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Student Teachers' Attitude towards Twitter for Educational Aims

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Abstract

This paper presents an educational experience with 100 student teachers from different courses of the University of the Balearic Islands (Spain) in which Twitter is used for various different activities. The aim of this experiment was to explore student teachers' perceptions in order to value their attitude towards Twitter for educational aims. Afterwards, students were asked to write down their reflections on an eportfolio. Data was collected from their eportfolio evidence, which was analysed to review their attitude towards the use of Twitter for educational purposes and for their future teaching and professional development. The conclusions indicate the need to conduct different educational activities in which Twitter is used in various ways. In addition, conclusions reflect on the real impact of Twitter on students' learning enhancement, in order to improve student teachers' attitudes towards social media in education. Therefore, this article contributes to the body of existing research on the use of technology in education, specifically to the possibilities of the use of social media and microblogging in Teacher Education.

Keywords: microblogging; PLE; social media; student teachers' attitudes; Teacher Education; Twitter

Introduction

Teachers' attitudes are paramount for the successful integration of technology in schools (Teo, 2008; Teo, Lee & Chai, 2008; Teo, 2009). Hermans, Tondeur, Braak and Valcke (2008) argue that earlier experiences highly influence teachers' attitudes and beliefs. It seems relevant to try to change student teachers' attitudes and beliefs towards technology in education, following Hermans *et al*. (2008) who say that these are defined even before the future teachers start their education, in order to avoid resistance to technology in their teaching (Matrosova Khalil, 2013).

Two main groups of barriers have been defined for technological integration (Ertmer, 1999; 2005; Ertmer & Ottenbreit-Leftwich, 2013, p. 177). First of all, the barriers that are external to teachers, which have been called first-order barriers, and that are "resources, training and support." Secondly, the internal barriers, which have been called second-order barrier, consist of "attitudes and beliefs, knowledge and skills." After important efforts to overcome first-order barriers and having observed persistent difficulties for innovative integration all over the world, currently second-order barriers are considered crucial (Ertmer & Ottenbreit-Leftwich, 2013).

Therefore, the current paper aims to contribute to the field of student teachers' attitudes towards technology and the social media for educational aims. To that end, an educational experience with a concrete microblogging tool, Twitter, is described.

Twitter in Education

Twitter has been considered one of the most powerful microblogging platforms in education (Grosseck & Holotescu, 2008), which can be defined "in terms of devices and technologies, but also in terms of learning mobility and participants to this process, a form of mobile-learning" (Holotescu & Grosseck, 2009a, p. 495).

Since 2006, when Twitter was launched, it has become the most popular microblogging system (Holotescu & Grosseck, 2009b) and numerous teachers around the world have introduced it in innovative educational activities (Castañeda, Costa & Torres Kompen, 2011).

A review of the literature on Twitter allows us to observe its beneficial aspects and limitations. Among the beneficial effects of Twitter, the following have already been demonstrated:

- Student engagement and positive impact on learning and final marks (Junco, Heiberger & Loken, 2011).
- The relationship between teachers' use and collaboration and, students' engagement and outcome improvement (Junco, Elavsky & Heiberger, 2013).
- Inclusion of real-world examples and enhancement of discussion, creation of new ideas and collaboration (Kassens-Noor, 2012).
- Transformation of learning processes through microblogging with mobile devices (Holotescu & Grosseck, 2011).
- Self-regulated learning enhancement (Cho & Cho, 2013).

Limitations can be summarised as follows:

- Unfamiliarity with Twitter and the great number of tweets not related to education that can overwhelm students (Lin, Hoffman & Borengasser, 2013).
- Issues for the integration of Twitter into Learning Management Systems (LMS) and to enhance Personal Learning Environments (PLEs) (Conole & Alevizou, 2010).

Wheeler (2014) has recently commented on Twitter that it has provided him with the "best continuous professional development" he has ever had. This is in line with the idea of lifelong learning supported by the PLE concept. The PLE concept refers to the construction of a virtual environment in which the learner is at its centre, connecting tools and services, networking, etc. for learning processes (Adell & Castañeda, 2010; Attwell, 2007). PLEs have three components consisting mainly of three activities: reading/accessing information, creating/reflecting by doing, and sharing/interacting with others (Adell & Castañeda, 2010; Castañeda & Adell, 2013). Concerning their relation with Twitter, this latter would be included in the final group as a microblogging platform to share links with others and create a personal learning network, but has also been considered as the heart of the PLE (Simoes & Mota, 2010). The main aim for pre-service teachers is to become lifelong learners (self-directed learning) and reflect in and on their teaching practice so that they "can, in turn, empower their own students" (Masters, 2013, p. 8).

Thus, it seems that there is an important line of research that focuses on Twitter as a powerful tool for Teacher Education. In recent years, there has been some interesting research that focuses on the role of Twitter for both pre-service and in-service Teacher Education for reflective thinking (Wright, 2010) and collaboration (Smith Risser, 2013; Lewis & Rush, 2013). Moreover, limitations have been observed in Teacher Education such as:

- Some resistance by teachers to using Twitter, since they regard it as distraction, especially in the case of teachers who work with non-adult students (Lin *et al.,* 2013).
- Difficulties to use mobile devices for microblogging have been detected because of teachers' attitudes towards mobile technology (Wright, 2010).

The Experiment

Description

This experiment is based on a learning activity with Twitter for a discussion assignment in initial teacher training in order to empower student teachers' PLEs, motivate the use of Twitter

with educational aims so that students develop a positive attitude towards the social media in education.

At the University of the Balearic Islands (UIB), in many Teacher Education programmes, students are introduced into educational topics through technology. The development of the curricula includes tasks enhanced by technology, and throughout the programme, students are asked to document the learning processes on their eportfolios. Therefore, in two different Balearic Islands (Mallorca and Ibiza), Twitter was used in a debate activity on different educational topics.

Students in Mallorca were invited to use Twitter during the whole semester in order to share their learning tasks on their eportfolios. And in both islands, students carried out a discussion activity in which Twitter was introduced to extend the debate. In the case of Mallorca, the debate topic was on social networks and their relationship with education. Students were asked to take the role of teachers who believed in the use of the social networks in education. In the case of Ibiza, the discussion topic was on traditional versus constructivist education and student teachers participating in the experimental activity were asked to document their learning through the debate on their eportfolios and also with the use of Twitter, since it was introduced into this activity at the end of the programme.

So, the debate activity was designed in two phases: prior to the face-to-face session, students were asked to dedicate a week to preparing the topics of discussion on Twitter. Students were assigned roles and they had to change them midweek so they had to prepare opinions for and against. The second phase of the use of Twitter was during the face-to-face debate where they had to discuss in class and they could also use Twitter to extend the debate. To develop the debate on Twitter some hashtags were negotiated with students.

A short introduction on Twitter was needed in order to help students from Ibiza to use the micro-blogging platform for the debate activity. In the case of the students from Mallorca, who were already using Twitter during the course, a brief reminder of the use of Twitter was given in order to empower their participation in the debate. After the description on a technical level, students were recommended to follow each other and also some people related to education so they could better understand the sense of Twitter. No other sessions or explanation were needed although peer-support was promoted to overcome difficulties.

Figures 1 and 2 show some screen captures from the debates (in Catalan).

Participants

There were three graduating classes participating in both the educational activity and the study, based in two different Balearic Islands, from different education programmes:

- A group of 68 students doing the third year of Primary Teacher Education at the UIB in Mallorca headquarters.
- A group of 15 students doing the first year of Primary Teacher Education at the UIB in Ibiza.
- A group of 17 students doing the first year of the Masters Programme on Secondary Teacher Education at the UIB in Ibiza.

Thus, the total sample consists of 100 students.

Methodology and Research Questions

In this experiment, we wanted to focus student teachers' perceptions on Twitter from quantitative and qualitative perspectives. Therefore, the research is based on mixed paradigms since it has been claimed that both can be equally necessary to address educational studies at different stages (Curtis, Murphy & Shields, 2014). In addition, the study is carried out from an interpretative point
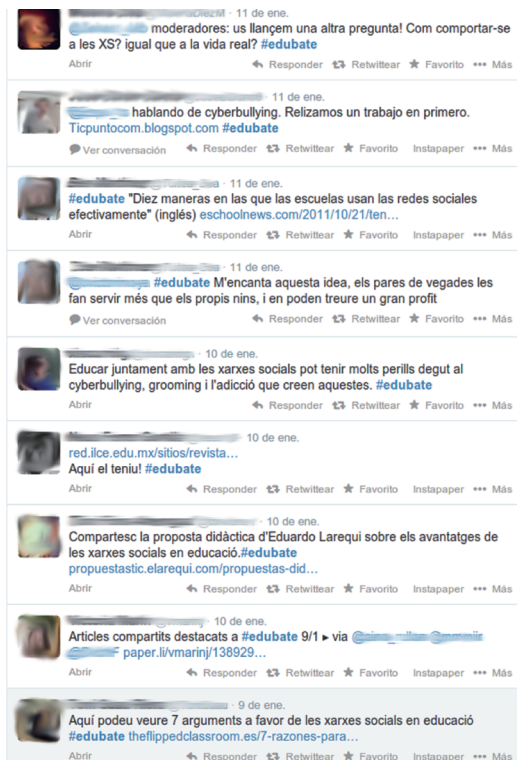
Figure 1: Debate on Twitter in Mallorca

Figure 2: Debate on Twitter in Ibiza

of view, as the main research aim is to understand students' attitudes towards technology and the social media in education.

The main research questions of this study were:

- What are students' perceptions on Twitter for educational aims?
- What are students' perceptions on Twitter for their future teaching?

To explore these questions, we mainly used the technique of content analysis in which we analysed the eportfolio evidence on Twitter by students. Content analysis is "a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding" (Stemler, 2001). These categories were centred on the main research questions stated previously.

As for the eportfolio evidence, in the case of students from Ibiza, these were asked to reflect on their learning in a Twitter-based learning activity. However, in the case of students from Mallorca, they were asked to reflect on their learning from the debate as part of a workshop of social networks carried out during the course. They also had to write an eportfolio piece of evidence at the end of the course in order to evaluate their PLE (designed through Symbaloo) and specifically their tools for connecting with others (among them, Twitter). The topics considered by students are also analysed to see if students show a positive or negative attitude towards the educational use of Twitter.

Instruments

Although content analysis of eportfolios was the main technique for the collection of information, a questionnaire for general data collection was also used. This questionnaire focused on general information about students and their use of social media and Twitter.

Qualitative data was collected through content analysis of student teachers' eportfolio evidence on the use of Twitter. For such analysis, some categories were drawn up according to different topics for reflection:

- Students' enjoyment of Twitter and its usefulness.
- Previous difficulties or negative attitude towards Twitter.
- Reflection on the possibilities of Twitter in education.
- Reflection on the possible impact of Twitter in their future teaching or professional development.

Other topics were also highlighted, such as the use of Twitter for information management or the unexpectedness of using Twitter as part of a learning strategy.

Data Collection and Analysis

A total of 54 students answered the questionnaire—13/54 from the Degree course in Primary Teacher Training (Ibiza), 31/54 from the Degree course in Primary Teacher Training (Mallorca headquarters) and 10/54 from the Master's Degree in Teacher Training (Ibiza)—, while there were 100 students who documented the learning activity on their eportfolio (figure 3). According to the data of the questionnaire, the participants were generally young as 37/54 of students were under 24 years old and 10/54 were between 28 and 32.

It is important to bear in mind that creating an eportfolio piece of evidence for this learning activity with Twitter was compulsory for students in Ibiza, while in the case of the students of Mallorca, they were asked to produce two eportfolio pieces of evidence that might or might not include a reference to the use of Twitter (it was not specified).
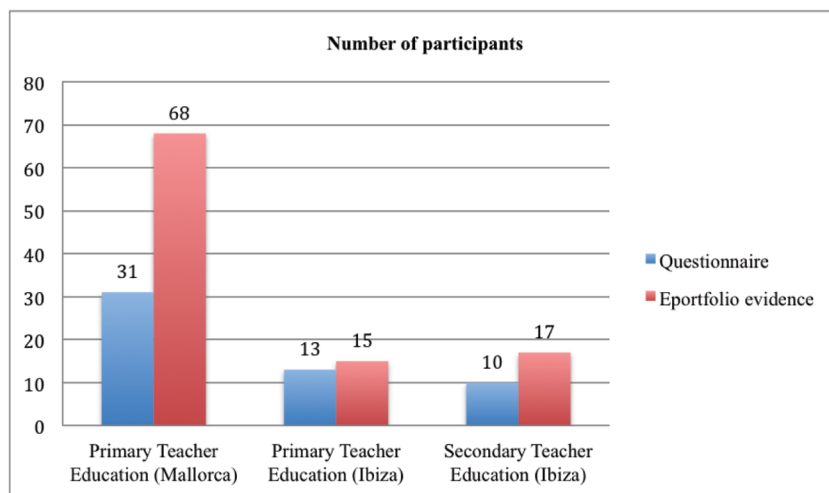
Figure 3: Number of Participants in the Questionnaire and the Eportfolio Evidence

Almost all the students who participated in the questionnaire had a social media account 52/54. The most common social media services were: Facebook (98.1%), Twitter (84.6%), Tuenti (28.9%) and, Pinterest (7.7%). The students' main uses of Twitter were: following famous people (22%), connecting with friends (21.1%) and connecting with people of interest to them for their profession (20.2%).

Data collected from the content analysis of the eportfolio evidences, according to each topic, are presented in number of students—due to the small size of the sample—in table 1.

Table 1: Number of students according to the different Topics of the Content Analysis from the Eportfolio Evidences (Y= yes; N= no; NR= no reply)

	Enjoyed the Twitter activity/ Valued as useful			Previous difficulties/ Negative attitude			Reflection on the use of Twitter in education			Reflection on the impact of Twitter on their future teaching/ professional development		
	Y	N	NR	Y	N	NR	P	N	NR	P	N	NR
Compulsory Eportfolio Evidence on Learning Activity with Twitter (n=32)	25	0	7	15	2	15	16	1	15	2	0	30
Optional Eportfolio Evidences on own Learning from the Social Networks' Debate and Twitter as a Part of the Students' Ple During the Course (n=68)	11	1	56	3	2	63	19	3	46	18	3	47

In order to interpret the data shown in the table, some considerations should be taken into account. There are important differences between the courses from Ibiza and the one from Mallorca in relation to the reference to the different topics analysed. This is mainly due to the differences in the use of Twitter in each case, the educational design carried out, specified in Table 1.

Most students in Ibiza, who used Twitter in a short and concrete activity, showed a positive attitude towards Twitter after having used it in a discussion activity. Therefore, the majority in Ibiza (25/32) admit to having enjoyed Twitter, even considering that an important part of the group (15/32) had started with previous negative attitude or technical difficulties. Thus, half of the group is able to observe the possibilities of Twitter in education. However, only a minority of the students (2/32) contemplated the inclusion of the tool in their future teaching. It is important to highlight that students who do not demonstrate positive opinions towards the topics do not do so because they have a negative attitude but mainly because they do not mention the topic. So, while none of the students did not enjoy the activity, 7/32 did not make any reference to the topic; and, while only 1/32 did not agree with the potential of Twitter in education, 46.9% did not show any opinion at all.

Students in Mallorca, who used Twitter during the whole semester and for a wider range of activities, showed a rather more neutral attitude because they did not reflect as much on the topics considered; so, positive items obtain lower percentages and, negative items are found in similar percentages to Ibiza. Thus, only a very small part of the group of students in Mallorca admit to having enjoyed the use of Twitter (11/68) even considering that they started with fewer difficulties than in Ibiza (only 2/68 admit negative attitudes and technical difficulties); also a reduced part of the group reflect on the positive use of Twitter for education.

Since the group of participants is not particularly large, it is very difficult to deduce patterns from data obtained. However, there are some aspects that can be taken into account for further exploration. First of all, the group in Ibiza, which worked on Twitter during a short period of time,

encountered more difficulties (15/32) in the usage of the tool at a technical level than students in Palma (3/68), who used Twitter during a longer period of time. This seems rather relevant for educational implementation as future repetitions of the activity may need to consider a more prolonged usage of Twitter in order to give students time to overcome technical difficulties and any feelings of anxiety derived. Secondly, it is important to observe that despite the difficulties, students were able to see its value in educational settings. Data obtained reveals the same quantity of students who felt difficulties and who valued Twitter as a learning resource (15/32). Future investigations could attempt to explore the possible pattern between these two aspects. Thirdly, the group who carried out a longer activity with Twitter during the semester (the group in Palma), shows coherent beliefs between the affordances of Twitter in their own learning and in education and the future usage in their in-service teaching. Thus, nearly the same number of students considered both of them in positive terms (19 and 18 out of 68 students) and only three of them considered the matter in negative terms (more than a half of the group did not consider the topic in their final written reflections). Lastly, it is also worth highlighting that more students, among those who worked with Twitter in diverse ways, are positive about the usage of Twitter in their future teaching (18/68) than students who used it exclusively in the debate activity (2/32). Students who used Twitter for a long time are in year four, so it seems obvious that they are especially sensitive about the imminence of their professional careers. Nonetheless, it would be interesting to observe if a diverse use of Twitter may have influenced students' beliefs about its possibilities for their own future as teachers.

On the other hand, the final reflections of the students showed that Twitter was considered as part of their PLEs since they included it in their Symbaloo—tool used throughout the course to show graphically their PLE—(figure 4) or it was part of the graphical representation (figure 5).

All in all, actually, what seems more significant is the difference between students in Ibiza and in Mallorca about their future teaching, as has been observed above. Students in Ibiza had an opinion generally more in favour of Twitter for educational aims than students in Mallorca, but on the contrary, the great majority of students in Ibiza (30/32) did not reflect on the possibilities of transferring the current learning experience to their future teaching and professional development, whereas there were some Majorcan students who did reflect on this issue (18/68). There are some aspects that might have influenced these results:

- the type of activity in which students were involved,
- the fact that students in Ibiza were in their first year at University and students in Mallorca were in the third,

Figure 4: A PLE on Symbaloo of a student from Mallorca

Figure 5: A map mind of a PLE by a student from Ibiza

- the topic of the debate for Majorcan students: specifically on the relationship between social networks and education, or
- the characteristics of the courses (while in Mallorca the course was of educational technology, in Ibiza the courses were centred on didactic aspects).

The following comments (translated from Catalan) illustrate how students reflect on each item on their portfolios, similar in the students from both islands:

"As I have already said, I didn't like the tool to share my own opinions at all, but I have to say that my view of Twitter has totally changed. I have seen its possibilities to share my opinions with other people" (Student 3)

"From this course, I have started to use Twitter to follow several experts on the use of ICT in educational settings and this has provided me with learning through direct links to interesting articles, useful resources or interesting blogs related to the main topics of their Twitter accounts" (Student 6)

"I have realised that Twitter has many possibilities in general and in education. It enhances the process of knowing, expanding, and sharing of both teachers and students" (Student 7)

"I don't think I will be able to use Twitter with my future Primary students because they are too young to use the social media, and even if they were, their parents wouldn't agree to it" (Student 9)

"It was not difficult for me because prior to the start of the course I had already used Twitter. But I was surprised at integrating Twitter in an academic context, as I had not stopped to think I could do the functions that were carried out throughout the course" (Student 10)

"Personally it was an experience that I really liked because it is a different method of sharing your work with other people, and for me, much nicer and easier to use than some others. I think it helped me to think seriously about the fact of using these methods in my future as a teacher. I think it offers extra motivation and provides ease when presenting work, also to find and share information, etc." (Student 62)

Discussion

First of all, considering the main aim of empowering student teachers' PLE with Twitter for educational aims, this can be considered to have been carried out successfully as all students used the tool. However, the aim of improving their attitude towards the social media in education has only been partially achieved as results on content analysis indicate. The type of activities chosen to introduce Twitter has been that appreciated by Kassens-Noor (2012) as optimal for discussion and collaboration and sharing.

Data obtained cannot allow us to observe a high probability of Twitter usage in students' future teaching. So, although having observed that students did not have issues related to first-order barriers, such as hardware limitations; and, having also overcome possible issues related to digital competences, a generally positive attitude of students is not clearly appreciated. Therefore, these results cannot confirm that early experiences may influence students' attitude as Hermans *et al*. (2008) have claimed. It does not align either with conclusions of previous research by Tur and Marín (2013) where most students showed a positive attitude after the use of eportfolios in their learning process.

Not all students in some groups were highly engaged with the use of Twitter for educational aims. These results would partially confirm those of Junco, Heiberger and Loken (2011). However, the difference in attitude raises some unexpected issues. It seems that the type of activity can have influenced students' perceptions, so further research should control this fact as a dependent variable.

Concerning the integration of Twitter in student teachers' PLEs, as reported by Conole and Alevizou (2010), Twitter can be appreciated on the Symbaloo tool (students in Mallorca) and map minds (students in Ibiza) to represent their PLE. The unfamiliarity with Twitter has not been an issue for the successful use of Twitter as Lin *et al.* (2013) have suggested. This fact was probably due to initial technical training before starting the educational activity, and also because some students had already used Twitter or were frequent users.

Some limitations can also be observed from the data obtained. There was a small part of the group of participants involved who admitted not considering Twitter for their future teaching because of the age of the students they will work with, which align with the results by Lin *et al*. (2013).

Conclusions

The use of the social media for educational activities is a relevant field of educational technology that still has a long period of evolution. The challenge is, often, for the students to go beyond the informal context and see these social tools as key tools for their everyday work, and especially for their future teaching, in the case of student teachers. When student teachers eventually become teachers, the generations that they will teach will be people that live seamlessly between the virtual and real worlds, using diverse social tools. Therefore, it is important to work in different educational designs that enhance the use of social media in Teacher Education, and work on student teachers' attitudes towards technology in education.

This study is our contribution to this area and, although it has important limitations such as the size of the sample, it also offers opportunities to work on through future research. Further research should consider if the length of the activity and the way in which it is conducted influence students' engagement and results. Also, future experiments should measure the real impact of Twitter on students' learning process. It is important to address student teachers' attitudes and engagement, but deeper studies are also needed to assess the real impact of Twitter on learning enhancement, as claimed by Junco, Elavsky and Heibenger (2013). Moreover, further implementations of Twitter with educational aims should be addressed to enhance self-regulated learning, as claimed by Cho

and Cho (2013). Finally, it would be of great interest for future implementation to include mobile devices in a more organised way in order to see the possibilities for the transformation of teaching processes, as claimed by Holotescu and Grosseck (2011).

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