

Chapter 2

Mining the Edublogosphere to Enhance Teacher Professional Development

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ABSTRACT

The rapid proliferation of Web 2.0 technologies during the last decade has led to online communities of learners, where members share prerequisite knowledge and skills to further professional growth. The educational affordances of blogs offer a wealth of online resources that can be mined in order to gain better understanding of community members and their contributions. In this chapter, we outline a web content mining technique to extract and analyze information from educational blogs, resulting in networks of online resources where content is linked in terms of the underlying semantic relationships. This type of representation is referred to as a network-based model, and has implications for e-learning personalization systems that seek to suggest similar content to those preferred by other learners. The applications of this method are discussed in terms of enhancing teacher professional development in the context of nBrowser, an intelligent web browser designed to support pre-service teachers in building lesson plans that integrate technologies in the classroom.

INTRODUCTION

Web 2.0 technologies refer to any type of technology or service that serves as a tool, allowing individuals and groups to actively transform and share information (Alexander, 2006; Siemens, 2008). These tools include, but are not limited to blogs, wikis, social networking, and social bookmarking platforms (Aijan & Hartshorne, 2008; Grosseck, 2009). Weblogs, commonly known as blogs, are time-stamped entries that are archived in a site, allowing visitors to leave comments. The subject material of blog posts vary considerably according to the intended audience, and in the case of educators, may address technologies

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that are available to teachers and students. The comments written by site visitors are often organized as a threaded discussion, allowing visitors to rate answers, share posts, and write replies (Martindale & Wiley, 2005). As an example, the blog site Edutech for Teachers (i.e., edutech4teachers.edublogs.org/), which is hosted by Edublogs, shares information about latest technologies and trends for teachers that engage students in meaningful learning experiences. Site visitors are able to comment on these posts and share their views about the online resources and their usefulness in the classroom. In this case, the blog serves as a professional learning network, however, blogging may also serve as an instructional tool in the classroom. Teachers often rely on blogging platforms to create a realistic writing assignment, enabling students to help each other by commenting on the post to share feedback or ask questions. Educational researchers have relied on metaphors to characterize the instructional affordances of such tools, referring to them as cognitive and metacognitive tools, to describe how their design supports mental processes that are conducive to better learning (Azevedo, 2005; Lajoie & Azevedo, 2006).

Educational blogs also hold great promise as an informal learning environment for teacher professional development (Hou, Chang, & Sung, 2009; Ranieri, Manca, & Fini, 2012; Rutherford, 2010). Blogs allow pre-service teachers to connect with more experienced peers to gain useful tips and resources about best practices in the classroom. These resources may include videos, pictures, e-books, links to external websites, and so on. A community of teachers may share greetings, quotes, humorous comments, as well as discuss about their frustrations and provide emotional support (Bissessar, 2014; Sumuer, Esfer, & Yildirim, 2014). External links to resources are particularly prevalent in Twitter feeds that are indexed through popular education-related hashtags such as #edchat and #edtech, allowing for the dissemination of websites, blogs, and newspaper articles pertaining to education (Holmes, 2013). Furthermore, the use of blogging services embedded in social networking providers such as Facebook and Twitter is already widespread amongst college students. In a survey conducted by Ellison, Steinfield, and Lampe (2007), a total of 94% of responders were registered to Facebook, while users of the social networking site spent from 15 to 45 minutes viewing their accounts, sometimes multiple times during the day. A comparable finding was obtained with users of Twitter, a microblogging service that enable registered users to share brief posts. College students tweeted an average of 7.5 tweets on a daily basis for the purposes of replying to on-going discussions related to class or share private messages (Ebner, Lienhardt, Rohs, and Meyer, 2010), but less often while contributing to a live Twitter feed from inside the classroom (Elavsky, Mislán, & Elavsky, 2011).

Despite the pervasive use of this medium, instructors are often reticent to use blogs for educational purposes, preferring instead to use them for personal reasons, and to stay in touch with friends (Roblyer, McDaniel, Webb, Herman, & Witty, 2010). A similar finding is reported in studies that examined the use of social networking in college students, claiming that its use is limited to staying in touch with friends from high school and classmates, and to maintain these old relationships (Ellison et al., 2007; Roblyer et al., 2010). The barriers to the educational affordances of blogs include the instructors' perception of their own competence in using technology, its perceived usefulness, ease of use, and the compatibility of the tool with the curricular content (Aijan & Hartshorne, 2008). These findings suggest a pressing need to change common beliefs regarding the educational affordances of this tool and to implement blogs as part of the training of pre-service teachers, using them as a platform to develop knowledge about classroom practices.

In this chapter, we outline an analytical method that captures the content of educational blogs and leverages their benefits for teachers to attain the knowledge and abilities of integrating technology into classroom. Educational web mining is an emerging field of research in education that aims to discover

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