Chapter 28
Valuing Learning Objects Shared in an Online Community

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ABSTRACT

In this chapter, the authors analyze and discuss how the activity inside a social network impacts on the value of a Learning Object (LO) used in a collaborative e-learning platform. Recent works propose metrics for measuring LO reusability based on a variety of approaches. In this work, they combine and extend these approaches in order to design a valuation strategy which helps to identify the usage of LOs inside a social network. Their proposal is to identify the factors that are relevant for the valuation of a LO and determine which of them can be computed automatically from its context of usage, the level of success of its authors and its metadata. The authors' analysis was performed on a particular social network called LOP (LO Poll) system, which strongly motivates the creation and collaborative valuation of LOs. They present preliminary conclusions obtained from an experiment performed in order to analyze the feasibility of the proposal.

INTRODUCTION

For some years now, all of us have started giving more and more importance to the community-society in the information systems. But today, not only does the community consume a technologi-cal product, but it has also become part of the product-system. Systems nowadays model the community and its behavior as they learn from the society. Thus, the main idea of enterprise 2.0 is to consider the social software as the element that allows for the creation of new knowledge without being limited to administrating the existing one.

The technology-community link is more important and deep when using technology to support education, since technology plays here a dual role of learning and teaching. On one hand, the e-learning systems must know-infer-learn the behavior and preferences of users (e.g. teachers, students); and on the other hand, they should be the support of the e-learning process. The system learns from the community so as to teach them in the best way.

As we have seen, the value of the knowledge produced in social networks is recognized as a key issue in any organization (Dalkir, 2011; Barão & Rodrigues da Silva, 2011). Moreover, this is extremely relevant in the context of e-learning communities where collaboration and quality of resources is of ultimate importance.

The wide variety of resources used in learning contexts are called Learning Objects (LO) Widley (2001), i.e. pieces of pedagogical information that can be reused. Usually these LOs are stored in repositories of LO, such as MERLOT[1], ARIADNE[2], eLERA[3], Connexions[4], Agrega[5], which coincide on the need to create valuable reusable LOs.

In reference to giving value to a LO, we ask ourselves "What is the value of something?" The axiological definition of value according to Frondizi (1992) is related to the value of a socio-personal interpretation according to reality and needs. Therefore, opinions about the LO coming from the community of authors, the community of users and the community of reviewers must be taken into account.

Ochoa (2011) presents a comparative study of LO repositories that show that LO reusability is bigger in repositories in which users are part of a community. Besides this, there exists no standardization about how the activity inside a social network impacts the value of the LOs.

This proposal aims at identifying the factors which are relevant for the valuation of a LO and determine which of these factors can be computed automatically from the LO's context of usage, the level of success of its authors and its metadata. We perform our analysis on a particular social net-

work called LOP (Learning Objects Pull) system (Dinis & Rodrigues da Silva, 2007, 2009), which motivates the creation and collaborative valuation of LOs. We consider the necessity to prove that the community is important in a measurable way, in the same way that Enterprise 2.0 does in reference to the business performance. Therefore, our proposal measures the value that the LOP's community gives to the learning objects of the LOP.

We present preliminary conclusions obtained from an experiment performed to analyze the feasibility of the proposal.

RELATED WORK

This section presents an overview of several works which focuses on diverse issues related to the problem of measuring the LO's quality in terms of reusability.

Factors Related to the Reusability

Sanz, Dodero and Sanchez-Alonso (2009) proposed a model to evaluate the reusability of LOs which is based on the main following factors:

- **Cohesion:** Is directly proportional to the semantic density, and is inversely proportional to the amount of: relations, aggregations, concepts and objectives covered.
- **Coupling:** Is defined by the information given by the relation category of LOM. More relations mean more coupling.
- **Size and Complexity:** Represent a degree of granularity of a LO (e.g. resource, lesson, course) and are directly proportional to the size, duration and typical learning time of the object.
- **Portability:** Has a technical and educational aspect. The first one is based on the format of the LO, the requirements of the hardware and software, and the criteria defined in the proposal to assign each of these a value. The educational aspect of a LO's portability is

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