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Abstract

This paper presents findings from a study of student communication via the microblogging platform Twitter. Students from two undergraduate information systems cohorts, one Australian and one American, participated in synchronised learning activities related to topics common to their curricula. Both cohorts engaged in microblogging based discussion, effectively establishing a Community of Inquiry. An analysis of the "tweets" posted demonstrates certain patterns regarding microblogging activity. In particular, students who posted tweets indicating cognitive presence while involving other student tended to receive a good response. Further, students who used particular microblogging conventions also received a good response. Based on these observed patterns, we make recommendations of relevance to educators interested in using microblogging in their learning and teaching practice. The recommendations can be used in informing students on how to use Twitter such that they are likely to spark interaction.

Keywords

Twitter, Higher Education, Student interaction, Microblogging.

INTRODUCTION

Microblogging has been shown to have great potential for use in higher education (Dunlap and Lowenthal, 2009a; Dunlap and Lowenthal, 2009b; Junco, Heiberger and Loken, 2010). Our previous work (Sinnappan and Zutshi, 2011) has shown how Microblogging can be used to facilitate a community of inquiry in a tertiary environment. Engaging in academic-based discussion via microblogging could be challenging due to the various limitations posed by the application, particularly the number of characters. This is in addition to the free-flowing range of topics generated by a large number of users which could prove as major distraction to students (Grosseck and Holotescu, 2008). Therefore, students would need to be made aware of how to use microblogging for teaching and learning activities. Specifically, instructions could be provided on how to engage with peers and how to structure their messages in order to share or solicit to information. However, there has been limited empirical research to date in this direction in the educational context. It is important to carefully guide students in adopting a social media tool such as microblogging. Otherwise, teaching effectiveness and learning outcomes could be compromised leading to a poor educational experience.

The literature on microblogging in general has shown that informational-based postings gather more following but such messages make up only 20 per cent of total messages posted (Naaman et al. 2010). However, other details such as hash tag usage, level of social-ability, grammar, spelling, etc. have not been examined in the educational context. To address this gap, in this paper, we examine the exchange of tweets between students from two undergraduate information systems cohorts who participated in synchronised learning activities. A quantitative and qualitative analysis of these tweets is used to study the characteristics of tweets that resulted in higher levels of interaction.

The paper is organised as the follows. First, we discuss the background of microblogging and Twitter as the most popular platform. This is continued by a section on Community of Inquiry. Third, we introduce the methodology followed by the results. A section on analysis and findings is then presented and finally, the conclusion is drawn.

BACKGROUND

Mircoblogging and Twitter

A microblogging platform allows users to post brief messages for public view. The messages appear in reverse chronological order. Microblogging combines aspects of blogging and social networking and as such is considered one of the "social media". Users can "follow" other microbloggers so that they have access to a "feed" of posts with recent posts appearing at the top. Microblogging has become very popular since the inception of Twitter in 2007. Despite several other microblogging platforms having become available, Twitter remains the most popular and in the literature reference is often made directly to the use of Twitter for education rather than to the use of microblogging (e.g. Ling 2007; Dunlap and Lowenthal 2009a; Dunlap and Lowenthal 2009b; Rodens 2011). Although the microblogging platform used in this study was Twitter, it is worth noting that other platforms can also be used depending on student/instructor familiarity, linguistic and cultural preferences, and availability among others. The key features of microblogging are the ability to publish posts that are very brief (up to 140 characters in the case of Twitter), the ability to include abbreviated hypertext links and the ease and mobility with which such posts can be made. Twitter, for instance, allows posting via Short Messaging Service (SMS); mobile computing devices such as mobile phones and tablets; instant messaging (IM) services, email among others. These are all in addition to a conventional web-based interface and custom application software.

The pragmatic implication of the multiple channels of accessibility is that the flexibility thus afforded may be well suited to any scenario where a diverse group of people with differing levels of technological equipment and ability can all interact in a common forum. This flexibility can be particularly powerful in online and blended education, where in our view the ideal is to have the technology be adaptable to the needs of the learner rather than vice versa.

The preliminary studies in the education literature on the use of microblogging in education suggest that it has significant potential, despite some drawbacks. For example, a report describing the use of Twitter to complement a traditional LMS found that it encouraged free-flowing, just-in-time social interactions between students and staff (Dunlap and Lowenthal, 2009). Ebner et al. (2010) studied the use of Twitter by Masters' students at an Austrian University. They concluded that there was great potential for microblogging as a tool to support informal learning and collaboration by students. It also allowed for the staff to provide feedback to students and get a feel for the overall "learning climate." Badge, Johnson, Moseley and Cann (2011) studied the networks that emerged between students using Twitter and concluded that there were a number of potential applications for it as an educational tool, such as a peer-to-peer support tool, an administrative tool (e.g. to broadcast announcements), and adding an "extra dimension" (p. 97) to time and location sensitive events.

However, educators have recognised some drawbacks in the use of Twitter, such as the possibility of it being distracting and addictive (Grosseck and Holotescu, 2008; cited by Dunlap and Lowenthal, 2009a). This may be related to findings around Twitter usage generally (i.e. outside the tertiary education context) such as Java Song, Finin and Tseng (2007) and, Krishnamurthy, Gill and Arlitt (2008), which emphasised the social aspects of Twitter usage. The latter, claimed that the frequency of updates correlates directly to the number of followers if they were also friends. Huberman, Romero and Wu (2008), on the other hand, studied the activeness of a user based on individual's social circle and concluded that there are three types of distinct user activities: information seeking, information sharing and social activity. However, most of these studies report the social presence within Twitter. Other studies relied on content analysis on the '@' reply/mention function in Twitter such as Honeycutt and Herring (2009) which lead to a categorisation of tweets. Similarly, Naaman et al. (2010) analysed a random sample of 3379 tweets and produced nine message categories by extending work done by Java et al. (2007) to evaluate message content. The categories were: information sharing (IS), self-promotion (SP), opinions/complaints (OP), statements and random thoughts (RT), me now (ME), question to followers (QF), presence maintenance (PM), anecdote me (AM) and anecdote other (AO). The study found that typically there are two types of Twitter users. The first group, which is made of 80% of the users, is engrossed in disseminating messages about themselves while the second group of 20% is more informative, conversational and involved with followers. These findings suggest that most tweets are non-factual. Educators acknowledge the possibility that Twitter usage could potentially suffer from such drawbacks, however, in general their findings suggest that the potential benefits outweigh the drawbacks, e.g. Dunlap and Lowenthal (2009a; 2009b) and Junco et al. (2010) report improved student engagement and a positive effect on grades from Twitter usage in conjunction with an LMS.

An interesting aspect of using microblogging to complement a traditional LMS is the fact that students can take the discussion beyond the barriers of the traditional classroom. Most LMSs allow access to the discussion only to fellow students in the course. For many discussions, this is perfectly appropriate. However, topical discussions and debates can benefit from more open discussion, e.g. with students from other courses and

institutions or by tapping into discussions and debates in the wider society. Being able to participate in such discussion may also be a possible contemporary alternative to the kind of social, free-flowing, informal interaction that used to take place between students on-campus outside of formal classes. Such interaction may be limited due to altered student lifestyles, as students often have more demands on their time, meaning they spend less time on campus outside of class (Dunlap and Lowenthal, 2009a; Dunlap and Lowenthal, 2009b; Ebner et al. 2010).

The Community of Inquiry Model

The Community of Inquiry (CoI) model proposed by Garrison, Anderson and Archer (2000) provides a conceptual framework for characterising the overall higher education experience in terms of the interaction between three elements: cognitive presence, social presence and teaching presence (see Figure 1). CoI has been used extensively in research about Computer-Mediated Communication (CMC) in education (Garrison et al. 2009).

The CoI model proposes that learning occurs through the interaction of three elements, viz. cognitive presence, social presence and teaching presence. Cognitive presence refers to the extent to which the participants in the community are able to construct meaning through their communication. Social presence is the extent to which participants in the CoI project their personal characteristics to the community. This goes beyond a simple notion of a sense of belonging that previous work had focused on (Garrison et al. 2009). The teaching presence refers to the dual functions of educational experience design and facilitation. While the educational experience design is largely within the purview of the staff in the higher education context, the facilitation function can be shared by the staff and students.

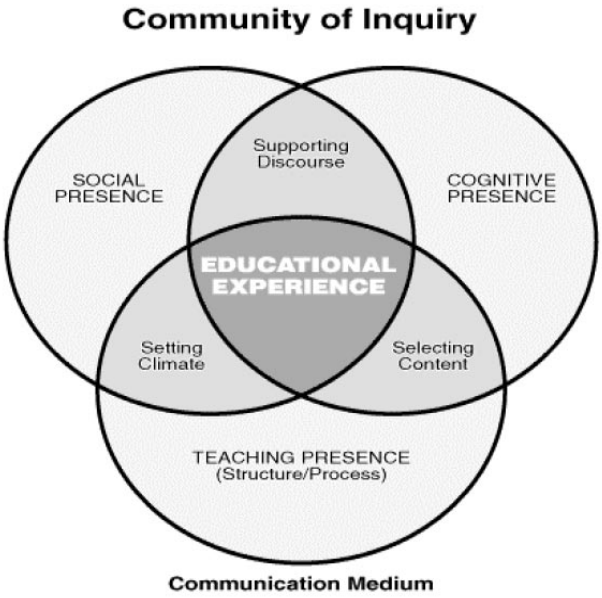

Figure 1: Elements of the Educational Experience (Garrison et al. 2000).

In principle, social media applications, such as microblogging, could be leveraged to enhance all three types of presence in an educational setting. Cognitive presence can be enhanced through social media based on students' ability to build meaning through ongoing communication involving individual and social exploration of ideas to develop understanding of a particular issue. Social presence is significantly enriched based on students' capability to present their ideas and identity while developing valuable links with the community for socio-emotional support for learning. Finally, teaching presence, involving the design and facilitation of the educational experience, can be facilitated to allow "natural", informal and personal expression by staff and students. Further, it is desirable that students also exhibit teaching presence for instance by guiding and advising others in their cohort.

CoI and Microblogging

Garrison et al. (2000) originally proposed the CoI framework in the context of ensuring that the critical components of higher education identified were in fact carried over to distance and online courses using computer-mediated communication (CMC), primarily in the form of asynchronous discussion boards. However, the framework of the higher education experience is fundamentally independent of the mode(s) of

communication employed. Furthermore, subsequent work has adapted the framework for use in "blended learning" i.e. courses where a significant degree of CMC complements face-to-face communication in the community of learners and teachers (Garrison and Vaughan, 2007). Microblogging, while having what is sometimes referred to as a "real-time" characteristic, i.e., a user received updates almost at the same time as they are posted and are often responded to very shortly afterward, still remains asynchronous and thus is compatible with the original CoI principles. The fundamental differences from "classical" asynchronous interaction include much briefer messages and less explicit "thread" structures in most user interfaces used.

METHODOLOGY

The experimental setting was a second-year, undergraduate unit on eBusiness delivered primarily in a face-to-face mode with some online support (i.e. Blackboard LMS for materials availability). Twitter was used as the microblogging platform due to its popularity and the instructors' familiarity with the platform. The basic experiment involved setting up in-class tutorial activities that were suitable as the basis of students posting their thoughts and questions as tweets. They were encouraged by lecturers both in class and via Twitter to further their discussions and share information. The purpose of doing so was to encourage student interaction across the traditional tutorial-based boundaries. In-class activities included scaffolding in the use of Twitter and appropriately tagging tweets using "hashtags." Also, collaboration was undertaken with an American instructor running a similar unit to ensure that there were periods of overlap where both the Australian and the American cohorts were covering similar topics in the curriculum. They were therefore able to interact with each other using microblogging in an ad-hoc, real-time manner. The purpose of doing so was to enrich the student learning through exploring a wider spectrum of perspectives than they would otherwise. It also harnessed the power of microblogging to take the discussion outside of the conventional "classroom" boundaries. The curriculum topics around which microblogging was encouraged included privacy, ethics and censorship; these were topics common to the curricula of both cohorts.

Table 1: Coding Scheme for Cognitive presence, adapted from Garrison et al. (2006)

Category (Code)	Indicator	Brief coding guidelines	Example Tweet
Triggering event (CTP)	New topic introduced, Sense of puzzlement	Includes new resource and opinion or ask for comment	I found an article about WikiLeaks http://yhoo.it/hrJ6dN #cse2642
Exploration (CEX)	Information exchange	Comments on previously raised resource, expresses an opinion on a previous tweet, expression of opinion with no linked resource	Some peoples in the government want to get WikiLeaks branded as a terrorist organization #cse2642
Integration (CIN)	Connecting ideas	Draws connections from multiple tweets, multiple '@'s AND multiple URLs, multiple hashtags and multiple URLS	@Iserguy@VickyBlueWoody Do AUS parents need edu on how2censor??? http://tinyurl.com/25dd66w http://tinyurl.com/2g529bx #cse2642 #leb215
Resolution (CRE)	Apply new ideas	Resolves an issue, brings a discussion to a close, uses ideas from learning material to settle an argument.	N/A

The data set analysed for this study is the list of tweets tagged as being relevant to the curriculum-related discussions over a four-week period. The four-week period corresponds to a three week overlap in teaching times when discussion activities were scheduled for both cohorts and one following week. This is because, while the learning activities were scheduled for three weeks, the discussions continued for an extra week. The tweets studied here are those posted by students and staff over the four-week period of interest that met at least one of two criteria. The first criterion is that the tweet was annotated with at least one of the hashtags "#leb215" and "#cse2642" (corresponding to the two unit codes). The second criterion is that the tweet included at least one of the participants' Twitter username in an '@' mention. Satisfaction of either one of these criteria was deemed sufficient to identify the tweet as relevant to the experiment. All Twitter user names were removed from the data and replaced with a label for each member of the cohorts of the form c*X*_s*Y*. The *X* represented the cohort number (i.e. either 1 or 2), and *Y* a sequence number within the cohort. The dataset includes tweets by both the American students and staff (referred to hereafter as Cohort 1) and the Australian students and staff (Cohort 2). Note that this is a subset of tweets posted by the cohorts during this period; other discussion took place, which

was tagged differently. Such discussion may or may not be related to the scheduled teaching activities and is therefore not included in the analysis here.

A content-analysis approach was used to analyse the tweets. The coding scheme used is shown in Tables 1-3, which uses the elements and indicators from Garrison et al. (2006). Our adaptation of the coding scheme for the microblogging environment is illustrated via the examples and coding guidelines in the same tables.
In the initial attempt at coding, each tweet was to be assigned the single category corresponding to the indicator that it was deemed to fit best into. This would parallel the message level coding discussed in Garrison et al. (2006). To increase reliability of the results, two coders were used (both the authors). The initial level of agreement between the coders was approximately 77%. As part of the negotiation process, both coders (two of the authors) decided that many of the tweets were rich enough to satisfy multiple categories. So the coders agreed to assign up to two categories to each tweet; a "primary" category which seemed most applicable and, where necessary, a "secondary" category was also assigned. Not all tweets were assigned a "secondary" category. This form of categorization is comparable to other tweet analysis research such as Naaman et al. (2010) and Sinnappan, Farrell and Stewart (2010). While Garrison et al. (2006) advise caution in using this approach, they acknowledge that the nature of the research and the purpose of the discourse may warrant its use. Given the exploratory nature of this study, in the breadth versus depth dilemma described by Garrison et al. (2006), we have chosen to focus on the depth of analysis with a view to gaining greater insight (Morse 1997 cited by Garrison et al. 2006). After negotiation and the use of the secondary category, negotiated coder agreement was 98.5%.

Table 2: Coding Scheme for Social presence, adapted from Garrison et al. (2006)

Category (Code)	Indicator	Brief coding guidelines	Example tweet
Affective (SAF)	Expressing emotions	Emoticons, text-based expressions of humour eg LOL, LMAO, emotionally loaded words like ridiculous, includes emotionally laden value judgements e.g fantastic, brilliant	http://bit.ly/99BFZo This my not be ethical but I still LOL'ed so hard over the ignorance contained in this article #cse2642
Open communication (SOC)	Risk-free expression	Bold statements, controversial statements (indicates a level of comfort making them), personal confessions	@dr_at_work the theory "never against a government" seems perfect in China. lol
Group cohesion (SGC)	Encouraging collaboration	Replies with an opinion, or asks for clarification, e.g. RT with agreement, RT with disagreement, @mention, multiple @mentions, reply with URL	@Iserguy I think it does, it doesn't allow for every side to freely express themselves #cse2642 #leb215

To aggregate the data, such as to estimate the extent to which a presence was represented by aggregating the indicators of that presence, a weighted sum was used. The weighting is based on a choice of 1.0 for a code assigned as the primary category and 0.5 as the secondary category. We refer to a score computed in this manner as the weighted aggregate indicator (WAI) score. The score can be considered a measure of volume of message content (which, by definition, does not necessarily correspond exactly to the number of tweets). To analyse the inter-student communication, we constructed an inter-student communication table.

The cell corresponding to the i^{th} row and j^{th} column corresponded to all tweets sent from student *i* to student *j*. The sender is simply identified as the originator of a tweet, and the recipient is identified by the use of an @mention i.e. the username of the recipient is included in the tweet prefixed by an '@' sign. Each cell contains, separately, the primary and secondary categories assigned to the tweets from student *i* to student *j*. The WAI score for a given column is interpreted as a measure of volume of message content received by that student. This can be compared against the WAI score of all tweets posted by a given student (ratio).

RESULTS

Given that the experiment was not an assessable component of the study, we consider the response to be encouraging. Approximately 77% from Cohort 1(27 from 35 students) and 62% from Cohort 2 (28 of 45 students) participated in the study. In total there were 333 tweets; 132 tweets made by local students (Cohort 2) and 201 tweets by American students (Cohort 1). On average, students from Cohort 1 had over 7 tweets while Cohort 2 had close to 5 tweets. However, it was found that some students only participated in sending or received tweet messages and not necessarily interacting productively. This resulted in one-way communication for some

students (only a handful). A detailed breakdown of the various elements and indicators has been analysed in other work (Sinnappan and Zutshi, 2011).

Table 3: Coding Scheme for Teaching presence, adapted from Garrison et al. (2006)

Category (Code)	Indicator	Brief coding guidelines	Example tweet
Design and organization (TDO)	Setting curriculum and methods	Communication on the units, methods. Typically staff-staff communication.	@stefaniemarkham saying hi from down under. looks like #cse2642 is going well. we #LEB215 will soon participate in your discussions.
Facilitating discourse (TFD)	Sharing personal meaning	typically retweet or reply with extra/counter resources, soliciting clatrification, asking for explanation	RT @Reeseandchips: @Armein78 violent video gmes make children mre aggrssive #leb215 #cse2642 - what does this say..http://bit.ly/9IFcgW
Direct instruction (TDI)	Focusing discussion	Provides guidelines on topic and/or format of discussion	@waacyweng can you retweet and add #leb215 in all ur tweets with #cse2642 students

An overall summary of the results from the coding of the tweets posted is presented in Table 4, which summarises the weighted aggregates of the codes, which we refer to as weighted aggregate indicators (WAIs), since each code indicates a particular presence. Table 4 shows a clear pattern in the proportion of the different types of presence demonstrated. Specifically, the type of presence demonstrated most strongly by both cohorts separately and combined was cognitive. A strong social presence was also demonstrated. By comparison, the teaching presence demonstrated was low in terms of the weighted aggregate indicators.

Table 4: Aggregated Percentage of tweets for each CoI element

CoI Element	Aggregate(%) Cohort 1	Aggregate(%) Cohort 2	Aggregate(%) Both cohorts
Cognitive Presence	71.6	63.3	67.01
Social Presence	26.1	30.4	28.5
Teaching Presence	2.3	6.3	4.51
Total	100	100	100

To test the relationships between tweets sent and received, the Pearson correlation coefficient (r) was used in the manner suggested by Cohen (1988), i.e. $0.1 <= |r| <= 0.29$ suggests low correlation; $0.3 <= |r| <= 0.49$ suggests medium correlation; and $0.5 <= |r| <= 1.0$ suggests high correlation. The Pearson coefficient was computed between WAI values for each CoI element for both sent and received tweets (total of 9 pairs). The pairs for which the coefficient was significant are shown in Table 5. This table shows the r values between the following variables: $s\_Cognitive_i$ represents the WAI of all cognitive codes (i.e. CEX,CTP …) *sent* by the i^{th} student, while $r\_Cognitive_i$ represents the WAI *received* by the i^{th} student. Similarly, r_Social_i and $r\_Teaching_i$ represent the corresponding social and teaching code WAIs for tweets *received* respectively. Though all 9 pairs as mentioned above were tested for Pearson coefficient, only Cognitive WAI returned significant results as shown in Table 5.

Table 5: Correlation between Cognitive-based Tweets and response

	r_Cognitive	*r_Social*	*r_Teaching*
s_Cognitive			
Pearson correlation coefficient (r)	0.526**	0.579**	.437**
Sig. (2-tailed)	.000	.000	.003
N	45	45	45

*Note: **. Correlation is significant at the 0.01 level (2-tailed)*

To better understand the nature of the Twitter-based interaction and tease out the implications of the results in Table 5, the related scatter plots are presented in Figure 2. Each data point on the scatter plot represents a single student. Figure 2a (left) shows the relationship between Cognitive WAI tweets which were sent out and received Social WAI tweets. Figure 2b, on the other hand, illustrates the relationship between Cognitive WAI tweets which were sent out and received Cognitive WAI tweets. Figure 3 is focused on the Social WAI tweets which were sent out. Figure 3a shows the relationship between Social WAI tweets which were sent out and received Cognitive WAI tweets, while 3b between Social WAI tweets and Social WAI tweets. Further, to examine the tweet interaction between students we decided to compute a ratio of tweets sent out and tweets received. This would give us an indication of the response a particular WAI tweet would receive. To do this we analysed each

student's tweet interaction by WAI coding. The difference between the aggregated score was also computed to reflect positive or negative score. Table 6 presents only the top and bottom student's ratio of tweets (both sent and received) though all students were analysed to show the difference.

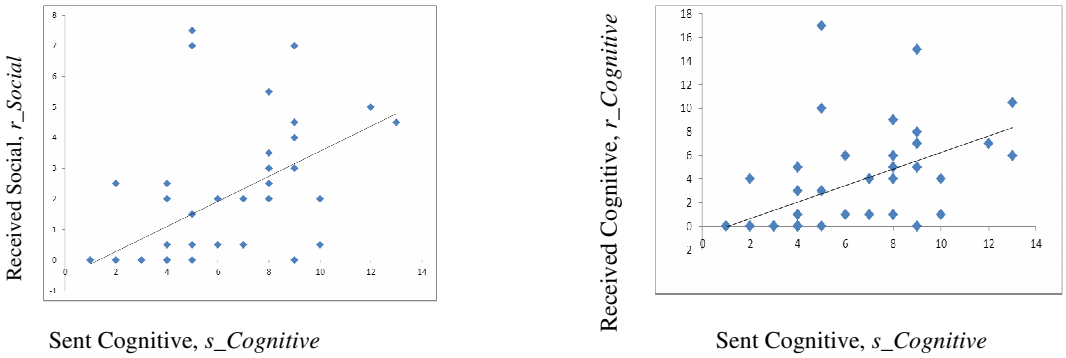

Figure 2: WAI for tweets sent (Cognitive) and received (Social-2a and Cognitive-2b)

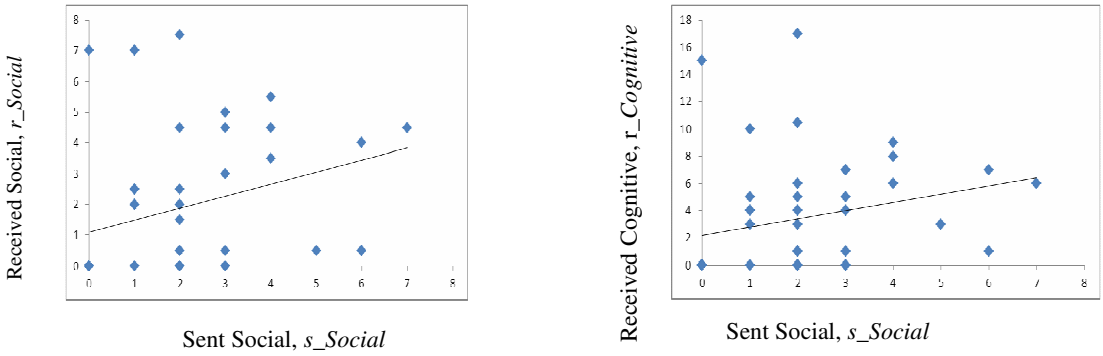

Figure 3: WAI for tweets sent (Social) and received (Social-3a and Cognitive-3b)

ANALYSIS AND FINDINGS

Quantitative analysis of interaction

From Table 5 it can be seen that there is a strong relationship between sending a Cognitive-based tweet and receiving a Social or Cognitive-based tweet. Cognitive-based tweets also had a medium correlation with a Teaching response. From these observations, it can be concluded that Cognitive-based tweets were most likely responded to. This also supports the premise that information laden tweets (similar to Cognitive WAI in this experiment) often get more followers attracting more intelligent discussions (Naaman et al. 2010). It is important, therefore, for educators to advise students to engage in more Cognitive-based Twitter interaction to foster interaction. This is important in establishing a CoI. The importance of cognitive presence was supported well by the social elements in the student interaction. This is demonstrated by the line in scatter plots (2a, 3a and 3b). The implication is that that to have a good discussion in Twitter, a student needs to involve other students either by re-tweeting their messages or using '@' mentions in a tweet post requesting a response. This could be further supported with a possible link to increase the chances of being responded to.

Table 6: Top and bottom student in terms of ratio of tweets (send and received)

Student	Aggregate Sent	Aggregate Received	Difference (+/-)	Ratio (Received/Sent)
Top student	24.5	7	17.5	3.5
Bottom student	16	2.5	-13.5	-0.16

Qualitative analysis of interaction

Even when all students are posting in response to the same or very similar learning activities, a number of factors can influence the likelihood of the initial tweet receiving a response and thus becoming a basis of (explicit) interaction. One factor that may contribute is the content and nature of the tweets themselves. To comment on this factor, we computed the ratio of WAI score for sent tweets to WAI score for received tweets. This ratio as presented in Table 6 represents a high response in terms of message volume received to message volume sent. Contrasting the actual tweets posted by the student with the highest value of this ratio against those by the student with the lowest ratio suggest the following points of difference for tweets that are likely to be effective in evoking a response:

1. Tweets are relatively self-contained, i.e. reading the tweet gives some idea of its context.
    - Effective: *#cse2642 #leb215 Ratings in AU seem to be govt controlled. Is this better, or how is this different from the private companies in the US?*
    - Ineffective: *RT @bhavynpatel #CSE2642 but they got the personal information, didn't they? this can generate money*
2. Despite the use of abbreviations to fit within the 140 character limit, the tweets are clear and readable.
    - Effective: *#cse2642 #leb215 Why do you think a govt feels the need to censor a public's actions at all? Is it only for the sake of children?*
    - Ineffective: *#LEB215 in the next phase of ecommerce, business*
3. The tweets are relatively long i.e. they make good use of the entire character limit
    - Effective: *#cse2642 #leb215 movies, games, and music are censored but books seem to be immune in recent years. Has it become unethical to ban books?*
    - Ineffective: *RT @Rin789 #CSE2642 open source might gain more users*
4. The tweets are well formed, i.e. they use conventions like hashtags and mentions correctly and appropriately
    - Effective: *@spsuamcclure #cse2642 #leb215 I agree. Books have been around for much much longer than movies or distributed music. How long will it take?*
    - Ineffective: *@dr_at_work the theory "never against a government" seems perfect in China. lol* [note lack of hash tags]
5. Even when the tweet seeks to express an opinion or state information, a related question soliciting a response is explicitly included.
    - Effective: *#cse2642 #leb215 movies, games, and music are censored but books seem to be immune in recent years. Has it become unethical to ban books*
    - Ineffective: #LEB215 may be the price differentiation between different companies will desappear.

The above differences point out the importance in briefing students on how to tweet effectively in order to engage in academic discussion. The findings also suggest that grammar is still considered important although often it is often overlooked while microblogging or communicating in general social media applications.

CONCLUSION

This experiment supports and extends research done by Junco et al. (2010) (cited by Rodens 2011), Ebner et al. (2010) and Dunlap Lowenthal (2009a; 2009b) showing that Twitter has potential for pedagogical use. The study provides a useful insight into the usage and adoption of Twitter in a higher education context. In specific, the study examines the interaction between students in a microblogging platform based on CoI codes. The findings suggest that students need to follow certain communication conventions to engage in effective academic based discussions. In contrast to the normal Twitter practice, brevity and simplicity have given way to grammar importance apart from other practices.

This study also encourages other educators who are intending to adopt Twitter to facilitate their teaching and learning activities as it was reported that many educators shy away from Twitter when it comes to classroom activities (Faculty Focus, 2010). The authors are currently in the planning stage to engage with various institutions around the world to undertake a bigger study to extend this experiment over a longer period of time.

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