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Flipped classroom and case studies facilitated using social media to enhance learning in Higher Education.

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Abstract

The trouble with teaching sciences is that it could lead to an inactive and boring learning process (Kankofer, 2014). To avoid this, many have incorporated active learning approaches such as the inclusion of case studies which also provides a link between knowledge and application. However, this still could lead to low student engagement as they do not feel like they have any ownership over their learning. The discussed teaching innovation includes the adoption of a combined flipped classroom in which students use social media to identify news stories as case studies that discuss real-time real-world applications of the theory learned. This approach may not be feasible for all sciences or all other subjects, but this study reveals that it has had great impact on the teaching of an Agricultural Economics and Business module.

Keywords

Higher Education, Student Learning, Flipped Classroom, Social Media, Case Studies

Introduction

Student engagement is considered one of the most important factors in academic learning and achievement (Kalu, 2013), and its value has been well established in the pedagogical literature (Trowler and Trowler, 2010). Krause and Coates (2008) explain student engagement as the commitment in student learning in terms of time and resources, while Kuh (2009, p. 683) explains student engagement as 'the time and effort students devote to activities that are empirically linked to desired outcomes of college and what institutions do to induce students to participate in these activities'.

There is a multitude of studies that have documented the link between student engagement, in the form of involvement, and strong academic performance (Milem and Sullivan, 2000; Kuh et al, 2005; Pike, 2006; Pascarella, Seifert and Blaich, 2010). Trowler and Trowler (2010) have provided a list of studies that have presented the positive contribution of student engagement to desired outcomes as described by Kuh (2009). Some of these include, Pike and Killian (2001), Shulman (2002), Gellin (2003), Kuh (2003), and Pike, Kuh and Gonyea (2003) who have documented the positive outcomes to general abilities and critical thinking. Kuh (1995) has demonstrated the positive influence of student engagement on practical competence and skills transferability. Pascarella, Seifert and Blaich (2009) explain student engagement's importance to cognitive development. Kuh et al (2005) and Kuh et al (2007) discuss the relationship between student engagement and student satisfaction, while Tross, Harper, Osherr and Kneidinger (2000) illustrate the link between student engagement and academic performance through improved grades.

According to Ramsden (2003) student engagement promotes 'effective learning' which leads to 'deep learning'. 'Deep learning' is the learning process in which students immerse themselves into the meaning and understanding of the subject material by using analytical skills, critical thinking and innovative approaches (Warburton, 2003). Baxter and Gray (2001) support that 'effective learning' strongly relates to active involvement in learning. This approach is defined as inclusive learning and teaching by Hockings (2010) while other define it as 'learner-centred paradigm' (Huba and Freed, 2000).

Huba and Freed (2000) discuss that the 'learner-centred paradigm' offers students the opportunity to develop their knowledge and skills through active learning processes where academic staff's input is in facilitating the learning process rather than in transmitting the knowledge. Slunt and Giancario (2004) discuss that this process transforms the student from a passive receiver of information into a controller of their learning and Weimer (2002) discusses that this process transforms the staff from the gatekeeper of knowledge to the 'guide on the side'. In essence, this approach promotes student ownership of their learning. However, Coates (2005) does make the point that student engagement and their learning process is a joint venture between students, institution, and staff.

To date, many academics and teachers have created and developed pedagogical strategies that accommodate student-centred learning. Froyd and Simpson (2008) have listed some of these, which include: Active Learning; Collaborative Learning; Inquiry-based Learning; Cooperative Learning; Problem-based Learning; Peer Led Team Learning; Team-based Learning; Peer Instruction; Inquiry Guided Learning; Just-in-Time Teaching; Small Group Learning; Project-based Learning; and Question-directed Instruction.

Case Studies

The use of case studies is a student-centred learning pedagogical approach that was developed at Harvard Business School (Volpe, 2002). According to Barnes et al. (1994) case studies have become a very popular method of teaching, and particularly in the teaching of economics and business, because it allows the linkage of knowledge with application. However, many other disciplines have also now incorporated this pedagogical strategy into their teaching. Davis and Wilcock (2002) define case studies as a student-centred learning approach that allows theoretical concepts to be demonstrated in an applied setting and Barkley et al (2014) support that the use of case studies allows the bridging of academy and the workplace.

According to Volpe (2002) the pedagogical philosophy of case studies is that student learning is best when students 'teach themselves' and that this 'teaching themselves' is most effective when it is through practical experience. Hunt (1951), in the context of teaching business, supported that case studies allow students to develop their own unique process in exploring, understanding, and tackling problems. This has also been highlighted by Swanson and Morrison (2010), who define this unique process as 'deep structure learning' and consider the promotion of it as a learning benefit that relates to the development of critical thinking.

The benefits of the use of case studies are not only student-centred as this approach also provides benefits to staff. These include keeping curriculum current and updated, exploring contemporary issues and providing a platform for future concerns (Barnes et al, 1994). It also allows staff themselves to learn new ways of applying theory to practice (ibid). However, the literature has also identified some limitations in the use of student-centred learning such as case studies. For example, Boekaerts and Martens (2006) discuss that if an activity, for example a case study, is ill-structured, then the experience of 'teaching themselves' may result in the student being overwhelmed by the overall process.

The material used in case studies have been explained in the literature as 'stories' (Broder et al, 2003; Patten and Swanson, 2003; Beckisheva et al, 2014), stories that demonstrate the theory learned in class into real-world scenarios (*ibid).* The form of these are dependent on the discipline and the theory they are explaining. For example, they could take the form of business cases, with data, charts and graphs, if the case study is incorporated in the teaching of business administration, or could take the form of illustrations and maps, if the case study is incorporated in the teaching of geography.

A great and interesting source of case studies is the media, through media reports and news articles. According to Wellington (1991;1993) these media reports and news articles can be used to support a variety of learning objectives, from introducing a concept, to consolidating knowledge, and even to assessing understanding. The use of news articles has been quite popular in teaching Economics (Becker, 1998) but Hutton (1996) supports that all subjects taught in the curriculum can find and use relevant media reports and news articles to support learning. A study by McClune and Jarman (2000) provides evidence that news articles on science supported student learning.

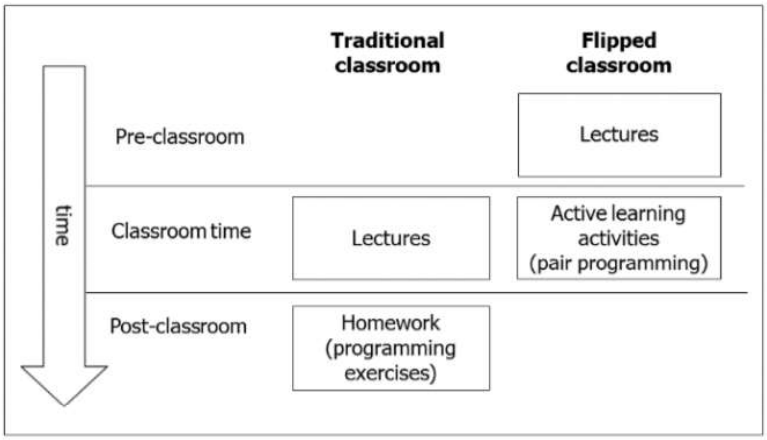
The benefit of using media reports and news articles are discussed by Jarman and McClune (2007) and these include having case studies that are current and relevant to modern society, are dealing with contemporary issues, are relevant with current developments, and allow students to understand the importance of their chosen subject and its relevance to society.

Flipped Classroom

The concept of 'flipped classroom' emerged in 2000 when Lage at al (2000) discussed that a format of inverted classroom gave the opportunity to engage students into more active learning and collaboration whilst maintaining the volume of course material and teaching allocated time. The concept was made widely known by Bergmann and Sams, when they created video recordings of their sessions for students that had not attended and realised that even students that had attended found the resource useful in consolidating acquired knowledge (Tucker, 2012).

This student-centred learning method (Gilboy et al, 2015) allows the use of different teaching methods, combining traditional lectures, tutorials and workshops (Hawk and Shaw, 2007) also known as blended learning, accommodates different student learning approaches *(ibid*) allowing students to return to the resources depending on their learning pace and needs (Mok, 2014), provides in depth understanding (AdvanceHE, 2018), promotes student sense of 'ownership' of their learning (Mok, 2014), and increases overall student engagement (*ibid*). Mok (2014) has illustrated flipped classroom, presented in Figure 1.

Figure 1: Flipped classroom



Source: Mok et al, 2014

According to Mok (2014) there are two key elements that allows the flipped classroom to be an effective pedagogical approach: firstly, students need to attend the in-class active learning session and, secondly, students need to commit to engage with the material prior to the active learning session. Without these two elements this approach will be unsuccessful. Additional requirements discussed by Mok (2014) for a successful flipped classroom are that the active learning session needs facilitating and close monitoring, and finally, there may be an increased workload for staff to create these videos or pre-session material.

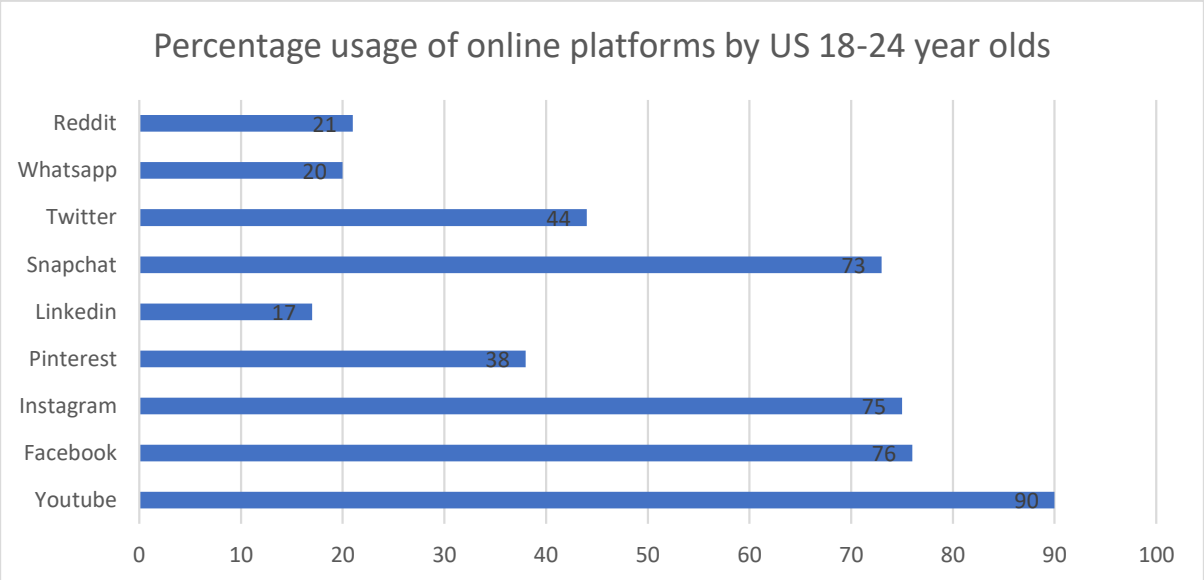
Social media

According to Motschnig-Pitrik et al (2002) the use of the internet is a great addition to the student-centred learning approach. This is due to the opportunity for students to explore online material and investigate what is related and relevant to their topic or task at hand (*ibid*). The use of the internet and its positive impact on education has been documented as early as 1997 by Sosin (1997) and Simkins (1999) who discussed the advantages of using the internet in teaching Economics. These advantages are linked with increased student engagement and the development of critical thinking (Sosin, 1997; Simkins, 1999; Van Den Beemt, 2020).

One of the most contemporary ways of using the internet is through social media. According to Faizi and El Fkihi (2018) social media can be divided into three categories: (i) Online social networks, such as Facebook and Twitter; (ii) Content sharing applications, such as Youtube and Dropbox; and (iii) Content production and editing services, such as Wordpress and Tumblr. Of these platforms, the Pew Research Center (2019) found that among US youth, between the ages of 18 and 24, Youtube has proven to be the most popular, followed by Facebook and Instagram. Figure 2 provides the popularity of a number of social media platforms by comparing the percentage usage of these platforms. The statistics presented by Rimma (2018) at emarketer.com suggest that the primary social media UK youth between 18-24 years old are engaging with is Snapchat, followed by Facebook and Instagram. Figure 3 provides the popularity of a number of social media platform used by UK youth.

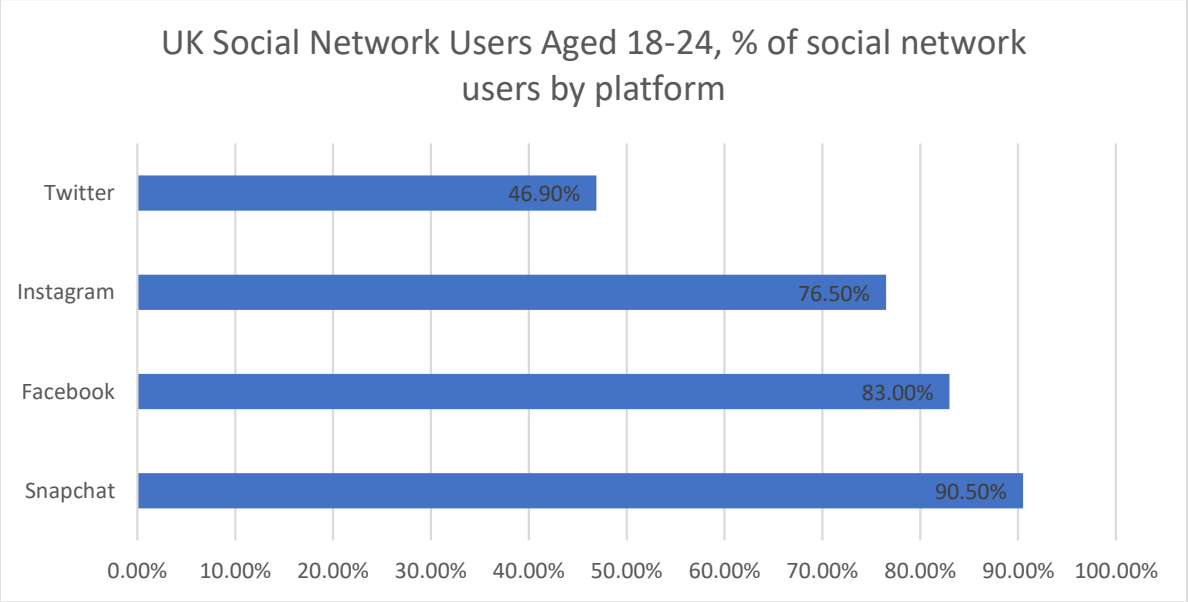
On a higher education setting, Dahlstrom, Grunwald, de Boor, & Vockley (2011) found that 90% of their 3000 student sample used Facebook and Joint Information Systems Committee (Jisc) organisation found that 85% of UK higher education students used Facebook (Parr, 2015). An interesting finding by Dahlstrom, Walker and Dziuban (2013) is that 67% of higher education students in 15 different countries linked their academic success to the use of such online platforms.

Figure 2: Percentage usage of online platforms by US 18-24 year olds.



Source: Data from Pew Research Center (2019)

Figure 3: Popularity of a number of social media platforms used by UK youth.



Source: Rimma (2018); recreated by data presented on emarketer.com

The existing pedagogical literature (see Wheeler, 2010; Menkhoff et al, 2014; Chawinga, 2017) has explored the use of social media in higher education and has identified some important benefits, one of which is increased student engagement (Chen et al, 2010). Wheeler (2010) suggests that the use of social media enhances blended learning approaches, motivates students to engage more with their subject, allows them to engage in 'reflective activities' which consolidates knowledge and promotes collaborative behaviour among students. This promotion of collaborative behaviour has also been documented by other studies, with these extending these interactions between staff and students (Suwannatthachote and Tantrarungroj, 2012; Bouhnik and Deshen, 2014; Camus et al., 2016) both within and outside of the lecture theatre or seminar room (Ractham and Firpo, 2011).

Despite these benefits, the existing pedagogical literature also identified a hesitation in incorporating social media as an innovative teaching platform in higher education (Barczyk and Duncan, 2011; Chawinga, 2017; Faizi and El Fkihi, 2018). This is due to the perception that social media will distract from the learning process when used in class (Chawinga, 2017) and due to the perception that social media could be based on unreliable or undetected sources (Barczyk and Duncan, 2011).

Combining the flipped classroom approach with social media and case studies

The use of the flipped classroom approach, the incorporation of social media use or the use of case studies on their own are considered an enhancement of the pedagogical journey and student learning in higher education. In the cases of the flipped classroom approach and social media, the implementation of them is still considered novel and innovative. However, there are additional benefits when all three are used in combination. This is the first attempt, to the author's knowledge, in presenting such an approach.

This combined flipped classroom session was created at the University of Nottingham, School of Biosciences, for the module Agricultural Business in the Global Economy. This module traditionally had two hours of formal lectures, an hour of tutorials and an hour of workshops each week. The formal lectures took the form of traditional lectures, where Christie Siettou, the module convenor, would introduce the topics with visual aid such as powerpoint slides and relevant videos. In the tutorials the module convenor would go through a set of exercises which were given to students at the end of the lecture and were asked to prepare before the tutorial. The workshop included the presentation of case studies relevant to each week's topic.

It was at the moment when the module convenor was looking to create the delivery of a case study for an upcoming week when she came across two excellent case studies but only had to choose to present one due to time constraints. What if students had the opportunity to read both and decide which one would be presented in class? This would allow students to investigate both and develop their analytical skills, their critical thinking and would consolidate their knowledge of the topic even before the case study was presented in class. But the experience with this cohort through the tutorials was that students did not always engage in preparing the homework. Therefore, asking them to investigate beforehand may not have the desired outcome for all students, it would have to be within the allocated class time in order for the module convenor to monitor their engagement with the task.

The case studies introduced in the workshops were predominately current news articles or media reports in order to keep the content as current and updated as possible. The module convenor herself used social media to find such material. Therefore, the use of social media for the flipped classroom was an obvious one. In the lecture the module convenor asked students which social media platforms they used and unsurprisingly the vast majority used Facebook and Instagram. The issue with Facebook is that the content is based on existing social networks and follows which may hinder the success of the material finding. In addition, all students had personal Facebook pages and the module convenor did not want to invade their privacy. For these reasons Facebook was not selected as the social media platform.

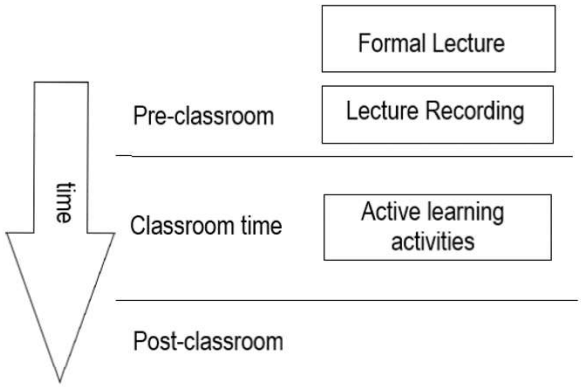
The preferred social media platform was Twitter as students would only need to search for hashtags on the topics, however, within this class of 15 students, only 2 had a Twitter account.
This did not allow the flipped classroom to fully utilise Twitter, in terms of online active collaborative work through sharing, because the module convenor did not want to oblige students to create an account. An auxiliary source of information was google's news function. The module convenor decided to give these two options to the students because agricultural economics may not be the most popular subject and therefore, news on Twitter may be slower than other topics. In addition, the pedagogical literature on the use of social media as a source of news for students has suggested that it may be the primary source but not the most trusted (Rosengard et al, 2014; Tandoc and Johnson, 2016); it is the link to the website of the traditional outlets that they trust (*ibid*). Hence, it was anticipated that students would seek for case studies on Twitter and if the tweet did not provide a link, they could search for it through the google news function.

Adapting Mok (2014) figure on flipped classroom, Figure 4 presents this combined flipped classroom approach. The module convenor continued to lecture via the traditional lecture approach but as a standard at the University of Nottingham all lectures are recorded. This eliminates the disadvantage raised by Mok (2014) of increased workload due to the need to create videos for the pre-classroom session. The decision to continue with a formal lecture before this flipped classroom session was based on student feedback of the appreciation of face-to-face teaching and of the opportunity to ask questions or clarifications on the spot.

Before the workshop, the module convenor searched Twitter and google news with specific hashtags to explore what material were presented. The hashtags that were deemed as the most appropriate, the ones that resulted into the best-case study material would be used in class. This process took no more than an hour and did not increase staff workload as the module convenor used the same exact process in order to identify case studies but it did eliminate the time the module convenor needed to create the delivery of the case study.

During the workshop, the module convenor asked students to evaluate the material presented to them through the social media platform or the search engine platform based on the given hashtags and were asked to choose one. Once students had identified a potential case study, they were asked to write a short explanation of the concepts, briefly present the topic and its relevance. They were given the choice to work in small groups or individually. The module convenor facilitated the session.

Figure 4: Flipped classroom facilitated by social media.



Adaptation of Mok (2014)

The experience from conducting this flipped classroom was very positive for both students and staff. Students use of social media is second nature to them and there was no need to explain the process of how to use social media. The only explanation given was what was required for the pedagogical task. In addition, students appreciated that they had ownership of their learning by identifying the material and were surprised how they could immediately apply the knowledge they had gained and explain the concepts through a news article. Finally, they appreciated this as an active session, increasing student engagement. For the staff, this flipped classroom approach reduced workload without compromising the material or the module's links to current issues.

Conclusion

Student-centred learning pedagogical approaches have been very successful in enhancing student engagement and in increasing student achievement. However, these approaches could be further successful by embracing new technologies and by incorporating the use of social media. This paper has illustrated how the simple use of Twitter allowed to facilitate a flipped classroom that explored case studies relevant to the subject of the module. The limitation of this particular class was that not all students had a Twitter account. This cohort was a first-year cohort, second and third year students, have in the majority Twitter accounts and therefore the implementation in modules in more advanced years could be more beneficial. If students had a personal account, the flipped classroom could have been further enhanced by grouping students and asking them to share their found news articles and discuss them in their allocated groups. This would have allowed additional benefits such as gaining skills in collaborative work, increase communication skills, and help develop managerial and leadership skills.

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