ABSTRACT

Thanks to technology, people learn continuously, anytime and anywhere, and in multiple situations that combine formal, non-formal and informal learning. However, recognizing the type of learning taking place in such technology-enhanced learning (TEL) situations is a big challenge, since the boundaries between these three kinds of learning are blurred. In this paper we present FLINN (Formal INformal and Non-formal), a framework that defines formal, non-formal and informal learning situations as a continuum of two factors: (a) how learning is achieved; and (b) the setting where the learning situation takes place. This framework helps systematically characterize TEL situations, and as a consequence understand the kind of learning taking place, and recognize the learning opportunities that may arise in these situations. To illustrate the FLINN framework the authors describe three different scenarios, all employing interactive tags combined with other technologies for supporting collaboration in different settings, and embracing a diversity of learning objectives.

Keywords: Collaboration, Formal Learning, Framework, Informal Learning, Mobile Technologies, Non-Formal Learning

1. INTRODUCTION

Traditional learning practices are changing, led by the advance of Internet, mobile devices and the evolution of Web 2.0 applications and other software tools (Mills, Knezek & Khaddage, 2014; Roschelle & Pea, 2002; Sharples, Taylor & Vavoula, 2005). Nowadays, and thanks to technology, we can participate as learners in a variety of technology-enhanced learning (TEL) situations in which learning occurs anywhere and anytime, in multiple settings (workplace, home, a park…) and among people with a diversity of learning objectives (personal interests, institutional requirements, career goals…). These TEL situations can be supported by a variety of technologies and include and even combine different kinds of learning: formal,
non-formal, informal learning (Mocker & Spear, 1982; García-Peñalvo, Colomo-Palacios & Lytras, 2012). Due to the increasing role of technology in our society, these TEL situations have become an important part of the daily lives of most adults and, therefore, one focus of study in the TEL community.

One of the problems related with TEL situations that is gaining interest in the TEL community is the importance of recognizing what kind of learning (formal, non-formal or informal) is taking place (Cook, Pachler & Bradley, 2008; Gallacher & Feutrie, 2003; Svensson, Ellström & Åberg, 2004; García-Peñalvo Conde, Zangrando, García-Holgado, Seoane, Alier, et al. 2013). In traditional learning, the boundaries between formal, non-formal and informal learning are blurred (Malcolm, Hodkinson & Colley, 2003). But in TEL situations the blur between these three kinds of learning is especially intensified, making it difficult to identify and measure learning outcomes and competences (García-Peñalvo, Conde, Johnson & Alier 2013). In fact, most of research has focused so far primarily on measuring and recognizing learning outcomes and competences in formal learning situations (Christensen & Eyring, 2011; Kim, Kwon & Cho, 2014; Merchant, Goetz, Cifuentes, Keeney-Kennicutt & Davis, 2014). However, many educators, researchers and authorities such as the Organisation for Economic Co-operation and Development (OECD) stress that identifying and measuring learning outcomes and competences in non-formal and informal learning is still not well understood and should be further explored, particularly in TEL situations (Werkin, 2010; García-Peñalvo Conde, Zangrando, García-Holgado, Seoane, Alier, et al. 2013).

As an approach towards this challenge we propose a framework called FLINN (FormaL INnformal and Non-formal). FLINN helps educators and researchers characterize TEL situations and as a consequence understand the kind of learning (formal, non-formal and informal) taking place. This way FLINN facilitates to better recognize the learning opportunities that may arise in TEL situations. FLINN defines formal, non-formal and informal TEL situations as a continuum of two factors: (a) how learning is achieved; and (b) the setting (the physical space) where the learning situation takes place. This framework is based on the idea that characterizing the type of learning situations is the first step towards realizing the impact of technology and understanding how to measure learning. Three scenarios are employed to illustrate the FLINN framework in this paper. All these scenarios make use of innovative technologies, including Internet, mobile devices, Web 2.0 applications and QR codes, to support collaborative learning across multiple settings and capture different learning objectives. Analyzing these three scenarios with FLINN enables to assess the impact of technology in different learning contexts.

The remainder of this paper proceeds with Section 2, reviewing the literature regarding the concepts of formal, non-formal and informal learning. Then, Section 3 presents the FLINN framework, which uses as a basis the research works discussed in Section 2. Next, three scenarios supported by innovative technologies are presented in Section 4 as illustrative examples of the type of learning situations that can be characterized with FLINN. Then, Section 5 discusses the three scenarios under the proposed framework. Finally, conclusions and future work in Section 6 serve to close the paper, highlighting other research avenues that could be derived from the framework proposed and the scenarios presented.

2. FORMAL, NON-FORMAL, AND INFORMAL LEARNING

We have reviewed the terms formal, non-formal and informal learning in the related literature. From the existing definitions, we adopt the ones by Mocker and Spear (1982) and Sefton-Green (2004) to frame these concepts. Both works define formal, non-formal and informal learning according to two factors: (1) the learning setting (i.e. the place where learning occurs) and (2) the general approach to instruction.

Mocker and Spear (1982) define formal learning as the learning that occurs in traditional
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