# THE CASE FOR A SMS TEXTING INTEGRATED CLASSROOM: LEARNING PREFERENCES AND STUDENT PERCEPTIONS

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## *Abstract*

*This paper synthesized two studies on whether or not student learning preferences and website usability influenced the use of a collaborative learning technology used to encourage student engagement. The collaborative learning technology was an interactive website that also received short-message-service (SMS) texts. Learning preferences was determined by Myer-Briggs Personality Type Indicator (MBTI®) and student perceptions of the collaborative learning technology were determined with a website usability survey. The results of this study found that most students regardless of their learning preference perceived that the use of SMS texting improved their understanding of course material as well as encouraged other students to participate more in class but it did not encourage individual students to participate more. Lastly, this study makes the case that SMS texting is an improved alternative to other personal response systems such as clickers due to the almost ubiquitous nature of SMS texting amongst college students.*

**Keywords:** learning preferences, short-message-service (SMS) texting, student engagement, blended learning, MBTI®, Clickers, Open-Source Technologies, Blackboard™, Wordpress

## INTRODUCTION: IS TALKING DYING?

A September 6, 2012 Time magazine article entitled, We never talk anymore: The problem with text messaging, presents evidence that talking face to face and over the phone is dying and text messaging is becoming the preferred method of communication. Kluger ( 2012).   This article Kluger writes:
*"Americans ages 18-29 send and receive an average of nearly 88 text messages per day, compared to 17 phone calls. The numbers change as we get older, with the overall frequency of all communication declining, but even in the 65 and over group, daily texting still edges calling 4.7 to 3.8. In the TIME mobility poll, 32% of all respondents said they'd rather communicate by text than phone, even with people they know very well. This is truer still in the workplace, where communication is between colleagues who are often not friends at all. "No more trying to find time to call and chit-chat," is how one poll respondent described the business appeal of texting over talking."*

The problem, of course, is what's lost when that chit-chat goes. Developmental psychologists studying the impact of texting worry especially about young people, not just because kids are such promiscuous users of the technology, but because their interpersonal skills — such as they are — have not yet fully formed. Most adults were fixed social quantities when they first got their hands on a text-capable mobile device, and while their ability to have a face-to-face conversation may have eroded in recent years, it's pretty well locked in. Not so with teens. As TIME has reported previously, MIT psychologist Sherry Turkle is one of the leading researchers looking into the effects of texting on interpersonal development. Turkle believes that having a conversation with another person teaches kids to, in effect, have a conversation with themselves — to think and reason and self-reflect. "That particular skill is bedrock of development."

We submit, anecdotally, that it would be difficult to find a college faculty member who has not observed or had to address texting, and often excessive texting in the classroom.  As students increasingly bring technology into the classroom, the authors raise the question; can student desire to text as a preferred method of communication be harnessed to enhance the classroom experience for all student learning preferences and if so, shouldn't we?

## SMS TEXTING IN CLASS

Over the last several years, researchers have found that increasingly SMS texting is being used in the classroom (Markett, Sanchez, Weber, and Tangney, 2006; Lim, Hocking, Hellard, and Aitken, 2008; Riordan and Traxler, 2005; and Graham and Miaoulis, 2010). According to Riordan and Traxler (2005) and Graham and Miaoulis (2010) the rationale for allowing SMS texting in the classroom generally falls into the areas of student engagement and retention. Graham and Miaoulis (2012) and Ng'ambi (2006) found that SMS texting in class also supports student participation and knowledge sharing. Kinsella (2009) makes a great succinct point for the value of SMS texting in class by saying;

*"(SMS texting) represents a new communication channel between the*
*Many (students) and the One (lecturer). It facilitates student interaction within the class, and with*
*the lecturer, and allows the lecturer to respond to student observations, questions and comments in*
*a controlled manner in a large classroom."* (p. 95).

### Sms Texting In The Classroom: The Good And Bad News

In 2010 Graham and Miaoulis found aggregately that allowing students to participate in classroom discussions using SMS text messaging did increase student participation and improve the overall discussion held in class (p.39). See table 1 and 2 below.

**TABLE 1:**
**I felt that more students participated in class because of the SMS texting website**

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 5: Strongly Agree | 44 | 25.1 | 25.4 | 25.4 |
|  | 4 | 60 | 34.3 | 34.7 | 60.1 |
|  | 3 | 51 | 29.1 | 29.5 | 89.6 |
|  | 2 | 14 | 8.0 | 8.1 | 97.7 |
|  | 1: Strongly Disagree | 4 | 2.3 | 2.3 | 100.0 |
|  | Total | 173 | 98.9 | 100.0 |  |
| Missing | System | 2 | 1.1 |  |  |
| Total |  | 175 | 100.0 |  |  |

**TABLE 2:**
**I felt that SMS texting questions sent by students improved classroom discussion**

|  | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Valid | 5: Strongly Agree | 60 | 34.3 | 34.7 | 34.7 |
| | 4 | 64 | 36.6 | 37.0 | 71.7 |
| | 3 | 35 | 20.0 | 20.2 | 91.9 |
| | 2 | 11 | 6.3 | 6.4 | 98.3 |
| | 1: Strongly Disagree | 3 | 1.7 | 1.7 | 100.0 |
| | Total | 173 | 98.9 | 100.0 | |
| Missing | System | 2 | 1.1 | | |
| Total | | 175 | 100.0 | | |

Additionally, in the same study, Graham and Miaoulis found that individual students perceived that using the SMS texting website in class did not encourage them to participate more in class discussions. See table 3 below.

## TABLE 3:
### I found that the SMS texting website motivated me to participate more in class

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 5: Strongly Agree | 29 | 16.6 | 17.0 | 17.0 |
| | 4 | 47 | 26.9 | 27.5 | 44.4 |
| | 3 | 60 | 34.3 | 35.1 | 79.5 |
| | 2 | 27 | 15.4 | 15.8 | 95.3 |
| | 1: Strongly Disagree | 8 | 4.6 | 4.7 | 100.0 |
| | Total | 171 | 97.7 | 100.0 | |
| Missing | System | 4 | 2.3 | | |
| Total | | 175 | 100.0 | | |

This seemingly contradictory information opens new questions about the perceptions students have about the value of using SMS texting in class to increase student engagement. A follow up study was done by Graham, Anchors and Doore (2012) on whether or not learning preferences influenced student's decision to use SMS texting in class.

## WHY STUDENT LEARNING PREFERENCES

There has been considerable research within the context of online learning and MBTI® learning preferences beginning with Dewar and Whittington (2000), Russell (2002), Mupinga, Nora, and Yaw (2006), Butler, Pinto-Zipp (2006), and Zajac (2009). The use of mobile technologies to stimulate learning has been

researched by Ho and Ho (2011) and SMS texting has been researched as a tool to support classroom learning to encourage student interactivity by Markett, Arnedillo Sánchez, Weber, and Tangney (2006). Sharples, Taylor and Vavoula (2010) explored the use of mobile learning through conversation and across contexts. Despite considerable research in the areas of mobile technology in education, few researchers have integrated SMS texting as a classroom response system recognizing student learning preferences. Thus, MBTI learning preferences and SMS texting provides a strong next step in the investigation of computer mediated communication.

Graham, Anchors, and Doore (2012) used the MBTI® to determine student learning preferences. Data on student learning preference that had been gathered previously as part of a class assignment on helping students understand their leadership preferences was compared against the SMS texting website usability survey results. Students who completed both the personality type indicator test and the SMS texting website usability survey had the results compared against each other to determine whether a correlation exists between personality type and the decision to use the SMS text enabled website.  Student names on both instruments received confidential treatment.  The comparison of the two data sets was analyzed to provide an answer to the studies research question which asks

"Does student learning preferences relate to receptiveness to the application of this classroom technology?"

## DESCRIPTIVE STATISTICS

Of the 175 students who participated in the study, matched data was available for 67 students, who had taken the MBTI®.  A total of 29 females (43.3%) and 38 males (56.7%) responded to the survey.  There was no significant difference in the proportion of male or females, introverts/extraverts, sensing/intuitive, or thinking/feeling individuals.  The proportion of judging individuals was, however, significantly greater ($X2 = 7.90$, p = .005).

Table 4 below breaks down the dimensions of the study population by
Personality type;

### TABLE 4 MBTI® Personality Types

| Trait | *n* | % |
|---|---|---|
| EXTRAVERT | 34 | 50.7% |
| INTROVERT | 33 | 49.3% |
| SENSING | 39 | 58.2% |
| INTUITIVE | 28 | 41.8% |
| THINKING | 40 | 59.7% |
| FEELING | 27 | 40.3% |
| JUDGING | 45 | 67.2% |
| PERCEIVING | 22 | 32.8% |

## LEARNING PREFERENCES AND DECISION TO USE SMS TEXTING WEBSITE

To determine whether there were differences in the response patterns of Introverted vs. Extraverted (EI), Sensing vs. Intuitive (SN), Thinking vs. Feeling (TF), or Judging vs. Perceiving (JP) individuals, a series of independent samples t-test were conducted.  Specifically, independent samples t-tests were conducted to compare responses of the EI, SN, TF, and JP pairs for the two factors found in this scale (ease of use,

experience with the intervention). Results indicated no significant differences in mean ratings for either factor as related to any of the four personality dimensions measured by the MBTI®). Table 5 displays the mean ratings for each of the four personality dimensions for ease of use, while Table 6 reflects the same comparisons for the seven experiences with the intervention questions.

## TABLE 5
### Mean ease of use ratings by personality type.

|  | N | Mean | SD | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|
| EXTRAVERT | 34 | 1.68 | 0.75 | -.614 | 65 | 0.541 |
| INTROVERT | 33 | 1.79 | 0.74 | | | |
| SENSING | 39 | 1.81 | 0.78 | 1.06 | 65 | 0.295 |
| INTUITIVE | 28 | 1.62 | 0.68 | | | |
| THINKING | 40 | 1.73 | 0.75 | 0.27 | 65 | 0.979 |
| FEELING | 27 | 1.73 | 0.74 | | | |
| JUDGING | 45 | 1.76 | 0.76 | -0.38 | 65 | 0.704 |
| PERCEIVING | 22 | 1.68 | 0.71 | | | |

## TABLE 6
### Mean engagement ratings by personality type.

|  |  | Mean |  | t | df | Sig. (2 -tailed) | N | SD |
|---|---|---|---|---|---|---|---|---|
| EXTRAVERT | 34 | 2.27 | 0.78 | -1.16 | 65 | 0.268 | | |
| INTROVERT | 33 | 2.50 | 0.91 | | | | | |
| SENSING | 39 | 2.38 | 0.81 | -0.94 | 65 | 0.925 | | |
| INTUITIVE | 28 | 2.40 | 0.90 | | | | | |
| THINKING | 40 | 2.49 | 0.94 | 1.23 | 65 | 0.223 | | |
| FEELING | 27 | 2.23 | 0.66 | | | | | |
| JUDGING | 45 | 2.31 | 0.77 | -0.989 | 65 | 0.326 | | |
| PERCEIVING | 22 | 2.53 | 0.98 | | | | | |

## LEARNING PREFERENCE FINDINGS

According to Graham, et al (2012) no significant differences were found between the four MBTI® learning preferences and the decision to use the SMS texting website. This was surprising giving previous theories on learning preferences suggested that differing learning preference types would have differing learning styles. For example, Pearman, Lombardo, and Eichieger (2005) found that students that were more introverted often provided delayed responses to interactions, are succinct when communicating and are more reflective. This argument was reinforced by Jensen (page 127) who described introverts if asked a question, they would think about an answer, reflect on it, rehearse it, and only then share it. Finally, Pearman, et al stated that students with a perceiving learning preference might be expected to prefer texting since they often approach learning with spontaneity and openness to new ways of doing things. The Judgment/Perceiving learning preference was also not linked to preference for texting in class. More

directly stated, Graham et al (2012) found that texting in class and traditional theories on learning preferences are not linked.

## SMS Texting Integrated Web-based System as an alternative to Clickers

According to Ng'ambi (2006) there is usually a disconnect between technologies that are available and easily accessible by most students and technologies used in class. For example, Zhu (2007) reported that Clickers are being widely used across university campuses to give students and teachers more opportunities to interact with one another during class time. Additionally, Zhu reported that both students and faculty attitudes towards the use of clickers is positive and that most enjoy using clickers in class because it makes the lecture more fun and interesting. Caldwell (2007) found the same thing: students either frequently or always enjoyed using clickers in class. While clickers have been proven to improve classroom experiences and increase student engagement in classroom discussions, as Ng'ambi (2006) suggested, the cost of clickers may limit its accessibility to all students. According to Mantoro, Ayu, Media, Habul, and Khasanah (2010) clickers are not only expensive for students but they also felt that clickers require user training and maintenance. Finally Mantoro et al stated that despite the benefits and general satisfaction students and faculty have with clickers, they are still not widely used in educational environments.  Ng' Ambi (2006) stated that SMS texting however is the "most common and frequently used mobile service" (p.1). According to Graham et al (2012) "texting is clearly a cultural phenomenon of today's technology based societies that appeals to a wide range of college age students." (p. 643). This presents an opportunity to accept and encourage the use of SMS texting in class to increase student engagement in class discussions.

## HOW TO IMPLEMENT: OPEN-SOURCE SOLUTIONS

College and university campuses globally have been moving towards increased use of computer and technology enabled classrooms. Computer and technology enabled classrooms often use learning management systems (LMS) such as Blackboard™ to facilitate knowledge and resource sharing. These systems are beneficial for distance education where communication may be asynchronous but according to Graham et al (2012) they do not adequately capture the "complex and unpredictable nature of classroom discourse" (p. 644) for classes held synchronously.

To truly meet the needs of each class, other popular LMS's exist today with more solutions arriving on the scene regularly. Many free open source LMS's are increasingly being incorporated in Internet Web-based platforms such as Wordpress. Wordpress according to Braender, Kap, and Yeras (2009) is a "*Web development framework that is based upon a small set of extensible content units that can be organized and rearranged to address a particular development need*."  It should also be stated that Wordpress also has a large community of developers that create Plugins that append a considerable amount of functionality to the Wordpress website. Many education plugins now exist in the Wordpress framework that when installed in the Wordpress website can create a learning management system that can often compete well against other proprietary LMS's such as Blackboard™.  The case being made here is that many college and university professors and lecturers may find themselves one day developing their own LMS with the integrated functionality of receiving SMS text messages to meet their individual class needs.

## LIMITATIONS AND FUTURE RESEARCH

In the two studies compared in this research, Graham and Miaoulis (2010) and Graham et al (2012), one limitation was the size and demographic characteristics of the population. Future research should include a larger sample and in the best case, the study should be spread out across many colleges and universities over a large geographic (multi-state) area.  Future research should also look at whether or not differences exist by gender and or ethnicity. Another significant limitation was in the original website usability survey.

The alignment between the original hypothesis and observed constructs for the 10 item perception measures, only ease of use emerged as a unique construct in participants' responses.

## CONCLUSION

This research synthesized two previous studies on SMS texting in the classroom and found that most students would use a SMS integrated collaborative learning technology in the classroom irrespective of individual student learning preferences. Additionally, this study brought attention to the findings that SMS texting in class: 1) encouraged more students to participate in class discussions and 2) SMS texted questions sent by students improved classroom discussions.

A secondary point brought to light in this research is the idea that SMS texting may be a suitable alternative to other in class personal response systems such as clickers. As previously stated clickers can be expense for students who may already be cash strapped and clickers also require user training and maintenance. We posit that SMS text receiving enabled websites could be used to capture student ideas, questions, and comments that then can be shared with the whole class in real time via the SMS texting integrated website. Given the many opensource technologies that are freely available on the Web, faculty could begin developing these websites themselves customizing them for their specific classroom needs including communicating with students using their preferred communication medium: texting.

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