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## The use of Twitter to facilitate engagement and reflection in a constructionist learning environment

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## A R T I C L E I N F O

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## ABSTRACT

*Objectives:* Determine students' self-reported use of Twitter in a health systems course and gauge their perceptions of its value and utility for self-guided supplementation of course material, and evaluate the quality of students' reflections from information they found on Twitter.

*Methods:* Students in a health systems course create a Twitter account to remain abreast of current developments in pharmacy and health systems. They were afforded the autonomy to follow organizations/individuals they chose and write reflective mini-papers on selected tweets from their Twitter feed prior to each course session. A self-administered survey solicited students' favor toward various aspects of the Twitter reflection assignment. An examination of students' reflections as the course progressed was also undertaken.

*Results:* Approximately 2/3 of the students enrolled in the course responded to the survey. Student perceptions of the Twitter assignment were quite favorable, with highest favor related to facets regarding the construction of their own learning and continuation of engagement throughout the course. Responses to open-ended questions corroborated students' perceptions of their own learning, as did the content and quality of their reflections during progression of the course.

*Conclusions:* The course design reinforced previous claims outside of pharmacy that Twitter can be a useful tool to reinforce or create new learning paradigms, but especially under the auspices of established theory, such as a constructivist environment employing constructionism pedagogy. A course like health systems in programs of academic pharmacy might especially benefit from use of Twitter and such course design.

## Introduction

Social media have become more widely used in education as a tool for any of several purposes. Social media use, as is the case with the use of any tool or intervention used in education, is best guided by sound theory. Many education theories provide value and support for pedagogical design. One such theory is constructivism. Constructivism suggests that learners build models to understand their surroundings; and it advocates student-centered discovery, where students use information they already know to acquire yet more knowledge.<sup>1</sup> Students often learn through participation in well-crafted applicable projects, with the instructor acting as a facilitator. To that end, constructivism is argued to erect an effective segue into experiential learning and thus life-long engagement in self-development processes.<sup>2</sup> As a pedagogy, constructionism is rooted in constructivism theory of knowledge. Constructionism posits that learners generate their own knowledge and meaning from interactions with experiences.

Instructional paradigms of constructionism involve the instructor helping students understand their surroundings, often through

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the use of active-learning strategies.<sup>3</sup> Constructionism differs from other learning philosophies such as connectivism, which relies on the importance of networks and the inherent communication taking place within those networks.<sup>4</sup> Connectivism has its strengths and thus applicable to a number of instructional and learning paradigms. Social media has often been used within the context of a connectivism approach. In this approach, the instructor and/or students are allowed, even required, to communicate with one another directly. However, constructionist approaches do not stress network-building, but rather, learners generating their knowledge from their own lived experiences.<sup>5</sup> A constructionist approach might be especially beneficial for a program like pharmacy, where educators are attempting to facilitate life-long learning skills. Additionally, stimulating a world view and creating the opportunity to learn well beyond assigned material is appropriate for any course, but perhaps especially one in health systems where the information is less rooted in hard fact than in evolving conditions dependent upon economic, political, geographic, cultural, and environmental forces and where initial coverage in a professional pharmacy curriculum is particularly cursory in nature.<sup>6</sup>

Commensurate with a constructionist approach, social media could be deployed for expanding students' knowledge and broadening their own worldview. As previously mentioned, social media have been used frequently in a connectivism approach to facilitate interaction among students and between students and faculty.<sup>7</sup> However, the use of social media like Twitter has seen mixed results when used in this manner. Lin et al. found that students enjoy being consumers of tweets but seldom took the initiative to retweet, reply, or attempt to apply and leverage what they had learned through this medium.<sup>8</sup>

The effectiveness of social media as a learning tool would appear to depend upon its goals for use and how well it is integrated into the fabric of the course. Dyson et al. (2015) asserted that successful use of social media may hinge on the basis of a complex interaction between a number of factors, including the timing of content delivery, integration of social media content with course assessment, and the students' own perspective on using social media for academic purposes.<sup>9</sup> Kassens (2014) supplemented a lecture-based macroeconomics course with Twitter to broaden students' perspectives and asserted that its microblogging utility forced students to express their thoughts concisely and helped develop reflection and professional writing skills.<sup>10</sup> Evans (2014) found evidence for increased engagement among students using Twitter.<sup>11</sup> Ruckert et al. (2014) developed a model for use of technology in health professions education. Such technology like social media can mitigate time and space constraints by facilitating more off-site learning, encourage more intimate interactions, and promote students' sharing of learning experiences.<sup>12</sup>

Recent years have seen a proliferation in the use of social media in health care education. Gagnon (2015) witnessed positive experiences by students, along with a modest increase in scores on the National Survey of Student Engagement (NSSE).<sup>13</sup> Wright et al. (2014) saw mixed results when using Twitter in a self-care course, as students did not see the relevance or necessity of its use.<sup>14</sup> On the other hand, Camiel et al. (2014) witnessed more positive student feedback from use of Twitter.<sup>15</sup> Students indicated that they were more likely to continue using Twitter and that medical and pharmacy news can be delivered effectively through this medium.<sup>15</sup> DiVall and Kirwin (2012) and Cain and Policastri (2011) used Facebook under similar pretenses to facilitate discussion between faculty and students and to lend some informality to the classroom setting.<sup>16,17</sup> Twitter was employed by Fox and Varadarajan (2011) to encourage interaction in a multi-campus environment.<sup>18</sup>

Two reviews of social media use in pharmacy confirm their increased use. These reviews also suggested that pharmacists and student pharmacists should be literate in the use of social media and that there are opportunities to leverage their use for better educational outcomes.<sup>19,20</sup> It has been argued further that use of social media might be optimized when guided by well-supported theories, particularly to facilitate engagement.<sup>21</sup> It follows that engaged students will more likely accept a greater stake in and responsibility for learning and are thus more likely to be able to retain and apply what is learned during future practice. Pharmacy scholars have long recognized the value of engagement and reflection as means of enhancing professional development, imbuing a sense of service and altruism, and cultivating skills in critical thinking and a desire for life-long learning.<sup>22</sup> Evidence suggests that Twitter might be useful in promoting student engagement <sup>23</sup> In fact, in two concurrent studies employing experimental designs, students were reported to be more engaged when Twitter use was required and in use of Twitter versus Ning.<sup>24</sup> However, their measures of engagement being the number of and qualitative assessments of the Tweets, themselves, suggest use and evaluation more along the lines of a connectivism, rather than constructionist approach. Moreover, the literature is sparse on Twitter's use in facilitating student engagement in professional degree courses such as in pharmacy.

While potentially applicable to any of myriad courses, social media might be quite beneficial in a course on health systems. The field is less about a set of facts than it is about a continually evolving, sometimes dramatically changing sets of dynamics that involve political, economic, financial, cultural, sociodemographic, regulatory and other forces, and whose relevant news arises on a near-constant basis. Social media outlets release consumable information routinely. Many pharmacy and other professional organizations, pharmaceutical companies, government entities, practitioners, health magazines, health desk services of newspapers and other large lay (e.g., CNN Health) and professional health (e.g., Modern Healthcare) use Twitter to blast intriguing bits of information often accompanied by a navigable link, or URL, for more detailed information. In view of its potential to assist students with expanding and tailoring their own knowledge and in light of the many professional and scientific organizations that use Twitter, the objectives of this study were to: (1) determine students' self-reported use of Twitter in a health systems course and gauge their perceptions of its value and utility for self-guided supplementation of course material and (2) evaluate the quality of students' reflections from information they found on Twitter.

#### Methods

## Setting/course design

The pharmacy health systems course (PRMC 603) at Touro University California College of Pharmacy is taught as a component of

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