

Twitter Discussion in Higher Education: Are Students Ready?

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Abstract

Online discussion has proven to be an added value in courses in higher education. However, the potency of it often not reaches to its full extend. Former research suggests that good tutoring and using micro-blog software and can help achieving valuable online discussion. In this explorative study a traditional online discussion forum was replaced by Twitter as discussion tool in a higher education course. The attitude of students towards, and the participation and nature of online discussion in this course was investigated. It turned out that no student was willing to participate in online discussion. Therefore, focus-group interviews and a survey were conducted to clarify reasons for nonparticipation. It can be concluded that students do not feel an urge to participate in online discussion on any platform, and it is suggested that a focus on implementing online discussion is necessary for it to realize its full educational potential.

Twitter Discussion in Higher Education: Are Students Ready?

Course-related online discussion in higher education is considered to be an added value to the learning process in a course. Online discussion facilitates communication about to be learned topics, which allow students to verbalize and reformulate ideas, and to discuss and critically analyze ideas proposed by peers (Ahern & El-Hindi, 2000; Arbaugh, 2000; Tu, Blocher & Ntoruru, 2008; Tu, Blocher & Roberts, 2008). According to Tu, Blocher and Roberts (2008), students compare and judge their contributions to the contribution of peers, therefore stimulating deeper cognitive processes. This is consistent with a socio-constructivistic view on learning (Vygotsky, 1978) where learners internalize knowledge by verbalizing the knowledge, as well as by interacting with peers and tutors. Also, online discussion forums provide students with the opportunity to interact with each other, so to create a collaborative learning environment where teachers can act as tutors, monitoring the learning process and providing feedback and guidance when necessary and thereby scaffolding the process (Allan, 2004).

Although the possibilities with online discussion seem promising, experiences with online discussion forums lead to the conclusion that the potency of using online discussion forums is often not reached to its full extend. Thomas (2002) observed that a realization of interactive learning is limited since there is no real collaborative development of ideas between the students. A possible cause of this observation might be the fact that the overall participation of students in course-based online discussion can be very low, with students often posting no more than one message a week (Wan & Johnson, 1994). Hewitt (2005) observes this is a re-occurring problem in many academic courses. In a study of Cheng and Hew (2005), it is concluded that even when students participate, communication often limits itself to a question-answer nature, rather than resulting in an elaborative discussion

concerning topics of the course. Furthermore, the communication observed, often addresses course organizational matters or social matters, rather than content-related matters. (Capsi, Gorsky & Chajut, 2003; Guan, Tsai & Hwang, 2005; Hara, Bonk & Angeli, 2000).

A high level of participation in elaborative discussions on course-related issues is important for the socio-constructivistic processes described above to take place. Previous studies conclude that participation in online discussion is associated with positive assessment results (Patel & Aghayere, 2006; Taradi & Taradi 2004). However, it must be noted that these studies do not take into account the role individual participation plays on individual course results (Cheng, Paré, Collimore & Joordens, 2011).

Low participation has been subject of numerous previous studies. Some of these studies focus on the role of the tutor or instructor. Beaudin (1999) advised tutors to keep the online discussions on track, because students may abbreviate from the original purpose of the discussion after some time. Other studies observed that a tutor playing an encouraging role increases participation among students (Tagg & Dickinson, 1995). Another advantage is that technical problems which can occur considering online discussion can be solved easily by the tutor, therefore facilitating the accessibility of online discussion forums (Cifuentes, Murphy, Segur & Kodali, 1997). Jung, Choi, Lim and Leem (2002) found that when expectations about the discussion process are formulated well by the tutors, and expressed clearly to the students, an increase in participation can be expected. A similar research was conducted by Dennen (2005), who found that where expectations were unclear, student participation decreased. Students did not know in what way they could participate and cooperate.

Not all researchers share positive ideas on the role of the tutor. Poole (2002) suggests that the responsibility and engagement of students increase when the tutor is not involved in the discussion. Mazzolini and Maddison (2003) observed that discussion threads initiated by

active tutors collected fewer responses than the threads in discussion forums where the students were responsible for starting the threads. Tu et al. (2008) address the issue of trust relationships in an online community and conclude that when a tutor takes on an authoritative role, this does not have a positive influence on the online learning process. Students either ignore the tutor or cease to participate in the discussion, or the tutor is considered as the source of information, resulting in a question-answer dynamic, rather than constructing new knowledge through discussion (Allan, 2004).

Apart from the role which a tutor can play in stimulating online discussion, it is suggested that using other means than traditional online discussion forums may help to address the participation issue stated above. A study by Junco, Heiberger and Loken (2010) concludes that using the micro-blogging application Twitter has a positive effect on college student engagement and grades. A micro-blogging application differs from the online forum as an online communication means for multiple reasons. First, the content of micro-blog messages is limited to 140 characters each. This makes it easier to reply via different media as computer, smartphone and tablet devices. A drawback of this is the limited amount of information a message can contain (Bower, Herdberg & Kuswara, 2010). The second reason concerns the way different discussions are related. Whereas traditional online discussion forums have a hierarchical structure, where the user has to navigate through global topic to thread structures before finding the discussion he is interested in, the structure of micro-blogging media is flat. This means that there is no menu structure, but discussions are found by searching for 'hashtags' or keywords, and clicking on hyperlinks in discussions itself (Tu et al., 2008). Third, micro-blogs allow for 'just-in-time' communication through implementation in websites and via applications on diverse media. This means that, as soon as there is a reply on a discussion on which the user is interested, he is notified directly (Dunlap

& Lowenthal, 2009). The easy-accessibility of the information, the way a user can navigate from one discussion to another, and the short messages are expected to contribute in a positive way to the experience and motivation of the user, therefore resulting in higher participation and thus a positive contribution to the learning process.

Summarizing the above it can be concluded that online discussion can be of great educational value. However, the potency of the medium often does not reach to its full extend and it is assumed that low participation and the nature of the communication are main concerns in this. Two possible interventions are identified which are expected to have a positive influence on these concerns. It is suggested that new tools for online discussion, such as micro-blogging can influence participation rates in a positive way. Also, previous studies have stated that the role of tutor in an online discussion forum can influence the process in a positive and negative way, considering the participation and the nature of the discussion.

Following these conclusions the aim of this study is to investigate whether micro-blogs contribute as a discussion tool to the participation in online discussion and when they do, how this contributes to the online learning process of undergraduate students. This is important for guidelines and suggestions to be made concerning the effective use of online discussion in university courses. It was hypothesized that the accessibility and motivational features of micro-blogs, combined with a tutor in a facilitating role can result in increase in participation, compared with other courses, and resulting in dynamic online discussions leading to collaborative learning processes.

To investigate whether a discussion tool can contribute to the participation and online learning process, some aspects should be taken into account in particular. At first, the participation has to be measured. A qualitative approach using focus-groups will be used to

attempt to describe the students perception, experience and opinion considering online discussion, and why, or why not students are willing to participate. This way, it is expected to gain more insight in what factors play a role for a student to engage in online discussion. Also, this information can be used to verify if the proposed advantages of the two interventions are recognized by the students.

To be able to draw good conclusions from the discussions itself, the nature of the interaction and participation in online discussion, as well as the nature and quality of the content of the messages has to be taken into account. The focus on nature and quality of the content is considered important since messages are limited to 140 characters per post and previous authors considered this as a limitation of the amount of information to be shared in one post (Bower et al., 2010). Since micro-blogging is largely associated with social interaction, high participation does not automatically mean that the discussions will be of educational value. A distinction in the nature of messages can be made in several ways, where social, organizational and content-related interaction seems to be the main categories (Oren, Mioduser & Nachmias, 2002). Previous studies took into account the quantity of the posts and the nature of the message (Ebner, Lienhardt, Rohs & Meyer, 2010) as well as the interaction patterns, but little is known about the depth of the individual messages (Guan et al., 2005).

From the socio-constructivist perspective it is also important to learn more about the results of using micro-blogs on participation, as well as the types of interaction occurring as a consequence of this participation. What is the nature of the participation? Are there few students who generate most of the content, or is a majority of students participating? Allan (2004) proposed a useful way to look at the different interaction patterns occurring in online discussion, which can provide insight in the nature of the online communication. Are participants replying on each other and through discussion creating a collaborative body of knowledge, or are all of the replies directed to one central individual who shares his

knowledge with all the participants? In the latter case, the online media serves more as a question and answer opportunity rather than a way of collaborating to acquire knowledge, thus not enabling students to engage in deeper cognitive processes stimulated by discussion.

These theoretical considerations led to the following questions:

1. 'Does using a micro-blog tool as online course discussion tool contribute to participation in online discussion when the tutor plays a facilitating role, and what qualitative and quantitative characteristics do these discussions have?'

To answer this first question, the following sub questions were formulated:

- 'To what extent will students participate in online discussion?'
- 'What forms of interaction occur during participation in the online discussion?'
- 'What is the quality of the substantive discussion on the micro-blog?'

Since participation has been a concern in many courses (Hewitt, 2005; Wan & Johnson, 1994), a qualitative approach has been developed to describe student's attitudes towards online discussion and thereby answering the second question:

2. 'What are students views to, and to what extent are they willing to engage in online discussion?'

The following sub questions were addressed in this approach.

- 'To what extent are students currently using the possibilities to discuss online and which media is preferred?'
- 'To what extent is online discussion perceived as a relevant tool for learning by students?'

- 'What are reasons for students to, or not to participate in online discussion?'

As a popular micro-blogging tool, Twitter has been chosen as the platform for the discussions. The choice was based on the assumptions that due to its popularity, some students are familiar with the way the software works, therefore lowering the threshold to attend.

Method

The initial plan was to implement online discussion with the use of Twitter, in the course 'Science Philosophy' at a university in The Netherlands. Several actions were undertaken to achieve online discussion. For example, the new way of online communicating was announced in the first lecture by the teacher, and the traditional platform, Discussion Board, was disabled. Every week after class, a statement was published on a micro-blogging tool concerning the last lecture. Also, the statements were formulated in such a way that it was expected to encourage discussion, thereby allowing students to elaborate on the current material.

To analyze the nature of online discussion, there was chosen to base the instruments on the framework of Guan et al. (2005), who in their turn based their schemes on the works of Henri (1992). The developed instrument provided possibilities to analyze content-related messages and interaction-patterns as well as quantitatively measure amount of messages posted which were organizational and social-related. Table 1 shows examples of codes for analyzing the content- related messages.

Table 1

Example of codes in the initial coding scheme

Dimension	Category and definition	Indicators
Cognitive skills	<i>Elementary clarification:</i> observing or studying a problem identifying its elements, and observing their linkages in order to come to a basic understanding.	- Identifying relevant elements - Reformulating the problem - Asking a relevant question
	<i>In- depth clarification:</i> Analyzing and understanding a problem to come to an understanding which sheds light on the values, beliefs, and assumptions which underlie the statement of the problem.	- Defining the terms - Identifying assumptions - Establishing referential criteria
	<i>Inference:</i> Induction and deduction, admitting or proposing an idea on the basis of its link with propositions already admitted as true.	- Drawing conclusions - Making generalizations
	<i>Judgement:</i> Making decisions, statements, appreciations, evaluations, and criticisms.	- Judging the relevance of solutions

Despite these undertakings however, in the course of the data-gathering, it occurred that participation in the discussions was almost zero. Therefore, a shift to the qualitative approach as the center of this study was considered necessary, with the interviews as main instrument

not only to determine student's views concerning online discussion, but also to find out why students did not participate, and to determine what could be done to encourage participation on future occasions.

Due to the unexpected nonparticipation in discussion, the only data available came from the focus-group interviews. This shift to pure qualitative research implicated that interpretations from the interviews could not be validated with the quantitative results from the online discussions. Therefore, several steps were undertaken to develop instruments which encouraged strong validity and reliability of the interview analysis within the constraints of the remaining time of the study.

Participants

All participants were aged between 18 and 30 years, everyone was allowed to join any activity, and participation in all activities was voluntary.

The participants of the first focus-group interview and a conducted survey, were undergraduate students of the course 'Science Philosophy' on a university in The Netherlands. On this university, students are accustomed to use Blackboard as online information platform. This software includes a traditional forum for online communication called Discussion Board. The course had 30 attending students. In the discussion no students participated, the focus-group consisted of five students, and nine students responded to the survey. It is important to note that the five members of the focus-group are different individuals than the nine respondents to the survey.

To obtain reliable results, students from a different course were approached for a second focus-group interview. These students did not experience the attempted implementation of Twitter as discussion tool within the course, but do have experienced Blackboard and its online communication possibilities. This second focus-group consisted of

twelve students from the course 'Organizational Change Interventions' on the same university. It contained second-year undergraduate students as well as premaster students, the latter already having finished professional education in an educational field.

Instruments

Resistance against the use of Twitter. At first, to map reasons for not using Twitter, a semi-structured approach using a topic list was chosen. According to Boeije (2005), the researcher decides during the interview whether responses are satisfying, or if additional questions are necessary. A topic list makes it possible to improvise, and make proper decisions.

Examples of topics were:

- What do you think of online discussion possibilities in any university course?
- How did you experience the use of Discussion Board in previous courses?
- Can you sum up specific reasons why you did or did not use Twitter in this course.

It was decided to completely transcribe the interviews and develop a theme-level coding-scheme. This scheme was based on the developed analytical framework for analyzing online discussion derived from the framework of Guan et al. (2005), as well as the introduction section of this paper and the data found in the protocol. By using this method of a combination of theoretical sensitivity and in-vivo codes, underlying themes relevant for this study could be derived from the protocols (Boeije, 2005). Also, interpretations of different researchers of the protocols could be compared by calculating the inter-rater reliability, thereby improving the quality of the instrument as well as the validity of the interpretations. Examples of the final codes can be found in table 2.

Table 2

Example of codes in the final coding scheme

Possible codes for analyzing the focus-group interviews

Part.org	Participation online organizational communication
Part.pas	Passive participation (read only)
Part.act	Active participation (read and post)
Neg.struct	Negative response to structure online discussion platform
Neg.priv	Negative reaction on role privacy in online discussion
Neg.24	Negative reaction on the 24/7 availability of the platform
Pos.aanb	Postive recommendation concerning the platform
Pos.od	Positive attitude concerning online discussion
Neg.deeln	Negative reaction on level of participation in discussion
Neg.face	Negative reaction towards face-to-face discussion

Due to time constraints originating in the shift of approach in gathering and analyzing data, it was not possible to proceed from coding on a theme-level to developing more abstract coding-schemes to identify a single core-category.

Most frequent reasons for not using Twitter. After analyzing the interviews, the reasons most frequently occurring for not participating in online discussion were formulated as statements and gathered in a survey. In the survey, the participants were asked to rate the statements in terms of agreement on a five-point Likert scale, so to explore whether the reasons and opinions expressed in the interview were acknowledged within the whole sample, this way improving validity. Examples of statements are:

- I consider online discussion as a useful tool
- I use online discussion as a source of information
- I use other forms of social media.

The five point Likert scale contained the following scores:

1. Not at all
2. Not really
3. More or less
4. Much
5. Very much

The reason for choosing a five-point Likert scale originated in the fact that considering the nature of the statements, it differentiates enough to express a nuanced opinion.

Procedure

First, a focus-group was formed in the Science philosophy course. Using the topic list, an interview was conducted, which was recorded on audio. The interview was transcribed and the coding-scheme was developed. After analyzing the interview, most frequent reasons for not participating in online discussion were formulated as statements in a survey. The rest of the population within the course 'Science Philosophy' was asked to take the survey.

The procedure considering the semi-structured interview in the second focus-group, consisting of students from the course 'Organizational Change Interventions', was similar to the one followed in the first focus-group.

Results

The first part of this section contains the results of the interview and survey that has been conducted within the focus-group of students from the course ‘Science Philosophy’. The second part shows the results of the interview which has been conducted with twelve students of the course ‘Organizational Change Interventions’. Table 3 shows the steps that were taken to analyze the protocols.

Table 3

Steps taken for analyzing the interviews

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1. A concept coding-scheme was developed based on the theoretical framework.
 2. The protocols were segmented into responses by different students.
 3. Then, the responses were segmented on occurring themes, which acted as the unit of analysis.
 4. While listening to the interviews, different themes within the answers of participating students were noted.
 5. The concept coding-scheme was adjusted and completed with the occurring themes.
 6. The protocol was coded by two independent researchers.
 7. Cohen's kappa was calculated to determine inter- rater reliability. Since this turned out to be sufficient, no further adjustments were made.
 8. The protocols were coded.
 9. A third researcher analyzed the results of the coding on frequently occurring themes and interpreted them.
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Table 4 shows the final coding scheme with examples of quotes. A Cohen’s Kappa of 0.88 was calculated, which means that the coding scheme, according to available interpretations, is reliable (Evers, Braak, Frima & van Vliet-Mulder, 2010).

Table 4

Final coding scheme for the focus-group interviews

Codes	Description	Example
Part.org	Participation online organizational communication	“Yes, with the thesis for instance, I found my group through discussion board.”
Part.inhou	Participation content-related discussion	“I posted once for an assignment because we had problems, but not really active.”
Part.pas	Passive participation (read only)	“I only read, I must say.”
Part.act	Active participation (read and post)	“Yes, I posted few times.”
Part.alt	Attending in discussion via other means than online media	“We can send e-mails, or ask questions during workgroups, or call other students. Therefore it doesn’t come up to use online discussion tools.”
Pos.struct	Positive response to structure online	“Yes, I must say that the informal

	discussion platform	way Twitter works, makes me want to post questions, even when my name is visible.'
Neg.struct	Negative response to structure online discussion platform	"I understand Facebook better than Twitter, I think Twitter is not handy en sometimes I really don't understand it."
Pos.tutor	Positive reaction on role tutor	"When you fill in the hash tag about the discussion, you can easily search for the answer to your question."
Neg.tutor	Negative reaction on role tutor	"He said firmly, 'this is what we will do' and then we responded badly and he said 'oh come on, this is a modern era' and then everyone felt frustrated."
Pos.ver	Postive reaction on change discussionplatform	"But I am waiting for it. Not that it would be discussion board, but if it would be replaced by something like Yammer."
Neg.ver	Negative reaction on change	"Yes, but then BlackBoard will

	discussionplatform	become useless, you can remove it then.”
Pos.priv	Positive reaction on role privacy in online discussion	“Yes, those are less known.”
Neg.priv	Negative reaction on role privacy in online discussion	“Maybe people don’t want to use Twitter because everyone can read it, and they might find your reaction weird.”
Pos.24	Postive reaction on the 24/7 availability of the platform	“But an e-mail would be fine, just your student e-mail.”
Neg.24	Negative reaction on the 24/7 availability of the platform	“I don’t have iPhone or something like that. You only have your e-mail, g-mail and also discussion board to follow. That is too much.”
Pos.aanb	Postive recommendation concerning the platform	“I think that they could make it more accessible, like putting it on the front-page, instead of clicking four times before reaching it.”
Neg.aanb	Negative recommendation concerning the platform	“Yes, you can’t get a message for everything because then you will get mad.”

Pos.od	Positive attitude concerning online discussion	“Yes, I think so.”
Neg.od	Negative attitude concerning online discussion	“I don’t use discussion board, so that is why I don’t use Twitter either. I don’t really need it.”
Pos.deeln	Positive reaction on level of participation in discussion	“When I look at what other people posted, I see that already four reactions have been placed on one question.”
Neg.deeln	Negative reaction on level of participation in discussion	“With online discussion on GreenStile, Fok, those kind of forums, mostly man respond.”
Neg.qad	Negative reaction on question-answer dynamic	“I find it annoying when students ask really simple questions which they can look up themselves.”
Pos.face	Positive attitude towards face-to-face discussion	“Yes, that stimulated you.”
Neg.face	Negative reaction towards face-to-face discussion	“The topic has to be interesting. In real life I also don’t like discussion within education.”

Act.sm	Usage of new media and hardware	“Yes I have an account, but that’s it.”
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After analyzing the interviews with MEPA, a software program designed to segment and analyze protocols, both interviews showed a number of themes that were frequently used in the reactions of students. Table 5 shows percentages of usage of the codes in the two interviews. These percentages were used to determine relevancy of occurring themes. Only the relevant occurring themes are described in the results.

Table 5

Percentage of the usage of the codes in the two interviews

Codes	Description	Percentage	Percentage
		Science Philosophy	Organizational Change Interventions
Part.org	Participation online organizational communication	1.48	1.16
Part.inhou	Participation content-related discussion	0.74	0.00
Part.pas	Passive participation (read only)	2.22	9.30
Part.act	Active participation (read and post)	0.00	2.33
Part.alt	Attending in discussion via other means than online media	17.04	4.65
Pos.struct	Positive response to structure online discussion platform	2.96	9.30

Neg.struct	Negative response to structure online discussion platform	8.89	12.79
Pos.tutor	Positive reaction on role tutor	0.74	3.49
Neg.tutor	Negative reaction on role tutor	8.15	6.98
Pos.ver	Postive reaction on change discussionplatform	0.74	5.81
Neg.ver	Negative reaction on change discussionplatform	6.67	3.49
Pos.priv	Positive reaction on role privacy in online discussion	1.48	3.49
Neg.priv	Negative reaction on role privacy in online discussion	8.15	8.14
Pos.24	Postive reaction on the 24/7 availability of the platform	1.48	0.58
Neg.24	Negative reaction on the 24/7 availability of the platform	0.74	1.16
Pos.aanb	Postive recommendation concerning the platform	3.70	9.30
Neg.aanb	Negative recommendation concerning the platform	1.48	2.33
Pos.od	Positive attitude concerning online discussion	0.00	1.74
Neg.od	Negative attitude concerning online discussion	17.04	2.91
Pos.deeln	Positive reaction on level of participation	0.00	0.58

	in discussion		
Neg.deeln	Negative reaction on level of participation in discussion	2.96	1.16
Neg.qad	Negative reaction on question-answer dynamic	1.48	2.33
Pos.face	Positive attitude towards face-to-face discussion	2.96	3.49
Neg.face	Negative reaction towards face-to-face discussion	1.48	1.74
Act.sm	Usage of new media and hardware	7.41	1.74

Interview and survey with students from the course ‘Science Philosophy’

As mentioned before, the nine respondents to the survey are different students than the five participants of the focus-group. Therefore, despite the fact that it is not a large sample, in this study is chosen to use the data to compare it with the focus-group, since taken together, it makes up for 46,67 % of the population of the course.

Using social media. Most students were active social media users, with Facebook as the main platform. Twitter however, was much less common. In the survey, only one student indicated to use Twitter.

Attitude towards online discussion. During the interview, all students expressed a negative attitude towards online discussion. The reactions contained different reasons to avoid online discussion. The main reason for not participating in online discussion is that students

do not see the value of online discussion. Quote: “I don’t use discussion board, so that is why I don’t use Twitter either. I don’t really need it” (Student Science Philosophy, subsequent interview, May 17th, 2011). Another reason for not participating in online discussion is the expected misinterpretation of messages that are posted on the forum.

The overall negative opinion to online discussion was confirmed in the survey ($M = 2.10$, $SD = 0.78$) with most of the students stating to find online discussion ‘not really’ important.

Effects on privacy of using Twitter. In this group, the main point about privacy in online discussion forms is the fact that everyone can see your posts. Quote: “Maybe people don’t want to use Twitter because everyone can read it, and they might find your reaction weird” (Student Science Philosophy, subsequent interview, May 17th, 2011).

Another reason for not using Twitter concerning privacy, is that it mixes school with your social life. But although students consider this factor of Twitter as negative, results of the survey show that other students ‘not really’ let this factor affect their participation in online discussion ($M = 2.33$, $SD = 1.22$).

Reactions on the structure of Twitter as an online discussion tool. The students from the course ‘Science Philosophy’ gave several negative reactions on the use of Twitter as an online discussion tool. First, they find it easier to use alternative resources to get answers to their questions. Quote: “When you call someone it’s much faster” (Student Science Philosophy, subsequent interview, May 17th, 2011). Another reason for not using Twitter is that students are unfamiliar with Twitter while already being familiar with other media. Quote: “I understand Facebook better than Twitter, I think Twitter is not handy en sometimes I really don’t understand it” (Student Science Philosophy, subsequent interview, May 17th,

2011). The expected probable drawback of the 140 characters property of Twitter (Bower, Herdberg & Kuswara, 2010) was also pointed out by several students, indicating they expected this to be limiting in a negative way for content-related posts.

Reactions to the role of the tutor. The way Twitter was introduced by the tutor resulted in negative reactions from the students. Quote: “He said firmly, ‘this is what we will do’ and then we responded badly and he said ‘oh come on, this is a modern era’ and then everyone felt frustrated” (Student Science Philosophy, subsequent interview, May 17th, 2011). Results of the survey indicated that for most students, it ‘more or less’ played a role in not participating ($M = 3.33$, $SD = 1.61$).

Alternative participation. The students pointed out alternative sources to collect information. These available resources made it unnecessary to use Twitter or any other online discussion tool. Examples of these resources are e-mail, text messages, face to face contact with classmates and discussion during workgroups. Quote: “I never use online discussion, because I know all the teachers, which makes it easy to send an e-mail” (Student Science Philosophy, subsequent interview, May 17th, 2011). Quote: “We can send e-mails, or ask questions during workgroups, or call other students. Therefore it doesn’t come up to use online discussion tools” (Student Science Philosophy, subsequent interview, May 17th, 2011).

Interview with students from the course ‘Organizational Change Interventions’

Reactions on the privacy of online discussion forms. In the interview, students pointed out that the current online discussion platform is not anonymous. Other students and teachers see your full name when you post a message. This makes it less attractive for students to participate in the online discussion. Quote: “When you participate actively, your

full name accompanies the question, and that sometimes keeps me from asking” (Student Organizational Change Interventions, subsequent interview, May 23rd, 2011). When using Twitter, students have even less privacy. Their posts can be read by everyone in the world. Quote: “The whole world has access to your way of thinking. Also, future employers can see what you post on Twitter” (Student Organizational Change Interventions, subsequent interview, May 23rd, 2011).

Reactions on the structure of the current online discussion form. Students gave different negative reactions on the structure of online discussion forums. First, students find waiting for an answer a disadvantage. When you ask a question face to face, you will get a direct answer. When you post a message on an online discussion form, you do not know when someone will react, or whether you will get a reaction at all.

Second, the current online discussion form, discussion board, is considered a slow and cumbersome discussion tool. Quote: “First you have to go to BlackBoard, and then you have to find your course, then go the right subject before reaching the discussion form” (Student Organizational Change Interventions, subsequent interview, May 23rd, 2011).

A third disadvantage given by the students is the fact that discussion board has a formal character, which makes the form less attractive for participation.

Faster applications like Twitter get positive reactions for their structure. The students say that you can find posts on only one page. You fill in the subject of your question or reaction, and then you find the answer. This makes the communication faster. Quote: “When you fill in the hash tag about the discussion, you can easily search for the answer to your question.”

Reactions to the role of the tutor. Students find the role of the tutor important in their participation or lack of participation in online discussion. Negative feedback on the role of teachers is that they do not always respond to every question. Quote: “Sometimes teachers don’t respond, which makes you wonder whether information is correct or not” (Student Organizational Change Interventions, subsequent interview, May 23rd, 2011). Students expressed appreciation for teachers who did actively operated on online discussion forums.

Students indicated they usually do not get triggered by teachers to participate in online discussion. And finally, participation in online discussion should be voluntary.

Passive participation. Some students do not ever use online discussion forms. Most students note that they only read other student’s posts. Only few students say that they posted one or few messages.

Recommendations about online discussion media. Students were asked whether they had recommendations for improving online discussion forms. An aspect that would make participation in online discussion forms more attractive is anonymity. In the current application, students’ full names are visible. Students like to see this changed.

Secondly, they note that making the discussion form more accessible and visible, would probably increase participation. Quote: “I think that they could make it more accessible, like putting it on the front-page, instead of clicking four times before reaching it” (Student Organizational Change Interventions, subsequent interview, May 23rd, 2011). Also, getting a message when someone responds to your post would be appreciated. Without this, students have to keep checking the online discussion forum whether someone has posted a reaction. Quote: “That when you post a message, you get mentioned when you get a reaction. Like with Facebook” (Student Organizational Change Interventions, subsequent

interview, May 23rd, 2011). Students like to receive these messages on their e-mail, not in text messages and only for reactions on their own posts, not for all reactions. Quote: “But only on your e-mail, just your student e-mail.” “And if you don’t want to get involved in the discussion, you won’t receive e-mails.” (Student Organizational Change Interventions, subsequent interview, May 23rd, 2011).

Conclusion/Discussion

Based on the results, it can be concluded that the participants of this study generally have negative attitudes towards the use of Twitter as an online discussion tool. The implementation of Twitter as an online discussion tool in a formal context, led to these negative reactions, and caused a participation rate of zero. Therefore, the quality of the tool developed could not be established, and the first research question: ‘Does using a micro-blog tool as online course discussion tool contribute to participation in online discussion when the tutor plays a facilitating role, and what qualitative and quantitative characteristics do these discussions have?’ could be answered with no on the first part, and the characteristics of the discussions could not be investigated.

Because of this low participation rate, the main focus moved to subsequent interviews, which had to provide an answer to the second question: ‘What are students’ views to, and to what end are they willing to engage in online discussion?’ Several conclusions were found, which are alternately highlighted and followed by possible recommendations.

Online discussion not valuable

From the subsequent interviews, it can be concluded that the following issues played an important role in the nonparticipation: online discussion is not involved in the daily routine

and students consider posting messages not to be anonymous enough. Although the structure of Twitter was seen as simple and convenient, students preferred alternative ways to communicate, for example using telephone, e-mail or direct response with others.

All reasons given above for not participating can be tied to the negative attitude of students towards online discussion, regardless the medium used. The students Science Philosophy often state that they see no value in online discussion as a learning experience: “In my case, I do not use the discussion board as well. So basically, I do not use this for the same reason. I do not feel the need” (Student Science Philosophy, subsequent interview, May 17th, 2011).

Despite the suggestion from the studied literature that a tutor could play a role in changing this attitude, this was not the case in the studied situation. The students felt obliged to discuss with the new tool, with no clear expectations. Also, they felt there was no clear consultation on why this new medium was assigned. Jung, et al. (2002), describe that when expectations about the discussion process are well formulated by the tutors, and expressed clearly to the students, an increase in participation can be expected. In addition, according to Dennen (2005), students even quit when this is not the case. The negative attitude towards discussing online offers little support when a new medium is introduced. As a result, the implementation of Twitter was unsuccessful. Previous research has shown that innovations gain more support when interest and enthusiasm prevails (Tearle, 2002).

To make implementation of a new medium successful, an enthusiastic and supportive group towards Twitter could have been a better option (Tearle, 2002). By first selecting a group of enthusiastic adherents, others could become inspired as well. Also, an expert on Twitter (Tearle, 2002) could have been used to trigger the group in online discussion using a new medium. This way, students could have been able to experience whether their attitude

towards online discussion would improve using a new medium and if Twitter lends itself as an online discussion platform.

Poor implementation

Another reason for the nonparticipation may be found in the unfamiliarity with Twitter. Since most students confirmed to have no Twitter account, it is likely that they are inexperienced with its use. In order to gain more experience with the new discussion tool, an implementation process and proper introduction should have taken place.

The time an implementation needs before people are accustomed to it, was not foreseen. As mentioned earlier, there was hardly any introduction in using Twitter, which caused people not getting familiar with the use of it. As Tearle (2002) describes, proper implementation takes time. Therefore expecting substantial data in three weeks time turned out to be not realistic.

For implementation to be successful, Lewin (1946), suggests three steps to be taken into account: loosening (unfreezing) from the existing situation, attending the change process, stabilize the new and desirable situation. It is important that the process is actively managed and above all, it should not be assumed that the process proceeds itself (Lewin, 1946). To successfully complete the process, a strategy should be set up, which is called 'action research' (Lewin, 1946). This strategy focuses on: a diagnosis, determining the desired future state, implementing, evaluating and at last institutionalizing.

The action strategy could have been a tool to improve the implementation of the medium Twitter. From this point of view can be concluded that the diagnosis of this implementation was not properly made. It was based only on scientific advantages - and disadvantages about using Twitter as an online discussion tool. The opinion of the students in this renewal was ignored. Furthermore, the determination of a future situation took place

without consultation with all stakeholders, whereupon the implementation phase only encountered resistance.

Selection of population

A final issue concerns the population in which the research was conducted. The students confirm they consider alternative ways of communication to be easier for three important reasons. They state they are a small group, and therefore the threshold to ask a student or teacher something via more personal means, such as e-mail, face to face or by telephone is low. Second, online discussion as perceived by the students does not guarantee a timely response on an important topic. Third, students feel obliged to use online discussion for questions and expressing opinions since it is (semi-)public and therefore their contributions can be read and linked to them by undesirable individuals.

Besides larger groups, there might be other characteristics identifiable in groups that would yield more discussion. The second interview, conducted with students in the course ‘Organizational Change Interventions’, revealed that these students have a more positive attitude towards face to face discussion and online discussion. Although these students participate passive in online discussion, they do give recommendations to improve online discussion. As shown in the results, these students would like to be triggered by teachers in online discussion. Also, messages should be more anonymous by posting them with student numbers rather than names. In addition, the second group was more receptive to an implementation of a new medium: “Yeah I think it would be stimulated more if you would choose another platform”. (Student Organizational Change Interventions, subsequent interview, May 23th, 2011). A preliminary exploratory interview can give insight in existing views towards online discussion and therefore, these interviews could provide a substantiated choice of the group participants.

Final conclusion

Summarizing all of the above, two main conclusions can be drawn: students experience no value in online discussion and implementation requires more time and structure. In a follow-up study, more attention should be paid to the opinion of students. Again, preliminary exploratory interviews could be useful in this case, to clarify opinions of students towards the implementation of a new medium. Also, since research in only two courses already resulted in different opinions, it is recommended to conduct research at several universities and in more courses in different disciplines. This way, a more complete picture of student views considering online discussion can be created. Once this is analyzed, an evaluation may be held to encounter the future needs of students that have to be satisfied (Lewin, 1946), before the implementation can take place. This is one of the phases related to a proper implementation, which also requires due attention in further research.

When these considerations are taken into account it is expected that more online discussion will occur. This way the characteristics of online discussion using micro-blogs can be measured, thereby fostering the knowledge of the added value of online discussion in a student's learning process, as well as of the requirements for this learning process to occur.

References

- Allan, M. (2004). *A peek into the life of online learning discussion forums: implications for web-based distance learning*. *The International Review of Research in Open and Distance Learning*, 5(2). Retrieved from:
<http://www.irrodl.org.proxy.library.uu.nl/index.php/irrodl/article/view/188/270>
- Ahern, T.C., & El-Hindi, A.E. (2000). *Improving the instructional congruency of a computer-mediated small-group discussion: a case study in design and delivery*. *Journal of Research on Computing in Education*, 32(3), 385–400.
- Arbaugh, J. B. (2000). *Virtual classroom characteristics and student satisfaction with internet-base MBA courses*. *Journal of Management Education*, 24(1), 32–54.
- Beaudin, B.P. (1999). *Keeping online asynchronous discussions on topic*. *Journal of Asynchronous Learning Networks*, 3(2), 41–53.
- Boeije, H. (2005). *Analyseren in kwalitatief onderzoek*. Den Haag: Boomonderwijs.
- Bower, M., Herdberg, J. G., & Kuswara, A. (2010). *A framework for Web 2.0 learning design*. *Educational Media International*, 47(3), 177-198. doi:
10.1080/09523987.2010.518811
- Capri, A., Gorsky, P. & Chajut, E. (2003). *The influence of group size on nonmandatory asynchronous instructional discussion groups*. *Internet and Higher Education* 6, 227 – 240.
- Cheng, K.C., Paré, D.E., Collimore, L. & Joordens, S. (2011). *Assessing the effectiveness of a voluntary online discussion forum on improving students' course performance*. *Computers & Education*, 56, 253-261.
- Cifuentes, L., Murphy, K.L., Segur, R., & Kodali, S. (1997) *Design considerations for computer conferences*. *Journal of Research on Computing in Education*, 30(2), 177–201.

- Dennen, V.P. (2005). *From message posting to learning dialogues: Factors affecting learner participation in asynchronous discussion*. *Distance Education*, 26(1), 127–148.
- Dunlap, J.C., & Lowenthal, P.R. (2009). *Tweeting the night away: using Twitter to enhance social presence*. *Journal of Information Systems Education*, 20(2), 129-135.
- Ebner, M., Lienhardt, C., Rohs, M., Meyer, I. (2010). *Microblogs in Higher Education A chance to facilitate informal and process-oriented learning?* *Computers and Education*, 55(1), 92-100.
- Evers, A., Braak, M. S. L., Frima, R. M., & Vliet-Mulder, J.C. van (2009-2011). COTAN Documentatie. [Amsterdam](#): Boom test uitgevers.
- Guan, Y., Tsai, C., & Hwang, F. (2005). *Content analysis of online discussion on a senior-high-school discussion forum of a virtual physics laboratory*. *Instructional Science*, 34, 279-311.
- Hara, N., Bonk, C.J. & Angeli, C. (2000). *Content analysis of online discussion in an applied educational psychology course*. *Instructional Science*, 28, 115 – 152.
- Henri, F. (1992). *Computer conferencing and content analysis*. In A.R. Kaye, ed., *Collaborative learning through computer conferencing: the Najaden papers*, pp. 115 – 136.
- Hew, K.F. & Cheung, W.S. (2008). *Attracting student participation in asynchronous online discussions: A case study of peer facilitation*. *Computers and Education*, 51(3), 1111-1124.
- Hewitt, J. (2005.) *Toward an understanding of how threads die in asynchronous computer conferences*. *Journal of the Learning Sciences*, 14(4), 567–589.
- Junco, R., Heiberger, G., & Loken, E. (2010). *The effect of Twitter on college student engagement and grades*. *Journal of Computer Assisted Learning*. Advance online publication. doi:10.1111/j.1365-2729.2010.00387.x

- Jung, I., Choi, S., Lim, C. & Leem, J. (2002). *Effects of different types of interaction on learning achievement, satisfaction and participation in web-based instruction. Innovations in education and teaching international*, 39(2), 153-162.
- Lewin, K. (1946). *Action research and minority problems*. *Journal of Social Issues*, 2, 34-46.
- Mazzolini, M & Maddison, S. (2003). *Sage, guide or ghost? The effect of instructor intervention on student participation in online discussion forums. Computers and Education*, 40, 237–253.
- Oren, A., Mioduser, D., & Nachmias, R. (2002). *The development of social climate in virtual learning discussion groups. The International Review of Research in Open and Distance Learning*, 3(1). Retrieved from:
<http://www.irrodl.org.proxy.library.uu.nl/index.php/irrodl/article/view/80/154>
- Patel, J., & Aghayere, A. (2006). *Students' perspective on the impact of a web-based discussion forum on student learning*. In: Paper presented at the 36th Annual Frontiers in Education, San Diego, California.
- Poole, D.M. (2000) *Student participation in a discussion-oriented online course: A case study, Journal of Research on Computing in Education*, 33(2), 162–177.
- Tagg, A. C., & Dickinson, J. A. (1995). *Tutor messaging and its effectiveness in encouraging student participation on computer conferences. Journal of Distance Education*, 10(2). Retrieved from: <http://cade.athabascau.ca/vol10.2/taggdickinson.html>.
- Taradi, S.K. & Taradi, M. (2004). *Expanding the traditional physiology class with asynchronous online discussions and collaborative projects. Advances in Physiology Education*, 28(2), 73–78.
- Tearle, P. (2003). *ICT implementation: what makes the difference?* *British Journal of Educational Technology*, 34(5), 567-583.
- Thomas, M.J.W. (2002). *Learning within incoherent structures: the space of online discussion*

forums. Journal of Computer Assisted Learning, 18, 351-366.

Tu, C., Blocher, M., & Ntoruru, J. (2008). *Integrate Web 2.0 technology to facilitate online professional community: EMI special editing experiences. Educational Media International, 45(4), 335-341.*

Tu, C., Blocher, M., & Roberts, G. (2008). *Constructs for Web 2.0 learning: a theatrical metaphor. Educational Media International, 45(4), 253-269.*

Vygotsky, L.S. (1978). *Mind in society: the development of higher psychological processes.* Harvard University, Cambridge, MA.

Wan, D., & Johnson, P.M. (1994). *Computer supported collaborative learning using CLARE: The approach and experimental findings.* Proceedings of CSCW '94, 187–198.