TEXT MESSAGING FOR OUT-OF-CLASS COMMUNICATION: IMPACT ON AFFECTIVE LEARNING

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ABSTRACT

Learning in the affective domain includes the manner by which people deal with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations and attitudes. While out-of-class communication between instructors and students can impact all types of student learning it has its greatest impact on student affective learning. One of the primary reasons for this is that the out-of-class communication enhances student perception of instructor immediacy. Immediacy is defined as behaviour which increases psychological closeness between communicators. Research studies in instructional communication suggest that enhanced instructor immediacy is linked to more positive student-instructor relationships engendering positive attitudes, increased interest and motivation by students as well as improved attendance, retention, engagement and learning. A year-long research study was conducted into the use of text messaging for out-of-class communication and its effects on student perception of instructor immediacy. Both quantitative measures of immediacy and qualitative feedback from students show that the instructor is perceived as closer, more approachable and responsive when text messaging services are offered. The student feedback also reveals that the use of text messaging has other positive effects on student affective learning, including enhanced motivation and engagement.

KEYWORDS

Text, message, immediacy, affective, learning

1. INTRODUCTION

Effective communication between instructor and student is very important in the quality of the learning experience of students in higher education. Hill et al. (2003) used student focus groups to answer the question of what quality education means to students. Four themes emerged from the study, the most important being the quality of the instructor in terms of delivery, feedback to students and relationship with students in the classroom. However, there are many factors that limit communication between instructors and students in higher education including large class sizes, limited contact time and student reluctance to approach instructors.

While educational institutions generally place most emphasis on student cognitive learning it has been shown that affective learning is also crucial especially to the development of independent and life-long learners. Learning in the affective domain includes the manner by which people deal with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations and attitudes (Bloom 1956). While communication outside of normal class time (known as out-of-class communication) between instructors and students can impact all types of student learning it has its greatest impact on student affective learning (McCroskey 1994). The importance of out-of-class communication to student affective learning should not be underestimated. Research shows that out-of-class communication between instructors and students can help build more positive instructor-student relationships and hence increase the quality of student learning (Noels et al 1999; Vaughn and Baker 2004).

One of the primary reasons for this is that the out-of-class communication enhances student perception of instructor immediacy (Jaasma 1999). Immediacy is defined as behaviour which increases psychological closeness between communicators (Mehrabian 1969, 1971). Research studies in instructional communication suggest that enhanced instructor immediacy has a positive effect on affective learning and is linked to more positive student-instructor relationships engendering positive attitudes, increased interest and motivation by

students as well as improved attendance, retention, engagement and learning (Christensen and Menzel 1998; Ellis 2004).

This research paper investigates the effect of using text messaging for out-of-class communication between instructor and student on student affective learning. Our findings indicate that the text messaging has a positive effect on student affective learning as well as student learning experience in general.

2. TEXT MESSAGING IN EDUCATION

Text messaging has been exploited for supporting learning in a variety of educational settings. Studies of third-level students have shown that text messaging is used more regularly by students than email and is often students' preferred way for receiving information from their institution (Harley 2007). However, because a text message is limited to only 160 characters it is more suitable for certain types of learning activities than others. A review of the current research literature shows that the ways in which text messaging has been employed in education fall generally into four categories. The first category is when text messaging is used to support and enhance classroom interactivity and dialogue (Clarke and Doody 2008; Markett et al. 2006). The second category is when text messaging is used for administrative purposes such as notifications of changes in the timetable and reminders of assessment submission dates (Naismith 2007; So 2009; Stone 2004). The third category is when text messaging is used as a means of supporting micro-teaching activities including the sending of short summaries for revision, the sending of links to a relevant page on a Virtual Learning Environment (VLE) and also the provision of quizzes and feedback to students (Stone 2004; Tretiakov and Kinshuk 2005).

The final category is when text messaging is used not for learning purposes directly but rather to guide, motivate and support students, encourage participation and engagement, and promote collaboration and co-operation. This fourth category includes many examples where it is used to enhance student affective learning, develop a sense of community amongst students and positively affect student retention rates (Trifonova 2007; Harley 2007). The fourth category may include messages from some of the other categories but the key difference is that the primary goal of the text messaging is to support students and enhance affective learning. As this research paper is concerned with the effect of text messaging on student affective learning it is this final category that is of primary interest.

There are many examples in the research literature where text messaging is not used specifically for the purpose of directly improving academic learning or for administrative purposes but is rather used to support and help students when they are outside class. Such out-of-class (OOC) text messaging may have the aim of enhancing affective learning and improving the learning environment, improving communications, supporting students' transition to third-level education, developing a sense of community among students or positively affecting student retention rates. The potential of the mobile phone as a communications medium in education prompted a research study by Brighton University to explore the use of mobile communication as a way of encouraging a supportive dialogue between students and relevant academic staff. The main motives behind the research were to support students' transition to third-level education and improve retention (Harley 2007). Another very interesting and relevant research study by Griffith University in Australia relates the experience of a female instructor using out-of-class text messaging as a means of staying in touch with her students. The study demonstrates how it can be used as a means of providing connection and a sense of community for first year students and also how it encourages them to persist with their studies (Horstmanshof 2004). Text messaging has also been used by the University of Ulster in Northern Ireland for supporting first-year chemistry students and for the reduction of student drop-outs. The university sends out messages to students of the type 'Sorry, we missed you today'. The students do not find the messages obtrusive in any way, and actually welcomed them (Keegan 2006).

3. METHODOLOGY

An empirical study was designed to investigate the impact of out-of-class communication between instructors and students using text messaging on student learning experience. The study was based in a real educational setting. It was hoped that analysis of the results of the study would provide evidence of an effect of the text

messaging on student affective learning. In total 44 participants from 4 different classes took part in the study. The participants were all third-level undergraduate computing students who were taking between five and six modules each semester. The research study itself took two academic semesters to complete.

3.1 Text Messaging Service

The 44 students who volunteered to participate in the study had the opportunity to use a text messaging service for out-of-class communication with one of their instructors. The instructor used a freeware application called MyPhoneExplorer that was installed on the instructor's laptop together with a mobile phone that was connected to a USB port on the laptop. The software application on the laptop was very versatile and easy to use. In terms of text messaging it operated much like an email program allowing the creation, viewing, editing and deletion of text messages as well as the sending and received text messages via the connected mobile phone. The application could be synchronised with the mobile phone allowing access from the laptop to both the SIM and phone memory. During synchronisation contact details of participants and text messages sent and received could be copied automatically from the phone to the application and visa-versa. The application allowed the sending of text messages to individuals or groups and it also supported the archiving of text messages on the laptop.

3.2 Categories of Text Messages

While it was difficult to categorise some of the messages they generally fell into one or more of three main categories. The first category was for messages that were sent for administrative purposes. The vast majority of these messages were sent as broadcasts to all participants in a treatment group. Only very rarely was there a need to send a message of this type to an individual participant or subgroup of participants. Examples of the use of this type of message include class announcements and cancellations, and reminders of class tests and assignment submission dates. A few examples of text messages of this category that were sent to participants were as follows:

"Hi, I have put the final marks for your continuous assessment up on Moodle. Paul"

"Don't forget you have a test on databases this Friday!"

"Just to remind you that John from BT Ireland is coming in to give us a talk next Tuesday. Paul"

"Hi, DCN class is postponed tomorrow, I have to attend an important meeting, will make it up to you. Paul"

The second category was for text messages that were specifically related to the topics covered in a module that were being delivered by the instructor and the contents of these messages were supplementary to the course material. These messages were sent as broadcasts to all participants and were used for the purpose of micro-learning activities. The messages included short summaries for revision purposes, short or multiple-choice questions and advice on how to prepare for forthcoming classes. Each message was restricted to 160 characters so the messages had to be short and precise. In the case of a text message containing a short question or a multiple-choice question the correct answer was sent as a broadcast text messages to all participants after a suitable period of time. A few examples of text messages in this category that were sent to participants were as follows:

"What is the name of each layer of the OSI network model?"

"What does the letter 'S' stand for in the acronym ISDN? Answer (a) Signals (b) Services (c) Switching or (d) Segment?"

"Do you have any questions on what we covered today in class?"

"The lecture next week is on the topic of DSL. Please look over the lecture notes on this topic prior to coming to class. Thanks"

The third category of message were those whose main purpose was to promote affective learning and included messages that were designed to motivate students in their studies, enhance interest in the subject and to encourage attendance, engagement and participation in class. While messages from the other two categories could have an indirect effect on affective learning this type of message was specifically aimed at enhancing it and included messages expressing pleasure at the effort students were putting into their studies and thanking students for their participation in class. These messages were always sent as a broadcast to all

participants and care was exercised to make sure they were always positive in tone and never critical. A few examples of text messages in this category that were sent to participants were as follows:

"Thanks for all your work and study this week. Glad to hear the projects are getting off to a good start. Have a good one & c u nxt week, Paul"

"You learn something every day if you pay attention ~~ Ray LeBlond"

"Very enjoyable class today. I will try to sort out the issue with the timetable tomorrow. Paul"

3.3 Data Collection

For the purposes of this investigation students who used the out-of-class text messaging service were asked to complete a questionnaire. The questions were formulated based on a review of the research literature on the use of text messaging to support students together with a review the findings of the preliminary studies and the use of the text messaging service to provide out-of-class support to students during the main study. The first section of the questionnaire consists of 30 specific questions about student perception of the use and impact of the text messaging service. Participants were asked to indicate their response to each question on a 7-point Likert scale. The second section of the questionnaire uses a series of open questions to give participants the opportunity of anonymously expressing their personal opinions in terms of communicating with their instructor using text messaging and its impact, if any, on them or their class in terms of learning and education, and the relationship with their instructor. It was hoped that analysis of the student responses to the questionnaire would provide data on the effect of the text messaging on student affective learning.

4. RESULTS AND DISCUSSION

Both quantitative and qualitative data is presented in this section from the responses of participants to the questionnaire. The data is analysed to reveal any evidence of the impact of the text messaging on affective learning. The responses by students to the open questions are especially revealing as they contain many references to the effect of the text messaging on their affective learning.

4.1 Levels of Participation

Participation in the study was purely voluntary and overall the rate of participation was 88%. The total number of messages sent by the instructor during two 13-week semesters of the study was 202. The number of broadcast messages sent to groups of participants was 89 while 113 messages were sent to individual participants usually in response to individual queries.

A total of 155 messages were received by the instructor from participants indicating that participants not only received text messages but actively participated in the communication. Between broadcast messages and individual messages the total number of individual messages received by all participants during the study was 1,005. This means that on average 23 messages were sent to each of the participants and it equates to an average of less than two messages per participant per week.

Even though 202 texts were sent by the instructor during the main study the cost of sending the messages was not prohibitive. The instructor was able to send a lot of the broadcast text messages for free using a text messaging service provided via the website of the mobile provider. In addition the instructor had free text messaging to any students who were using the same mobile provider as himself and most of these students could also reply to him if they wished at no cost. The estimated average cost of the service to the instructor was less than two euro per week.

4.2 Quantitative Results

The first section of the questionnaire consisted of 30 specific questions on the use and impact of the text messaging service. Participants were asked to indicate their response to each question on a 7-point Likert scale. The 30 questions are presented in Table 1 below along with the mean score and the standard deviation

for each question. In addition, for each question the percentage of responses that were scored with 5 points or more is also shown. As score of 5 points or more on any item by a respondent is taken to indicate agreement. Analysis of the results shows that participants generally felt very positive about the introduction and use of the text messaging service with 91% of participants agreeing that they thought that being in touch by text messaging with your instructor was a good idea and 86% of participants agreed that they liked receiving text messages from their instructor.

Table 1. Responses by participants to Section A of questionnaire using 7-point Likert scale (1=definitely not, 7=very much so), n=44

No.	Question	Mean	%≥5	Std.
1	Do you think that being in touch by text messaging with your lecturer is a good idea?	6.11	91%	1.10
2	Do you like receiving text messages from your lecturer?	5.55	86%	1.30
3	Would you like to receive more text messages from your lecturer?	4.43	55%	1.74
4	Were you surprised when the lecturer offered you a text messaging service?	5.57	77%	1.66
5	Do you enjoy the text messaging service?	5.52	77%	1.48
6	Do you like receiving text messages about the module?	6.02	84%	1.28
7	Do you like receiving non-academic text messages from your lecturer?	4.43	55%	1.77
8	Do you think the contents of the text messages you receive from your lecturer are appropriate?	5.70	77%	1.53
9	Do you think the text messaging service has improved your attitude to your lecturer?	5.57	80%	1.45
10	Do you think the lecturer is more approachable as a result of the text messaging service?	5.64	80%	1.60
11	Do you think you are more likely to ask questions in class as a result of the text messaging service?	4.59	61%	1.87
12	Do you think you are more likely to informally chat with the lecturer as a result of the text messaging service?	5.20	70%	1.65
13	Do you think the text messaging service has improved your attitude to the subject?	4.84	64%	1.67
14	Do you think the text messaging service has improved your attitude to the college?	4.57	57%	1.87
15	Do you think the text messaging service has been beneficial to your relationship with the lecturer?	5.25	75%	1.51
16	Do you think the text messaging service has improved the lecturer's attitude towards you?	4.57	57%	1.42
17	Do you think the text messaging service has improved the lecturer's attitude towards the class?	5.25	70%	1.43
18	Do you think the text messaging service has been beneficial to you?	5.75	89%	1.44
19	Do you think the text messaging service has been beneficial to your class?	5.55	80%	1.28
20	Do you like the subject more as a result of the text messaging service?	4.27	52%	1.53
21	Do you think the text messaging service has increased your motivation?	4.31	52%	1.51
22	Do you think the text messaging service has increased your engagement with the subject?	4.34	50%	1.64
23	Do you think the text messaging service has increased your participation in class?	4.55	52%	1.62
24	Do you think the fact that the text messages can be sent and received at any time and in any place is an advantage?	5.77	84%	1.61
25	Do you think that text messaging is an effective approach to support learning?	5.93	86%	1.19
26	Do you think you respond better to the text messages than you would to emails?	5.36	73%	1.90
27	Do you think text messaging is useful for the organisational side of learning such as announcements about room changes etc.?	6.48	93%	0.90
28	Do you think the text messaging service has helped you in your learning?	5.00	73%	1.48
29	Are you concerned about the potential cost of replying to the text messages?	3.34	34%	2.27
30	Do you feel that receiving text messages from your lecturer is intrusive?	2.80	16%	1.80

In terms of the effect of the text messaging on their relationship with their instructor three-quarters of participants agreed that the text messaging service had been beneficial to their relationship with the instructor and over 80% of participants agreed that it had both improved their attitude to their instructor and made their instructor more approachable. Just over half of participants agreed that the service had improved their attitude to the college, had increased their liking for the subject and had increased their motivation, engagement and participation.

When asked if they were concerned about the potential cost of replying to the text messages 34% agreed that they were. However only a small number of messages sent had needed a reply and more and more students are now availing of free text messaging. While 84% of participants did not agree that receiving text messages from your instructor was intrusive a small number of participants had responded to question 30 with a score of 5 or more. This was taken seriously and further emphasised the need for careful and judicious use of the service and the need to speak to participants about any concerns they might have and also the need to make sure they fully realised that they could withdraw from the service at any time of their choosing. When asked what they thought about the use of text messaging to support learning 86% of participants agreed it was an effective approach.

In summary the participants generally liked receiving the messages and they perceived that it improved their relationship with their instructor and his attitude towards them. It also made the instructor more approachable and made it more likely for them to talk to the instructor informally. Many participants agreed that the service had improved their attitude to the college, had increased their liking for the subject and had increased their motivation, engagement and participation. This was taken as evidence of an effect on student affective learning of the out-of-class text messaging.

4.3 Qualitative Results

The second section of the questionnaire gathered qualitative data from participants on their perceptions of communicating with their instructor using text messaging and its impact, if any, on them or their class in terms of learning and also in terms of the relationship with their instructor. A series of open questions were used to give participants the opportunity of anonymously expressing their opinions. The responses from the participants to the open question provided a great deal of valuable and insightful feedback into their perceptions of the effect of the text messaging service on their learning experience. Analysis of the responses provides further evidence of the effect of the text messaging on student affective learning.

The overwhelming majority of the feedback was very positive. The participants generally perceived that the text messaging had made them feel closer to the instructor and they felt more comfortable asking questions in class, or outside of class, about the course. One participant, who was a mature student, responded it "has motivated me more to come to class, has improved my attitude towards college and subjects". When asked in what ways (if any) they thought the text messaging service has been beneficial or detrimental to your class in general they again mostly responded very positively. They felt it improved communications and had improved the class' relationship with the instructor and as a result they felt they had a more comfortable atmosphere in class and they perceived that their learning was better. They also felt it had brought the instructor closer to the class, had become a talking point among them, and had brought the class closer together as a result. They also perceived that there were many benefits from it and that the class had a higher attendance as a result. When asked in what ways, if any, they thought the text messaging service has helped or hindered them in their learning some of the participants responded that it reminded them to study before class and was better than email for notifying them at short notice of any changes to the schedule.

The responses to the last question are particularly revealing in terms of the overall assessment by participants of the use of text messaging for out-of-class communication and their perceptions of the study. The participants generally responded that it was a good service to students and improved communications. They also felt that others should use text messaging as a means of communication and that it was easier to communicate by text than by email. One participant felt that it should be applied to all modules. They also felt the research study was innovative and should be developed further as it was a different approach in dealing with instructor-student communication.

5. CONCLUSIONS

Analysis of the quantitative and qualitative data provides evidence of a positive effect on student affective learning of the use of text messaging for instructor-student out-of-class communication. While a few participants did express some concerns about the text messaging, it was generally felt that the text messaging had made the instructor more approachable and as a result it was easier to talk with them, giving the participants a feeling that the instructor cared about them. A number of participants mentioned that the text messaging made them more likely to attend class and made them feel more comfortable in class. In addition, some reported that it also encouraged and motivated them in their learning. This is further evidence of the text messaging having a positive effect on student affective learning as well as student learning experience in general. As this study was conducted in just one educational institution further research studies will be needed to explore the scalability and generalisability of the results across multiple educational institutions, subject domains and cultures.

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