

# Teaching with Twitter: reflections on practices, opportunities and problems

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## Keywords

Social Media, Twitter, Communities of Practice, Learning.

## 1. ABSTRACT

In recent times there has been an increasing wave of interest in the use of Social Media for Teaching and Learning in Higher Education. In particular, the micro-blogging platform Twitter has been experimentally used in various Universities world-wide. There are relevant publications reporting on experimentations with Twitter for reaching diverse learning goals, including better engagement, informal learning or collaboration among students. Existing research papers on the use of Twitter however focus exclusively on the positive aspects of experimentations, on what went well in the use of Twitter. In our University we run a small project on the use of Twitter with goals that are similar to those of others: fostering participation and better learning processes. In this paper we report on our project and the strategies and best practices we adopted for using Twitter for teaching. We also reflect that in our experimentation however we encountered a number of practical problems connected for example with use of technology, with the class settings and with spam. In the conclusion we offer some recommendations for Teaching and Learning with Twitter based on our personal experience.

## 2 INTRODUCTION

In contemporary hyper-connected society, learning and teaching takes place not only in physical contexts (classrooms) but also in virtual contexts. There are university supported Virtual Learning Environments (VLE) (e.g. Blackboard), as well as variety of unsupported Social Media Platforms (SMPs) that students can use as a Personal Learning Environments (PLE). SMPs are applications that enable the users to create and share content in cooperative forms (e.g. blogs, Twitter). SMPs can also be used as 'Back Channels' within Lectures where students can use their personal devices (e.g. Mobile phones) to maintain a real-time online conversation alongside the main lecture. SMPs are media that largely change traditional assumptions about the audience (Jenkins, 2006). In the traditional media model (e.g. newspaper, television) there is a separation between production and consumption of information (e.g. newspaper editors and journalists produce the content and the public just consumes it). In SMPs assumptions are made instead on the existence of a proactive audience which also produce the media content, in a situation in which communication is a many-to-many rather than a one-to-many process (Bruns, 2008).

The process of Teaching and Learning (T&L) as supported by information technologies is clearly not new area of inquiry. For example, the concept of E-learning - defined as the use of "Information and Communication Technologies" in education - has been around for some years now (Andrews and Haythornwhite, 2007). Traditionally however we understand E-learning as something taking place within specific and custom based platforms, developed and supported for example by Universities or companies. SMPs however offer a different starting point: these are already widely in use by people for their daily communication. In other words, they are not custom based platforms, created for the sole purpose of learning, they are instead one of the ways in which people communicate and learn in our digital age. Many of our daily activities are being influenced by the wide diffusion of SMPs of

which Facebook, Twitter, Blogs or Online Gaming are the most relevant examples. In SMPs, users are both the consumer and producer of the content.

In our University we conducted a small research project (from January to September 2014) on the use of SMPs for teaching and learning, in particular using Twitter. Our project was based on multiple intents, including:

- Generate interest in the students and staff around the use of Twitter for T&L;
- Increase the skills in the use of Twitter for T&L among the members of the research team;
- Conduct a literature review on the use of Twitter for T&L;
- Test a number of best practices (including additional apps) transferable across diverse modules;
- Integrate these best practices with existing learning technologies (in particular the University VLE);
- Conduct an evaluation with the students about the overall project.

There are many reasons connected with the choice of Twitter for this project. Firstly, Twitter is an easy to use platform. It is a microblogging platform that allows to communicate using short text messages of 140 characters. It is quite direct, very synthetic and has a short learning curve. It is also the second most used Social Network platform after Facebook (Venturebeat, 2012). Secondly, the interest in using Twitter for T&L in Higher Education goes back few years now and we have initial accounts of this being done in 2008. The effectiveness of Twitter for T&L therefore is quite established among the academic community. However we are still in the process of discovering its potential for T&L purposes.

In this paper we will report on some of the results of this project and in particular on the literature review and on the best practices. Toward the conclusion of the paper we also discuss some of the practical problems we encountered during the conduction of our project. We then conclude the paper offering recommendations based on both our literature review and our practical experience for conducting T&L with Twitter.

### **3 LITERATURE REVIEW**

The project team conducted a literature review on the use of Twitter for teaching and learning during the period January-March 2014. For sampling the material we used an approach different from those of existing literature reviews on the same subject (e.g. Gao et al, 2012; Tiernan, 2013). Rather than selecting articles on the basis of the scientific rigor we used a “very permissive” snow ball sampling strategy, collecting both papers of high scientific quality as well as publications that were quite descriptive and less rigorous (including MA Thesis, conference papers). This was done with the specific intent to capture a wider understanding of the practice of using Twitter in class, as we observed that often more descriptive and less rigorous publications were far richer of details about the actual use of Twitter than more rigorous publications. For collecting the material we used mainly scholar.google.com an online service offered by google, which allows to search and retrieve scientific publications leveraging the potentialities offered by the google search engine. Using this approach we collected 39 papers broadly related with the subject of Twitter (and microblogging) for T&L in Higher Education.

#### **3.1 Literature review and learning theories**

The connection between the use of technology (at a general level) and Twitter more specifically with learning theories is an aspect that emerged during the review. Not all the publications reviewed have strong connection with learning theories and some remain quite vague on this aspect (e.g. Lowe and Heaton, 2012; Sullivan, 2012; Cronin, 2011). One of the publications revised argue (as a recommendation for future research) for the need to bringing more scholarship into this area (Tess, 2013). This is a position that we strongly second, as indeed learning theories should provide the framework within which Twitter can be used to achieve learning goals.

In the sample, we were able to trace explicit connection with learning theories in 11 papers (Holotescu and Grossek, 2010; Grossek and Holotescu, 2010; Ebner et al. 2009; Junco et al 2013; Junco et al 2011; Tess, 2013; Evans 2014; Leaver 2012; Blessing et al 2012; Elavsky et al 2011; Kassens-Noor, 2012). Even before conducting the review we expected that possible connections with theory could be directly linked with some forms of flexibility and direct student participation in the learning process, in line with the Social Media rhetoric of participation:

*The Internet Communications degree, of which Web Communications 101 is part, is driven by the idea of ‘knowledge networking’, which emphasises that learning and teaching increasingly happen in networked environments, often utilising networked approaches, but here networks do not refer to specific online tools but rather a broader sense of connectivity which is typified by, but not limited to, online communication. (Leaver, 2012, p. 98)*

What expressed in the previous quotation is an idea that owes much to the perspective of Social Media Literacy developed by Rheingold (2010). The consideration that it is possible to channel and better support learning processes with social media by focusing on certain “literacies”: attention, networking collaboration, participation and critical consumption. In this light, it is noteworthy to observe that in a minor number of publications we traced explicit links between the use of Twitter and an emerging learning theory called “connectivism”, which according to the promoters place itself after traditional learning approaches (i.e. behaviourism, cognitivism and constructivism):

*Prior to the development of social media, the dominant learning theories were behaviourism, cognitivism and constructivism. [...]. Connectivism (Siemens, 2005), by contrast, is based on the premise that knowledge exists in the world rather than in the mind of an individual. The theory was developed in an attempt to take account of the impact of the information revolution and the shift in importance from what an individual knows to what an individual knows how to find out through the connections they have created. (Evans, 2014, p. 905)*

The theory of Connectivism emphasizes certain aspects of learning collaboration and leveraging new media for learning, but in ways that according to Siemens (2005) go beyond Social constructivism and other more individualistic approaches. The connections between the use of Twitter for T&L and the Connectivism approach as well as with the Social Media Literacy perspective are clear (Rheingold, 2010). This is for example Rheingold:

*Using the technologies and techniques of attention and participation allows people to work together collaboratively in ways that were too difficult or expensive to attempt before the advent of social media. Though collaboration has a slightly different definition from cooperation and collective action, in general doing things together gives us more power than doing things alone. (Rheingold, 2010, p. 19)*

Learning is a social and collective process (as for the constructivism perspectives) which can however - and this is the key connection between Social Media and Connectivism - be better augmented using new and emerging technologies. Furthermore, these technologies allow to access knowledge that exists in the world, outside the “mind” of the learner. We have therefore a better collaboration and cooperation in the learning process which can take advantage of knowledge that exists over the internet and other forms of online media: Knowledge therefore that exists in the world and not only in the mind of the learner.

During the analysis we traced connection with other learning theories. Some authors made explicit connections with constructivism approaches (e.g. Holotescu and Grossek, 2010; Tess, 2013). The followings is an example:

*Consequently, in a society where most of the people suffer from lack of time, the authors encourage the use of microblogs in educational activities, because a microblog-based learning has as immediate consequences an unprecedented flexibility in comparison to classical education, a real participation, an interactive collaboration [...] Moreover, the capacity of transforming the traditional learning structure (the students’ learning performances improve) by using multimedia objects observes constructivist theory and pedagogical principles. (Grossek and Holotescu, 2010, p. 2155).*

The excerpt presented above is directly connected with social learning processes and collaborative learning theories. There are relevant connections between the Communities of practices approach and the idea of using Twitter for, for example, supporting the creation of communities among students or enhance a better interaction between students and the instructors (Tess, 2013).

In the review of literature we were able to find also one paper that has an explicit connection with Cognitivism:

*Cognitive and developmental literature consistently reports facilitative effects of reminders on long-term memory tasks[...]. We believe that using technology to highlight and remind students of important knowledge after the class and in a humorous manner is consistent with past memory research and will provide an advantage for recall of those concepts in subsequent assessment. (Blessing et al 2012, p. 269)*

This connection is made however only in relation to a specific practice: using Twitter to remind concept and therefore reinforce the cognitive learning process. In such case the direct intervention and the use of Twitter is not connected with the creation of a social and collaborative learning process but it is directed toward the single learner. Interestingly - but not surprisingly - no explicit mention is made to behaviourism in relation to the use of Twitter or micro-blogging for T&L.

### 3.2 Literature review and learning practices

The rhetoric surrounding SMPs clearly is one of collaboration and collective production of content. Literature findings show for instance that the use of Twitter can in some instances generate a better sense of community among students:

*The use of a microblogging tool in a course to foster informal and process-oriented learning led to interesting results. At the end of the course it was shown that microblogging is indeed a new form of communication. (Ebner et al. 2010, p. 98)*

Observations therefore support the idea that Twitter can indeed support a process of community generation in a way that goes beyond traditional class dynamics.

The use of Twitter for T&L can also support new forms of communications among students and between students and instructors. These are often observed in experimentations with Twitter. Some lecturers explicitly used Twitter as a direct communication channel, fostering in some cases a two way communication between lecturers and students:

*We improved contact between students and faculty (principle 1) by providing an avenue for contact congruent with their digital lifestyles. (Junco et al, 2011, p. 128)*

In the perspective of Social Learning and Communities of Practices (Wenger, 1998) in particular, the instructor acts more as a facilitator compared to other learning theories in which for example there is a complete dependence of learners from instructor (i.e. behaviourism). Clearly social media and Twitter in particular can offer opportunities to foster this facilitator role by creating reciprocal forms of communication.

A key aspect is the issue of inclusion/exclusion. It is important to consider that not every student has a Twitter account or might be interested in using it. Therefore, exclusion for the students not interested or not possessing an account should be limited where possible:

*Use of the Twitter feed is not mandatory, nor is it graded. This is important for students to realize, particularly those that are unable or see no value in using this particular technology. Do not make the mistake of unintentionally shaming students by privileging this technology (and those who are using it) over students who do/cannot; (Tyma, 2011, p. 178)*

This is a relevant observation that needs to be transformed also in some practical solution. For example in our project we provided the course hashtag (e.g. #SO1054A, the code for a module called Virtual Environments, Crime and Cyberspace) Twitter feed in the University VLE, in this way students could access the Twitter content for the module without the need of a Twitter account and by visiting a learning environment with which they are familiar and that they frequently use.

A key aspect for the success of using Twitter is not to leave the experimentation to excessive emergent processes. While it would be possible to offer the use of Twitter in a very loose way,

successfully embedding this social media in teaching and learning practices require a structured approach. Lin et al (2013, p. 44) called the “structure” a scaffolding:

*Instructors should focus on the main objectives of incorporating Twitter in class and introduce these functions as appropriate. With proper scaffolding, students should struggle less with the tools and will be able to better interact with peers.*

The scaffolding or structure should be accompanied with a clear presentation of the goals and objectives of the use of Twitter, and the best practice suggested here is to use some time at the beginning of the course to make a proper introduction to the goals and objectives:

An interesting series of reflections observed in the literature are connected with the role of the instructors (i.e. lecturers) and how the use of Twitter changes their role and what are the expectations connected with their role. A clear suggestion offered in a number of papers is that instructors need to know well the new medium and display confidence in using it for T&L, with planned activities and production of digital content:

*In order to have success in the classroom with Twitter, you will want to become knowledgeable about Twitter and its functionality. (Tyma, 2011, p. 177)*

*In order for the use of microblogs in didactical approaches to actually reach the previously mentioned results, a closely planned development of digital contents is necessary (the description of educational objectives, the orientation of education according to certain concrete landmarks, the construction of efficient learning situations, the planning of adequate evaluation tools). (Grossek and Holotescu, 2010, p. 2155)*

There needs to be therefore a substantial preparation phase connected with the use of Twitter in class, and nothing can be left to improvisation. Instructors need to master Twitter and plan carefully the activities and the technological settings for the use of Twitter. Furthermore, an interesting research by Johnson (2010) also investigated the connection between the use of Twitter for teaching and the student’s perception of the instructor credibility finding that the explicit connection between instructors and Twitter content shows a higher perceived credibility of the instructors in the eyes of students. Mastering Twitter and providing relevant content therefore could increase the perceived credibility of the instructors for students.

#### **4. USE OF TWITTER IN CLASS**

In line with the consideration that the use of SMPs needs to be underpinned by a pedagogic model, we offer now a short discussion of our perspective. Our project was underpinned by the pedagogic perspective of Communities of Practice (CoP) (Wenger, 1998). The key assumption of the approach is that learning is a social process in which people engage with one another via practical activities. Learning is a social process taking place in communities of people that build a shared repertoire of practices. Practice is doing something in the world one is immersed in. It involves the mobilisation of existing elements that are both explicitly available, but also tacit. According to Wenger (2007), people in communities “develop a shared repertoire of resources: experiences, stories, tools, ways of addressing recurring problems—in short a shared practice. This takes time and sustained interaction”. The notion of CoP well connects with SMPs: learning is a collective process of people that bring with themselves their own skills, experiences and abilities via the mediation of the platform. SMPs can foster a collaborative process of creation - students contribute to knowledge creation via Social Media - via sustained interaction in a situation which there is also a significant reduction of the distance between producer and consumer of information, between instructor and students. Students are entrusted to produce - at least part - of the information they consume.

We conducted an active use of Twitter during semester 2 of Academic Year 2013/2014 in 3 different modules and with diverse levels of intensity. The key module where Twitter has been used for the whole semester is SO1054A (4th year criminology module Virtual Environments, Crime and Cyberspace). We will account here mainly for the activities carried out in this module. The activities carried out in SO1054A using Twitter can be divided according to the main traditional teaching activities:

- Activities conducted in Lectures;
- Activities conducted in Tutorials.

In particular during tutorial activities we proactively embedded the perspective of CoP in the use of Twitter, hence explicitly linking the SMP with our pedagogic perspective. Before describing the actual practice, few words will be used to describe the preparatory tasks carried out by the team, again in particular for the module SO1054A.

## 5.1 Preparation

There has been a preparation phase for the project which was conducted in the weeks prior the start of the teaching. The team also took advantage of existing knowledge of its members and was able to arrive at the start of teaching with a clear plan for action. Preparatory activities included:

- The lecturer set-up of a specific Twitter account, to be used for teaching purposes only and therefore separate from the personal account.
- The creation of module hashtag, specifically #SO1054A, through which all the content of module would feed on Twitter.
- An exploration of the opportunity to integrate Twitter within the University VLE.
- A plan for the activities of the project throughout the semester, for both lectures and tutorials.

Additionally a key preparatory aspect to which we paid particular attention has been the integration between the existing University VLE and Twitter. There are several reasons for this. It is relevant that all the students are treated equally and when introducing an “external” technology like Twitter, it is not reasonable that students should be forced to have a Twitter account or use Twitter. Therefore, the integration between Twitter and the VLE is essential. With this integration for the module SO1054A students were able to access the hashtag (#so1054a) from the VLE without feeling compelled to have a Twitter account. Furthermore, during the semester lecturers embedded a number of relevant hashtags in the VLE (e.g. #malware or #cybercrime) hence allowing students to access a wider selection of materials.

## 5.2 Lectures

Twitter has been used throughout the semester during lectures in the form of a Twitter wall in class. The set-up consisted of an adjunct projector, a laptop with Twitter projected directly on the class wall (see Figure 1). The idea was to allow for more direct interaction between the instructor and students during the delivery of lectures, with students producing content that would feed into the lecturing process. On this, an important aspect to consider is that the classroom had a sufficient large white wall space to project the Twitter wall directly in front of the class (or the space for an additional screen). This wall space is essential for the task. As we will observe later the rooms in which the other 2 modules took place were not favorable for running a live twitter wall. In other Twitter experiments as studied in the literature review, the ideal set-up would also consider a Teaching Assistant managing the Twitter feed, in order to keep the back-channel alive during the lecture.

In the first lecture of the semester the students were briefly introduced (15 minutes) to the idea of experimenting with Twitter. They were briefed about the expected learning goals of the project, about the good practices of using Twitter during the module and about key basic concepts of Twitter. During the introduction it was made clear that the use of Twitter was not mandatory and that the lecturer would offer opportunities to benefit from the content for those who do not have a Twitter account (via the VLE). In class Twitter was used with the intention to offer an additional opportunity for students to interact with the lecturer and for activities such as posting new contents or asking questions. An observation that can be made is that since the Twitter wall is visible by everyone in the class, this hinders participation (i.e. in the same way as for asking questions normally). This issue was raised during the evaluation with the students. Furthermore, since

students use their personal accounts, a problem that was raised during evaluation was that not all the students feel positive about mixing University and personal content on Twitter.

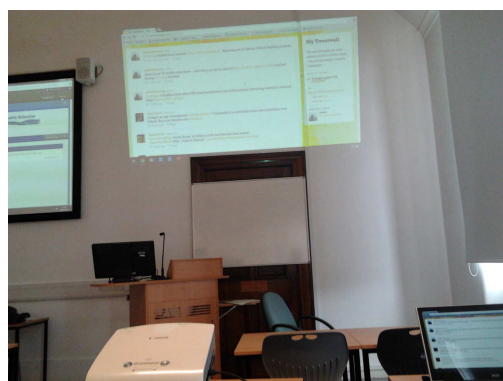


Figure 1. Set up for teaching with Twitter in class, module SO1054A

However, during the experimentation in class with the Twitter wall the following Twitter “apps” were also tested with the intent to find transferable solutions that could be used across diverse modules:

- **Tweetwally:** this a free app that creates a Twitter wall ready for projection. It allows to project tweets connected in particular with specific hashtags (i.e. #SO1054A) and tweets will appear in linear order on the wall. The app also offers the opportunity to have a unique URL (e.g. <http://so1054a.tweetwally.com/>) which facilitates retrieving of the information or embedding the wall in the VLE.
- **Bufferapp** (<https://bufferapp.com/>): allows to buffer a number of Tweets that are posted (with the designated hashtag) at set time/date. The free trial version of Buffer allows to buffer up to 8 Tweets per day, a number sufficient for the purposes of the experimentation. Buffer was used to produce content on the lecture wall, while the lecturer was teaching. This required advance preparation of a number of tweets connected with the lecture. The Tweets buffered would normally offer content related to: 1) further readings; 2) specific definition of concepts and source (i.e. publication); 3) websites with relevant information.

Advantages and problems encountered: in most experimentation with Twitter (as analysed in literature) the Twitter wall in class is managed by a Teaching Assistant (TA) that works together with the lecturer. The role of the TA is to keep the interaction live n the wall during the lecture. Since this was not possible for various reasons, for the conduction of our project, Buffer was used as a sort of “replacement” of the TA tasks. While this was a reasonable solution, in the feedback moments the students remarked that the buffered Tweets were appearing in a “robot a-like” fashion with marginal engagement. A further problem encountered in using Buffer was the need to synchronize the Tweets with the lecture content. During preparation phase of the buffered Tweets the lecturer tried to estimate the time required to reach a certain point of the lecture and planned the Tweet accordingly. This strategy worked on some occasions but in others was limited. Generally, however, testing with this app was relevant and the team is currently using it in the prosecution of its activities with Twitter for T&L.

- **GroupTweet:** a third application used during the project was grouptweet (<http://grouptweet.com/>). This app allows to create group discussions in anonymized way, using a hashtag (e.g. #ve\_crime). Essentially, the key aspect why this app was tested is that it allows the appearance of Tweets in an anonymized form on the class wall. The team idea was that this could facilitate the interaction of the class with the Twitter wall, while minimizing problems with the students exposing themselves to the whole class.

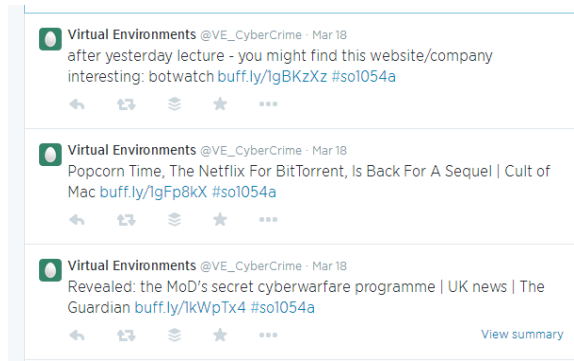


Figure 2. tweets appearing anonymously with grouptweet on the class wall

### 5.3 Tutorials

A key aspect that emerged from the literature review is to “embed activities with Twitter” directly into lecturing activities. While lectures (especially for the module SO1054A) were kept in the traditional format (with just the addition of the Twitter wall), experimentation for bringing Twitter directly within the class activities has been done in tutorials. This seems a reasonable choice as tutorials are meant to foster activities that include group learning, discussion and confrontation. This is also in line with the CoP perspective: our pedagogic approach to teaching with SMPs. The format of the tutorial for SO1054A has been planned as follows:

1. At the beginning of the tutorial, the lecturer would recall the key concepts/aspects of the lecture (length: approx. 10 minutes).
2. A short video connected with the lecture content (pre-selected by the instructor from various outlets) would then be presented offering further insights into the subject of the lecture (for example a video about malware software, or about manipulation of reputation online) (length: approx. 10-15 minutes)
3. Before the video presentation, the students were provided with a sheet containing group-work tasks, to be conducted in the second part of the tutorial. These tasks would include discussing a number of questions but also conduct a number of activities with Twitter (20 minutes)
4. The final part of the tutorial was a final collective discussion about the results of the group-work and findings made with Twitter (10-15 minutes)

The step number 3 is where Twitter has been directly embedded in teaching activities using the CoP perspective. Following are two examples of group work tasks to conduct with Twitter during tutorials:

Twitter tasks	twitter
<ul style="list-style-type: none"> <li>• Search for the <a href="#">#malware</a> hashtag</li> <li>• Do you see any pattern in the tweets using this hashtag?</li> <li>• What types of malware are being discussed in the displayed list of tweet <a href="#">#malware</a> hashtag</li> <li>• Retweet one of the tweets using the <a href="#">#malware</a> hashtag for the <a href="#">#so1054a</a> and add a comment</li> </ul>	<ul style="list-style-type: none"> <li>• Look for these bots on twitter: @Yoda_Bot @RedScareBot @LogicalBOT @MarmiteBot</li> <li>• What can you tell about the followers/following ratio?</li> <li>• Would you follow a bot on twitter if this provides interesting content?</li> </ul>

Figure 3. Examples of tasks to be conducted with Twitter during the tutorials



There are two key pedagogic aspects underlying this approach:

1. Allow the students to do group-work activities with social media. Students would use Twitter in group work - as a small CoP - to discover relevant aspects connected with the lecture content and learning from each other, with the instructor acting as facilitator of the process. This learning would include not only finding relevant material for the module, but also learn together how to use Twitter. Students were also encouraged to post content for the module using the course hashtag, in this way sharing their findings and thinking with the class. This was a process for fostering social learning among peer students.
2. Offer insights on the use of social media for obtaining up-to-date information. This is perhaps the key aspects for embedding Twitter in the lecturing. SO1054A is a module on “cybercrime” (broadly defined). This is a subject who is in constant evolution and professionals need to find way to remain updated about the evolution of cybercrime. Twitter (as well as other SMPs) can offer a relevant channel - a sort of access to a World-Wide CoP of experts - for achieving this goal as information travels in real time over Twitter and it is possible to follow both selected hashtags (e.g. #malware, #piracy) or users (e.g. @schneierblog one of the most renowned security expert or @kasperskylab a world leading research lab on malware and security).

Generally the use of Twitter directly within tutorials has been evaluated positively by the students during feedback moments. Students used Twitter for discovering additional knowledge and tweeted content for the class using the module hashtag, hence fostering a social learning process. During the evaluation students also offered positive feedback on the fact that working with Twitter during tutorials offered the a broad array of new material for their study and courseworks. From the lecturers point of view, there is the feeling that the use of Twitter has helped the students understanding the relevance of social media for continuous learning and especially professional purposes.

## 5.4 Problematic issues

During the conduction of the project several practical problems arose. It is relevant to reflect on these problems in particular in the light of the consideration that current literature rarely touches on practical issues and problems. The following are two of the key problems encountered during the project:

1. **The Classroom:** as anticipated we have tested with a Twitter wall in 3 modules. Testing in more classes/rooms revealed that not all the rooms are suitable for a live Twitter projection. One of the modules took place in one of the main lecture theatres and the team projected a Twitter wall alongside the lecture on an additional screen. However the room physical layout is made in a way that the wall is visible only in the first rows. A solution to this problem would require additional planning before using Twitter and the selection of an appropriate room.



Figure 4. Room physical layout impacts the experience.

2. **Spam:** during the experimentation in the core module for the project (SO1054A) some issues emerged with spam. While spam never reached a high level and remained limited to few isolated cases, it is important consider some of the problems connected with it. In particular two different forms of spam emerged. The first form is the spam of the class Twitter wall. While this was not widespread there have been few occasions in which students used the wall to send spam messages (e.g. jokes visible to the whole class) that disrupted the flow of the lecture. This raised disturbance for both the lecturer and the students who were following the lecture (comments about this were reported in the evaluation). A second form of spam was the spamming of the class hashtag. This has potential for being more disruptive, as it could “pollute” the module hashtag resulting in diminished positive learning experience. In this case the lecturer ignored the spam, which disappeared after few days.

## 6. CONCLUSION

This paper presented some of the practices we used for the conduction of a teaching project using Twitter for T&L at a University. The first half of this paper has been devoted to a presentation of the results of a literature review. Key outcomes from the literature review produced by the project are:

1. **Learning Theories:** the need to pay particular attention on the connection between learning theories and the use of technology - including Social Media - in class. This is an aspect which is apparently often overlooked in practice but which is relevant to achieve pedagogic goals by using SMPs for T&L. In our project we linked our tutorial activities with Twitter with the perspective of Communities of Practice.
2. **Exclusion/inclusion.** Twitter is often seen as a tool that can better foster engagement and participation and that can offer alternative channels for communications. This is in line with the rhetoric surrounding the social web: anyone can participate. However, while there are advantages offered by the technologies for a large inclusion, it is important to consider risks of exclusion when developing a project. Lecturers need to plan activities that will facilitate inclusion such as, in our case, bringing the Twitter feed in the VLE.
3. **Structured approach.** Leaving an experimentation and practical use of Twitter in class to emergent processes might undermine outcomes. A relevant suggestion identified in the literature is the use of a “scaffolding” with proper introduction about the tool and the expected goals as well as the embedding of activities within the learning process. This gives students a roadmap and justifies the use technologies for teaching and learning and supports the work conducted with students. In our project we embedded Twitter directly into tutorials with structured activities and discussed the project with the students in lecture one of the semester.

At a general level the key goal of the project was starting to raise interest around the use of Twitter in our University and also offer to participating staff the opportunity to increase their skills and confidence in using SMPs for their T&L activities. Seen differently, this was a process for building a Communities of Practice among staff members. The staff enjoyed an opportunity to work together as community on practical activities and learning from each other by doing these activities. The pedagogic model of the CoP hence does not just apply to students but to the whole University (students & staff). These goals were reached as the use of Twitter is currently continuing also after the end of the project. Staff members involved in the project are currently conducting training activities for other staff members at the University. Project members have also produced simple guides for supporting the introduction to other staff to the use of Twitter, for example a short guide on how to embed a Twitter feed in the University VLE.

A final conclusion of this project has been the formulation of a number of recommendations, and in particular:

**Recommendation 1 - Training:** There should be training activities planned at a University level for teaching staff since delivering T&L with the use of additional SMPs is a complex process that requires

appropriate training for lecturers who need to prepare not only themselves but also a number of planned activities in order to embed SMPs appropriately in the teaching and learning flow. As discussed above the appropriate perspective for this process would be the one of CoP, where staff should work together on practical issues and learning from each other.

**Recommendation 2** - Social Media Policy: Staff needs to be trained about the Social Media Policy and should contribute to changes to the policy. Indeed recent research shows that there is a rather increased use of Social Media for communication with students, also replacing more “traditional” communications (e.g. email), however not everything can be communicated with Social Media (e.g. issues surrounding exams) and staff should be aware of what is allowed and not allowed by Social Media Policy at University. The Social Media Policy should also reflect inputs from staff and their teaching practice with SMPs.

**Recommendation 3** - Planning: as detailed in this paper, a key aspect for using SMPs for T&L is planning (e.g. rooms, software). Planning therefore should be embedded in any attempt to use Social Media for teaching and the University should support this. Running a project requires material, equipment and an appropriate room. There should be a centralized planning approach offering full support to teaching staff.

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