Using Social Networking Technologies to Harness Creativity amongst Students

Diana Ragbir
The University of the West Indies
diana.ragbir@sta.uwi.edu

Dr. Permanand Mohan
The University of the West Indies
permanand.mohan@sta.uwi.edu

ABSTRACT

This paper outlines proposed research into using a social network to harness creativity amongst students. We explore how the combination of creative learning theories, the requirements for creativity support tools and semantic web techniques will effectively support large numbers of members of the network to produce creative solutions to the specific problem that the network targets.

Author Keywords

Social networking, creativity, education, e-learning, Web2.0, creativity support tools, social media.

INTRODUCTION

E-learning is constantly playing catch up with new technologies. Currently, practices in e-learning (Griffith 2008) involve Web2.0 technologies such as Wikis, Blogs, Microblogging – Twitter, Slideshare, Vodcasting – YouTube, Podcasting, Social Bookmarking – Delicious, Virtual Worlds – Second Life and Social Networking - Facebook. In one way or another, teachers are trying to use these technologies to encourage digital natives to learn in more effective and efficient ways. The core idea behind any of these technologies is collaboration amongst learners, a do-it-yourself attitude, constructivism and interactive learning. However, there have been few complete success stories (Baird and Fisher 2005) and many 'what-not-to-do' research papers (Bittner 2011). What is needed is a standard framework or set of rules as to how to best harness creativity amongst students to encourage learning. Students learn best when they are in charge or their own learning, when they are guided appropriately to create for themselves and when they have the freedom to explore ideas within topics being taught. This paper proposes a framework within which this can be achieved with the use of social networking technology.

BACKGROUND

There are three main areas that inform the research being undertaken. They are dealt with in the following sub-sections.

Creativity Theories and Creative Support Tools Requirements

Understanding how technology can facilitate collaborative creativity is still in its infancy (Aragon et al. 2009). Systems that support creativity must facilitate sharing and play amongst participants (Aragon et al. 2009). In addition, the design of these systems must consider the effects of repurposing, augmentation and behaviour adaptation of the system's tools by the users (Aragon et al. 2009). Resnick's spiral gives us a method for learning in which the learner imagines, creates, plays, shares, reflects and starts back at imagine for a particular concept to be learnt. Learners are required to imagine an idea or solution to a problem, create something, play with the creation in terms of improvements, changes etc., share it with others and reflect on what was done so that the next iteration can be improved or built upon. It was noted that three types of information are shared when collaborating for a creative purpose. These are context – this is work but not task related, task and process – these are directly related to the job

and socio-emotional – this entails socializing and discussion (Aragon et al. 2009). It is noted by (Aragon et al. 2009) that "high socio-emotional content is critical in forming the relationships and trust that is required for successful, collaborative work". Thus, incorporating sharing, play, the effect of repurposing and augmentation, Resnick's spiral, and a focus on facilitating socio-emotional content are important aspects in the creation of a social network that can be used for creative purposes.

Other studies have also found that play and exploration are critical to creativity. Carroll et al. 2009 details four principles for creativity support tools. These are support for exploratory search which is related to the concept of play and flow, enable collaboration which is also related to play, provide rich history keeping, and must be designed with 'low thresholds, high ceilings and wide walls' in order to enable free form play. Active engagement of the individual and ability to experience 'flow' are also key aspects in enabling creativity (Carroll et al. 2009). These principles must be incorporated into the design of the social network.

Another study done by (Hautz et al. 2010) explored how to establish online innovation communities. The researchers set up a jewelry design contest in an online platform where users contributed designs and comments were made by others in the network on particular designs. It was discovered that there were eight different types of roles based on user behaviour, user relationships and attractiveness of user-content. People who submit a high number of new ideas do not necessarily attract the most attention. Thus, it was discovered that not only pure idea generating behaviour should be encouraged but also people who are interested in evaluating ideas and sharing their knowledge are essential since they activate knowledge transfer and sharing of information and experience. Through identifying the different roles users play in the community, strategies can be designed to either support the user in their behaviour or to transform them, for example, from passive users to motivators. In addition, users could be evaluated not just on number of comments but on length and value of comment. Analysis of roles and comments can help liven up a social network community.

Some researchers found that creative ability alone is not sufficient for creative performance. Creative self-efficacy is instrumental in developing and demonstrating creativity (Lassig 2009). Self-efficacy is simply one's belief in one's skills and capabilities. Positive reinforcement can help improve an individual's self-efficacy in a social network.

There is a call from a national initiative for social participation is the US via a white paper for researchers to determine how social creativity, collaborative discovery, distributed innovation and collective intelligence can be used to cope with the problems of the 31st century (Schneiderman et al. 2009). Additionally, current social networks used in research are Mendeley 2011 and ResearchGate 2011.

The case for social media in schools

According to Kestler 2010, the reasons for social media in schools include it is not going away, when kids are engaged they learn better, safe social media tools are available and free, a chance of replacing online procrastination with social education and it encourages collaboration instead of cliques. Gray et al. 2010 examined several Web 2.0 tools and noted that there was a paucity of cases available which described assessment. To the extent that assessment drives learning, and there is limited assessment of Web 2.0 authoring by students, there may be minimal opportunities for Web 2.0 tools to influence student learning. It is therefore, necessary to design assessment tools within the social network as well as in the teaching pedagogy.

Sharma 2011 explored crowdsourcing in higher education. Crowdsourcing is the process of continual idea-based problem solving by communities. It can help in prioritizing resources such as determining which initiatives users value most and in accessing a larger talent pool. Crowdsourcing can be used on

campus in many ways, such as, an innovation lab where solutions to case studies can be crowdsourced, an entrepreneurship idea evolution platform where students can evolve their business ideas with others, in new course innovation where students, faculty, admin and alumni can evolve ideas to enhance course offerings, alumni network for staying active in the university, and as a post graduate tool to tap into the collective wisdom of the greater campus community as well as for crowdfunding for research (Chaordix 2011).
See Ayres 2012 for a list of educational uses for each of the Web 2.0 tools mentioned in the introduction.

Semantic web

This area is yet to be explored in the research. However, it is expected that semantic web technologies would be used to provide context and meaning behind the various tools in the social network as well as linkages through analysis of the content of messages for livening up slow conversations and roles for behaviour modification (Breslin et al. 2009).

PROPOSED RESEARCH

Problem Statement

Certain social, educational and business problems can be categorized under the umbrella of knowledge-based problems with solutions that depend on large numbers of people working together. The nature of these types of problems allow them to be tackled using technology to spread knowledge about the problem, to instigate behaviour change amongst the population and to harness the creativity of large numbers of people towards development of solutions (Aragon et al. 2009; Davis 2011; Sternberg 2006; Casalini et al. 2007).

One social problem is the prevalence of unhealthy lifestyles amongst the general public, with specific issues of obesity, nutrition, and exercise (Tapscott & Williams 2001; Thackeray & Hunter 2010). Particular educational problems include poor writing skills amongst secondary school students in the Caribbean (Stabroek News 2009) and the high failure rate of first year programming courses at Universities (Lassig 2009). Current business problems include customer product design (Tapscott & Williams 2009) and prediction markets (Watkins 2007).

The key underlying problem is how to harness the potential collective intelligence of the crowd to solve such problems outlined above. The problem being tackled in this research is therefore how to foster the development of creative solutions (Csikszentmihalyi 1996) from groups in the population that the specific problems relate to.

Hypothesis

Social networking technologies can be used to foster creativity in large numbers of people to work together to solve specific problems (Haythornthwaite 2010; Watson 2007). Specifically, it is expected that a social network will be able to harness the collective intelligence of its members to address specific problems.

Firstly, with respect to the problem of improving writing skills of secondary school students, it is probable that collaboratively, the students will produce written outcomes that will be peer reviewed and improved upon using the technology. It is very likely that collectively, students engaging actively in the social network will benefit from improvement in their individual writing skills.

Secondly, first year programming students are expected to increase their understanding of and proficiency in programming concepts as a result of active, collaborative participation in social networking technologies outside of the classroom.

Finally, it is likely that the collective intelligence of the general public will generate local solutions within their communities for the problems of obesity and poor nutrition choices using the collaborative and participatory features of the social network.

CONCLUSION

It is expected that the combination of creative learning theories (Shneiderman et al. 2009; Yang et al. 2009; Boyd & Ellison 2008), the requirements for creativity support tools (Aragon et al. 2009; Carroll et al. 2009) and Artificial Intelligence (AI) techniques (Gleave et al. 2009; Hautz et al. 2010) will improve the efficiency and health of the social network. It is proposed that such a social network, built with the above combination of aspects, will effectively support large numbers of members of the network to produce creative solutions to the specific problem that each network targets.

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