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Maximizing the Potential of Blended Learning in Public Health Education and Training

Abstract

There have been increasing demands for innovative learning and teaching approaches in higher education. Many educators in various fields of study have been teaching their students using deliberate and careful combination of face-to face and online learning processes or blended learning. However, in the field of public health, the use of blended learning seems to be fewer. For public health educators and trainers to maximize the potential of this approach, it could be significant to consider the broad and increasingly expanding scope of public health. Furthermore, studies should be done to identify the factors that drive the achievement of educational outcomes in this field.

Keywords: Blended learning, flipped classroom, advantages, public health

Introduction

Education in the 21st century demands that teachers create diverse and innovative approaches to be connected to varied learners anytime and anywhere (Garrison and Kanuka, 2004). Many believe that combining strategies could better facilitate the learning process. One of the common innovative approaches is blended learning (BL) which is described as the combination of face-to-face and online approaches to teaching and learning (Bonk and Graham, 2005).

The decision to "blend" teaching and learning approaches is related to the idea that the outcome of learning can be achieved overtime (Singh, 2003). Similarly, Strayer (2012) suggests the need to provide time and space to students for them to reflect on their learning activities and make connections between the course contents. So (2009)

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emphasized that blending the multiple learning components is crucial to meet the learning objectives and students' needs, rather than simply relying on technology. Furthermore, authors of various BL studies have shown the many benefits provided by BL, suggesting that this approach could be another solution to problems encountered by educators today.

The less number of studies on BL in the field of public health prompted us to raise the question as to how BL can create a substantial impact on learning and other educational outcomes as used in this field of study.

The advantages of blended learning in general will be discussed first and followed by a discussion on the factors that contribute to the outcomes of this teaching-learning approach. Some examples on BL, as applied in public health education, and training will be presented and give suggestions as to how this approach could be feasibly maximized in the realm of public health sciences.

Advantages of blended learning

Many authors on BL show that there are significant reasons in the use of this approach as a promising tool for learning and teaching in higher education.

For students

One of the common benefits of this approach is that it promotes critical thinking by allowing students to engage with the course material more deeply (Howard et al., 2017). Critical thinking is an important skill that is nurtured when people engage with real life situations as they interact with their environment and the people around them. In BL, opportunities for interaction are increased by decreasing the time they passively listen to lectures inside the classroom and provide platforms where they could connect with each other and with their teachers regardless of time and locations (Kiviniemi, 2014; Goodie et al., 2011).

In addition, a study by Rowe et al. (2012) found that BL helps bridge theory and practice, as well as, improves several competencies of nursing students. Similarly, Vo et al. (2017) found that disciplines that used BL have significantly higher mean effect size confirming that BL is significantly associated with greater learning experiences of higher education students.

Another benefit of BL is that it allows students to learn on their own pace when learning materials are made available online. Blended learning allows more flexibility as students access online materials asynchronously; thus, it reduces what others might view as "unnecessary" pressure for students to conform to the one-size-fits-all approach to learning. However, Ingrassia et al. (2014) posit that this flexibility does not mean complete control on the part of the learners; the presence of online tutors to help facilitate the integration of the materials is still necessary to the process.

For teachers and administrators

Some educators and school administrators consider this approach advantageous because it can "extend the reach" by allowing remote audiences to participate on behalf of those who are not available for a class in a fixed time and location (Singh, 2003). However, teachers could be resistant to BL as it is considered as a time-consuming process, especially in terms of finding and developing a variety of creative teaching materials that are related to the students' required competencies (Hoffman, 2014).

Furthermore, Singh (2003) claims that combining different modes could be less expensive as compared to a total online class, which is equipped with media-rich web-based training contents. However, Niemiec and Otte (2010) argue that BL demands vast institutional change and much of the start-up investments could be considerable. Blended learning could also provide opportunities for educators to be engaged with producing more scholarly work as demands for classroom time is lessened.

Factors affecting BL outcomes

Despite the many advantages that BL can potentially offer, this approach is more than just simply combining teaching-learning modes. It requires deliberate planning to achieve its specific educational objectives. Administrators and educators need to consider several factors when designing a BL class.

Readiness and disposition of teachers and learners play a role in facilitating an enhanced learning outcome. While So (2009) suggests that learning happens when individuals are allowed to learn on their own with some opportunities to interact with classmates and instructors, Bell and MacDougall (2013) argue that this knowledge-sharing and engagement is not enough for students who are trying to grasp a new concept. In this regard, additional learning support must be provided.

One's competency in navigating the internet is also a key factor in considering BL as an approach. Teachers and students who are highly interested, as well as, skilled in this area are at an advantage compared to those who are not.

Furthermore, adequate institutional support is needed to sustain the implementation of BL. Provision of satisfactory internet connectivity is a requisite for a satisfactory online class. Bell and MacDougall (2013) emphasized technological infrastructure stability as a major contributor to the success of the BL approach. They assert that addressing internet connectivity issues are requisites in the provision of online courses that contribute in the success of public health learning. The online delivery can be enhanced with support that addresses the needs of diverse groups of students. Training for teachers in the production of

online teaching materials is another example of essential institutional support which can sustain the use of the BL approach.

Teaching style, readiness of students, level of interest and skills of the educator and the learner, and the extent of administrative support may enhance or deter the learning process in the use of blended approach. Consistently, Kintu el at. (2017) summarized the important factors that contribute to the outcomes of BL. They identified technology quality, online tools and face to face support as design features, as well as, attitude and self-regulation as students' features.

Blended learning in public health education and training

Although a significant number of studies on BL have been published in the fields of medicine, nursing, and other areas of health sciences, there are fewer published studies in the realm of public health education and training. The limited number of studies in this area may restrict the bases for educators and trainers on the essential considerations in the implementation of public health education and training.

To understand the usefulness of BL in public health education and training, it is necessary to look at the specific characteristics of the field. One relevant feature of public health identified by Turnock (2016) is its broad and ever-increasing scope. Public health issues are continuously expanding and many developments are being presented almost everyday. For instance, demographics of HIV/AIDs, tuberculosis and other communicable diseases are continuously changing. Developments in terms of diagnosis, treatment, prevention and control of these diseases are also rapidly increasing. Such public health issues affect the health condition of individuals, groups, and communities. This stated characteristic of public health requires students, practitioners, and decision-makers in this field to be informed on current trends.

Teaching and learning processes in this broad and expanding field are complex. For instance, Chandler et al. (2008) believe that teaching in public health should facilitate the merging of skills, knowledge, and abilities into meaningful tasks. These tasks should be used to translate competencies into programs and activities such as population health assessment, health protection, health promotion, disease and injury prevention, surveillance and emergency preparedness.

However, Frenk et al. (2010) describe public health education as having a “fragmented structure and static curricula”, adding that it is not responsive to the current changes in health systems on a global scale. This curriculum focuses on repetitions of learning tasks and structured clinical protocols which may curtail innovative thinking and critical inquiry. In addition, continuing educational opportunities for people who work in public health still remain to be a challenge.

To address this problematic situation in public health education, So (2009) suggests to maximize the advances of information technology to deliver flexible courses such as continuing education in public health. For instance, Umble et al. (2000) used BL in a continuing education on a vaccine preventable disease course. They found that face-to-face and broadcast versions of instruction facilitate the learning process on knowledge of polio schedules, self-efficacy or the capability to organize and to execute the course of action, agreement on polio schedules and adherence to practice recommendations.

Furthermore, Galway et al.(2014) used flipped classroom, a form of BL approach, among Master of Public Health students to discuss environmental and occupational health topics. It was discovered that the use of the flipped classroom approach increased the rate of self-reported knowledge, as well as, the students' examination scores as opposed to traditional classroom instruction in the previous year. The effect of BL was further explored through focus groups. Two factors were identified as contributors to the students' positive learning experiences: (1) the high level of interaction among students and teachers; (2) reflective responses contributed to the positive learning experiences of students as it allowed them to make connections within the various aspects of the course and to other areas of public health. Blended learning also contributed to the students' increased appreciation for environmental health and occupational health.

Kiviniemi's (2014) study on the effects of BL on students in a Master in Public Health course show that BL has a more positive effect than the traditional classroom delivery approach. Students that used BL performed better in examinations and the whole course in general. Positive student feedback also reinforced this result wherein the online component of the class allowed students to actively engage with the lecture material. In particular, the recorded video allowed students to pause and to replay this teaching material whenever they wanted to clarify some points about the topic or subject.

In another study, Milic et al. (2017) compared groups of Master of Public Health students through a prospective trial with one group exposed to the traditional class method and the other a blended class in acquiring public health biostatistics competencies. They found that BL is an attractive and effective way of acquiring such competencies. Mean exam scores for the final statistics and knowledge tests are higher in a BL class with a higher estimate large effect size. Since biostatistics has been clearly recognized as an essential competency in public health, the use of BL might

be a promising approach to contribute in delivering the topic that would eventually help in the development of better public health workforce.

The above studies on BL are examples of some of the uses of this approach in public health education and training. However, it seems that there is no deliberate consideration of the important features of public health, e.g. broad and expanding scope as described by Turnock (2016) - whether this feature influences the delivery and the outcome of BL when used in public health. Other unique features of public health include social justice philosophy, inherently political nature, link with government, grounding in science, focus on prevention, and uncommon culture (Turnock, 2006). Some of these features might be worth considering in the delivery of related topics, as well as, understanding its possible effects on the outcomes of BL in this field. The limited number of studies on BL in this area may indicate a call for public health educators, researchers and practitioners to address the complexity and broad nature of public health through innovation in teaching and learning such as BL.

Furthermore, only a few studies have identified the factors that contribute to the learning outcomes and other educational effects that are specific to the field of public health. Although many factors have been identified by previous researchers in other fields, factors unique to public health may be worth exploring.

Conclusion and Recommendation

Blended learning is a widely used approach to learning and teaching in the fields of medicine, nursing, and other health sciences. In public health, the examples above show that there are various areas in this field where BL could be used to enhance the learning process of public health students and primary health care workers. Innovative approaches to teaching and learning such as BL could be beneficial to the ever-increasing complexity and scope of public health. We perceive that the more complex the subject matter, the more blending of modes would be needed to enhance teaching and learning. Public health educators and trainers are expected to innovate in the teaching and learning processes to maximize the learning experience of students in this area. However, it is necessary to determine which among the topics are best taught in the traditional face-to-face format and which subject matters to create for modules that are accessible online.

There are also various issues in BL learning that need to be addressed in order to maximize the learning process. Specific to public health education and training, there is also a need to identify the factors that generate effectiveness of BL to achieve the expected outcomes of this approach to teaching and learning.

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"Qualitative research gives me, and hopefully all of us, an enriched life, a perceptive acuity, emotional awareness, and sometimes too much empathy into the messy mysteries of being human. Qualitative research shows me how life works, it gives me answers, it tells me not just what but how and why. We may not always completely understand why we and others do the things we do, but most times it makes sense, and when things make sense, you've made meaning."

- Johnny Saldaña, 2018