimulating progression in the context of the game (Zichermann and Cunningham, 2011), participants' difficulty in progressing from one level to the other ended up being a demotivating factor. This is highlighted in the statement:

> [. . .] the result of the number of firms that participated and those that reached the maximum level was five from a total of seventy-two stores. Really, the program was very selective [. . .] (E2).

This demotivation is explained by studies on gamification. Deterding *et al.* (2011), for example, indicate that the importance of the experience of a game depends on how much interest it can generate. The motivation to reach higher levels is one of the determining factors of how much time a player will dedicate to the proposed activity and, therefore, maintain his participation in the game.

Based on Bunchball, Inc (2013), it is possible to affirm that the progression levels contributed little to motivation in the RedeMac Qualifying Program. Therefore, one way of improving the program with the application of gamification tools would be the reduction of demands for points in the first level so that a greater number of participants would be motivated to continue to aim for the objectives delineated. In addition, as is common in many games, another improvement would be the continuous creation of new progression levels to expand the highest achievable levels. The motivational value of using this tool could be maintained, where associates could then progress further and quicker as proposed by Zichermann and Cunningham (2011).

Evidence from this research did not indicate the programmatic adoption of challenges as tools for motivation by RedeMac Qualifying Program. However, its importance was highlighted by the interviewees, who discussed the creation of informal challenges that emerged from the teams that participated in the program: "[. . .] No, there wasn't. The teams themselves were self-motivated with internal challenges" (E1). These emerging challenges can be explained by the game dynamics of the collaborative involvement of the associates. As stated by Groh (2012), launching challenges are important to intensify the playful and motivational experimentation with gamification tools. Thus, challenges could be used to increase the distribution of points and motivate associates to quickly reach higher levels in the program. Notwithstanding, Bunchball, Inc (2013) defends that gamification tools, when possible, should be used together. A second improvement is thus possible for the RedeMac

Qualifying Program, i.e. the establishment of challenges to obtain badges that would acknowledge the conquest of objectives or the completion of a stage, such as obtaining a certification of quality or improving managing practices.

Badges are a symbol that represents a type of social status, and they are won after a participant completes many tasks or challenges, ranging from easy to hard (McGonigal, 2011). Evidence from the study indicates the adoption of this tool is one of the main motivators for associates to engage in improving the quality of stores to follow the collective standards. According to interviewee E1, many associates were motivated to obtain recognition from the other firms. This status was materialized by the badges tool that, in the RedeMac Qualifying Program, took the form of a trophy given to the three best evaluations. The program adapted the idea of gold, silver and bronze trophies from other initiatives. In the RedeMac Qualifying Program, the trophies were distributed at a party that occurred at the end of each year, to which all participating associates and some suppliers were invited:

> [. . .] at the end of the year, at a dinner. Nobody knew who would be given the awards. For each category, three trophies were given: gold, silver and bronze [. . .] (E4).

Evidence confirms the motivational presuppositions of this gamification tool (McGonigal, 2011). However, the use of the tool in this case was restricted to awarding only the most difficult objective: to be the best firm in each of the three evaluation levels. According to studies on gamification, the use of badges should not be limited to only one award (Bunchball, Inc, 2013). One of the possible improvements of the program, therefore, would be to issue medals on a wider scale. Associates who contributed in some way to strengthening the network, with incentives of the qualification and modernization of points of sale, in addition to overcoming the challenges proposed by the network itself, could be awarded and recognized with badges that were created and personalized according to their accomplishments. In a more advanced stage of the program, badges could be used as a way to recognize the associates by actions external to the RedeMac network.

The evidence analysis demonstrated that ranking tool was underused in the RedeMac Qualifying Program. According to interviewee E2, there was no ranking of the stores, but there was a report that listed individual performance with an average of the points obtained by all firms. This solution encountered by the program was justified by criticism from associates: "They did not want to see their performance on a comparative list of participants" (E1). At this point, evidence from the research strays from the theoretical presuppositions of gamification, which state that the ranking tool is a motivator for engaging, as it establishes quick and transparent feedback of the participant's individual performance (McGonigal, 2011).

In situations where social relationships among participants are not close or are uneventful, this tool can surely motivate the performance of participants, as in rankings of sports competitions. However, in cooperation networks, the relationships among associates are inherently denser and often established from strong ties of confidence (Wegner *et al.*, 2017). In this context, the ranking tool can generate more disengagement than engagement because the transparent explicitness of differences among associates can become a factor of conflict, which amplifies more internal competition than cooperation. Therefore, more than contributing with practical implications of adopting the ranking tool in the RedeMac Qualifying Program, the evidence of this research indicates the possibility of theoretical improvement in studies on gamification that refer to the application in the contexts of everyday relationships sustained by dense ties, such as those of cooperation networks.

RedeMac used a group of non-monetary motivational tools that made possible this study in a B2B context. The findings showed how gamification tools as points, challenges, badges,

levels and rankings were adopted to motivate associates to follow collective standards. The results found here have several implications. Table II presents a summary of the research and practical findings of the study.

Finally, it is important to highlight that literature on gamification explored in this study indicates that the tools should, whenever possible, be used jointly, motivating behavior by means of playful engagement. Evidence found in the case of the RedeMac Qualifying Program demonstrates its usefulness but also the true difficulties of its application. The adoption of points, levels and badges provided motivation to reach the objectives of qualifying the stores. However, the possibility of practical improvements for the three tools was shown. Challenges were not officially exercised, but the program's appropriation by members of participating teams was shown to be informal. The partial use of ranking, on the other hand, indicated a weak theoretical conception of gamification in the contexts of close relationships, which is a recent topic that is still being construed.

8. Concluding remarks

The present study addressed the tools proposed by the literature on gamification by studying RedeMac's Qualifying Program. From the point of view of gamification theory and its tools, the case study confirmed many of the presuppositions, such as the motivating potential of points, levels, badges and challenges. Hence, the first major contribution of the present research is the restricted use of the ranking tool in the context of analysis, which brought up questions on the theoretical applications of gamification in different types of cooperative and competitive relationships. In a cooperative context, the case study showed a dark side of gamification, as it caused disengagement of the associates as a consequence of their low-ranking overall position as opposed to other associates. This finding is important given that the vast majority of studies on the subject focuses only on the benefits of gamification.

A second contribution of the study derives from our findings on gamification adoption in a B2B environment. Our results reinforce the theoretical assumptions of gamification regarding the use of points, levels, badges and challenges as motivational tools. Academically, the results suggest that the adoption of gamification tools helps in the motivation and engagement of associates, facilitating the accomplishment of decisions made collectively. From the managerial point of view, the findings have practical implications. First, managers should observe a balance between the opportunity to gain points and the capacity of players to avoid demotivation. Furthermore, managers should often create new progression levels to expand the highest achievable standards. Besides that, managers should facilitate the challenges and reward system in the beginner levels, to motivate associates to continue playing.

Notwithstanding, the results also have implications for the improvement of gamification adoption in a B2B context. The case study highlights, in this sense, the proposal of an escalating evolution for the point tool, the reduction of demands in points at initial levels, the creation of continuous new levels and the implementation of constant challenges awarded with badges that represent the accomplishment of objectives or the completion of stages. Hence, our contributions show that we can overcome the instrumental view of gamifications adoption. Instead, we encourage researchers to ask new questions concerning why, when or how to use gamification in a context of firms and networks.

Although the case analysis demonstrates the effect of adopting gamification tools, it is important to consider the limitations of this study. The evidence considers only one case of a cooperation network supported by public agents in the southern region of Brazil. Gamification tools were not used to their full capacity. Finally, we suggest comparative

Findings	Evidence
Points/rewards The study reinforces the theoretical assumptions of gamification regarding the use of points and rewards as a motivational tool (Dickey, 2007)	". . . such that simply participating in the assembly already rendered rewards, and this made it unmissable, since points would be loss by not participating . . ." (E5)
When adopting points as a game tool, managers should observe a balance between opportunity and capacity of players to avoid demotivating factors, such as unattainable scoring (Sailer *et al.*, 2017)	"The result between the number of firms that participated and those that reached the maximum level was three from a total of 72 stores" (E2)
Levels/progression The study demonstrated that player motivation requires the establishment of multiple levels of progression (Zichermann and Cunningham, 2011)	". . . the result of the number of firms that participated and those that reached the maximum level was five from a total of seventy-two stores. Really, the program was very selective . . ." (E2)
When adopting levels as a game tool, managers could continuously create new progression levels to expand the highest achievable standards Managers could also reduce demands for points in the first level, to motivate associates to keep playing (Yang *et al.*, 2017)	"The objective of all this is to have the stores evolve and create a homogeneous form so that they evolve together on the same track, from the standards that RedeMac created collectively" (E5)
Challenges/achievement The study showed that challenges could emerge in the game dynamics as an informal tool for achieving collective goals (Groh, 2012) When adopting challenges as a game tool, managers should use it with other tools such badges to acknowledge the achievement of goals or the completion of a stage (Sailer *et al.*, 2017)	". . . No, there wasn't. The teams themselves were self-motivated with internal challenges" (E1)
Badges/status Evidence from the study indicates the adoption of badges is one of the main motivators for associates to engage in improving the quality of their stores to follow the collective standards (McGonigal, 2011) When adopting badges as a game tool, managers should not be limited to only one award (Bunchball, Inc, 2013) In a more advanced stage of the program, badges could be used as a way to recognize the associates by actions external to the RedeMac network	". . . at the end of the year, at a dinner. Nobody knew who would be given the awards. For each category, three trophies were given: gold, silver and bronze . . ." (E4) "Even because a store that reached level three would be a model for the other stores and would obtain a maximum degree of prestige in the network and in the relations of power" (E2)
Ranking/competition Evidence from this study strays from the theoretical assumptions of gamification that ranking tools are motivator for engagement (McGonigal, 2011) In cooperative contexts, ranking generates disengagement because the explicit transparency of the differences between associates becomes a factor of conflict (Wegner *et al.*, 2017)	"They did not want to see their performance on a comparative list of participants" (E1)

Table II.
Research and
practical findings

studies in distinct relational contexts with the intent to contribute to the theoretical development. To enrich the practical potential of gamification, we recommend looking deeper into the specificities of using these and other tools, to elaborate on managerial guides for implementing game dynamics and to create solutions that facilitate the follow-up of points of launched challenges, of levels completed and of badges conferred to associates.

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