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A case study using Instagram to create an online learning environment

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Abstract

Although there is a high prevalence of personal distractions/distractors (e.g., social media) in higher education, only a few instructors are implementing them for educational purposes. The present case study explored how Instagram engaged first year students in a Kinesiology class by utilizing hashtag data. Results suggested that greater than half of the class engaged in the online learning environment. Text analysis revealed nearly half of the data was categorized as good feelings, and Instagram posts revealed that students applied course concepts and met learning outcomes. Social network analysis revealed a lack of discussion/communication amongst students, however, conversation appeared to be centralized around the opinion leader (i.e., the instructor), and extended beyond those registered in the class. This case study provided an insight into how distractors, such as social media, may be used to elicit agency, deep learning, reflection, and critical thinking among students in higher education.

Keywords

Social media; post-secondary education; learning communities; participatory learning

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Using alternative instructional strategies to maximize student learning in the higher education classroom (i.e., active learning) has developed from converging evidence that the promotion of deep and lasting student learning comes from more than just that of a lecture presentation of the course content (Eison, 2010). Student's report being easily bored with traditional learning methods (Barnes, Marateo, & Ferris, 2007) and as the structures of our society change, our classrooms and educational systems must also change, grow, and adapt to suit the needs of a new generation of learners. Pedagogies to accommodate the learning landscape for this present generation look different than the past. New generation learners have grown up with digital and cyber technologies and tend to seek independence and autonomy in their learning styles (Barnes et al., 2007) for they have always lived in a world in which they can actively acquire information. Moreover, the current generation of learners has been criticized as being distracted and for the purpose of this paper these distractors/distractions are being defined in relation to digital devices (i.e., laptops, smartphones, other media devices) and the online platforms they support (i.e., Internet, social media).

Within the literature, there are various criticisms and/or challenges in using distractions for teaching/learning. Technological devices (e.g., laptops, phones) in the classroom are thought to not only be a distraction to the person using it and those around them (Glass & Kang, 2019; Sana, Weston, & Cepeda, 2013), but can be less effective for learning and note taking (Fried, 2008; Glass & Kang, 2019; Sana et al., 2013). Moreover, such technological devices may provide opportunities for incivility and poor behaviour (Bayless, Clipson, & Wilson, 2013), and may have accessibility and socioeconomic challenges (Schmetzke, 2001). In addition, in an era of digital distractions, the continual switching of attention may have significant implications for post-secondary students in regard to teaching and learning as the time spent switching between tasks results in lost information (May & Elder, 2018). Research suggests that students who multi-task have poorer academic performance compared to those who single-task while attending lectures (Bellur, Nowak, & Hull, 2015; McCoy, 2016; Ravizza, Hambrick, & Fenn, 2014). Further, students report using distractions for recreational purposes during class time, and the use of these distractions interfered with their learning (McCoy, 2016). Other potential pitfalls of using distractions in the classroom include privacy concerns for faculty and students such as not understanding privacy settings, the need for student education records to be kept protected, and class discussion on social media might reveal students' identification to the public (Chen & Bryer, 2012). Finding ways to help students use the distractions for learning, rather than entertainment or personal interactions exists as another potential pitfall (Chen & Bryer, 2012).

On the other hand, distractors in the classroom can provide new opportunities to increase interactivity and communication (Barak, Lipson, & Lerman, 2006; Barry, Murphy, & Drew, 2015) and provide effective tools for learning (Barak et al., 2006; Barry et al., 2015; Greenhow, Gibbins, & Menzer, 2015). Despite potential challenges that may arise, using distractions for teaching and learning is progressive and allows students to work collaboratively, construct knowledge, and engage interactively to facilitate better student learning (Kabilan, Ahmad, & Abidin, 2010). Leveraging distractions can facilitate discussion and knowledge transfer between students and create a deeper sense of understanding of the course material. This may help students move away from strictly memorization as these distractions are potential resources to create personally meaningful learning experiences (Hamid, Waycott, Kurnia, & Chang, 2015). In addition to monitoring student progress and behaviour (Dahlstrom & Bichsel, 2014; Samson, 2010), as well as helping students develop digital self-regulation skills and digital literacies/competencies (Greenhow et al., 2012; Lindroth & Bergquist, 2010), using distractors may offer up a new high-impact practice technique for higher education. Ultimately, this method allows for self-involvement in the learning process and if structured appropriately more hands-on, inquiry-based approaches to learning.

However, several limitations are noted amongst the polarizing literature. Such limitations include small sample sizes (Gao, Luo, & Zhang, 2012), self-reported vs. actual measurements/ observations (Tarantino, McDonough, & Hua, 2013), and few have involved structured (e.g., integrated /constructively aligned; Hew, 2011; Luo & Gao, 2012) or academic (e.g., contributing to learning outcomes) use of devices (Hew, 2011; Moran, Seaman, & Tinti-Kane, 2011). Furthermore, limited evidence exists to determine whether all devices (or platforms) are equal, in regards to risks/benefits, and/or whether there are certain characteristics within each device/platform that are necessary. Of the studies that have looked at higher education classrooms, many do not look at leveraging students' current distractions (e.g., social media) for teaching and learning, but rather introduce new distractions such as clicker technology (Barr, 2017; Sun, 2014). In addition, much of the research in higher education is in classes, such as computer networking courses (Alioon & Delialioğlu, 2017), and/or e-learning and videoconferencing (Giesbers, Rienties, Tempelaar, & Gijsselaers, 2013), where distractions would be readily available and perhaps easier to implement into the course context. However, research has shown that distractions can be utilized as an instructional medium to blend informal learning into formal learning environments (Chen & Bryer, 2012), and increase student engagement (Annetta, Minogue, Holmes, & Cheng, 2009; Chen, Lambert, & Guidry, 2010; Junco, Heiberger, & Loken, 2011), which may lead to positive student learning outcomes such as critical thinking and individual student development (Carini, Kuh, & Klein, 2006; Pike, Kuh, & McCormick, 2011). Despite the high prevalence of personal use of distractions (e.g., social media), and possible benefits of using them for teaching/learning, a low percentage of students and instructors are implementing them for educational purposes. As a result, limited research exists on the pedagogies of incorporating such distractions, creating a lack of available resources from which educators may seek guidance, which in turn hinders the ability to know how to implement such methods into their classroom (Chen & Bryer, 2012).

Insights obtained from case studies can directly influence policy, procedures, and future research (Merriam, 2001). Thus the current case study aims to not only shed light on how distractors may help foster critical thinking skills, by creating a learning environment whereby students have to make connections between course concepts, adapt them, and extend them into a new concept (i.e., a post on social media) but also act as a resource to future educators. As the majority of young adults (18-29 years) are engaging with some form of social media (a common distractor) multiple times throughout the day (Duggan & Smith, 2014; Santarossa & Woodruff, 2017; Smith & Anderson, 2018), the course instructor, sought to create a social media-based type of assessment and learning environment that both constructively align with eliciting student performance beyond the classroom into other sites of practice. As such, beginning in 2012, various social media (e.g., Facebook, Twitter) were incorporated into a first year mandatory Kinesiology. While young adults' use of some social media platforms (e.g., Facebook, Twitter) have remained unchanged over the last several years, their use of Instagram has continued to see significant growth (Smith & Anderson, 2018). Instagram has become a platform for visual communication and gives users the opportunity to experiment with their public personas (e.g., self-present in any way they see fit), gives a platform for sociological analysis (Baker & Walsh, 2018), and creates a global community supportive of a culture of sharing. Thus, given its continued growth, popularity among university aged individuals, and the ability to collaboratively build knowledge, the course instructor decided to adopt Instagram as the social media platform of choice in 2018, and the present case study utilized hashtag data from Instagram in order to examine how a photo-based social media site could engage first year students in a mandatory/introductory Kinesiology class. More specifically, there were two research questions (RQ):

- RQ1: Descriptively, using a class hashtag on Instagram, determine what is the nature of the online learning environment, taking class concepts and extending them into a new online context?
- RQ2: How many students engaged in the online conversation and what types of interactions took place?

Methods

Case studies are a type of qualitative research that focus on a single unit or system bounded by space and time, consisting of intensive analyses and descriptions (Hancock & Algizine, 2006). The hope of a case study analysis is to gain in-depth understanding of situations and meaning for those involved, which may mean examining topics surrounding individuals, events, or groups. The current research uses a case study of a first year mandatory 12-week Kinesiology course, Health and Wellness. Students in Health and Wellness are expected to accrue 10% of their overall grade for experiential learning marks. Usually, the experiential learning tasks are 2% each (pass/fail) and target a wide variety of activities that expand classroom material into real world settings (they can do up five tasks at 2% each for a total of 10% of their final grade). During the winter term (2018), 1 of the 12 possible options was to engage the instructor 15 times on Instagram with quality images or short videos using the hashtag #HK200 (course code at the time). Further instructions included that all posts must come from open/public accounts (students could create a new account if needed) and be completed by the end of classes (April 5, 2018). Finally, it was instructed that all posts should not come in succession (all in one day) and students were reminded that any inappropriate posts would result in receiving zero experiential learning marks (0 out of 10%) without question/discussion.

Data Analysis

Data were collected using Netlytic (Gruzd, 2016), an open source software, which captured #HK200 posts from Instagram from January 2, 2018 through April 11, 2018. The time period covers the entire duration of the classes, plus an additional week to account for any late posts (as all students were expected to have reached their 15 posts by the last day of class - April 5, 2018). The dataset was manually cleaned to remove any posts not associated with the class and was re-uploaded to Netlytic for analyses.

For RQ1, Netlytic (Gruzd, 2016) was used to identify popular topics within the #HK200 dataset by counting word frequency. Furthermore, the software created categories of words and phrases to represent broader concepts (e.g., positive vs. negative words) and then automatically identified and organized all words into generic categories (e.g., appearance, time, size) based on synonyms (e.g., appearance – healthy, cute; time – early, young, late) to represent broader concepts within the data. In addition, to better understand the nature of the online learning environment and illustrate the ability for this experiential learning task to elicit agency, deep learning, reflection, and critical thinking, descriptions of a few #HK200 posts are provided to give examples of how the posts related to the Health and Wellness course Learning Outcomes. The course Learning Outcomes suggested that by the end of the course, the student would be able to: (1) List and describe the factors associated with health and wellness; (2) Collect, analyse, and evaluate health and wellness information; (3) Recognize the potential barriers for individuals trying to achieve and maintain a healthy lifestyle; (4) Identify high risk behaviour and its detrimental effect on health and wellness; (5) Design and employ interventions to help individual adopt a healthier lifestyle; (6) Illustrate the different health and wellness issues from a local and global perspective. For RQ2, Netlytic (Gruzd, 2016) conducted a network analysis, both a name network (i.e., who mentions whom) and a chain network (i.e., who replies to whom) to determine the degree of interaction among Instagram users within the #HK200 dataset

Results

Of the 12 possible experiential learning tasks, ‘engaging the instructor 15 times on Instagram’ was the second most popular task, coming in behind ‘random attendance day’ (i.e., the course instructor randomly chooses a day to give 2% and if the student was in class they accrued the 2% towards their final grade). Within the online conversation, there were 16,784 unique words, and Table 1 displays the 20 most commonly used words and hashtags (with #HK200 removed). The instructors handle (@[Instructors handle]) was the most common word with 977 messages (total number of messages within the dataset) and instances (total number of times mentioned within the dataset), representing 50% of the total number of posts. Figure 1 represents the most common categories of words, with good feelings being represented in 47% of the instances. Moreover, specific examples of #HK200 posts how the posts related to the Health and Wellness course Learning Outcomes are described below:

Word or hashtag	#messages n	#instances n
@[Instructors handle]	977	977
time	113	129
today	112	116
good	101	111
great	100	105
healthy	92	99
love	84	86
health	82	92
week	66	76
favourite	60	61
back	58	64
stress	56	58
it's	56	59
happy	53	54
life	50	54
breakfast	50	58
studying	49	52
make	48	51
I'm	46	52
study	44	48

Table 1. Top 20 words within the #HK200 dataset

One #HK200 post titled “Effects of Sleep Deprivation” consisted of a human body with particular areas labelled (e.g., lymphatic system labelled with ‘impaired immune system’): “With exams approaching always remember sleep is important! Although you may think staying up all night to study will benefit you, it can actually have a negative effect on not only your exam performance but your overall marks! #hk200 @[Instructors handle]”. This particular example illustrates that the student is able to successfully ‘List and describe the factors associated with health and wellness’, ‘Collect, analyse, and evaluate health and wellness information’ as well as ‘Identify high risk behaviour and its detrimental effect on health and wellness’.

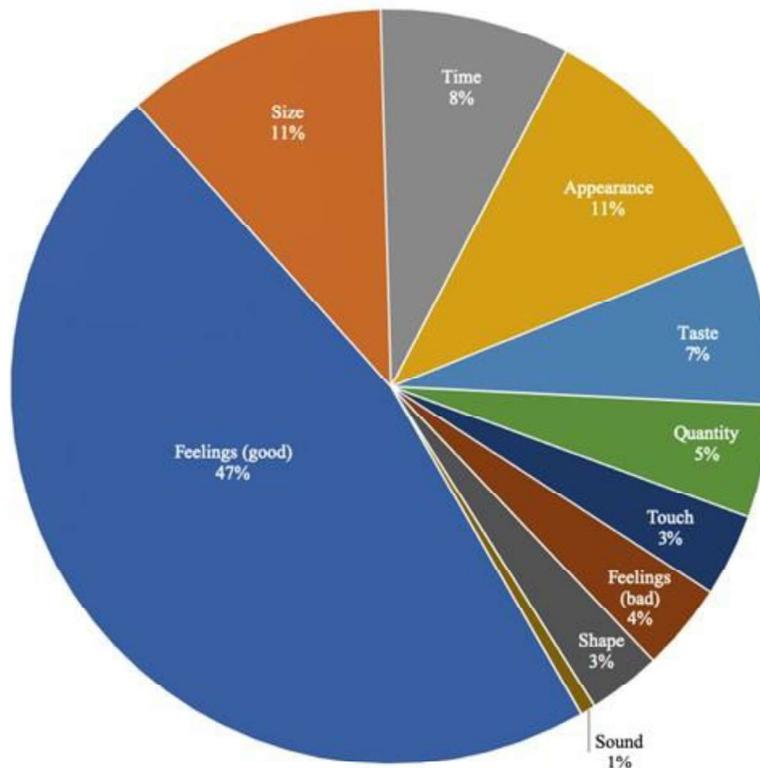


Figure 1. Categories of popular words/phrases associated with #HK200 posts

Another #HK200 post consisted of an infographic entitled “The Rise of Health and Wellness” and the caption states: “Did you know that approximately 3.2 million deaths each year are attributable to insufficient physical activity? That 43% of all adults suffer health effects as a result of stress? That yoga is a \$6 billion per year industry and has increased 87% since 2004! #hk200 @[Instructors handle]”. This particular example indicates that the student is again able to successfully ‘Collect, analyse, and evaluate health and wellness information’ but also is able to ‘Illustrate the different health and wellness issues from a local and global perspective’

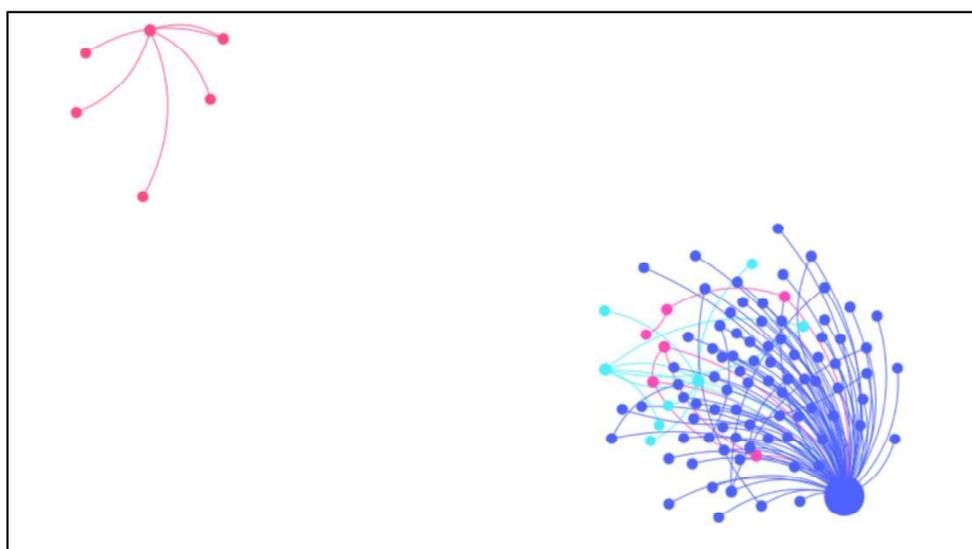


Figure 2. Name network displaying who mentions whom.
Note: The larger purple dot is the instructor of the course.

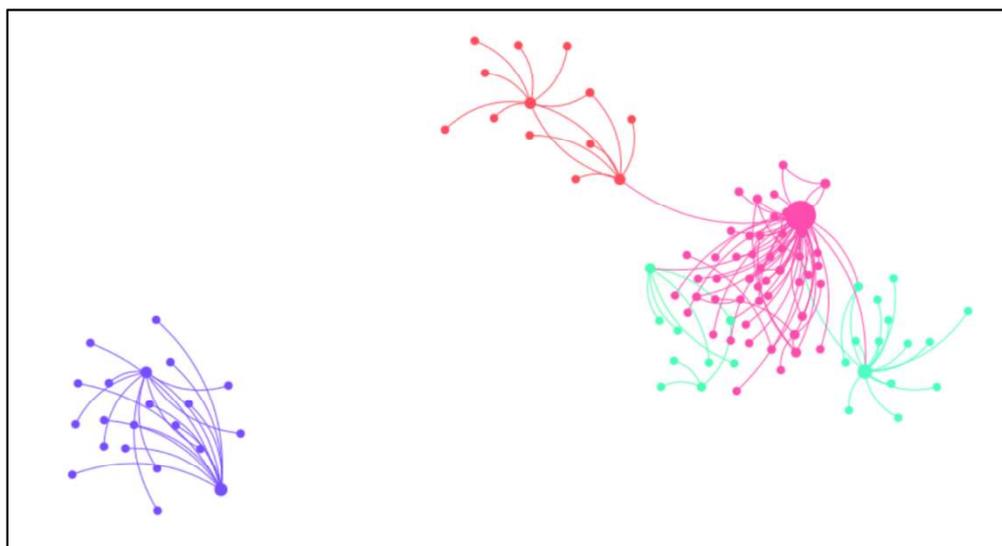


Figure 3. Chain network displaying who replies to whom.
Note. The instructor is the larger pink dot.

In regards to the number of students that engaged in the online conversation, findings suggest that out of a possible 184 students registered in the course, 102 students (55%) engaged on Instagram for grades (i.e., notified the instructor that they wanted their posts counted for the experiential learning portion of their grade). Yet, there were 234 unique posters within the dataset with a total of 1,963 posts, in which the majority were posted within the last quartile of the term. In the name network (i.e., who mentions whom) there were 134 unique personalized names with 1,503 ties (Figure 2). Within the chain network (i.e., who replies to whom), there were 235 posters with ties for a total of 617 ties (Figure 3). Detailed network properties can be seen in Table 2. The density property is close to zero for both network types, which suggests that the individuals are not connected closely to others in the network (e.g., it is not a close-knit community with people talking with each other). The posts seem to be one-sided with very little conversation generated (as noted by the low reciprocity scores). According to the degree of centrality for both the name and chain network, the low values suggest that the information flowed freely between many participants and was not dominated by a few central participants. Lastly, the modularity score was higher for the chain network, suggesting that there were clear divisions between the clusters, yet lower for the name network (suggesting that the clusters overlapped more and likely consisted of a core group of posters).

Network properties	Description	Name network	Chain network
Diameter	Calculates the longest distance between two network participants	39	13
Density	A proportion of existing ties to the total number of possible ties in a network	0.002	0.004
Reciprocity	A proportion of ties that show two-way communication (also called reciprocal ties) in relation to the total number of existing ties	0.063	0.058
Centralisation	Measures the average degree of centrality of all nodes within a network	0.199	0.122
Modularity	Helps determine whether the clusters found represent distinct communities in the network	0.055	0.743

Table 2. Detail network properties and descriptions for #HK200 on Instagram

Discussion

This case study aimed to describe the online learning environment (via text analysis, engagement, and interactions) of a low stakes (i.e., 2%), Instagram-based, experiential learning activity for a mandatory first year Kinesiology class. Overall, the assignment was deemed successful in its ability to use a distractor to facilitate learning outside the classroom, with greater than half of the class engaging in the online assignment for part of their experiential learning grade.

Based on the top 20 words within the data, and that nearly half of the data was categorized as good feelings, the online learning environment (i.e., the content of the posts Instagram) appears to be mostly positive in nature. The positive nature of posts in the current study extends previous research which suggests that students typically perceive the inclusion of social media as enjoyable and enriching to their educational experience (Neier & Zayer, 2015; Hamid et al., 2015), thus providing evidence to the instructor of educational benefit of the assignment. Additionally, the instructor was able to use this low-stakes experiential learning activity as an opportunity for self-reflection and evaluation. Specifically, the instructor was able to see how well students were able to tie their posts with course content and even achieve or display the courses' learning outcomes. This information could then be used by the instructor to enhance and refine the assignment in the future to ensure the course continues to improve.

By providing students with an outlet to engage outside of the classroom, personal learning environments were formed (Dabbagh & Kitsantas, 2012) and opportunities for self-directed learning and agency were created (McGloughlin & Lee, 2010). Students were able to reflect upon class concepts and past experiences to generate class content and demonstrate their understanding of class material (Fisher & Baird, 2006; Dabbagh & Kitsantas, 2012). In addition, this teaching method required students to not only make connections between what they are learning in class, academia, and broader social contexts but also to find relevant examples of class related material to share with the instructor. Thus, the current case study's social media assignment pushes students past surface level learning and into levels of deep learning and critical thinking, by engaging students in the learning taxonomies of analysis, evaluation, and creation (Krathwohl, 2002).

Furthermore, this assignment created a learning environment and assessment type that reflects performance beyond the course (Herrington & Oliver, 2000) into other sites of practice (Boud, 2009). This assignment also provided a low stakes opportunity to practice and refine skills they may be asked to use in future careers. Many students in the class will go on to pursue career in health promotion (e.g., working for a community organization or health unit), or allied health professions, at which time they may be required to utilize social media as a means to dispense information to their clients or the public at large (Lefebvre, 2009; Ramanadhan, Mendez, Rao, & Viswanath, 2013).

Yet, social network analysis revealed a lack of discussion and communication amongst students on Instagram. This was not entirely unexpected as the nature of both Instagram and the assignment was to post, not engage in discussion. As such, to improve both social diffusion and enhance the online learning environment in the future, educators might consider encouraging students to tag fellow classmates or peers in their posts and/or post questions in their captions to elicit greater conversation (Al-Bahrani & Patel, 2015). Furthermore, it may also be fruitful to establish goals and/or learning outcomes that prioritize online engagement between students and the creation of online learning communities at the onset of class.

Although discussion amongst students was limited, the total number of unique posters suggests that the online community created by this assignment extended beyond those registered in the class, as 234 unique posters were observed (with only 102 requesting marks of the 182 total students registered in the course). Thus, the instructor of this class was able to enhance students' affective learning by incorporating the underlying values of community and practicality into this assignment (Krathwohl, 2002).

Specifically, the spread of information to those not registered in the class resulted in knowledge translation to other members of a larger online community, whereas the synthesis of knowledge and the curating of relevant, meaningful posts demonstrated students' abilities to practically apply class concepts into the real world. Moreover, with nearly 2,000 posts added to Instagram over the 4-month class, messages of health and wellness were spread. This assignment fostered student agency by allowing students the opportunity to choose how they would like to present the ideas within this online learning environment. By giving students this choice, it may increase their sense of ownership (Turner, 2010) and their intrinsic motivation for doing the task as well as performance (Patall, Copper, & Robinson, 2008).

Finally, density results suggest that this assignment did not result in the development of a close-knit online community. As previously stated, the nature of both Instagram and the assignment are most likely the cause of this low density. However, as expected, when observing Figures 1 and 2, it is evident that the conversation appears to be centralized around the opinion leader (i.e., the course instructor). Thus, even though the density is relatively low and the interactivity between members of the learning community appears minimal, the course instructor was still able to extend their interactions with students beyond the walls of the classroom, create more personalized and meaningful student-faculty connections, and communicate with students using a language (i.e., social media) with which they are familiar.

A challenge to consider with distractions is that they are ever-changing, advancing, and evolving, thus, adaptability is important. Previous to 2018 and the use of Instagram, Health and Wellness used Twitter for a similar assignment, suggesting that distractions that may have been used at one time period may grow to become outdated. As Twitter fell out of popularity with the first year students, it became imperative to update this assignment. Thus, polling students at the beginning of the course as to which social media platform they engage with most could be useful. Furthermore, many students created new Instagram accounts to complete this assignment (thus not having many friends or followers). The reach and engagement of the posts could have been much larger had the students completed this assignment on their own personal Instagram account. Lastly, as is the nature of Instagram, creating new image-based content can sometimes be difficult and time consuming. Having a good understanding of the social media site (i.e., distractor) is imperative for successful implementation. However, the use of the distraction as part of the physical learning environment, and the conduit for instruction in higher education is an emergent area for study, with further scholarly research needed to understand the challenges and barriers associated.

Conclusion

In summary, this case study provides insight into how distractors, such as social media, may be used to elicit agency, deep learning, reflection, and critical thinking among students. This study also provides an example for future educators wishing to incorporate distractors into their courses, while also highlighting some benefits and challenges of doing so. Lastly, this study provides suggestions as to how the execution of such an assignment can be improved in the future.

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