

# Chapter 27

## Exploring the Use of Social Media to Advance K12 Science Education

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### ABSTRACT

*The astonishing popularity of social media and its emergence into the education arena has shown tremendous potential for innovations in teaching and learning. It enables student-centered learning in a more collaborative and interactive way in the online learning environment. However, few research has been conducted about how to use social media appropriately and effectively in Science education. The main purposes of this project is to explore the experience and perceptions of teachers with relevant teaching experience in using social media for K12 Science education, including the current level and scope of social media use, perception of utility, and its potential impact on science education. The implications, considerations, and challenges for and against the possible use of social media in science education were discussed with possible further research suggestions.*

### INTRODUCTION

We are living in a digital era with rapid diffusion of ICT and new social media technologies, such as Facebook, YouTube, WeChat, Twitter, blogs, Wikipedia. Social media has many multimedia elements including text, audio, video, photos, images, podcasts, etc. (Alabdulkareem, 2015). Based on its various formats and functions including social networking, SMS/voice, blogs/conversation, LiveCasting, Micromedia, etc., social media has been described as “the art of listening, learning and sharing” (Solis,

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2008). With its techno-social accessibility and affordability, its potential and popularity in innovative education has been demonstrated and considered as an increasing trend. It enables digital learners to create, collaborate, and construct knowledge and experience through online participation, and creates a learning community for instructors and students to share digital media and create group activities with various formats such as text, photos, videos, etc. It encourages student-centered learning with high engagement and enhanced learning motivation (Lam, 2012), fosters social interaction and reflection among participants (Ajewole, Momoh & Akinkuade, 2014).

By exploring the current extent and purpose of social media use from school teachers, this project is aimed to explore the use and evaluation of the integration of social media in science education. The following research questions were addressed.

1. How can social media be effectively utilized and incorporated to enhance the teaching and learning of science?
2. What are the benefits and challenges encountered in social media enhanced science education?
3. How can social media literacy be integrated in science education?

## **LITERATURE REVIEW**

Social media has been integrated into our daily life with benefits of ubiquitous communication, and playing an increasingly significant role in teaching and learning in various aspects (Vanwysberghe & Verdegem, 2013). Many strategies and practices have been investigated about how to use techno-social affordance and communication dynamics of social media to engage new ways of teaching and learning. It blends informal learning into formal learning, moves learning from information retrieval to collaborative learning (Hrastinski & Aghaee, 2012), enables collaborative interactions innovatively, broadens connection between textbook knowledge and the reality (Chen & Bryer, 2012).

Among them, Facebook is considered as the most popular social media with increasing number of users. It shifts the dynamics of teaching and learning in arts (Castro, 2012) and medical education (George & Dellasega, 2011); It can be used effectively to increase interaction between students and teachers (Jenkins, Lyons, Bridgstock & Carr, 2012); Facebook, Wiki, and blogs are found to be potentially valuable for peer feedback in the learning process (Doris, 2009; Demirbilek, 2015). Compared with faculty members who prefer use more traditional methods, students are much more likely to use Facebook (Roblyera, 2010). Besides Facebook, studies on Twitter suggested that it serves as a hub for connecting course topics with current news and activities (Jacquemin, Smelser, & Bernot, 2014). Integration of Twitter resulted in increased engagement and better interaction between students and teachers (Greenhow & Gleason, 2012; Junco, Heiberger & Loken, 2011).

However, learning through social media also presents challenges and limitations that needs to be confronted, such as insufficient and unequal participation, abuse of Internet, excessive online time on non-academic purposes (Wankel, 2011). Therefore, how social media should be used and incorporated into education is crucial.

Science subjects are considered as technology-enriched ones with newly emerged media. While social media are predominantly used for communication and social networking among students, the appeal of incorporating social media in science education demonstrates meaningful and worth studying.

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