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Pick My Desk and Go: A solution to Improve Team Dynamics

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Abstract

In this article, we describe the preliminary results of an ongoing project to improve the dynamics of innovative teams. We investigate how to design a system that allows employees in an open space to swap the place with a colleague for one day. We call this system "Pick my desk and go" and we combine notions from people analytics and organizational design to illustrate how the system enhances collaboration among team members and knowledge exchange. We tested the system for a period of eight weeks and we collected empirical evidences and insights from semi-structured interviews that support our claim concerning the effectiveness of the system to improve team creativity. We conclude the paper by illustrating the features of the next version of the system in order to increase its effectiveness as a persuasive system.

Keywords: people analytics, organizational design, behavioural change

JEL classification: M1

Introduction

This article is mainly addressed to managers that wish to leverage new opportunities in the field of people analytics to improve the workplace of their employees and increase their presenteeism.

In the seminal paper of Davenport et al. (2010) describe how Google, Best Buy, P&G, and Sysco have taken the guesswork out of employee management by leveraging *people analytics* to improve their methods of attracting and retaining talent, connecting their employee data to business performance and differentiating themselves from competitors.

Nowadays, descriptive analytics has lost its glamour in favor of prescriptive analytics, which allows taking informed decisions. On the one hand, most of this information are still given to managers instead of employees, leading to a centralized form of organization; on the other hands, cloud computing and smartphones allows developing simple and interactive applications that can be used by employees to create self-organized teams.

Persuasive systems may be defined as computerized software or information systems designed to reinforce, change or shape attitudes or behaviors or both without using coercion or deception (Oinas-Kukkonen and Harjumaa 2008). The complex task of designing the mechanism of a persuasive technology is sometime described as *gamification*, the application of game-design elements and game principles in non-game contexts (Deterding et al. 2011). Gamification commonly employs game design elements, which are used in non-game contexts. In this article, we shall focus on the use of persuasive technology to increase collaborations among team members and to reduce stress amongst employees.

To do so, we recall the notion of *workplace wellness* as any workplace health promotion activity or organizational policy designed to support healthy behavior in

the workplace and to improve health outcomes. Nonetheless, for sake of simplicity, we shall assess only four of the eight dimensions of wellness identified by Ardell (1984): social and intellectual as primary goals, and environmental and financial as secondary goal, leaving behind the emotional, occupational, physical, and spiritual dimensions. Accordingly, we look for a persuasive system that uses tools simple enough to be used in small and medium enterprises and that can leverage people analytics to increase the social interaction among employees, while delivering useful information as rewards.

Therefore, our research question is: how to design a persuasive technology that leverages people analytics and increases workplace wellness in a small and medium enterprise?

The rest of the paper proceeds as it follows. The next section briefly reviews the relevant articles that address our research question. The third section describes our methodology and how we created a prototype. The fourth section illustrates our preliminary results and the last section concludes the paper by addressing its main limitations and by suggesting directions for improvement.

Literature review

In this section we briefly review the relevant articles that address our research question, which can be split into three groups: (a) the gap concerning the relevant dimensions in a workplace wellness program, (b) the model we used to monitor team dynamics and (c) the approach we used to forecast the number of users.

Workplace health programs are known to increase presenteeism of employees (Cancelliere et al 2011). Thus, we have decided to use attendance as a performance indicator.

Moreover, the systematic review of 47 articles done by Cancelliere et al (2011) shows that potential risk factors contributing to presenteeism included being overweight, a poor diet, a lack of exercise, high stress, and poor relations with co-workers and management.

A simple search on Google Scholar for the keywords "workplace wellness" and "persuasive technology" show that there is already a relevant set of useful research papers on the emotional and physical dimensions. Hence, we have decided to not focus on social and intellectual goals associated to workplace wellness. Since we were looking for characteristics of a software to be used, we recalled the insights from the systematic literature review of Aneni et al. (2014), who analyzed 18 randomized trials and 11 follow-up studies on internet-based programs aimed at improving cardiovascular health among employees: internet-based programs were more successful if the interventions also included some physical contact and environmental modification, and that led us decide to design a software which could modify the environment in order to allow a greater amount of social interaction among employees.

We have referred to the literature on organizational design to decide which data needed to be collected. According to Galbraith (1973) there are five relevant dimensions, which should be taken into account: the strategy of the firm that defines the goals to achieve, the structure of the organization that defines who refers to whom, the processes of the firm that defines who does what, the skillset of the employees that defines who knows what and the rewards in place to be delivered when the goals are achieved. Therefore, we decided to design a systems with two functions: (a) it should deliver incentives to employees when they would increase their chances to exchange knowledge, in order to increase the mutual skillsets; (b) it

should monitor how the processes and the structure change over time by monitoring the presenteeism of employees.

In order to predict the number of users, we decided to compare three approaches. The first one is the technology acceptance model (Venkatesh et al. 2003), claiming that use of the system depends on intention to use, which depends on a set of constructs, the most relevant being perceived ease of use and perceived usefulness. The second approach is the hype cycle initially proposed by the American research, advisory and information technology firm Gartner, Inc: (a) after a Technology Trigger there is a Peak of Inflated Expectations, (b) then there is a negative trends called the Trough of Disillusionment, (c) the positive trend that follows is called Slope of Enlightenment and (d) the final stage is a steady line called the Plateau of Productivity. The third model is a viral model of diffusion, which states that users can be "susceptible" when they do not know the technology, "infected" when they become users, and "recovered" when they stop using the system.

Methodology

In this section we illustrate how we have created and tested our artefact in a real situation (a business unit, who was experiencing issues concerning people dynamics).

We have followed the guidelines of Peffers et al. (2007) to create a prototype, which has six steps:

1. Define problem and motivate: The opportunity to develop our prototype came when a leader of a business unit requested a new system to increase the motivation of his employees. The team had just shifted from a network organization, where each employee had the same status, towards a divisional organization, where employees were split into teams and some of them became team leader. Consequently, the moral of some employee went down, and as a consequence the absenteeism increased.

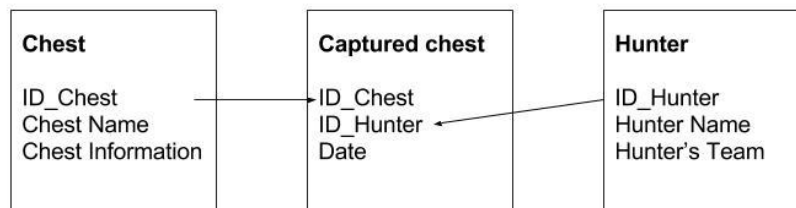
2. Define objectives of a solution: the leader of the business unit wanted to increase the amount of lateral connections across teams, in order to increase knowledge exchanges across teams, and he wished to increase the moral of the group, in order to reduce absenteeism. After having reviewed the literature, we proposed to develop a game that would allow employee A to take the workplace of employee B if employee B was absent. We called this game "PickMyDesk 'N Go", as a reference to the game "Pokemon Go" and we designed it as a way to allow employees to dynamically assign the workplaces. The change in the configuration of people in each room would in time increase the discussions between members of different team and it would allow to create horizontal links, which would change the structure of the overall group. Hence, we stated two testable proposition derived from our literature review:

P1: If the employees use the system that allows them to change the environment, their presenteeism will increase

P2: The amount of desk exchanged between groups will be correlated to the amount degree of isolation of its team members.

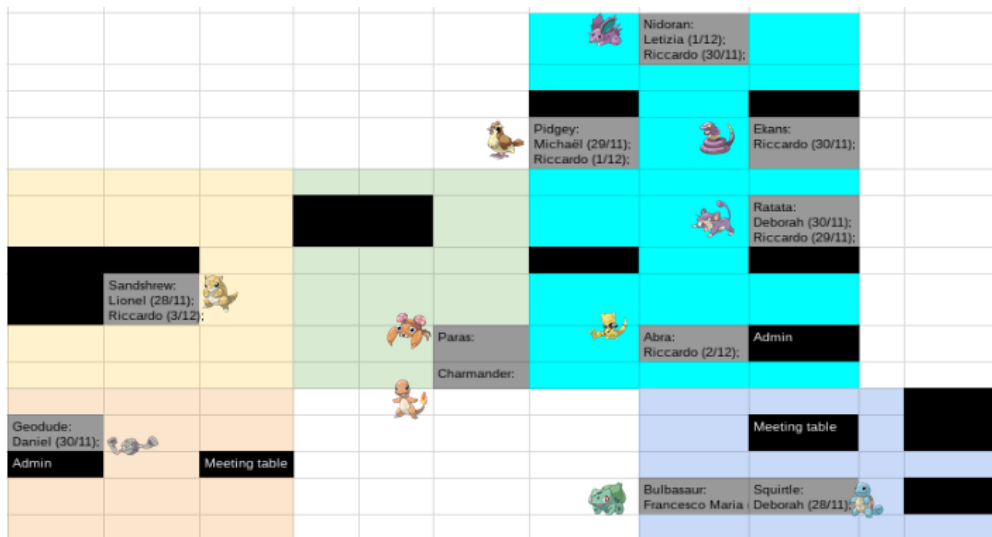
3. Design and development: In the first version of the system, we assigned each desk in the office to a monster and we assigned each monster to a QR code, which we put on the desk. As shown in figure 1, to capture a monster (a "chest"), an employee (a "hunter") should scan the QR code and claim the desk as his, and then work on the workplace for at least 4 hours. If the employee leaves the workplace too soon, someone else can captured the desk and become the owner.

Figure 1
Data structure of the system



4. Demonstration: we developed our system using Google Forms and Google Sheets. Indeed, we did not expect to use confidential information, and we were looking for a technical solution that would allow (a) data collection with smartphone, (b) real time updates and (c) no cost for its maintenance. Each monster was assigned to a Google Form, whose url was translated in QR code. When the QR code was scanned on the smartphone, the Google Form requested to enter the name of the employee, who would become the master of the monster for that day. Figure 2 shows a dynamic map of an office made with a Google Sheet on a Google Site, which listed the owners of each desk at a given time. Hence, each employee would know if someone stole his desk. Different colors were assigned to different rooms. The cells with a black background represented tables, which could not be used to the game, for administrative reasons.

Figure 2
Real-time visualization of monsters and hunters with Google Sheets



5. Evaluation: we ran the test for four weeks, during which we discussed with the employees, we collected feedbacks by means of semi-structured interviews and we fine-tuned the system. Then, we let the system run for another four weeks and we monitored the number of users. In the meantime, we made a simple model to check if the number of the users would grow in a linear sense, as assumed by the technology acceptance model. Then, we assessed the number of users and we made two additional models that better described the number of users. The second model follows the hype cycle whereas the third model simulates a SIR model.

6. Communication: each week, the amount of captured monsters was shown on the website. The results of the first iteration have been communicated to the leader of the business unit and the theoretical insights have been summarized in this article.

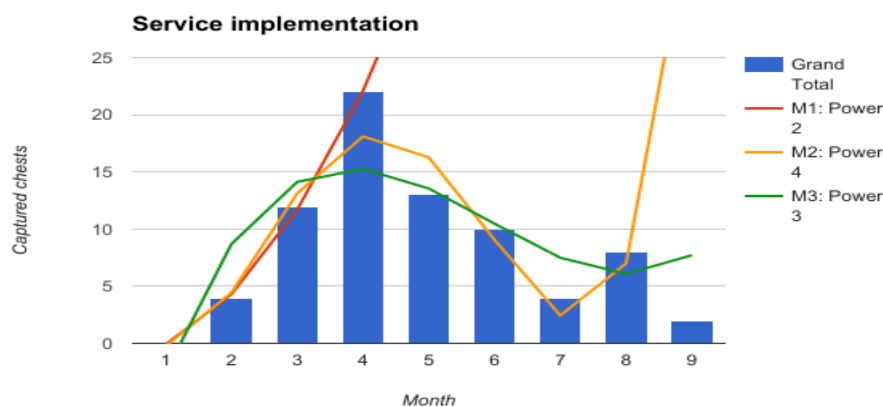
Results and discussions

Figure 3 shows that the number of users increased from week 1 to week 4. This could be linked to the perceived ease of use and usefulness, as well as to the fact that employees might have felt observed while they were trying the new system.

Once the observation and the feedback stopped, the number of users declined until week 8, when some users decided to use it again. Based on this trend, the linear model made on week 4 appears to be extremely optimistic, whereas the third model seems to be more reliable with respect to the hype cycle.

Figure 3

Number of monsters collected between week 1 and week 9.



In the meantime, we observed that the presenteeism during the eight weeks analyzed increased. Hence, our first proposition is accepted as working hypothesis. Moreover, the amount of collaborations between teams could be predicted by measuring the average number of employees playing the game in each team. Hence our second proposition is accepted as working hypothesis.

Generally speaking, the system supported the creation of groups of interests, which allowed reducing the compartmentalization effect associated with a divisional structure.

We also observed that the amount of objects left on each table decreased over time, since employees get used to move more and to let other employees use their desks. We did not measure how this phenomenon affected the overall productivity of the group.

Discussions and conclusions

In this paper we presented a prototype of a system that promotes the interaction between employees by playing a simple game inspired by Pokemon Go to modify the environment and promote social interaction. Collected data shows that it is possible to increase presenteeism of employees by setting up a simple systems that collects data from QR readers on smartphones and visualize the results in real time.

Nonetheless, our first version of the prototype has two major limitations: (a) the number of features in the system is fairly limited and (b) the amount of data collected might not be enough to assess if the system works.

Therefore, the following version will include feedback to users in order to support behavioral change: instead of using monsters, we shall use different types of chest (paintings, photos of locations, famous people) that each user can collect over time. Such version is expected to be tested over a greater amount of weeks and a larger set of employees, to allow validation of our working hypotheses.

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