Chapter 6

Blended Learning With a Virtual Mentoring Community: Enhancing the Way We Mentor

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ABSTRACT

Mentoring, the tutelage of one person by a more experienced one, is well documented to have a multitude of benefits. Mentoring, which can be traced back to Greek mythology and beyond, has seen its format evolve, especially with the advancement of technology. Traditional models of mentoring include in-person mentoring or more recently, online mentoring. For some underrepresented groups, mentors provide models for success. In 2014, capitalizing on technological advancements and the need for in-person dialogue with a larger constituency, Weill Cornell Medicine launched a science, technology, engineering, and math (STEM) blended learning curriculum during its summer program that prepares undergraduates for careers as physician-scientists. This initiative fuses the positive aspects of in-person mentoring along with the opportunities provided by virtual mentoring by a larger group of peer mentors. Blended learning, together with in-person and virtual mentoring, offers a newly charted multi-dimensional approach to fulfilling academic and career goals during a STEM summer program.

INTRODUCTION

This chapter will introduce an innovative blended Science, Technology, Engineering and Math (STEM) summer mentoring program, Gateways to the Laboratory Program (Gateways) at Weill Cornell Medicine (WCM). Gateways illustrates the manner in which technology, in conjunction with face to face interaction, can best develop, support and encompass the benefits of mentoring. This is exhibited through Gateways, a summer program which prepares underrepresented minority, disadvantaged college students, as well as those with disabilities, to qualify for a rigorous study for the combined medical (MD) and biomedical science (PhD) degrees, the premiere path for a student to become a physician-scientist. These groups were particularly chosen due to their underrepresentation in the physician-scientist workforce coupled...
with the National Institutes of Health emphasis on recruiting these groups into physician-scientist training (MD-PhD) programs (National Institutes of Health, 2014).

The combined force of introduced virtual and face to face mentoring supports and challenges the participants. This program is vital as there is a national call for additional physician-scientists, especially those who are from underrepresented minority backgrounds (COMPETES Act, 2007; National Institutes of Health, 2014). This chapter is a case example, which illustrates one way in which technology, combined with in person mentoring can enhance the summer student’s experience and possibly their success. The chapter will provide an overview of the history of mobile devices, blended learning and mentoring. It will provide a discussion grounded in literature on the need to improve the pipeline of underrepresented students into dual degree MD-PhD Programs, some background on the creation of Gateways, and a description of the Gateways curriculum and catalyst of the blended learning curriculum and virtual mentoring community. The chapter goes on to describe in some detail how to effectively mentor these students utilizing various tools, including the blended learning curriculum and provides suggestions on how to overcome fundamental challenges facing the pipeline. Finally, a description of the adult learning theories used to underscore this blended learning model are introduced as are the challenges faced while creating this innovative program. Recommendations for those who wish to take on the challenge of creating a blended learning curriculum with a virtual mentoring community close out the chapter.

**MOBILE DEVICES AND BLENDED LEARNING**

Personalized, portable and easily accessible technology is altering lives (Johnson, Adams Becker, Estrada, & Freeman, 2014). Through the use of mobile devices such as smartphones and tablets, people can communicate, collaborate, and share information from any place at any time. As such, learning can take place both virtually and in brick-and-mortar institutions (Evans & Johri, 2008). This allows for greater flexibility to modify content and adjust delivery channels.

This seamless learning is grounded in two main principles: personalization and mobility (Wong, 2013). The foundational origin of personalization is the understanding that the student is at the heart of the learning and everything—including intelligence, motivation, group dynamics, and feelings—must be considered (Motsching-Pitrik & Holzinger, 2002). Past research has been focused on either formal or informal learning, but little has been done on the bridging of the two learning modes (Looi et al., 2010), as is the case when virtual mentoring is used in conjunction with in-person mentoring.

Mobility emphasizes the ability to learn without restrictions. With the added efficiency of mobile devices such as smart phones and tablets, learning environments can be expanded as can social interactions, collaborations, and the potential for new formal and informal learning activities (Jones & Jo, 2004).

Recognizing that every student entered the institution with a mobile device, coupled with the software and the instructional knowledge to leverage the current learning management system (LMS), it was an opportune time to introduce blended learning at the institution. Gateways was the ideal platform for the trial.

The blended learning curriculum is most effective when there is active participation from the students. As such, the curriculum was developed with a multitude of opportunities for them to engage as they partake in everything active learning to reflective dialogue. Some of the learning strategies are passive such as watching video clips or reading, while others are more active such as writing scientific papers or delivering oral research presentations. Questions on the discussion boards are often open-ended without

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