



Using informal learning for business decision making and knowledge management[☆]



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ARTICLE INFO

Article history:

Received 1 April 2013

Received in revised form 1 October 2013

Accepted 1 November 2013

Available online 21 December 2013

Keywords:

Decision making

Informal learning

Competencies

Information management

ABSTRACT

The process of making decisions in business requires, among other things, the efficient management of information to do with employee competencies. Dealing solely with competencies that employees learn in institutional contexts, however, is insufficient, as employees also acquire competencies through informal learning activities outside the organization. If an organization is to make well-informed decisions, the entity must gather information about the external activities of its employees that contribute to their competency development. This paper proposes a methodology to facilitate the identification and recognition of an employee's informal learning instances, which receives support from a technological framework. To validate the methodology, a pan-European project implements the framework, and a panel of experts evaluates its modus operandi. The main findings from this study suggest that, although making decisions on the basis of instances of informal learning is possible, both the methodology and the tools behind the gathering of this information should be flexible enough to satisfy the needs of the organization.

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1. Introduction

Information is an essential element in the decision-making processes, and, from a theoretical point of view, the more useful the available information is, the easier decision making becomes. Information and Communication Technologies (ICTs), which are now commonplace in everyday activities, can generate a vast amount of information. Only a part of this information, however, is truly meaningful and useful within organizations. Data mining or information visualization techniques may solve the problem of accessing valuable data, but the application of such techniques in every possible context verges on impossible. Making business decisions on the basis of employees' informal learning activities is an especially complex case. This complexity arises from the need for not only a technological effort to gather the informal learning activities, but also a discussion between the process stakeholders – employees and decision makers – about how to evaluate and take into account the informal learning evidence.

Informal learning is a longstanding mode of developing personal efficacy, because individuals – as social animals – learn in different

contexts, including their interactions with other people, their experiences, and so forth. Informal learning is far from being a new concept. During the first half of the twentieth century, several definitions (Dewey, 1938; Knowles, 1950) emerge, with yet more appearing at the turn of the century (Coombs, 1985; Watkins & Marsick, 1990). Today, informal learning is again becoming the center of discussion for several reasons. First, the Bologna process recognizes informal learning (European Union, 1999) as a basic element in lifelong learning. Second, a necessity to apply learning from observation and experience exists (Attwell, 2007a,b). Third, the emergence of the Internet, mobile devices, and Web 2.0 tools facilitates informal learning (Ajjan & Hartshorne, 2008; Fielding, 2000).

The recognition of informal learning in the workplace is especially relevant, on account of a number of factors (Hager, 1998). For example, informal learning enhances employability and produces positive benefits for managers and companies. Furthermore, informal learning may help to develop task-oriented skills and knowledge, and to communicate social norms and favorable patterns of behavior. Informal learning also gives employees the opportunity to learn and keep their skills up to date as part of the overall workplace culture rather than just a training regime (Dale & Bell, 1999; Halliday-Wynes & Beddie, 2009). These issues lead to an interest in informal learning in the corporate world (García-Peñalvo, González-González, & Murray, 2012), emanating from the desire to capitalize on the intellectual assets of the workforce, to manage organizational knowledge, and to recognize that informal learning may prove to be a cost-effective way to develop competencies (Attwell, 2007a,b).

Informal learning takes place in the context of everyday experiences, especially among adults of all ages, in both Higher Education (HE) and workplace contexts. One relevant characteristic of informal learning is its spontaneous appearance in everyday activities rather than deriving

[☆] This project has received support from the European Commission through funding from the Lifelong Learning Program of the EU (Project Reference: 519141-LLP-1-2011-1-ES-KA3-KA3MP). This work is partially supported by the Spanish Science and Innovation Ministry through the oIPLE project (ref. TIN2010-21695-C02), and also by the Regional Council of Education of Junta de Castilla y León through the projects GR47 and MPLE (ref. SA294A12-2). This publication only reflects the views of the authors, and the Commission cannot be held responsible for any use of the information contained herein.

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from a planned activity. This facet of informal learning is an attribute that draws attention toward this type of learning. Some examples of this attention are: the CEDEFOP “European Guidelines for validating informal and non-formal learning” (CEDEFOP, 2009); the ECOTEC Inventory of the validation of non-formal and informal learning (Otero, McCoshan, & Junge, 2005); and the OECD Recognition of informal learning (Werquin, 2010). Moreover, several initiatives concerning competency recognition are underway in the EU, such as National Qualification Systems and the EQF (European Qualifications Framework) (Bjornavold & Coles, 2008).

ICT may enable such recognition simply by providing support to make informal learning evident. Some projects in this field are: the TENCompetence Project (Berlanga, Sloep, Brouns, Bitter-Rijkema, & Koper, 2008), which provides a set of tools to support lifelong learning; the MyElvin Project (García-Peñalvo et al., 2012); and Open Badges (<http://openbadges.org>), among others.

These initiatives demonstrate that recognizing informal learning is important, and they provide validation with technological and institutional support. Nonetheless, the main focus should be on facilitating the attainment of a strategic advantage from such forms of learning, for both organizations and employees. The recognition of informal learning implies a dialog between decision makers and the person who is undertaking the informal learning activity. Such an interaction allows verification of the type of competencies the employees achieve and to what degree, so that the institutional environment can use the resulting information to help with decision making. For instance, managers' decisions concerning promotions depend on skills that they and employees acquire in the informal space. Managers could also improve the support they provide for the learning needs of employees. This dialog among employees and decision makers would enable the creation of a common portfolio of competencies from which both the organization and its employees can benefit.

This paper proposes a methodology to articulate such a dialog. The methodology goes beyond the existing initiatives, which focus on the recognition of informal learning activities, and aims to facilitate decision making by supporting the necessary discussion between employees and the people in charge of the institutions. To empirically test the methodology, the TRAILER project (García-Peñalvo et al., 2013), a pan-European initiative, implements the approach as a proof of concept. The validation entails evaluation by experts to test whether such methodology really facilitates decision making, and the extent to which different organizations may use this implementation.

Following this introduction, Section 2 presents the research methodology and the design of a tool to support decisions. Section 3 evaluates the Decision Support System (DSS) to check the adequacy of the design decisions deriving from the methodology, and to confirm how the implementation works. Finally, Section 4 offers the conclusions and implications from the results of the evaluation.

2. Methodology and Decision Support System

In order to make decisions on the basis of informal learning, the employee must first identify the learning, and then the organization must recognize this learning. This process takes place through a dialog between the employee and the organization.

The identification of learning by employees implies the need to consider the set of tools that they use to carry out the informal learning activities that lead to this learning. These tools are related not only to an employee training platform but also to the tools the employees use in their everyday life to learn and manage knowledge. The issues that this type of learning raises are similar to those in the discourse surrounding the concept of a Personal Learning Environment (PLE) or Personal Training Environment (PTE). PTEs facilitate the user training process by allowing users to use the tools they want, freeing them from the constraints of a specific institutional context or training schedule (Adell & Castañeda, 2010). A variation of this model is the PKN, the

personal online networks that allow the management of tacit and explicit knowledge (Chatti, Agustawan, Jarke, & Specht, 2010). Moreover, the identification of informal learning also implies a need to store and classify the informal evidence. A portfolio system, as a place to store and manage knowledge, provides a possible solution to this problem (Attwell, 2007a,b). A competency-based model to classify the evidence performs a similar function, and the European Union and other organizations recommend this technique, which stresses the commitment to recognizing competencies and informal learning (CEDEFOP, 2009; European Union, 1999; ISCO08, 2012).

When the identification process finishes, the organization should be able to recognize the informal evidence that the employees identify. This mechanism requires being able to process the information that the employees release to the PTN. To address this requirement, this study proposes a methodology on the basis of a technological framework. The methodology consists of a framework with several different components and interfaces to meet requirements of a certain level and type of interaction. Fig. 1 outlines the framework.

The PTN groups the tools that users interact with in their informal learning. Some examples of these tools include Wikipedia, YouTube, games, social networks, LMS, Remote Labs, expert forums, and microblogging sites. One of the tools in the PTN is the TRAILER portfolio, which stores and publishes informal, non-formal, and formal learning experiences.

The portfolio has an interface to facilitate the gathering of informal learning activities. This interface is the Informal Learning Collector (ILC). In addition, the framework contains several organizational tools. The first is a competency catalog that facilitates the categorization of informal learning experiences, taking into account both trainee and organizational perspectives. The second is an organizational environment that enables the analysis of the published information, gives support to the dialog with employees concerning their informal learning, and facilitates organizational agents' decision making to do with organization-wide training issues (e.g., in internal and external certification processes). Finally, the framework boasts a repository that stores the information for future analysis, and has reporting capabilities to generate useful reports for both the organization and employees.

In this framework, the TRAILER project defines a methodology (Fig. 2) to make informal learning experiences transparent to workers and organizations in such a way that both parties benefit.

The starting point of the TRAILER methodology is the moment when the user performs an online activity that may have an impact on a competency featuring in the competency catalog. The employee may then identify and match an activity with the set of possible competencies from the catalog, or store a new competency for later identification. The processes of collection, inspection, and reflection result in a methodology with three stages:

2.1. Stage 1. Identification and storage

In this initial stage, the user classifies the activity, taking into account the competency catalog, which includes general competencies, organizational competencies, and user-defined competencies. Next, the system records the activity in the portfolio.

2.2. Stage 2. Organization

Once the system stores the information about the informal learning activity, the user can complement these details with information about associated competencies or classify the competency by using the catalog. In addition, the user can organize the information in the portfolio into different categories or views. When users organize the information properly, they can publish this material by giving the organization access. The employee can decide what to publish and who has access to that information. This information allows organizations to perform

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