

IMPROVING COMMITMENT AND ENGAGEMENT IN KNOWLEDGE MANAGEMENT SYSTEMS THROUGH GAMIFICATION

Data de entrega dos originais à redação em: 21/08/2015
e recebido para diagramação em: 20/01/2016.

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Organizations worldwide are very concerned about keeping and increasing knowledge. Besides lack of investment in knowledge management systems, a problem occurs when people are not very engaged or motivated to the available knowledge. The games are one of the best way to keep people engaged and motivated to complete tasks and activities. In this research, we use gamification techniques to create a learning plan that can be modified to increase knowledge in company departments and to make employ-ees committed to learning.

Keywords: Group Workshops. Knowledge Management. Storytelling.

1 INTRODUCTION

Human knowledge has been a central topic of philosophy and epistemology since the ancient Greeks. A historical perspective reveals that knowledge management - KM is an old quest pursued by both Eastern and Western philosophers. Practical knowledge and "know how" has always been important, although KM was, and still is, often, an implicit task (KAKABADSE et al., 2003).

Nowadays, the companies are very concerned to keep and increase the knowledge inside the company, getting advantages of this knowledge. But to reach this goal the companies need to have a very good knowledge management policies and actions. The knowledge management sometimes is left away by the companies and in a short term the companies could not see any problem for it, but in a long term the company could not be innovated anymore, could not have a competitive differential anymore and it will bring bad results for the company.

Whereas numerous information and communication systems have been developed to support such knowledge exchanges, practical applications have found that technology alone can not ensure that knowledge will indeed be volunteered and exchanged, and whereas researchers and consultants alike have argued that culture and other human variables constitute key success factors, it is not clear what specific variables are at play, nor what management practices can affect those variables (CABRERA et al., 2006).

Despite de budget expended in implementation of Knowledge Management Systems, companies face a cultural problem: to convince people to volunteer their knowledge (ALAVI e LEIDNER, 1999). In that sense, gamification can be an alternative.

The objective of this project is to create a tool to improve the engagement of a group of people using gamification techniques. So, as result it is expected that tool can be used as a training plan for a trimester or any period that can be define by the users of the tool, to be accessible this tool will be created as a .csv file. It can be used by any professional and his manager to create a learning plan for a defined period of time (suggested trimester) improving the professional's engagement in the training increasing his skills and knowledge on

the areas determined on the learning plan, resulting in a better performance and development for the professional. Also it will improve the company knowledge and it will result in a better results for the company.

2 GAMIFICATION THEORY

Gamification is a term has become very used nowadays. It is a new technique which the field of computer game borrowed for be applied in other fields. But before understanding what Gamification means, it is important to understanding what game is. Game, as (CAILLOIS, 2005) defines being an activity, which has these characteristics:

- Fun: The activity is chosen for its light-hearted character;
- Uncertain: The outcome of the activity is unforeseeable;
- Separate: It is circumscribed in time and place;
- Fictitious: It is accompanied by the awareness of different reality;
- Governed by rules: The activity has rules that are different from everyday life;
- Non-Productive: Participation does not accomplish anything useful.

So Gamification is basically an integration of game dynamics, mechanics and characteristics into non-gaming application, such as mobile apps, websites, social media platform, internal training, marketing campaigns and customer support. The games has the power to engage the people in an activity during the game, the people who is playing the game always feel engaged to do the activity of the game, so the main objective of the gamification proposal is increase the user engagement. The people are more engaged to complete an activity proposal to them when gamification techniques are applied on the activity. Two of the gamification characteristic which attractive the people is the interaction and the rewards, when the people fell rewarded on what they are doing some activities, they still motivated for longer time and as the activity result is so much better and more effective.

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Research on the validity of using gamification platforms in virtual e-learning called Black Board® was performed. Reward and mechanisms of social interaction systems were used. The study concludes that there was an increased motivation for many of the students in the use of that technique created by competition among them. However, alert to the fact that the test process is fundamental to the development of a system of gamification, because if not done will generate dissatisfaction rather than motivation (DOMÍNGUES et al., 2013).

Another study examined the effects of age, sex and time using the service perceived gamifying exercise by participating in a service benefit of gamification. Facilitator perceptions of social factors and benefits, hedonic and utilitarian were measured (KOIVISTO & HAMARI, 2014). The results indicate that men perceive as greater social benefits than men. Women reported more positive perceptions of the recognition received; they see themselves as gaining greater benefit of reciprocity between users and, in general, see your friend network service as greater than men. Thus, the results imply that women value the social aspects of gamification more than men and potentially view the social community associated more positively.

As Kapp, Karl M. wrote on the book *The Gamification of Learning and Instruction: Game-based Methods and Strategies for Training and Education*, the gamification trend is growing, with no signs to slowing down (KAPP, 2012). Elements from games are making their way into corporate training departments through avatars, increased problem-based learning, and interactive learning experiences. Colleges and universities through audience responses systems, online simulations and interactive storytelling are quickly integrating game-thinking into the curriculum. The influence of games and games elements is growing at rapid pace.

But why the gamification is becoming so important, the main reason of this growth is because the average of the people who play game growth from some years to now (KAPP, 2012). Nowadays people from all ages are playing Video Games, so the activities based in games are more acceptable and effectiveness actually. It is proved when we check the numbers regarding games:

On *The Impact of Gamification – Recommending Education Scenarios about games players* (ERENLI, 2013):

- Average of the people who play game: 37 years old;
- Percentage of people who play Video Game older than fifty: 29% (2011) vs 9% (1999), it shows how this percentage growth;
- Time spent gaming per day in U.S.: 215 Million Hours;
- Country with the highest percentage of population is active game players: Germany (66%), Mexico (57%), Russia (53%), UK (52%), Brazil (47%), and USA (42%);
- 61 of the CEOs and CFOs surveyed play games during their working hours;

So as is possible to check games are present every day in high percentage of population, because of this bringing game techniques to Knowledge Management, the people will feel more engaged to do some activities, as for example increase and share knowledge.

On this project the storytelling technique also is used to increase the efficiency of the game (KILLI, 2005). The use of stories game is fundamental part of game design. Almost every game has some sort of story attached to it and the story usually integrates the challenges into a larger task or a problem. Confirmation occurs that at least, the story is just a short paragraph that sets the background for the game (KILLI, 2005). For example, in *Operation Splash* game, the player takes the role of an undersea explorer who commands a submarine while maintaining the mechanical operation of submarine. The main goal of the player is to collect samples of sea and bring them back to the station. Even the story of the game being a simple story, the players are immersing and engaging to complete the tasks of the game, it is very important to be effective. On this project simple story is part of the game with the goal to engage and to the players into the game and story, keeping them engaged and motivated to complete all tasks and win the game.

3 KNOWLEDGE MANAGEMENT THEORY

Knowledge Management is the result of an action taken on a particular context, taking into accounts the experiences, values and beliefs developed within a perspective or specific intent (NONAKA & TAKEUCHI, 1995).

It is proposed that technology is key to the knowledge of information, while intangible assets (corporate intelligence, organizational knowledge, relationships, innovativeness, employee morale, and identity). They are necessary for the management of knowledge (KAKABADSE et al., 2003).

Actually, the companies try to keep the knowledge inside the company because the knowledge can turn a big competitive differential and the companies can increase the profit significantly if they have the knowledge to develop the services or the products for them clients.

The global competition between the companies is always growing, so the companies are always looking for competitive advantages, to place themselves in a prominent position in the market. The competitive depends on the capacity of the company to be innovating and improve his services and products (PORTER, 1990). The companies achieve competitive advantage through new innovative actions and approach in a broadest sense, including new technologies and new ways of execution.

When the companies achieve a new knowledge they become a different company and can get advantage of this knowledge, resulting and best results for the company. But to keep them in a good position the knowledge management is essential. Share, improve and get new knowledge are some of the actions that the company need to do.

Despite the scope of the view that knowledge management is a core component of competitiveness, its specific contribution to profits is very difficult to determine. Ideally consulting firms would like to be able to measure the effect in terms of additional commitments to customers, however, such connections are very difficult to do (DUNFORD, 2000).

So the knowledge management is so necessary and very important, an effective knowledge management can brings a lot of benefits for the company and also

can reduce the tendency to repeat the same mistakes. Moreover an effective knowledge management will contribute to improve excellence, such as:

- Reduce costs;
- Provide potential to grow and expand;
- Increase our value and profitability;
- Improve the quality of our products and services.

The successful implementation of a knowledge management system is related to the organizational culture of the organizational structure as evidenced by the concerns of our respondents about sharing knowledge getting accepted into their organizations. The benefits of knowledge management will only be realized by organizations that are not only technologically adept, but they make the long term investment to align the cultural, managerial and organizational factors for knowledge management (SHAW et al., 2005).

An Empirical Research support for the argument that the fit between the processes of knowledge management, the features of knowledge management systems and task characteristics can improve the performance of knowledge management (CHANG et al., 2012). It was found that the relationship between the shape and KM performance can't be protruding subunits performing wide-oriented content tasks. Individuals within organizational subunits must use the four processes of KM adequate levels to generate new knowledge to accomplish their tasks. Concludes that the optimal profiles and coding process outsourcing capabilities have a positive effect on the quality of knowledge and satisfaction of knowledge, but have no significant influence on creativity for subunits performing focused content-oriented tasks.

So the knowledge management is essential for any organization, the investments on knowledge management can keep the company in a very high level on the market or increase his market share.

There is a high level of subjectivity and contextually in identifying "gamification". It is not possible to determine whether a given empirical system 'is' "a gamified application" or "a game" without taking recourse to either the designers' intentions or the user experiences and enactments. Indeed, in comparison to games on the one hand and utility software on the other, a distinct quality of "gamified" applications is their relative openness to varying situational modes of engagement – gameful, playful, and instrumental (DETERDING et al., 2011).

The gamification can help the learning process in a very efficient way, nowadays the learning process can be combined with other techniques that can improve the engagement and the efficiency of the trainings. The learning process can be combined with Storytelling technique for example and create a learning

process called Learning Narrative. On the same context the Game bases in learning is the result of the gaming technique applied in the learning process. The 2D/3D world is the technique resulted of the intersection the gaming and storytelling techniques. Finally we have a new field that can be and will be explored on the next years for the companies and for the researches professionals.

When Gamification is combined with learning process and storytelling a new technique is created which it will be called gaming with storytelling based learning, it is the technique which will be used on this project.

4 THE LEARNING PLAN – GAME

So the game created is a game consisted in a story game, where the players have a story to follow and they will became part of the story, the idea is put the players into the story/game. In this game each training attended will be reward in a quantity of virtual coins, these virtual coins can be changed in new hours of training. So each professional of the department will start the trimester on the first level, called Padawan, so which training attended will give some virtual coins to the Professional during the Quarter.

The player participates or not a quiz. To start the game, all participants start with the same amount of coins, called "Initial Coins". If the result of a phase level is unsatisfactory, the player will be penalized, called "Penalties". However if the result is satisfactory, that player will receive more coins to continue the game. But the sum of currency in the game of course will be calculated as the gain coins, less use of them as "Rest Coins". The game will have 3 levels:

1. Padawan – It is the first level, each professional will starts on this level;
2. Jedi Knight – It is the second level, the professional will be in a Jedi Knight when he attends at least 75 coins, it represents 75% of the trainings planned on the begin of the trimester, if he has less than 75 coins he still on the Padawan level;
3. Jedi Master – It is the third and final level, to be a Jedi Master the professional needs to has at least 110 coins in the trimester.

Each training planned on begin of the quarter will cost a determined amount of his coins.

In the beginner of the Trimester the Professional with his manager need to discuss and to plan the learning plan, as a tool to track it a spreadsheet was created. A part of the learning plan can be checked on Table 1:

Table 1 - Example of a result of the learning plan control tool

Name	Initial Coins	Training Name	Hours	Mandatory	Rest Coins
A	100	Fundamentals Project Management	4	Yes	35
B	100	How create a good Present	1.5	No	5
C	100	Fundamentals of Project Management	4	Yes	35
D	105	How create a good Present	1.5	No	0
E	100	How create a good Present	1.5	No	25
F	100	Fundamentals of Project Management	4	Yes	35
G	130	Product Update 2	7	Yes	0
H	100	Product Update 2	7	No	5
I	100	Product Update 2	7	No	0
J	100	Product Update	1	Yes	35

So the tool uses gamification elements such as rewards, storytelling, prizes, bonus, etc. to increase the professional engagement, so the professional can develop himself and deliver a better performance for the company. For this article taking the example of the Company "X" a professional can improve his engagement to attend the trainings and to develop himself, resulting in a professional always updated and engaged to develop himself in other course that he is interested. As end result, it is expected that the professional keep himself motivated, he be able to develop himself and also deliver a better performance.

The professional and the managers can track the results using the tool created, a spreadsheet has a tab where the managers can track the data. An example can be checked on Figure 1:

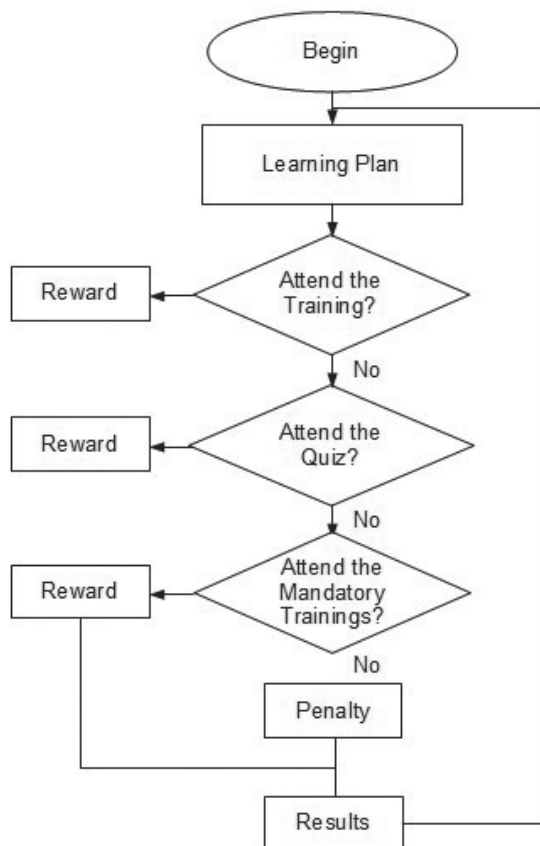


Figura 1 - Game process – begin to end diagram

5 CONCLUSIONS

One of the big challenges of some companies is disseminate, keep and increase the knowledge through the employees. The gamification is a field that is becoming popular very quickly and also it is a very powerful tool that can help the companies to disseminate, keep and increase the knowledge through the employees.

The companies and the way to work are changing over the years. A couple days ago the technology was created first on the companies and after that the technology was implemented for the people, in other words the employees need to adapt themselves to the company. But is changing year by year, nowadays

the company need to adapt itself for the way that the employees work. Actually the employees are people who are connected everywhere and every time, the people also are familiarize with the games, as it is possible to check the numbers of who play games even during the work time is very big.

So as the people are engaged to play games, the companies can take advantage of this and use the games and the gamification concept to engage the employees to attend the trainings efficiently and increase their knowledge. The trainings can be used to improve their awareness about how important is attend the trainings and keep update of the new features.

This article taking the example of the Company "X", the company can apply the game in any of its department, but as suggestion for the project has more successful, and it can be implemented on the customer support department which every trimester the team need to be trained to be updated on the products changes and on the market changes.

Finally, it can see that gamification is a technique that can be applied in business to stimulate employees to improve performance. On this project the gamification was applied on the Knowledge Management area, but it could be used in any the company.

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