

Using Twitter in Higher Education: What are Students' Initial Perceptions and Experiences?

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Abstract: Of the range of recent technological developments, social media have become the most widely adopted by the current generation of students (Evans 2014). Next to this, the digiMeter (iMinds 2015), which reports on a yearly base the ownership and effective use of (social) media among the Flemish population, revealed that the number of people with an account on a social media site is still increasing. However, despite the widespread use and the potential of social media to enhance teaching and learning in higher education, research on students' perceptions, actual use, and the effectiveness of Twitter as a learning and teaching tool is still lacking. The purpose of the current study was to determine higher education students' expectations and experiences about the use of the microblogging and social networking platform Twitter for educational purposes. For this reason, an intervention in the course Instructional Strategies taught at the Faculty of Educational Sciences at Ghent University was set up. Students initial status of Twitter use and expectations and their changed experiences throughout the course were measured by means of three measurements, the pre-, mid-semester-, and post-test survey. Next to quantitative data obtained through the three surveys, qualitative data has been collected by organizing four focus groups to get a deeper insight into students' motivations, their experiences and their suggestions for future practice. Our results indicate that before the intervention, students had rather high expectations about Twitter in higher education. They believed, for example, that Twitter is a tool to get insight into teachers' and peers' opinions, to close the gap between formal and informal learning, and to keep informed about education-related topics. When asking to students' experiences after the intervention, we however found a moderate preference for the use of Twitter in higher education. We can conclude that as in previous research (e.g. Kvavik 2005; Raes & Schellens 2011), this study supports the idea of throwing doubt upon the myth of "digital natives".

Keywords: Higher education, twitter, digital natives, expectations and experiences

1. Introduction

1.1 How to satisfy our 'digital natives' in Higher Education?

Many educationalists are looking for ways to adapt and optimize learning and teaching in higher education institutions because of the increasing numbers and diversity of students over the last few decades. In addition, of the range of recent technological developments, social media - of which Facebook, Twitter, LinkedIn and YouTube are known examples - have become the most widely adopted by the current generation of students (Evans 2014). The students of today grew up in a digital world and are subsequently assumed to have the basic knowledge and use new technologies frequently; based on these characteristics they are often labeled as "digital natives", (Prensky 2001) or the "Net generation". Because of this changing world, also the ways in which students communicate, collaborate and learn are transforming due to social media (Tess 2013). Some scholars (e.g. Kvavik 2005), therefore, expected that the "digital natives" also would prefer the use of technology in the classroom. As a result, the added value of social media to enhance teaching and learning in higher education has received an increased interest in research (Tess 2013). Moreover, current learning theories as *social constructivism* (Vygotsky 1978) and *situated learning* (Lave & Wenger 1991) appear to support the use of social media for educational purposes (in Tess 2013). However, recent research has also shattered the myth of "digital natives" and conclude that growing up in a digital environment is no guarantee of having the same experiences and needs regarding technology (Kvavik 2005; Raes & Schellens 2011).

1.2 What about the use of Twitter in Higher Education?

Twitter is a microblogging social networking platform which combines the opportunities of blogging and instant messaging. According to Clarke and Nelson (2012), microblogging has arisen as a popular opportunity for students and teachers to share and discuss education-related topics. In line with this, several studies (e.g. Junco, Heiberger & Loken 2010; Veletsianos 2011; Welch & Bonnan – White 2012) indicate that Twitter has started to be used in higher education. In addition, a number of researchers have reported both benefits and disadvantages of the use of Twitter in higher education. An overview is given by Dhir, Buragga and Boreqqah

(2013). Some benefits of Twitter are: (1) students learn to write concisely thanks to the word limit of tweets (i.e. 140 characters), (2) better relationships and communication between students and teacher(s), (3) supporting formal and informal learning, and (4) enhancing social presence of students and teachers (i.e. make themselves known in broader research and academic communities). Next to Twitter's benefits in an educational context, Dhir et al (2013) also summarize a number of possible pitfalls, namely (1) wasting time as students write irrelevant tweets, (2) constraints towards freedom of expression and weakening of students' grammatical skills because of tweets' word limit, and (3) privacy related concerns due to the open accessible nature of Twitter.

Nevertheless, research on students' perceptions, actual use, and the effectiveness of Twitter as a learning and teaching tool is still lacking (Dhir et al, 2013). Therefore, in the context of this study, an intervention was set up during a third Bachelor course in Educational Sciences to broaden the research into the use of Twitter in Higher Education. Although Facebook is a much more popular social network site (74% are regular users of Facebook (iMinds 2015)), in this study Twitter has been chosen to implement in higher education for three reasons. Based on the same report, we know that only 31% of the Flemish population already have a Twitter account (iMinds 2015), this means it could be assumed that the majority of the participants of this study would have no or little experience with the microblogging tool Twitter and would not have developed preconceived ideas about the social media tool separate from their experience of it as a teaching tool (Evans 2014). Secondly, in contrast to Facebook, many important educational organizations and influential persons (cf. the Minister of Education) have an account on Twitter and are consequently within reach of both students and teachers. Closely related with this, Twitter is a good tool to keep abreast of actual education matters. Thirdly, Twitter is labelled as more suitable for ongoing, public dialogue than Facebook (Ebner, Lienhardt, Rohs & Meyer 2010).

1.3 Research questions

The following research questions were put forth in this study:

RQ1: What is students' initial status of Twitter use in general and what are students' expectations about using Twitter in higher education?

RQ2: How do students use Twitter in the context of the course, how motivated are students using Twitter in the context of teaching and learning, and how do they experience Twitter use in education?

RQ3: How has students' Twitter use changed throughout the course, what are students' perceptions concerning the benefits for teaching and learning after this intervention and how does these differ from their pre-experience expectations, and what are students' suggestions for future teaching and learning?

2. Methods

2.1 Context & Participants

This study was conducted in the context of the third Academic Bachelor course Instructional Strategies taught at the Faculty of Educational Sciences at Ghent University during the academic year 2015-2016. The participants were 59 students with a mean age of 22 years (min. 20, max. 51 years old) and the majority of them were female students (91.5 % versus 8.5% male students). However, there were 5 dropouts in the posttest because of discontinuation of the course. The background of the students differed between students, 42.4% of the students were 'regular' students, while 57.6% already had a professional bachelor before they started their academic bachelor.

This study implemented the use of Twitter complementary to face-to-face activities. Within the course Instructional Strategies, students were asked to register on Twitter if they did not have an account yet. For this course, the examination was a combination of permanent (50%) and periodic (50%) assessment. As part of the permanent evaluation, students were given two required assignments. On the one hand, regarding to their group assignment in which each group studied an instructional strategy (e.g. Jigsaw and Philosophy for Children) in depth, they were required to use Twitter as source of information. On the other hand, each student needed to post at least three (re)tweets via the class account (DiWe_15) which had been set up for this study. In short, the teacher, the students and the teaching assistants were encouraged to use Twitter frequently with the aim to reach the following objectives:

1. To activate prior knowledge about lesson topics. More concretely, before some lectures, a corner of the veil was raised via the Twitter class account. For example, a short movie about problem-based learning was spread via the class account several days before the lesson about this lecture topics.
2. To increase interaction and discussion within and without lectures about tackled lesson topics and broader actual educational topics.
3. To increase social bonding within the group and to minimize the distance between the students and the teacher and teaching assistants.

2.2 Procedure

As displayed in Table 1, this study ran over a period of 17 weeks starting in September 2015 and ending at the end of January 2016. During this period students were introduced in the course Instructional Strategies at Ghent University. To uncover students’ initial status of Twitter use and their beliefs, a pretest was administered before lessons started in September 2015. During the second lesson of the course, the students got introduced about the task assignments and became acquainted with the use of Twitter. The teacher taught the basics such as how to send Twitter messages (i.e. tweets) and how to create a Twitter account. During week 5 till week 6 students got the more traditional lectures, but prior knowledge about the lesson topics was activated by means of sending tweets in advanced of the lectures. At the end of October 2015 a mid-semester survey was sent out to gauge students’ first experiences with using Twitter in Higher Education and to measure the changed status of use. During week 7 till week 11 students gave their group presentation/workshop about an instructional strategy which they had studied in depth e.g. Jigsaw and Philosophy for Children. Students had been encouraged to check Twitter as a source of information to prepare and organize this presentation/workshop. After finalizing the lectures and student workshops, in week 12 all students attended one of the four focus group interviews of one hour each which were moderated by two of the teaching assistants. Finally, a post-test was administered mid-January after the oral exam to uncover students’ final evaluations about using Twitter in Higher Education.

Table 1: Study procedure

Third Bachelore Course: Instructional Strategies						
September 2015 – January 2016 (17 weeks)						
W1 Sept. 21	W2	W2 – W5	W6 Oct. 30	W7 – W 11	W12 Dec .14	W17 After Oral Exam (Jan. 12)
PRETEST measurement	Introduction to assignment and short introduction to Twitter use	Lectures given by the teacher	Mid-semester measurement	Group Presentations / Workshops given by the students based on peer tutoring	FOCUS GROUPS (4 groups of 14-15 students)	POSTTEST– Final evaluation measurement

2.3 Measurements & analysis

As shown in Table 2, the pre-, mid-semester-, and post-test survey consisted of several sections partly based on existing scales (e.g. Evans 2014) and the self-determination theory (Vansteenkiste et al 2009) to measure motivation for Twitter Use. The surveys included both Likert-scale questions using six-point agreement levels from 1 (strongly disagree) to 6 (strongly agree) and open-ended questions. Online links to the surveys (made by means of the Limesurvey software tool) were sent to the students via announcements on the learning management system.

In the pre-test-survey, students’ background characteristics, their initial state of Twitter use and the expectations towards the benefits and disadvantages of Twitter in higher education were measured. Based on students’ initial Twitter use more questions were provided to students about their previous experiences. The expectations towards Twitter in higher education were questioned to the complete group of students regardless of their initial status. The mid-semester survey consisted of four parts as displayed in Table 2. The post-test-survey predominantly focused on the experienced benefits and disadvantages of Twitter use in higher education aiming to contrast these results with students’ prior expectations.

Next to quantitative data obtained through the three surveys, qualitative data has been collected by organizing four focus groups to get a deeper insight into students' motivations, their experiences and their suggestions for future practice. In this paper both sources of evidence will be triangulated to make use of the strengths of both research paradigms (Johnson & Onwuegbuzie 2004). Several authors (e.g. Creswell 2008) suggest the power of integrating different approaches from a mixed methods perspective in answering research questions and in strengthening the inferences in terms of both processes of analysis and outcomes of analysis.

Table 2: Structure and content of the pre-, mid-semester-, and posttest survey

Pre-test-survey	Mid-semester-survey	Post-test-survey
1. Students' background characteristics: gender, age, student status 2. Initial state of Twitter use: <ul style="list-style-type: none"> - Motivation for creation of account - Amount of tweets, followers, following - Objectives of use - Previous experience with Twitter in general 3. Expectations towards benefits and disadvantages of Twitter in Higher Education	1. Status of Twitter Use <ul style="list-style-type: none"> - Amount of tweets followers, following 2. Motivation of Twitter use during course 3. Interim experiences <ul style="list-style-type: none"> - Activation of prior knowledge - Self-efficacy - Fear of disapproval 4. Suggestions for TU within course setting	1. Final status of Twitter use <ul style="list-style-type: none"> - Amount of tweets, followers, following - Specific use for group presentation - Specific use for preparation for exam 2. Experienced benefits and disadvantages of Twitter in Higher Education 3. Social media alternatives

3. Results

RQ1: What is students' initial status of Twitter use in general and what are students' expectations about using Twitter in higher education?

The results of the pre-test-survey show that the majority of the students (71.2%) were initially no Twitter users, whereas 28,8% of them already had a Twitter account, but 5% of these students decided to make a new account to use in the context of this course.

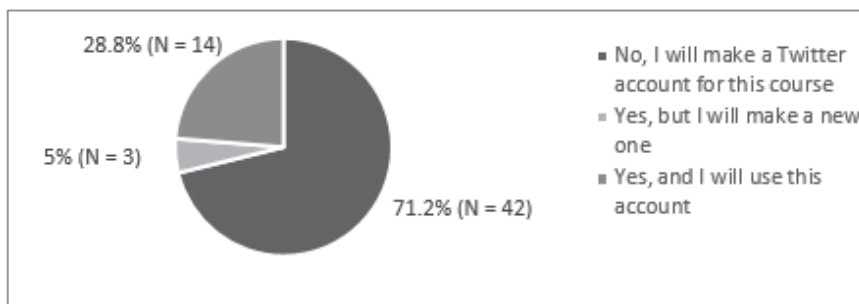


Figure 1: Initial status of Twitter Use - Already a Twitter user?

Subsequently, we asked these 17 students about their initial Twitter use, including the amount of Twitter posts/retweets they ever made, the amount of people and organizations who are following them, and the amount of people and organizations they follow. As visible on Figure 2, a minority of the students is really active on Twitter based on the huge difference between the minimum and maximum value, we can conclude that there is a high variation between students' initial Twitter use in general.

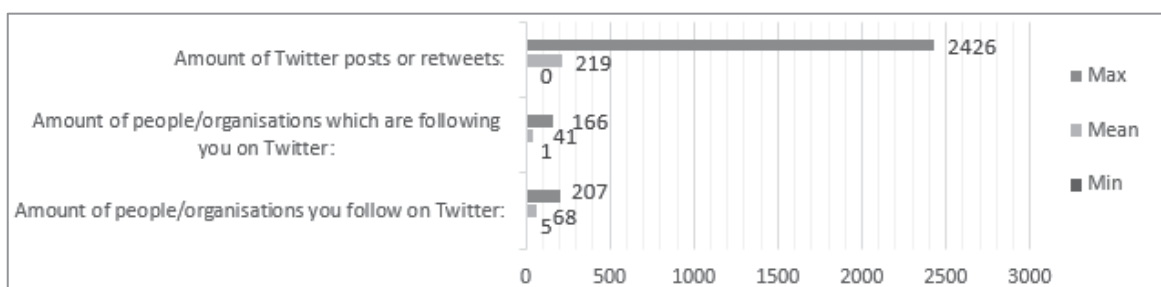


Figure 2: Descriptives of initial Twitter Use (N = 17)

When asking to rank the reasons of using Twitter in general, the students with initial experiences with Twitter put the social aspect on number 1. The educational aspect was put on the second place and the professional aspect was put on the third and final place. Based on this, we can conclude that the preconceived ideas about using the social media tool as a teaching and learning tool are limited to unexisting.

Consequently, all students were asked to complete the question asking students about their initial expectations about the use of Twitter in higher education. Table 3 shows the results on these statements and moreover shows - based on a one-sample t-test – the statements which differ significantly from the neutral score of ‘3.5’ (on a 6-point Likert agreement scale). We can conclude that students’ initial expectations about using Twitter for teaching and learning were moderately positive. For example, they believed that Twitter is a tool to get insight into teachers’ and peers’ opinions, to close the gap between formal and informal learning, and to keep informed about education-related topics.

Table 3: Students’ initial expectations about the use of Twitter in higher education (6-point Likert Scale).

Note. * indicates a significant difference from the neutral score 3.5

	N	M(SD)	t(58)	p-value (test value = 3.5)
Twitter can be an interesting tool for instuction.	59	3.49(0.95)	-0.07	.95
Twitter can be interesting to get insight into fellow students’ opinions.	59	4.54(0.80)*	10.07	.00
Twitter can be interesting to get insight into teachers’ opinions.	59	4.66(0.84)*	10.58	.00
Twitter can be interesting to learn how to formulate your own opinion.	59	3.78(1.18)	1.83	.07
140 characters is not enough to react on an educational topic.	59	3.80(1.23)	1.85	.07
Twitter can affect the productivity within learning and instuction.	59	3.08(0.77)*	-4.13	.00
Twitter can increase the flexibility within learning and instuction.	59	3.90(0.92)*	3.32	.00
Twitter can favor the boundaries between students (i.e. group cohesion).	59	3.39(1.00)	-0.85	.40
Twitter can make me more connected with the teacher and teaching assistants.	59	3.61(0.91)	0.93	.36
Twitter can close the gap between formal and informal learning.	59	4.17(0.75)*	6.89	.00
Twitter is a good tool to keep posted about educational topics.	59	4.42(0.95)*	7.46	.00
Twitter gives you the opportunity to follow important people.	59	4.83(0.81)*	12.58	.00
Twitter can be a good tool to become acquainted with relevant expertise in our field.	59	4.02(0.96)*	4.16	.00
Using Twitter in education can fade the border between education and private life.	59	4.10(1.08)*	4.29	.00
Twitter can be a good tool to learn how to filter information.	59	3.59(1.12)	0.64	.52
Twitter can be helpful to open your critical mind about education-related topics.	59	3.75(1.18)	1.60	.12
Twitter can be helpful to broaden my professional network.	59	3.97(0.96)*	3.71	.00
The added value of Twitter depends on how you personally deal with it.	59	5.32(0.88)*	15.91	.00

RQ2: How do students use Twitter in the context of the course, how motivated are students using Twitter in the context of teaching and learning, and how do they experience Twitter use in education?

The mid-semester survey revealed that 67% of the students started following the teacher and/or teaching assistants involved in the course as well as people and/or organizations related to the broader educational practice and policy. All students (re)tweeted during the first part of the semester in the context of this course, but for the majority this was limited to two or three (re)tweets. Most of the students (66,7%) indicate that they consult Twitter at least once a week. Figure 3 moreover shows the mid-term Twitter use of all students.

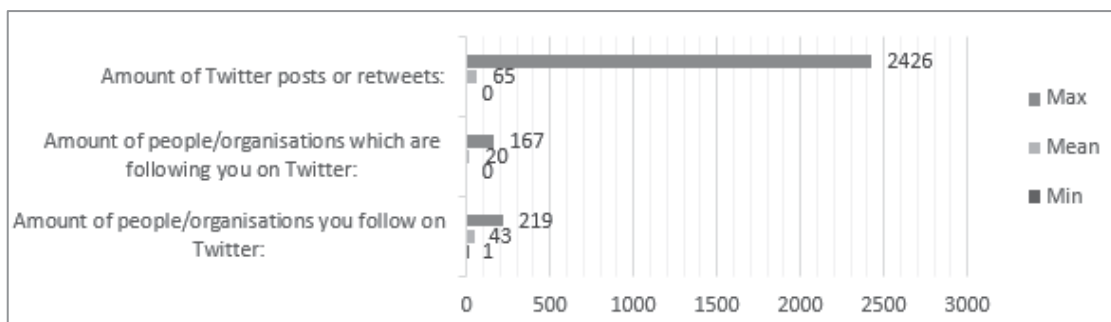


Figure 3. Descriptives of mid-term Twitter use (N = 57)

Regarding the motivation for using Twitter during the course, Table 4 illustrates - based on a one-sample t-test - that students have mixed feelings. Students are rather extrinsically motivated to use this social software tool.

A sense of obligation is obviously present. Additionally, during the intervention, students mainly use Twitter in the context of the course (76,6%) and did not start to use it for private purposes. Descriptive data also indicate that 61,7% of the students do not like using Twitter because of its public character. Moreover, 43,3% declare being afraid to send “wrong” Twitter messages (cf. fear of disapproval). Although the majority (58,7%) also express that they feel unconfident to tweet due to lack of knowledge about the several functions of Twitter, only 43,3% claim that a longer training would be meaningful.

Table 4: Motivation to use Twitter within the course “Instructional Strategies”.

Note. * indicates a significant difference from the neutral score 3.5

	N	M(SD)	t(56)	p-value (test value = 3.5)
I like it to use Twitter within this course.	57	3.60(1.18)	0.62	.54
Using Twitter within this course feels like an obligation for me.	57	4.51(1.21)*	6.28	.00
I have to encourage me to visit Twitter.	57	4.39(1.41)*	4.74	.00
It has become a custom to visit Twitter, just like checking Facebook or my mailbox.	57	2.18(1.82)*	-8.46	.00
I only visit Twitter after I received announcements in my mailbox.	57	2.82(1.28)*	-3.97	.00
I find it interesting to use Twitter within this course.	57	3.61(1.13)	0.76	.45

In line with the fact that checking their Twitter account or the Twitter wall does not became a routine for most students, many students did not have noticed the tweets the university teacher has posted to activate prior knowledge about specific course topics. In practice, only the minority (6%) had read the articles linked to in the tweet. Yet, if students were asked if this instruction strategy should be kept to motivate and activate students 58% of the students agreed, and 29% agreed to keep under certain circumstances.

RQ3: How has students’ Twitter use changed throughout the course, what are students’ perceptions concerning the benefits for teaching and learning after this intervention and how does these differ from their pre-experience expectations, and what are students’ suggestions for future teaching and learning?

Figure 4 shows the descriptives of students’ Twitter use at the end of the course. When we compare these statistics with the mid-term descriptives shown in Figure 3, paired sample t-tests revealed significant increases in the amount of Twitter posts or retweets ($t(53) = -2.15, p = 0.04$), in the amount of followers ($t(53) = -5.01, p < 0.001$) and in the amount of people the students are following ($t(53) = -5.41, p < 0.001$).

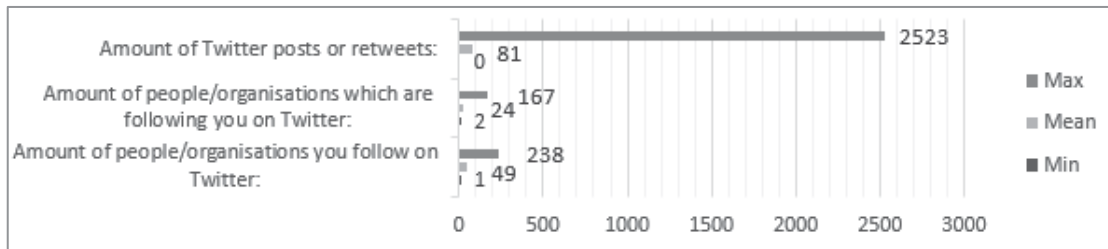


Figure 4. Descriptives of final Twitter Use (N = 54)

As mentioned before, the examination of the course ‘Instructional strategies’ exists of both permanent and periodic assessment. Regarding to the permanent evaluation, students were required to use Twitter as information source in the context of their group assignment. Below, a few quotes of students are listed to illustrate how Twitter was used:

In the context of the group assignment, I used Twitter for looking to articles and quotes of people who have experiences with Jigsaw. It was interesting because we acquainted with practical experiences in real classrooms instead of just reading scientific articles.

Via Twitter, we checked the opinions of several people about philosophizing with children.

We didn’t use Twitter for the group assignment.

It was useful to discover the opinion of important persons about our topic. It was not easy to find interesting information. Only after a very long search, we succeed in this.

In preparation of the oral exam for the course ‘Instructional Strategies’ (cf. periodic assessment), only 18 of the 54 students consulted Twitter by reading their own tweets again or explicitly looking to the tweets of the teacher.

Finally, the 18 statements of the pre-test (see also Table 3) were asked again in the post-test to uncover differences between students' expectations and students' experiences about the use of Twitter in higher education. Based on the paired-sample t-tests, the results shown in Table 5 revealed that there are significant differences with regard to six statements.

Table 5: Differences between student's expectations and experiences about the use of Twitter in higher education

	Pretest	Posttest	Difference	
	M (SD)	M (SD)	t(52)	p-value
Twitter is an interesting tool to get insight into fellow students' opinions.	4.53(0,82)	4.19(1.00)	2,34	.02
Twitter increases the flexibility within learning and instruction.	3.91(0.93)	4.28(0.99)	-2.11	.04
Because of Twitter, I feel more connected with the teacher and teaching assistants.	3.57(0.95)	3.19(1.09)	2.18	.03
Twitter is a good tool to become acquainted with relevant expertise in our field.	4.02(0.95)	4.47(0.95)	-3.04	.00
Twitter fades the border between education and private life.	4.06(1.05)	4.38(1.00)	-2.02	.05
Twitter is a good tool to learn how to filter information.	3.57(1.10)	4.04(0.98)	-3.60	.00

However, although students certainly agree that Twitter fades the border between education and private life and express this even more in the post-test compared to the pre-test, this does not mean that students liked this fading between formal and informal learning. This issue became issue very apparant during the focus groups in which alternative (social media) tools to activate prior knowledge about lesson topics, increase interaction and discussion within and without lectures, and increase social bonding were discussed. In the posttest, we asked the students to rank several tools which had been discussed. Of all students 43,3% preferred a closed forum on the learning management system of the university over the use of Twitter. Following, the use of a closed Facebook group with both fellow students and teacher(s) involved was put on the second place. The majority of the students indicated to be not in favour of using an open blog (15%) or Twitter (3,3%) anymore.

4. Discussion & conclusion

The purpose of the current study was to determine higher education students' expectations and experiences about the use of the microblogging and social networking platform Twitter for educational purposes. For this reason, an intervention in the course Instructional Strategies taught at the Faculty of Educational Sciences was set up. Before the intervention, students had rather high expectations about Twitter in higher education. They believed, for example, that Twitter is a tool to get insight into teachers' and peers' opinions, to close the gap between formal and informal learning, and to keep informed about education-related topics. When asking to students' experiences after the intervention, we however found a moderate preference for the use of Twitter in higher education.

Consistent with previous research of Dhir and colleagues (2013) who summarized both benefits and pitfalls of using Twitter in higher education, this study reveals that Twitter is a good tool to become acquainted with relevant expertise in the field and a good tool to learn to filter information. However, not all the results are in line with previous research. Our study for example did not realize the expected positive effect on the relationship and communication between students and teachers. Next to this, although students indicates the faded borders between education and private life, our students also expressed that they did not like this transition. This latter is again in line with what Dhir et al (2013) who expressed privacy related concerns due to the open accessible nature of Twitter.

We can conclude that as in previous research (e.g. Kvavik 2005; Raes & Schellens 2011), this study supports the idea of throwing doubt upon the myth of "digital natives". The students in this study had mixed feelings about using Twitter for educational purposes and even preferred to use the more closed discussion and interaction tools within the learning management system of the university. A possible explanation for this might be students' unfamiliarity with the tool before the start of the intervention. Consequently future research should be set up spread over a longer time span. Becoming familiar with a tool as Twitter possibly takes more time. In addition, this study was conducted in one specific setting, namely Educational Sciences involving predominantly female students. Expanding the intervention involving also other faculties, for example Communicational Sciences or Economics and Business Administration whose students probably are more intrinsic motivated to use Twitter, may generate different results. This is an important issue for future research.

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