

The game and the alternating roles of learner/teacher as facilitators of the learning process in organizations

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Abstract: In this work a new strategy is proposed for online training of members of medium and large organizations, based on the sharing and exchange of knowledge among them. The strategy is supported with the creation of intra-enterprise online communities, where all members assume, simultaneously, the role of trainer and trainee. The interaction in the community is achieved through a game, in which each participant challenges others to learn what he has to teach in his domain area, sharing information and resources on matters that they dominate and where are, at the same time, challenged to learn other subjects from different professional areas.

The adoption of this model could change the classic positioning of distance-learning systems based on Internet by giving a very significant role to the learning communities and to the use of games as a challenging way to improve the level of expertise of the members of an organization, helping them to cooperate and to better exchange information.

Keywords: Learning organizations; learning communities; e-learning; gaming.

1. Introduction

The company's role in the development of individual skills is becoming universally regarded as beneficial for both workers and companies. To perform this role, an important alternative to consider is the use of information and communication technologies, especially those based on the Internet and dedicated to the teaching (Santos 2000).

The use of these technologies is justified by the benefits that they can provide in terms of flexibility in education and the low cost, allowing, in most cases, to access a bigger number of courses that employees can perform in their job (Castells 2004).

Traditionally, the online training is based on a logic trainer /trainee where the roles of trainer and trainees are quite distinguished. This online training strategy, which we call traditional, is not suitable for an environment of sharing and exchange of knowledge between employees. Thus it is not ideal to be used as a way to pass knowledge from the more experienced employees and experts to the others.

However, it is possible through technology, to implement other than conventional approaches such as the construction of communities of learning, where participants develop skills in a playful alternation of roles between the learner and teacher allowing to share and exchange knowledge (Santos 2004, 2007).

In this article, we propose a strategy for online training of members of medium and large organizations, based on sharing and knowledge exchange between these members.

This strategy will enable each employee to perform alternately the role of trainer and trainee, participating in an intra-enterprise online community where, through a game, each participant challenges others to learn what he has to teach in their area of professional expertise, sharing information and resources on matters he dominates and where, at the same time, he is challenged to learn from others' professional matters.

2. Learning in organizations

"Knowledge" is one of the organizations' main assets. The ability to maintain it and to increase it is a big challenge. This challenge is based, essentially, in the qualification of human resources, in the ability to retain and circulate the knowledge inside the organization and in creating conditions for developing the employee skills.

To build a culture of collective learning, where the concepts of collaboration, sharing, learning and knowledge are key words, a necessary condition for success is to engage all people in the organization.

The organizations that aim to build structures and strategies to stimulate and increase the potential for learning are called "Learning Organizations".

Senge defines Learning Organizations as organizations where people are focused on collective learning and committed to results. According to this author, the organizations that learn are "organizations where

people continually expand their capacity to create the results they really want, which stimulate new patterns of thoughts and comprehensive, collective aspiration to win freedom and where people continually learn together " (Senge 1998).

To Friedman a learning organization is defined as an organization that "is a permanent process of change, because workers are continually encouraged to perform modifications and adaptations. A learning organization [...] focuses on the creation, acquisition and transmission of knowledge and the adaptation of behavior in terms of knowledge" (Friedman 1999).

For an organization that wants to be a "Learning Organization", it is fundamental to stimulate an environment that encourages learning. For that it is strategic to have a clear and fluid information channel in the whole organizational structure and to ensure top management commitment.

The "Learning organizations" are particularly advantageous when they are inserted in turbulent and unpredictable environments, as are the cases of IT markets. An environment that fosters learning, facilitates the exchange and learning with the external environment, strengthens a receptive and non-defensive behavior, and facilitates the recovery and retention of knowledge.

Searching for strategies that help grow the level of knowledge of an organization and motivate its members to cooperate better; it consequently leads the organization to become more competitive and resistant, therefore, of a growing interest.

3. Conceptual Model

The model's main objective is to enable the creation of online intra-business communities, where all members perform, alternately, the role of trainee and trainer in a game where everyone can share knowledge and learn from everyone else.

The interaction in the community is obtained through a game in which each participant challenges the others to learn what he has to teach in his expertise areas. For that, each participant shares information and resources on matters that they dominate, and, at the same time, challenged by the learning materials provided by other members.

The learning resources are shared online by query where a resource classification area or areas is proposed. For each learning resource an associated questionnaire to validate the learning constructed by "trainees" is provided.

In this context, we understand learning resources as a set of texts, images, videos, webcasts, links, references, tips, ..., that helps one learn about a subject.

The contents and associated questionnaires validation is done after a query by one or more individuals called "Gurus". The "Gurus" may be external or internal to the organization.

The validation ensures that the contents are correct on the technical point of view and that they contain enough information to answer the questionnaires. In Table 1 an example of a "Guru" resource validation grid is shown.

Parameter	
Content Correctness	Y/N
Survey Suitability	Y/N

Table 1: Validation table example

The "Guru" also has the task of classifying the contents and the questionnaires for their relevance in the educational and pedagogical aspects. This assessment grades the content. Table 2 presents an example of "Guru" resources evaluation grid.

Parameter	Weight
Comprehensibility	25
Complexity	25
Applicability/Utilitty	25
Usability	15
Multimedia Learning objects	10
	100

Table 2: Validation table example

If the query is not validated then it is rejected. If accepted, then it is subject to a second assessment by Human Resources or by the internal organizational entity that owns the people management in the organization. This assessment aims to confirm if the proposed training area or areas and if its own content are appropriate for the organization the learning objectives.

If the assessment is positive then the resources, its associated questionnaires and the score (result of Guru's assessment) are published. The obtained score became the content reference value (RV) in the game. The goal of the game, for each and every individual and group is to "win" the "knowledge" provided by the other community members and to transfer it to him and to the group where he belongs, for example, as shown in Figure 1, a Department.

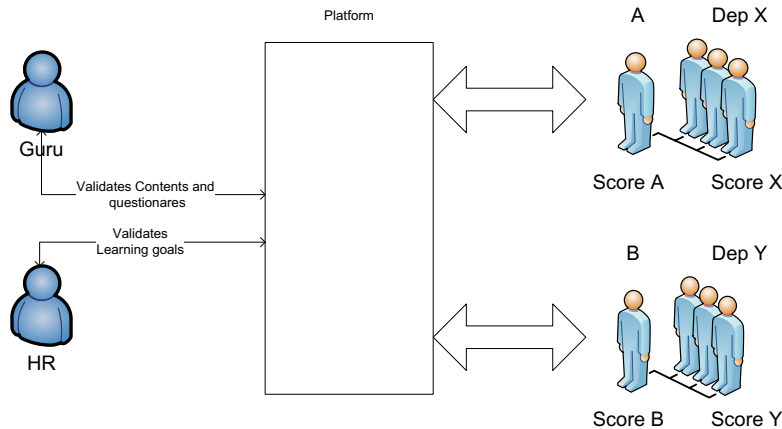


Figure 1 – Platform generic representation

In our system the knowledge associated with each resource is identified by content reference value RV (content) and is measured by points. The goal of every learner in this game is to raise points individually and/or somatically to his parent group, increasing his Individual Score IS (learner), hence increasing the Group Score GS (learner) he belongs to.

The added points reflect the application of the following formulas:

$$IS (learner) \leq IS (learner) + RV (content)$$

$$SG (learner) \leq SG (learner) + RV (content) / \text{Number of elements of the Learning Group}$$

For each element of the Group.

Consequently, in the end, if all elements of the group have learned the contents:

$$SG (learner) \leq SG (learner) + RV (content)$$

Although not mandatory, the content application also gives points to increase the SCP - Score Content Producer (content) and for the group, increasing the SGP - Score Group Producer (content). Thus we have:

$$SCP (content) \leq SCP (content) + 2 * VR (content) / \text{total number of elements of the organization}$$

$$SGP (content) \leq SGP (content) + 2 * VR (content) / \text{total number of elements of the organization}$$

It means that, in the end, if all elements of the organization had success, the producer and his group can raise at most $2 * \text{Reference value (content)}$ points.

This criteria has the propose to encourage new content production but also the intention to stimulate the producers to build more engaging and interesting contents in order to attract the largest possible number of trainees. Any employee can play the game whether or not they shared their knowledge with the community.

Figure 2 presents a schematic illustration of the game operation:

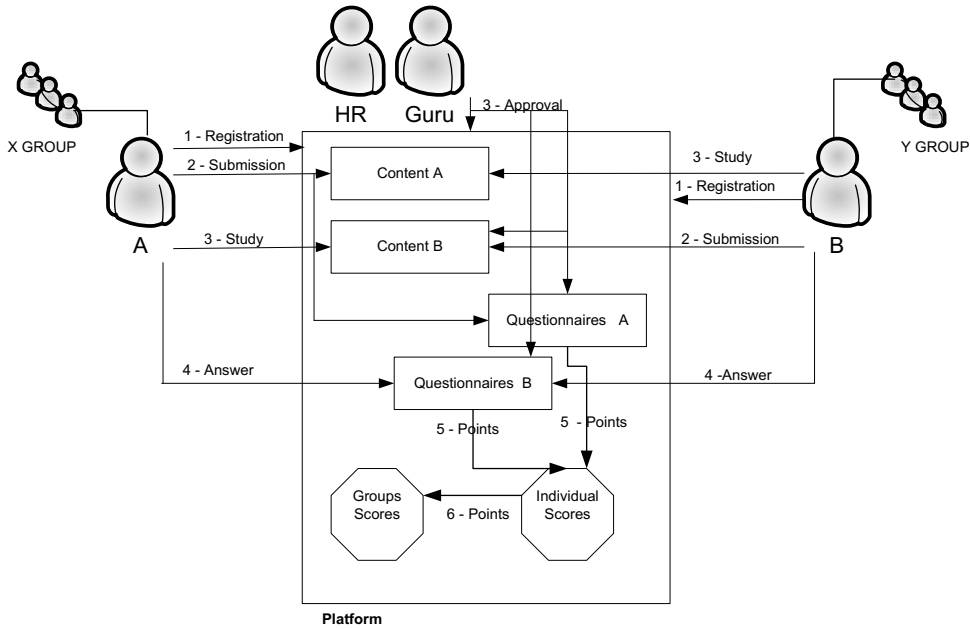


Figure 2: Game Operation

In short, the game runs as follows:

1. Different groups and individuals submit contents and the associated questionnaires raising the respective points
2. The "Gurus" and the "people management entity" approves or rejects the submitted contents
3. Each individual studies the content submitted by others and tries to learn, in order to successfully answer the questionnaires, earning the correspondent points
4. The earned points count for individual scores and for group score where the individuals belong.
5. The winners are the groups and individuals who have higher scores.

4. Architecture

It's not this work's purpose to discuss architectures. However, in this section, we suggest a functional architecture and a technical architecture to implement the model.

The proposed model in the previous section can be implemented by building a platform with a functional architecture equivalent to as shown in Figure 3.

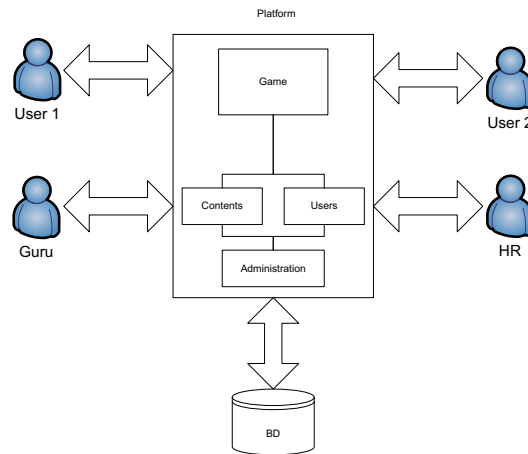


Figure 3 – Generic architecture

The services provided by the management platform can be grouped into 4 major functional groups: Game, Content Management, User Management and Administration.

Functional Group	Features
Game	consulting resources, submission of answers to questionnaires, social and recreational areas; individual and collective rankings consultation
Content management	resources submission (content and questionnaires); Gurus and the Human Resources restricted access area - available services for validation, acceptance, classification and resources evaluation;
User management	Learning community management - users management: individual and group records, accounts check, communication dispatch,...
Administration	Update and site configuration, institutional communication management.

Table 3 – Features

To support the system, the technical architecture must ensure the availability of applications, both of front-office and back-office. For that, we just need a typical and simple intranet architecture, with a medium level of security, such as that is presented below:

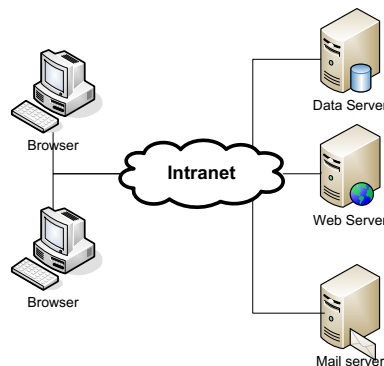


Figure 4 – Technical architecture

5. Game simulation

In order to have a better understanding about the success factors and the main conditions for the model applicability, we carried out a simulation where we reproduced the model functional architecture and operationalized a manual implementation of the interactions between different actors. The simulation was run at Microsoft Portugal.

The simulation was designed to collect information on the functional viability and to understand what would be the main difficulties to implement the model.

To support the simulation, we built a test portal named "Knowledge Game", mounted on SharePoint Server 2007 server. The portal home page is shown in Figure 5.

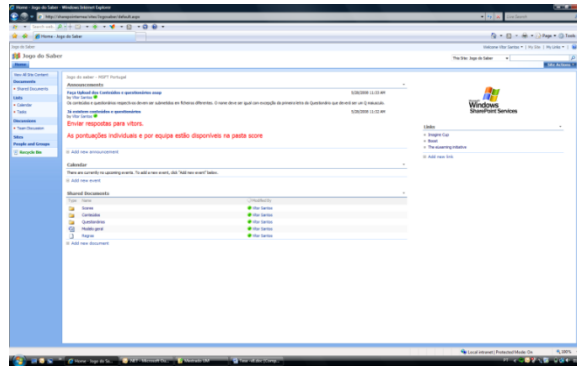


Figure 5 – “Knowledge Game” Portal

The simulation took six people, organized into two teams, which were applied for content production and, after, to participate in game.

At the end of the experience it was possible to conclude the model could help people inside organizations to learn from the others workers, to share their own knowledge and, at the sometime, to have challenge and fun.

We got some important learning with the experience: there is a strong dependence on the resources timely availability. Therefore, to ensure success, there must be a strong commitment from top management team, involving all employees to share knowledge and content production. It is also noted the fact the rankings were calculated manually, and be available on the server with some delay, negatively affected the participant enthusiasm and commitment to the game. This issue will most likely be solved with a computer system that automates these calculations and make them available immediately.

6. Conclusions and future work

With the proposed model, we aim to contribute for the use of information and communication technologies based on the Internet as a vehicle for developing skills of individual members of organizations, for they become more and more competitive and resistant.

This model is fully inserted in the learning organizations philosophy, stimulating an internal environment that encourages learning. This happens by creating learning communities, where the intra-corporate use of entertainment allows members to use one of the most powerful means of learning and human development: the interpersonal support, minimizing one of the constraints of online education, which is the absence of the human factor as learning intermediate.

The model requires participants to experiment the experience of knowledge production in a community. The adoption of this model could change the classic positioning of distance-learning systems based on Internet by giving a very significant role to the learning communities and to the use of games as a challenging away to improve the level of expertise of the members of an organization, helping them to cooperate and to exchange information better. This may further allow the improvement of inter-personal relations among organizations members.

In the future we intend to build systems that could implement the proposed architecture. There is also the possibility of developing new intra-business learning community systems, based on the new ideas that could arise from this proposal.

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