Physics Students’ Social Media Learning Behaviours and Connectedness

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ABSTRACT

Drawing on a complexity thinking perspective on learning, the conditions of emergence for complex systems were used as an analytic framework to characterize social media learning behaviours for their potential to promote connectedness. The authors’ analysis identifies trends in secondary and tertiary physics students’ social media use from focus group interview data and characterizes the nature of these behaviours for their potential to benefit students’ understanding of the content of science curricula. While the authors’ study focuses on physics learning, they propose implications that extend to other science learning contexts vis-a-vis how to transform connectivity learning behaviours into connectedness learning behaviours.

Keywords: Complexity Thinking, Connectedness, Connectivity, Physics Learning, Social Media

INTRODUCTION

The extent to which today’s youth participate in activities that connect them to each other and to information (i.e., connectivity) is vividly apparent. However, students’ abilities to utilize the potential of their connections to facilitate learning (i.e., connectedness) remain limited; social media connectivity does not necessarily lead to connectedness.

The OECD (2012) report on the New Millennium Learners project makes a distinction between connectivity and connectedness, where connectedness is defined as the ability to benefit from being connected. Depending on the context, connectedness with social media may mean being able to leverage professional connections to find and be hired for a new job (e.g., LinkedIn), learn something new from blog postings shared on Twitter, or build a new network of friends who share a similar set of interests by joining a Facebook group. The current study is about the ways in which students may or may not demonstrate connectedness in their learning context;

DOI: 10.4018/IJDLDC.2015040102
specifically physics learning contexts. To consider how educators might help foster the shift from connectivity to connectedness using social media, we examined students’ social media learning behaviours – ways that students use social media to support their academic learning. We used a complexity thinking perspective on learning (Davis & Sumara, 2006) in order to characterize how social media learning behaviours might lead to connectedness. Finally, we were interested in how social media learning behaviours evolved over the learning spectrum and within a particular disciplinary context. Our work aims to obtain broad insight into the issue of connectedness, an intrinsically important part of optimizing the potential for enhancing learning using social media tools. Thus, in this study we asked the following research questions:

1. What social media learning behaviours do secondary and tertiary science students engage in, and how do these differ across the groups?
2. How can social media learning behaviours be characterized using complexity thinking and what are their potentials for connectedness?

For the purposes of our study, social media are defined as software and web-based technologies that facilitate interactive dialogues and connectivity using the capabilities of Web 2.0 technology that allow for the creation and exchange of user-generated content (Kaplan & Haenlein, 2010). Examples include video sharing platforms (e.g., YouTube), image sharing sites (e.g., Flickr), and social networking sites (e.g., Facebook, Twitter).

Today’s Connected Learners

The first generation to grow up surrounded by digital media has reached a metaphorical age of graduation. They have been characterized as ‘digital natives’ (Prensky, 2001a), ‘New Millennium Learners’ (OECD, 2010, 2012), and the ‘Net Generation’ (Oblinger & Oblinger, 2005), and their skill set and preferences for all things digital are taken for granted as a generational phenomenon. A number of claims have been made about this generation of learners: they prefer active learning to passive learning (Oblinger & Oblinger, 2005); they want to receive information quickly (Prensky, 2001a); and they are skilled at so-called multi-tasking (Brown, 2000). These claims have been widely criticized as inadequately supported empirically or theoretically (Bennett, Maton, & Kervin, 2008; Jones, Ramanau, Cross, & Healing, 2010; Kennedy, Krause, Judd, Churchward, & Gray, 2008), yet they have still led to calls for change in education systems in order to meet the needs and expectations of this generation of learners. Findings from most large-scale studies of youth and social media use (e.g., Ito et al., 2010; Jones et al., 2010; OECD, 2012) capture the extent of the use of social media applications such as Facebook and reveal that their use is not nearly as sophisticated as assumed (Hew, 2011; Manca & Ranierit, 2013; Oblinger & Oblinger, 2005; Selwyn, 2009; Tapscott, 2000, 2008).

Research demonstrates that today’s learners have high levels of connectivity. The OECD (2010) report on millennium learners shows that in the Netherlands, UK, Austria and Nordic countries, more than 95% of 15 year olds connect to the Internet daily from a home computer and across OECD countries, 73% of households with children have Internet access. Only a very small fraction of students have not used a computer (0.8%). The most recent OECD New Millennium Learners report (2012) concludes that “there is sufficient international evidence to support the claim that younger generations, particularly those between the ages of 15 and 24, are by far the population segment with the highest percentage of people online […] with the highest intensity of use.” (p. 56)
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