Exploring the influence of the teacher: Social participation on Twitter and academic perception

Explorando la influencia del docente: Participación social en Twitter y percepción académica

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Abstract

Analyzing the influence of social media on the learning process is no longer a novel idea; however, due to its importance for students and consequently for teachers, research continues to explore the pedagogical potential of social media. The main objective of the present study was to analyze the influence of teacher roles (guide or facilitator) on students' social participation in Twitter and their perceived academic experience. The sample consisted of 525 future teachers, all of the Master's degree students at Spain's National Distance Education University (UNED). We used a mixed triangulation design, a theoretical model, quantitative methods (descriptive analysis and contrast of means) and qualitative methods (content analysis following the principles of grounded theory). Our results showed that the teacher's role as a facilitator exerted a more positive influence on how students assessed their experience and on their participation on Twitter than the role as a guide. We conclude that the use of social media sites in education offers a motivating and satisfying framework that is not provided by other more traditional means such as forums, and that a role that facilitates independent learning is a better strategy when using social media in the classroom.

Resumen

El análisis de la influencia de las redes sociales en el proceso de aprendizaje ya no es una novedad. Sin embargo, debido a su importancia para el alumnado y en consecuencia para el profesorado, la literatura científica sigue prestando atención al potencial pedagógico de las redes sociales. El objetivo principal de esta investigación fue analizar la influencia del rol del profesorado (guía y facilitador) sobre la participación social en Twitter y la experiencia académica percibida de los estudiantes. La muestra estuvo formada por 525 futuros profesores, estudiantes de posgrado en la Universidad Nacional de Educación a Distancia. Se utilizó un diseño mixto de triangulación, un modelo teórico, una parte cuantitativa (análisis descriptivo y contraste sobre medias) y otra cualitativa (análisis de contenido, siguiendo los principios de la teoría fundamentada). Los resultados mostraron que el rol facilitador del profesor influye positivamente en la valoración de la experiencia por parte de los estudiantes y en la participación en Twitter, en mayor medida que el rol guía. Por un lado, se concluye que el uso de las redes sociales, en el ámbito educativo, proporciona un marco motivacional y de satisfacción que no lo aportan otros medios más tradicionales, como los foros, y, por otro, que un rol que facilita un proceso de aprendizaje independiente es mejor estrategia cuando hablamos de redes sociales en el aula.

1. Introduction and status of the issue

Most experts accept the need to develop new educational models where learning is adapted to characteristics of the networked society (complexity, connectivity, and speed) (Jenkins, 2012). Thinking is developed within the context of social participation: experiences of interacting with others establish our way of being present in the world, something that is critical to learning (Gee, 2004). These new ways of learning must be frustrating and interesting at the same time, and avoid thinking processes that only rely on what is easy and simple (Gee, 2004).

Research studies about online learning have underscored the importance of interaction (between students, with the teacher, and with the content) and its positive influence on academic performance (Kurucay & Inan, 2017). Student-student and student-teacher interaction reinforce a sense of belonging (Luo, Zhang, & Qi, 2017) and, consequently, a sense of cohesion. Discussion and reflection among students facilitate learning and improve their perceived academic experience (Lee & Bonk, 2016). Students seem to give more importance to relations with other students than with the teacher (Smith, 2016), and student-student interaction is a verified predictor of student satisfaction (Ali & Ahmad, 2011).

Historically, many authors (Ausubel, 1981) have acknowledged the important role of the teacher, who is responsible for providing opportunities for debate and knowledge creation in an interactive setting. When teachers provide online students with different moments for learning and differing degrees of interaction, they are ensuring a positive outcome (Battalio, 2007). Ouyang and Scharber (2017) underscored the importance of modifying the teacher's role over the school year to facilitate student cohesion and learning. These authors found that during the first part of the school year, there was a greater need for participation and interaction from teachers (a leadership role), evolving into a more passive position with time (facilitator and observer role). In fact, the mere presence or absence of the teacher influences student satisfaction (Battalio, 2007; Ladyshewsky, 2013), as well as their participation and the communication process itself (Jaggars & Xu, 2016). In short, depending on the teacher's behavior, there are significant differences in the students' behavior (An, Shin, & Lim, 2015; Marcos-García, Martínez-Monés, & Dimitriadis, 2015).

Technology (such as social media) naturally facilitates these connected learning experiences. According to Jenkins (2012), not only does the student need information and resources but more importantly, rich environments involving different types of learning. Application of social media in education has produced contradictory outcomes.

On the one hand, social media is recognized as having pedagogical potential (Scott, Sorokti, & Merrell, 2016) and capacity for knowledge exchange within the educational context (Wong, Sing-Chai, & Poh-Aw, 2017), and as instrumental in facilitating communication, exchange of resources, and collaboration (Tuzel & Hobbs, 2017). Social media, as an alternative to more traditional learning models, can promote engagement, interaction between students (Alhazmi & Rahman, 2013), and motivation (Gutiérrez-Porlán, Román-García, & Sánchez-Vera, 2018). Eid and Al-Jabri (2016) found a positive relationship between the level of students' motivation and the exchange of information and discussion on Twitter. Moreover, the use of social media has been related to students having a positive academic perception (Alhazmi & Rahman, 2013; Lee & Bonk, 2016), to their perception of interaction and communication processes (Smith, 2016), to satisfaction and usefulness (AL-Rahmi & Othman, 2013) and to group cohesion and belonging to a group with shared interests (Carpenter & Krutka, 2014). Twitter may facilitate the creation of a community with shared interests, extending interpersonal relations both inside and outside the educational sphere (Carpenter & Krutka, 2014).

The social interaction processes and patterns of information exchange that can take place on Twitter positively influence the sense of community among students (Blight, Ruppel, & Schoenbauer, 2017). On the other hand, authors recognize that while social networks like Facebook offer great opportunities for communicating and socializing, they may become a source of distraction (Gupta & Irwin, 2016) and therefore have a negative effect on academic performance (Bellur, Nowaka, & Hullb, 2015). They affirm that the more time is invested in Facebook, the lower the level of achievement (Paul, Baker, & Cochran, 2012), due to less time being spent on studying (Kirschner & Karpinski, 2010). With regard to Twitter, Tang and Hew (2017: 1) state that: "Although Twitter shows promise in improving interactions among learners and teachers, causality between Twitter use and learning performance remains to be conclusively established". Furthermore, several research studies have indicated that microblogging represents few actual conversations, it reinforces one-directional discourse (Arrabal, & de Aguilera, 2016): individualistic action more than group action or interaction, monologues more than dialogues (Santoveña-Casal, 2017). Finally, it is worth mentioning that the use of Twitter in academic activities prompts complaints from students about increased workload (Chen & Chen, 2012), difficulty expressing oneself due to the character limitation (Prestridge, 2014) and difficulty in handling the large quantities of information (Lin, Hoffman, & Borengasser, 2013).

Briefly, then, the objective of the present study was to analyze how the teacher role (guide or facilitator) –as played out over four academic discussions on Twitter– affected social participation online and the perceived academic experience. The following hypotheses are being tested:

- H1. The type of role enacted by the teacher (guide or facilitator) influences the student's academic participation using Twitter.
- H2. The type of role enacted by the teacher (guide or facilitator) influences the student's perceived academic experience.
- H3. Social participation on a network (Twitter) positively influences how students assess the academic experience, the learning process, the interaction process (student-student and student-teacher) and their feeling of belonging, of influence and of group cohesion.

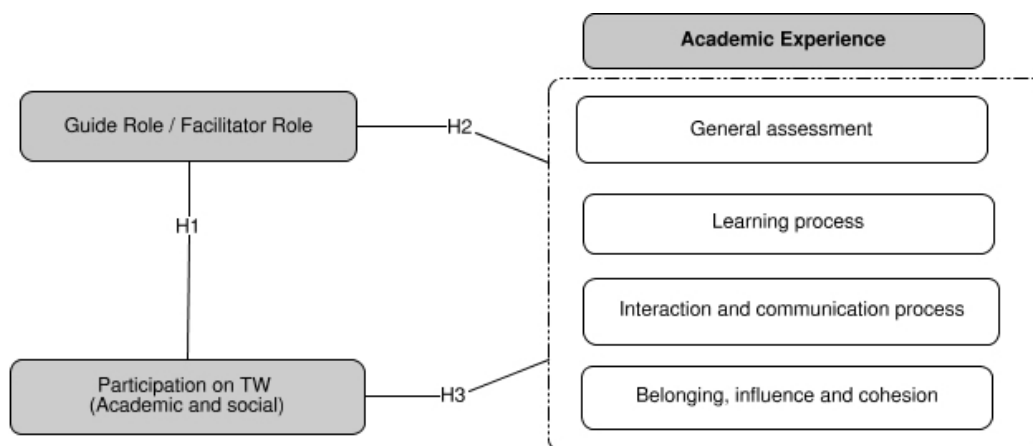The research model, including its three hypotheses, is presented in Figure 1.

Figure 1. Proposed model.

2. Material and method

2.1. Context

This study took place within an official Master's degree program for future teachers at Spain's National Distance Education University (UNED). Students were to interact and exchange opinions in two mandatory discussions over the Twitter social network. Two additional, optional discussions were also offered.

The teacher's role in the discussions was modified over the course of the semester. We adopted the classification from Marcos-García, Martínez-Monés, and Dimitriadis (2015) and from Ouyang and Scharber (2017), who categorize teacher roles as guide, facilitator or observer. In this class, the roles of Guide and Facilitator were used exclusively, making a change midway through the discussions (Figure 2).

a) The Guide role implies that the teacher is at the center of learning and is the leader who heads up the process. She/he guides the students, offers instructions, provides the material necessary for learning. Enacting the role of guide, the teacher interacted with students through the Twitter conversations, and sent links, educational resources, and news, for the purpose of enriching the discussion.

b) The Facilitator role implies that the teacher monitors student activity, and acts as a mediator if there are conflicts. On Twitter, the teacher adopted a secondary role, limiting the number of messages sent. She/he did not intervene in the conversations or send supplementary resources.
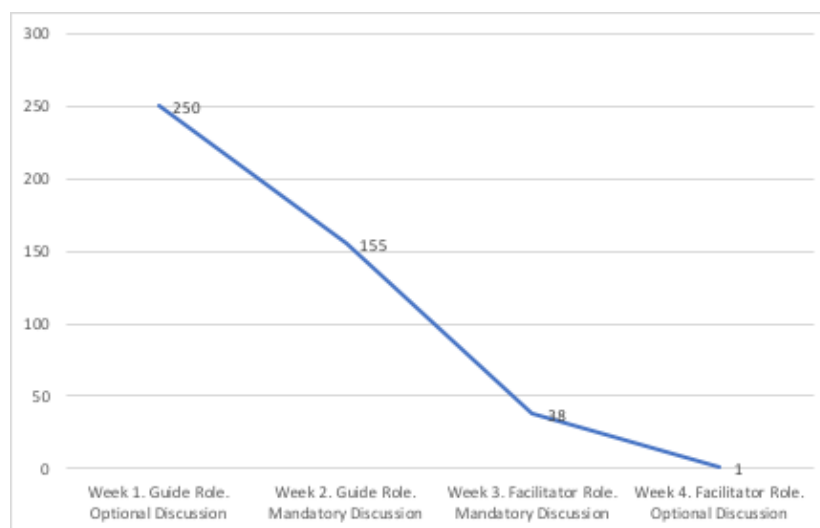

Figure 2. Teacher participation on Twitter: Tweets sent over the four-week period.

2.2. Population and sample

The population was made up of all students pursuing a Master's degree (720). To study the perceived academic experience, the sample included students who answered the questionnaire (the same questionnaire applied at two different moments), for a total of 525 students: 249 answered the questionnaire upon completion of Discussion 1 and Discussion 2 where the role of guide was adopted, and 276 students answered upon completion of Discussion 3 and Discussion 4 where the facilitator role was adopted. Women represented 66.3% (N= 348) of the sample. The participants ranged from 21 to 53 years in age, with a mean of 32.5 years. Table 1 shows the sampling error that was found based on simple random sampling in the most disadvantaged case (p=q= 0.5).

Table 1. Sampling error				
June session	Frequencies		Percentage	Measurement
	Population	Sample	Sample	error
Questionnaire: Guide Role phase	720	249	43.9	5.1%
Questionnaire: Facilitator Role phase		276	56	4.7%
Total		525	100	2.2%

For the study of Twitter participation, the sample was made up of the messages sent and registered in a Google TAGS spreadsheet v6 (Hawksey, 2013) connected to Twitter API: 26188 tweets. Tweets

were selected using the hashtags that identify each discussion. Twitter API, despite some limitations, makes it possible to recover tweets depending on the number of tweets sent during the past month, eliminating the oldest messages in order to facilitate the creation of new ones. Despite their temporary nature, these data are nonetheless an interesting research objective (Bruns & Stieglitz, 2012; Gerlitz & Rieder, 2013); the API must be trusted, given that it is the only means of obtaining large-scale data (Bruns & Stieglitz, 2012). The researchers have no other way to confirm data quality and accuracy; this is an unavoidable limitation that does not invalidate the results. As indicated by Gerlitz and Rieder (2013), Twitter sampling is based on nonprobabilistic sampling that is not representative, given that sample selection is always limited by the application used.

2.3. Design and data collection instruments

The study is based on a mixed triangulation design, a theoretical model, quantitative methods (descriptive analysis and contrast of means) and qualitative methods (content analysis following the principles of grounded theory). We used SPSS v24 for statistical analysis and Atlas Ti HM for content analysis.

The quantitative study was based on descriptive analysis and contrast of means (test for independent samples) in order to learn how the variable of teacher's role (Guide or Facilitator) influenced the dependent variables (Perceived academic experience and Participation on Twitter). Given the lack of normal sample distribution of variables, and in order to confirm Student's t data, we used the Mann-Whitney U. In addition, we determined effect sizes for the tests (Cohen's D and correlation coefficient r).

In order to analyze the perceived academic experience, a Likert-type, ad hoc survey was used to collect students' opinion. Supplementary open-ended questions were also included to add qualitative information to the closed response questions. Content validity was based on the scientific literature, in variables considered fundamental by authors like Kurucay and Inan (2017) (demographic data, satisfaction, interaction, perception of collaboration, perception of learning) and Luo, Zhang and Qi (2017) (student-student interaction, student-teacher interaction, interaction with the content, belonging and influence). In addition, we requested the collaboration of a group of experts (4 teachers) who indicated changes that should be made to a preliminary version of the questionnaire. This version was applied to a sample of 40 students, which helped to confirm that the instructions and questions were well understood. A Cronbach alpha of .960 was obtained for reliability, far above the recommended minimum (.70). Later, exploratory factor analysis was applied (using Varimax rotation and main components), and each individual item was grouped within the corresponding construct, for a total explained variance of 66.7%. The following dimensions were found:

- Dimension 1. Learning process and acquisition of knowledge: .943. This assesses the academic experience on Twitter, in this class subject, as a space for knowledge acquisition that is constructivist, reflective and critical, connectivist, individualistic, social and participative, active. It also assesses the teaching methodology in general.
- Dimension 2. Belonging and influence in class, and group cohesion: .921.
- Dimension 3. General aspects: .879. This analyzes quality, satisfaction and usefulness of the experience and the value added from the communication and interaction process, in general, and on Twitter in particular.
- Dimension 4. Student-student interaction: .855. This examines the frequency of Twitter use; the degree at which information is shared, regarding the class subject and regarding problems with other students; Twitter's contribution to improved interpersonal relations between the students, interpersonal skills and online communication skills and the degree that these have made it possible to form a community or shared-interest group.
- Dimension 5. Student-teacher interaction: .896. This examines to what extent students request information from the teacher with regard to class content, the class itself and the activity on Twitter.

- Dimension 6. Use of forums: .518. This analyzes the frequency of forum usage and their added value.

The qualitative study is based on content analysis of the responses to open-ended questions on the questionnaire. The content analysis follows indications from García-Llamas, González and Ballesteros (2001): 1) Defining the content universe and sample selection; 2) Deciding on the unit of analysis and establishing the categories. The main categories are established by the dimensions identified in the scientific literature (Kurucay & Inan, 2017; Luo, Zhang, & Qi, 2017). These categories are organized in the superfamily (Perceived academic experience) and in two families that fall under it: the We-focused perspective, to which the Collaboration and participation code is assigned; and the I-focused perspective, to which the Criticism and Difficulties code is assigned. The results of the code categorization are presented in a concept map, indicating their materialization (frequency of appearance) and density (number of codes that relate to each). In addition, we include the literal text of the student comments that were used, indicating the number of the main document of analysis and the line from which the comment is taken.

3. Results

3.1. Social participation on Twitter

High participation on Twitter was recorded, with 26,188 tweets, 5,639 retweets, and 6089 links within the messages. Students participated especially during the second and third week when the discussions were mandatory. Moreover, they participated more on Twitter when the teacher adopted the Facilitator role when they sent 56.3% of the total messages. A significantly greater number of student messages on Twitter was observed when the teacher enacted a facilitator role [$F_{(2,8)}$ t=-3.06, Sig. (bilateral)=.002]. The data are confirmed by Mann-Whitney U, but the effect size is null (r=0.07 and d=0.14).

3.2. Perceived academic experience

Student assessment of this learning experience was very positive. Over 64% of the students rated all the dimensions high or very high, and this rating was significantly more positive when the teacher adopted the facilitator role: Quality [$F_{(9,6)}$ t=2.7, Sig. (bilateral)=.006], Usefulness [$F_{(6,7)}$ t=2.1, Sig. (bilateral)=.034], Satisfaction [$F_{(10,8)}$ t=2.9, Sig. (bilateral)=.004], and Value added to the Twitter communication process [$F_{(4,02)}$ t=4.0, Sig. (bilateral)=.000]. The Mann-Whitney U confirms these significant differences (Table 2). The effect size is small for Quality of the learning experience (r=0.12; d=0.24), Satisfaction (r=0.12; d=0.25) and Value added to the Twitter communication process (r=0.16; d=0.34); and null for Usefulness (r=0.09; d=0.09).

Table 2. Mann-Whitney U test. Test statistics					
	Quality	Usefulness	Satisfaction	Value Added to Communication	Value Added to TW
Mann-Whitney U	30124.5	31196.5	30087.0	33816.5	28321.5
Wilcoxon W	68350.5	69422.5	68313.0	72042.5	66547.5
Z	-2.7	-1.9	-2.6	-.35	-3.68
Sig. Asymptotic (bilateral)	.006	.047	.007	.724	.000

a. Grouping variable: Questionnaire0_1

Figure 5 shows the results of Dimension 1, "Learning process and acquisition of knowledge". The teaching methodology was highly rated by 70% of the students. They considered that participation on Twitter helped them acquire knowledge about the subject matter (59.6%), theoretical knowledge (42.7%), practical knowledge (53%), collaborative and participative knowledge (70%) and that they

had experienced different types of learning in this class: critical (76%) and reflective (76%), constructivist (73.7%), connectivist (73.5%), social (81.9%) and participative (70%), active (61.6%). When the teacher adopted the facilitator role, students ratings of their learning through Twitter and in the class as a whole were significantly higher in the following variables:

a) Twitter facilitates acquisition of knowledge [F(17,22) t=4.7, Sig. (bilateral)=.000], related to the material [F(15,4) t=4.6, Sig. (bilateral)=.000], theoretical [F(,48) t=4.02, Sig. (bilateral)=.000] and practical [F(1,7) t=4.02, Sig. (bilateral)=.039].

b) This class facilitates critical and reflective learning [F(8,2) t=2.9, Sig. (bilateral)=.003], constructivist learning [F(5,5) t=2.6, Sig. (bilateral)=.007], social learning [F(2,04) t= 2.9, Sig. (bilateral)= .003] and individualistic learning [F(0,090) t=2.6, Sig. (bilateral)=.009].

c) Assessment of this teaching method [F(8.8) t=2.6, Sig. (bilateral)=.009].

The Mann-Whitney U confirms these significant differences. For all variables, the effect size is small (r between 0.1 and 0.25 and d between 0.41 and 0.21), or null for Twitter facilitates practical knowledge acquisition (r=0.08; d=0.17).

Regarding Dimension 2, "Belonging, influence in class and group cohesion", we observed that students see themselves as part of the class group, and they feel they have good ties to other students, in a high or very high degree. Regarding Group cohesion, students manifested the intent, to a high or very high degree, to prolong their participation in the online degree program and/or the social network, to access the online course and/or social media in the future. On the other hand, they consider that their influence on the class and/or the online degree is low. No significant differences were found in any of the aspects analyzed in this dimension as a function of the teacher's role. Data are confirmed by the Mann-Whitney U. Two dimensions were found in relation to the interaction processes: student-student interaction (Dimension 4) and student-teacher interaction (Dimension 5).

51.6% of the students confirmed that they use Twitter almost always; 42.5% confirmed that they interact with their classmates by sharing class information; 45.7% claimed to share knowledge frequently with their classmates.

Most students considered that participation on Twitter helped them improve, in a high or very high degree, their interpersonal relations with classmates (69.3%), their interpersonal and online communication skills (63%) and they affirmed that they were able to form a community or shared interests group (71.5%). Significant differences as a function of the teacher's role were only found for perceived improvement in interpersonal relations between the students [F(10,3) t=3.2, Sig. (bilateral)=.001], with greater improvement reported when the teacher adopted a facilitator role. Data are confirmed by the Mann-Whitney U. The effect size was small (r= 0.14; d=0.28).

Elsewhere, regarding the process of interacting with the teacher, students perceived that they had little interaction with the teacher, and this tendency is heightened when the teacher adopted the facilitator role: 54.5% affirmed that they had never requested information about the class itself or its content. Significant differences were found in: Interacting with the teacher to request information about content, about the class itself, and about the activity. Differences were confirmed with Mann-Whitney U. The effect size is small (r between 0.10 and 0.12 and d between 0.22 and 0.25).

In Dimension 6, "Use of forums" most of the students claimed to use them infrequently (52.4%). Moreover, the value that forums add to the class was considered high or very high by only 33% of the students, and low, very low or null by 34% of the students. When the teacher adopted a facilitator role, students claimed to use them more often. The effect size was small. Data are confirmed by the Mann-Whitney U.

Content analysis of students' descriptions of the perceived academic experience revealed three main aspects (Figure 3). First, two different perspectives on the academic experience stand out: students who gave a positive rating to participation on Twitter made a we-centered assessment, in the processes of collaborating and participating with their fellow Master's degree students. By contrast, those who criticized and perceived more difficulty in the academic experience made a self-focused analysis. Second, an interrelationship was observed between the main dimensions: general aspects (satisfaction), student-student and student-teacher interaction process, learning and knowledge

acquisition process, and belonging and influence in the class and group cohesion. Third, there were no differences in student comments about the teacher's role, nor was there a better rating of the teacher in the phase of Guide role as compared to the phase of the Facilitator role.
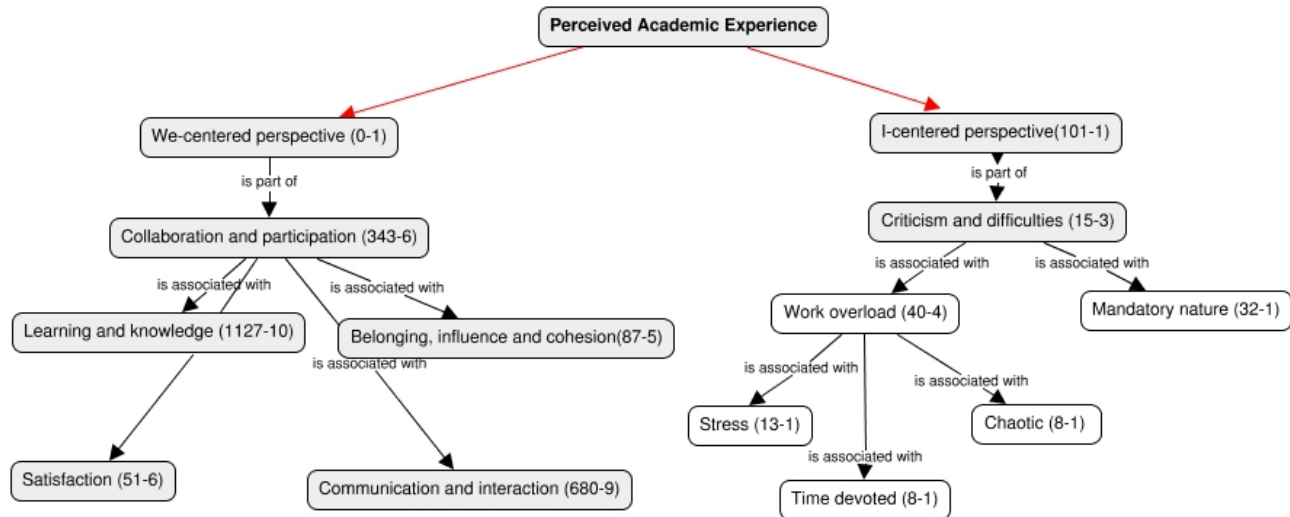

Figure 3. General concept map "Perceived academic experience".

Students gave a very high rating not only to the activity performed on Twitter but also to the class in general. They primarily emphasized its innovative and motivating nature, considering it of great interest, entertaining, rewarding, attractive, fun ["This methodology seems much more attractive to me than the traditional forum-based methodology" (6:668)]. They commented on the importance of getting started in Twitter and overcoming one's hesitation and initial reluctance to use it ["Despite being reluctant to use Twitter, and even more so for a class, it turned out to be very enriching for me" (14:1171)]. Student-student interaction stood out as the determining factor for satisfaction ["the satisfying effects that it had on interaction and communication with my classmates" (1:120)]. They considered it to be the first time they were able to have direct, spontaneous, close and democratic contact with other Master's degree students ["I very much liked the chance to interact directly with my classmates, and to have a much closer relationship" (1:747)] and to learn different points of view ["a large number of participants gave rise to a broad range of opinions and viewpoints" (1:465)]. Student-student interaction led to a feeling of belonging and cohesion within the group, the feeling of being part of a community was a much-emphasized aspect ["The feeling of belonging is what most prompted me to do this activity on a regular basis" (7:598)]. Furthermore, through the communication and discussion process, students acquired theoretical and practical knowledge; they exchanged ideas, information, and knowledge in a fun, motivating way ["it was a different way to learn, very dynamic and motivating" (1:548)] (Figure 4).
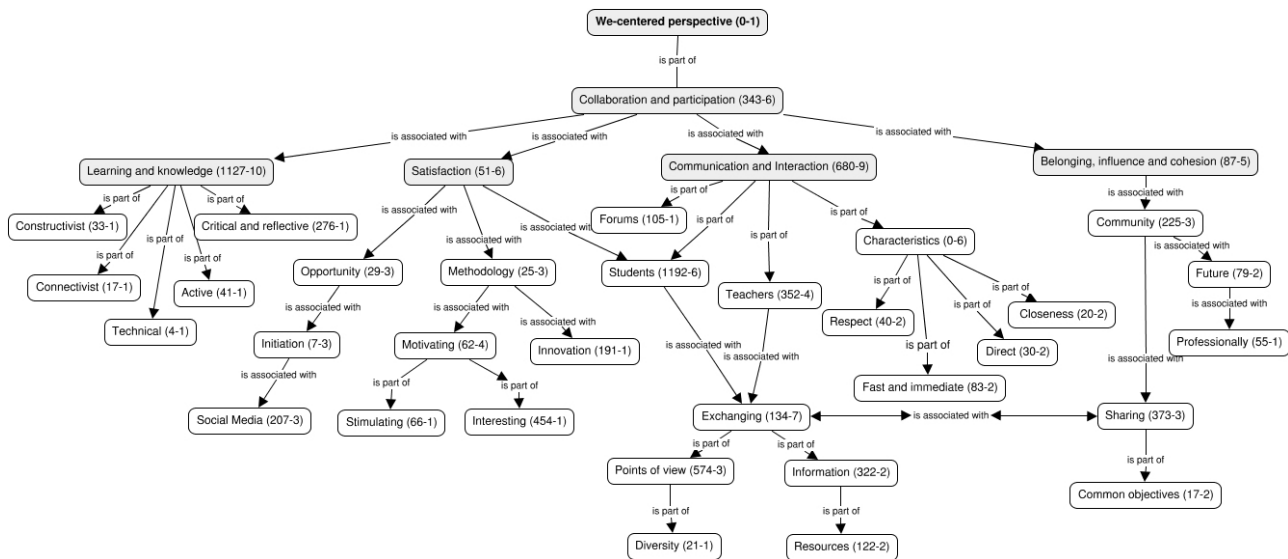
Figure 4. Concept map "We-centered perspective".

There were a few criticisms of the activity, but they are interesting to analyze. They focused on the workload involved in participation, the excessive time required for participating on Twitter ["... the experience ... seems like a heavy workload to me (in terms of hours spent)" (6:642)]. They criticized the mandatory nature of the task, and students were worried about invasion of privacy from using the networks in the academic sphere [("it seems that no matter how many security filters you use, any hacker can steal your identity, or your private like may simply become public" (5:760)]. They also criticized the chaos involved with so many people participating, the large volume of tweets, and the absolute lack of control over the communication ["The Twitter activity is chaotic, too many open discussions" (2:552)] and the anxiety involved in this process ["I enjoyed it... but there were times when ... I felt stressed by the large number of interactions" (2:547)]. It is interesting to note that the students who negatively assessed the activity made I-centered comments, ["I have always seen this as something that I cannot really control, and therefore I do not want to make it part of my life" (5:579); "I don't feel comfortable expressing myself on media..." (6:622)]. In fact, these students acknowledge null or little belonging and group cohesion ["I did not come here to make friends, I do not believe in the value of relationships per se" (8:499)] (Figure 6).

4. Discussion and conclusions

The main objective of this study was to analyze how the teacher role (guide or facilitator) --played out over four academic discussions on Twitter-- influenced social participation online and the perceived academic experience. Results indicate that the teacher role did not influence students' social participation, and it had little influence on the perceived academic experience, though it is highly interesting for the educational context.
Several authors (Durlak, 2009; Frías, Pascual, & García-Pérez, 2000) consider that a small effect size can have great practical importance in a specific context, and above all, as stated by Glass, McGaw, and Smith (1981), the practical importance of an effect depends entirely on its relative costs and benefits. We consider that the data offered by this research study has high practical value for education. Given that adopting a facilitator role on Twitter, a more passive role, seems to improve students' perception of the teaching methodology, their degree of satisfaction, how they rate the communication and interaction process over Twitter, as well as the contribution of microblogging to the acquisition of learning and knowledge and improved interpersonal relations. According to Battalio (2007), when teachers provide students with different educational moments with varying degrees of

interaction, they ensure a positive outcome in online learning. Moreover, this type of methodology does not involve a high cost, and its benefits can be very large.

We observed that the teacher's role did not influence the feeling of belonging, influence or cohesion. In fact, students stated that they practically never approached the teacher to ask questions. This tendency was more marked when the teacher adopted a facilitator role, and by contrast, there was a more perceived improvement in interpersonal relations on Twitter between the students. As seen in research by Smith (2016), students give greater importance to student-student interactions than to student-teacher interaction in learning over social media. It is probable that adopting a more passive role, leaving room for interaction between students, is an adequate methodology for learning on social media. In fact, students underscored the importance of interaction between students and how this relationship influenced their feeling of belonging to the group. These data are confirmed by content analysis where student-student interactions were described as motivating and highly satisfying. Results concur with research by Ali and Ahmad (2011), who established interaction between students as a predictor of satisfaction.

In the same line as previous research studies, we conclude that networked social participation (Twitter) positively influences how students rate the academic experience (Alhazmi & Rahman, 2013; Lee & Bonk, 2016), the learning process, and their feeling of belonging and group cohesion (Blight, Ruppel, & Schoenbauer, 2017; Carpenter & Krutka, 2014). The students gave very positive ratings for the innovative nature of the methodology; they indicated the value of Twitter as a motivational space, positively relating discussion, information exchange and resource exchange to motivation, as indicated by Eid and Al-Jabri (2016).

Students assigned a high value to Twitter as a means for communicating and interacting, thereby contradicting other research studies that emphasize the scarcity of conversations registered on the network (Arrabal, & de Aguilera, 2016) and a tendency to carry on monologues more than dialogues (Santoveña-Casal, 2017). The social network may be considered an environment that facilitates the adoption of new educational models based on connected learning and social participation, aspects underscored by Jenkins (2012) and Gee (2004) as fundamental to the networked society. Furthermore, students have explicitly commented on the importance of getting started on Twitter and overcoming hesitation and initial fears. Twitter produced feelings of frustration along with a high level of interest in the task aspects that Gee (2004) points to as fundamental to new forms of learning.

At the same time, this network is not without drawbacks when used in the educational context. In the same line as other research studies, some students criticized the extra workload that was involved (Chen & Chen, 2012) and the sensation of chaos and stress when struggling to manage the shared information (Lin, Hoffman, & Borengasser, 2013). Students who made a negative assessment usually expressed their criticism and difficulties from a focus on self, on their problems controlling the communication process, their anxiety problems, or an absolute lack of interest in others. This is an especially interesting aspect to be analyzed in future research: how do personality variables influence academic participation on social media? What role does internal and external locus of control have in these experiences?

In summary, it seems that participation on Twitter enables communication and interaction, facilitates social participation and increases academic satisfaction in students; however, how students are influenced by the change in teacher role remains to be conclusively established. Studying the role of the teacher that has a special interest since it sheds light on new online methodologies. In conclusion, the use of social media in university education offers motivational value not provided by other more traditional media like forums; on the other hand, a teacher role that reinforces an independent learning process is probably a better strategy when we speak of social media in the classroom.

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