

Assessing Online Textual Feedback to Support Student Intrinsic Motivation Using a Collaborative Text-based Dialogue System: A Qualitative Study

Abstract

This paper assesses online textual feedback to support student intrinsic motivation using a collaborative text-based dialogue system. A research model is presented based on research into intrinsic motivation, and the specific construct of feedback provides a framework for the model. A qualitative research methodology is used to validate the model. Results from the study indicate that online textual feedback was strongly supported compared to feedback in a human non-technology supported face-to-face setting. From observation, subjects using the collaborative text-based dialogue system were eager to engage in online textual dialogue and therefore, participated more in the dialogues compared to the human face-to-face verbal dialogues.

Keywords: Textual feedback, text-based, dialogue, intrinsic motivation, collaboration, online, face-to-face.

1. Introduction

Today's learning environments have the technological means to open learning to the world and support interaction styles that are fundamentally different from those encountered in a traditional classroom environment (Liu & Tsai, 2008).

Technology-supported learning environments no longer need to conform to the traditional classroom environment where information is uniformly disseminated. Instead, the application of technologies means that learners can participate actively in their own knowledge acquisition and development process. Per se, new technologies may offer innumerable opportunities for educational reform. For example, many new technologies are interactive (Greenfield & Cocking, 1996), and thus, it is now relatively easier to form environments in which students can learn by doing, receiving feedback and continually refining their understanding to build on existing knowledge (Scardamalia & Bereiter, 1994).

A fundamental problem in the context of technology-supported learning environments is that little is known about the impact of different technology-supported learning activities on student intrinsic motivation (Shroff, Vogel, Coombes & Lee, 2007; Teo, Chang & Gay, 2006). In fact, many educators and administrators consider technology to be a means of automatic enhancement for learning and teaching processes.

However, beyond the hype and irrational enthusiasm of some researchers, there exists a major gap in the understanding of the role and impact of technology used in today's classrooms. Salomon et al., (1991) share this concern as they write "...the real issue here is to determine whether applications of technology will yield the promised improvement of learning or not." Within a technology-supported learning environment, students feel an increased amount of intrinsic motivation (Lepper & Malone, 1987; Wang & Reeves, 2006). As such they are able to navigate, discover and exercise their sense of control. Through a systematic study of intrinsic motivation, we can thus shed light on how to design appropriate, viable and effective technology-supported learning environments that are sensitive to individual differences (Martens, Gulikers & Bastiaens, 2004).

Reviews of motivation in education (Deci and Vansteenkiste 2004; Ryan and Deci 2002), recognize increasingly the importance of intrinsic motivation and have emphasized the role of intrinsic motivational processes in individual learning and achievement. When educational environments provide challenges, rich sources of stimulation and a context of autonomy, learning is likely to flourish. For most students, there are significant portions of the academic curriculum that are not compelling or inherently interesting and therefore students do not appear to be intrinsically motivated in their respective learning activities (Renninger 2000). Growing evidence in educational literature strongly suggests that such issues have

significant implications that extend well beyond learning and achievement. Consequently, motivational strategies need to be assessed not only for their success in evaluating performance and achievement, but also for their impact in the broader and more significant areas of individual development (Vansteenkiste et al. 2004). In the last ten years, there has been a significant shift towards providing motivating learning settings and the building of learning environments that foster motivation. The entrance of technology onto the learning scene and its impact on students has resulted in the research of motivation in relation to technology-supported learning activities.

Clearly, technology-supported learning environments have the potential to provide the tools and structure to transform education, such that students are encouraged to actively engage in and shape their personal learning experiences (Walker, Greene & Mansell, 2006). Furthermore, technology offers the potential to help students effectively in the construction of their personal motivational strategies (Scardamalia, Bereiter, McLean, Swallow & Woodruff, 1989). However, to unleash the full potential of technology-supported learning environments, the technology should be designed and applied in such a way that it reinforces the students' intrinsic motivation.

The following research question seeks to assess online textual feedback to support student intrinsic motivation using a collaborative text-based dialogue system: does

online textual feedback lead to higher positive feedback compared to feedback in a human face-to-face setting? The intention of this research is to create a collaborative learning platform that allows students to interact and collaborate in both online and human face-to-face settings. Individual feedback has long been recognized as a major factor in the development of individual student intrinsic motivation in the classroom (Mueller & Dweck, 1998). Several studies have demonstrated that providing individuals with feedback can have a positive effect on performance (Vansteenkiste, Simons, Lens, Sheldon & Deci, 2004). As such, feedback can increase intrinsic motivation, aid in learning and lead to greater increases in an individual's subsequent performance (Ilgen, Fisher & Taylor, 1979; Vansteenkiste et al., 2004). The recipient's perception of the feedback and response to it depends upon his or her personal characteristics, the nature of the message and the characteristics of the source of the feedback. Ashford et al. (1983) hypothesized that individuals would be intrinsically motivated to seek feedback information in order to reduce uncertainty in their environment, evaluate their abilities and to change behaviors in order to meet their goals. They argued that individuals would either "monitor their environment" for cues or directly ask others for feedback information (Ashford & Cummings, 1983).

Thus, it is the contention of the authors, that the use of a collaborative text-based dialogue system, with its unique processing ability and diverse modes of presentation (i.e., text and graphics), is a unique medium for studying the effects of feedback on supporting individual student intrinsic motivation. Further, online textual dialogue has been a standard mode of electronic discussion since the inception of online learning platforms such as “Blackboard™” or “WebCT™.” Collaborative text-based dialogue systems have been found to enhance communication and dialogue through use of these tools and as such, an individual may learn that ideas and feedback from others may support his or her intrinsic motivation.

2. Feedback

Individual feedback has long been recognized as a major factor in the development of individual student intrinsic motivation in the classroom (Mueller & Dweck, 1998). Research on feedback conducted thus far has demonstrated that the inclusion of positive feedback facilitates individual intrinsic motivation (Pittman, Davey, Alafat, Wetherill & Kramer, 1980; Zinser, Young & King, 1982). In prior studies it was demonstrated that the provision of positive feedback resulted in intrinsically motivated behavior over the provision of negative feedback (Zinser et al., 1982). As such, positive feedback can increase intrinsic motivation, aid in learning and lead to greater increases in an individual’s subsequent performance (Ilgen et al., 1979). The

recipient's perception of the feedback and response to it depends upon his or her personal characteristics, the nature of the message and the characteristics of the source of the feedback. Ashford et al. (1983) hypothesized that individuals would be intrinsically motivated to seek feedback information in order to reduce uncertainty in their environment, evaluate their abilities and to change behaviors in order to meet their goals. They argued that individuals would either "monitor their environment" for cues or directly ask others for feedback information (Ashford & Cummings, 1983).

The importance of feedback on intrinsic motivation has been long accepted in the field of motivation. Implicit in this assertion is that receiving positive feedback can increase the intrinsic satisfaction derived from that activity. Individual generated feedback increases intrinsic motivation and is critical to improved individual quality of work. When an individual receives feedback, the more pleased the individual is with his or her efforts, especially when that individual sees improvement. Feedback in the form of verbal praise enhances success, perpetuates a positive learning atmosphere and therefore raises quality. For example, making statements like, "Hey, that is great!" or "That was an excellent comment!" has a positive effect on intrinsic motivation, leading to enhancement of interpersonal relations and understandings (Wentzel, 1999).

Results from research conducted thus far on feedback provide the following information about the types of feedback: 1) reinforcement (i.e. praise or punishment); 2) knowledge of correct response; and 3) feedback that is explanatory or elaborative (Annett, 1969; Pittman et al., 1980). Elaborative feedback involves the presentation of information in addition to indicating a correct response. Elaborative or explanatory feedback supports information processing and a positive conception of feedback in which the purpose of the feedback is to assist the individual learner to better understand the material being learned. This conception asserts that the individual uses feedback to gain understanding of the material being learned. Hence, elaboration in a particular task or activity provides the individual learner with a more comprehensive set of associations that supports intrinsically motivated behavior.

A collaborative text-based dialogue system can be used to demonstrate the distinction between behavioral and cognitive conceptions of learning. For example, the use of the “Blackboard™ Virtual Classroom” may engage the individual learner through the use of positive reinforcement (e.g., “correct,” “very good,” etc) that may encourage his or her continued interaction and facilitate an understanding of the content of the task. Hence, the use of a collaborative text-based dialogue system may provide

opportunities for feedback because discussions on a designated topic or issue, for example, may lead to individual reflection on the subject and thereby, sharing of knowledge. Hence, this delivery of different dialogues, interaction patterns and knowledge sharing, contributes to greater expectations for peer commenting, positive feedback, elaboration on and justification of responses (Rourke and Anderson 2002).

The effect of the medium (i.e., collaborative text-based versus human face-to-face dialogue) by which feedback is generated is an important factor to consider. Research done by Schneider and Shugar (1990) revealed that there was a significant difference in individual performance between conditions where feedback was provided via a computer and feedback given face-to-face via a person. Participants who received online textual feedback performed better than participants who received feedback from a person face-to-face. Schneider and Shugar suggested this difference may occur because feedback delivered via a computer is impersonal, whereas feedback from a person may be seen as judgmental (Schneider & Shugar, 1990). For instance, judgmental statements which permit no scope for maneuver, are viewed as unhelpful and if critical, can upset an individual resulting in him or her becoming unreceptive to comments. Such comments containing unmitigated statements may cause difficulty in learning and performance. Hence, the research done by Schneider and Shugar (1990)

seeks to provide insights into whether online textual feedback generated via a collaborative text-based dialogue system or human face-to-face generated feedback affects individual learning and performance.

3. Research Methodology

A qualitative research approach was used to help clarify the following research question: does online textual feedback lead to higher positive feedback in supporting student intrinsic motivation compared to feedback in a human face-to-face setting?

This paper assesses online textual feedback using a collaborative text-based dialogue system. A summary of the two stages of this research is outlined below (see Figure 1).

As mentioned below, the preparatory stage consisted in conducting a thorough literature review followed by the qualitative study that provided a conceptualization and interpretation of the results.

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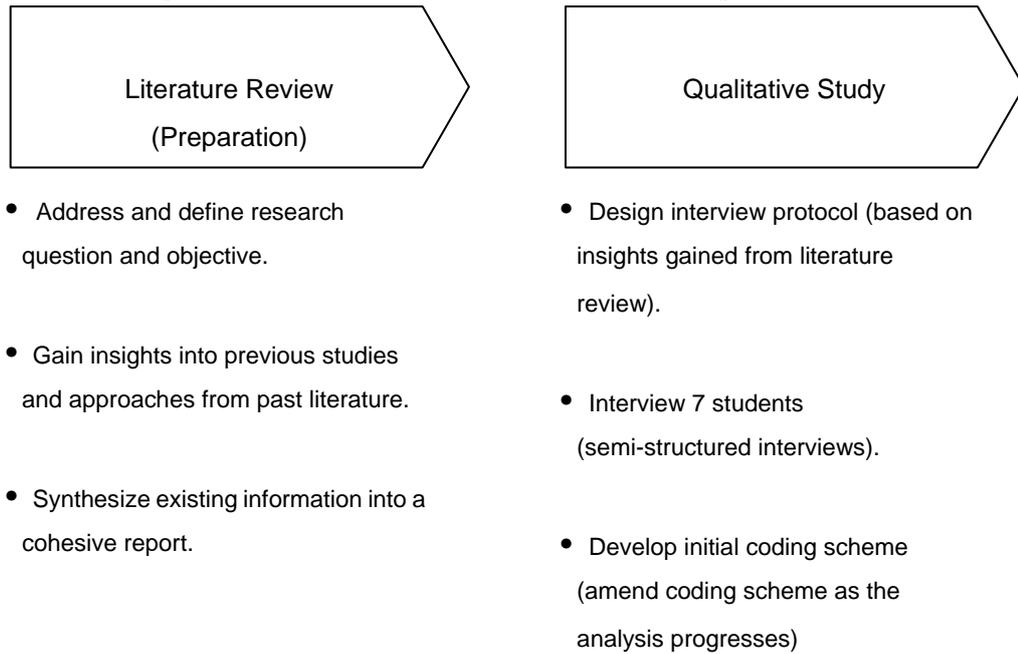


Figure 1: Overview of Research

The objective of this study was to assess online textual feedback to support student intrinsic motivation using a collaborative text-based dialogue system. Each of the techniques employed in the qualitative study are described below to explain their purpose and application to the study. Techniques are listed as steps in the order they were conducted (see Table 1).

	Method	Tools
PREPARATION	<ul style="list-style-type: none"> - Developed case study protocol - Designed interview protocol - Selected and contacted student subjects - Scheduled interviews - Developed initial coding scheme 	<ul style="list-style-type: none"> - Use of framework and construct gained from literature review
DATA COLLECTION	<ul style="list-style-type: none"> - Interviewed 7 FB students via semi-structured interviews - Transcribed interviews 	<ul style="list-style-type: none"> - Interviews scheduled and conducted
DATA ANALYSIS	<p><u>Detailed analysis – Within case:</u></p> <ul style="list-style-type: none"> - Preliminary analysis – within case- (summarizing) - Detailed analysis (coding) 	<ul style="list-style-type: none"> - Summarized transcripts (to capture main impression) - Coded interviews - Developed summary/overview tables for each case.

Table 1: Path of Inquiry

Based on the literature on feedback, a case study protocol was designed. The case study protocol was developed from a combined literature review of this paper and research question and then supplemented by the framework developed. By applying a theoretical interpretive model to the findings, the findings were mapped on to the feedback construct.

3.1. Background of Study

The research plan comprised use of a collaborative online text-based dialogue system and human face-to-face dialogue via group discussions.

3.2. Course Structure

FB2501 “Management of Information Systems (MIS2)” was an undergraduate course offered to BBA students in the School of Information Systems at the City University of Hong Kong. This course provided students with an understanding of the role of computer-based information systems in business organizations. Emphasis was placed on management and technical concepts essential to business application and management control of information systems. Procedures and controls used in maintaining communication channels were an integral part of the course.

3.3. Technology

The specific type of learning activity was a collaborative text-based dialog system using the “Virtual Classroom” tool of the “Blackboard” online learning platform. The “Virtual Classroom” has increasingly becoming a much wider used platform on which to teach a broad range of different topics and provides an opportunity for participants to engage in collaborative text-based dialogue.

3.4. Procedure

Classroom activities were organized around whole-class discussions and revolved around forums and debates for both online dialogues and face-to-face dialogues. Both online dialogues within “Blackboard” and human face-to-face dialogues were used to

support student-student and student-instructor collaboration, to promote the free flow of ideas. Combining the unique characteristics of a synchronous collaborative text-based dialogue system utilizing “Blackboard,” with some common course goals, offered students the following useful educational tools:

1. A break from the classroom environment, which permits students to relax and creates a certain level of excitement about and engagement in class discussions.
2. A chance to participate in “real-life” scenarios directly related to their writing assignments.
3. Direct exposure to the importance of voice/tone in online textual communication due to the immediate feedback students get from what they submit to the group.
4. An opportunity for students to test their preconceptions about how society “works,” by eliminating certain factors such as appearances or membership of social groups and then examining whether and how their online groups work differently from "regular" societal exchange.
5. Experience portraying a favorable self-image, face and persona through language in real time.

Activities in both the collaborative text-based dialogue system and human face-to-face dialogue were designed to allow students to engage in dialogues, thereby demonstrating ideas, posing questions, offering feedback, advancing suggestions and revealing a broader and deeper understanding of the issues at hand.

3.5. The Research Setting

Enrolled students from the Bachelor of Business Administration (BBA) program taking the FB2501 “Management of Information Systems (MIS2)” course, constituted a large pool of available interviewees that fit well within the context and purpose of this study. For this study, a total of seven students enrolled in the BBA program were interviewed. A number of seven interviews appeared to be reasonable, both with respect to the goals of this study and the feasibility involved.

3.6. Case Study Measures

A semi-structured interview outline was developed to assess collaborative text-based dialogue and human face-to-face dialogue via group discussions on the construct of feedback chosen from the literature. Measures were developed for the following construct of feedback covered in the interviews. We believe that online textual feedback will lead to higher positive feedback in supporting student intrinsic motivation compared to feedback in a human face-to-face setting. Questions relating

to feedback were asked, such as the extent to which the collaborative text-based dialogue and human face-to-face dialogue promoted and generated positive feedback (i.e. verbal praise) between individuals. The following three measures are factors supporting the degree of feedback in the discussions. Feedback was measured by the extent to which these factors were present or not present in the assigned activity.

Compliment	A remark or act expressing praise or approval.
Opinion	A personal belief, judgment or appraisal formed in the mind about a particular matter.
Comment	The information provided by any individual involved in the evaluation process.

Table 2: Measures of Feedback

3.7. Data Analysis Procedures

In our data analysis, information was represented in the form of matrices that displayed information (tabular information showing relationships among categories of information) in a spatial format, thereby presenting that information systematically to the reader (Miles & Huberman, 1984) and enabling the identification of the coding procedures to be used in order to reduce information to themes/categories (Tesch, 1990). We expected the categorization and themes to emerge from: (1) Ongoing comparison; (2) Themes generated from the literature review; (3) Themes embedded in instrument questions; (4) Themes embedded in research questions; (5) A

combination of any of the above. The stages of the coding process (Figure 3) are shown below:

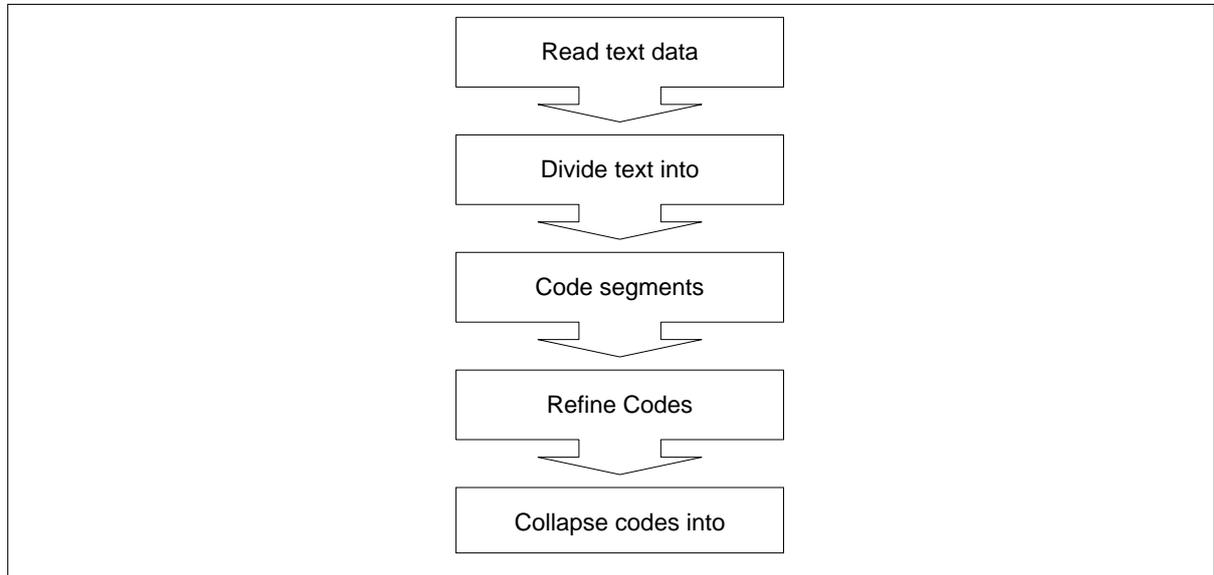


Figure 3: Coding Process

Coding was guided by a coding scheme that was derived from constructs and ideas found in the relevant literature (a so-called start-list of codes). Data refinement included selecting and thus simplifying the data that appeared in the transcriptions. The objective was to code the categories and group and organize these categories, so that conclusions could be reasonably drawn and verified. Data were displayed in matrices and charts (see Table 3 for example), thereby illustrating the patterns and findings from the data.

Construct/Concept	Code	Measure	Sub-Code
Feedback	FE	Compliments	FE-COM
		Opinion	FE-OPI
		Comments	FE-CMT

Table 3: Classification for Coding of Interview Responses

Analysis and coding of the data transcript, presented in matrices and displays, were used to visualize and represent the data, thus enabling further discovery of patterns in the issues raised by the participants.

4. Analysis of Qualitative Results

The qualitative data provided a valuable overview of the overall student experience and the results are discussed herewith in detail. Our results are summarized in Table 4 below, aligned with the embedded units design with “+” and “-,” indicating positive and negative comments, respectively based on the coding scheme illustrated above in Table 3. For example, “+FE” under Interviewee 1, indicates a positively related comment with respect to the construct of “feedback (FE)” and measure of “compliments,” indicated by sub-code FE-COM.

Interviewee 1	Interviewee 2	Interviewee 3	Interviewee 4	Interviewee 5	Interviewee 6	Interviewee 7
+FE (FE-COM) (FE-OPI)	+FE (FE-OPI)	+FE (FE-OPI) (FE-CMT)	+FE (FE-OPI)	+FE (FE-OPI)	+FE (FE-OPI) (FE-CMT)	+FE (FE-CMT) (FE-OPI)

Table 4: Summarized Results

If we examine the issues from the construct of feedback previously discussed as illustrated in Table 3, we find that online textual feedback (FE) was positively (indicated by “+”) supported by all seven interviewees and recognized in the online collaborative text-based dialogue system with regard to compliments (FE-COM), opinion (FE-OPI) and comments (FE-CMT). We interpreted from the following statements that online textual feedback led to higher positive feedback compared to feedback in a human face-to-face setting.

For example, Interviewee 1 noted that, *“Compared to the face-to-face discussions, I think our feedback in the online discussions were of very high quality because to my concern I felt our points are considered carefully before they have typed them in and entered actually into the discussion.”*

“It was just like some chatting and of course the compliments (FE-COM) were very useful to encourage you. The online feedback was particularly useful and

when we were discussing about some controversial problem, may be our points are more or less the same or we may have different views or opinions (FE-OPI) about one question, so may be their feedback and comments at that time was encouraging, positive and very useful.”

Interviewee 2 noted, “...*whenever I say something my team member will say, “I cannot agree with you more, I totally agree with you or I have different opinions (FE-OPI).” This will stimulate my thinking because of the positive feedback from them. It was also easier to post our thoughts and ideas online since we felt more at ease and can express ourselves more compared to the face-to-face discussion where we felt we were being judged.”*

To summarize, there was agreement among students that the online discussions were motivating and invoked their feedback. As Interviewee 3 stated: “...*through the online discussions we can give very positive and constructive opinions about something and we don’t need to care about others’ opinions (FE-OPI). Receiving positive feedback in the online discussions made me feel that my comments (FE-COM) and contributions were valued and appreciated.”*

The online textual feedback encouraged “independent learning,” while “managing” teaching and learning with reduced tutor contact and use of online collaborative text-based dialogue system, which was overall perceived by students as desirable and effective. Commenting on this, Interviewee 4 said, “*I think I am highly motivated by using the online discussion. Yes, because it [online discussions] made me think more critically and more actively because I needed to give my own opinion (FE-OPI).*”

Our findings from the qualitative study also illustrated that some students would have preferred the convenience to engage in the online discussions or participate from wherever they were. As Interviewee 5 pointed out, “*I think only this course has provided the online discussions and we have only been able to discuss in the class, in this tutorial and we don’t have time to discuss online outside of the class on other occasions.*” “*...sometimes may be I have my own ideas about the questions or I will type a lot or may be sometimes I just sit there and watch what the others say and form type my own opinions (FE-OPI) later on.*”

To summarize, there was agreement among students that the online discussions provided higher positive feedback. As Interviewee 6 stated: “*I haven’t fully adapted to it, but I think it has many advantages like new ideas...hmmm...may be more complete opinions and things...it’s quite good. I will motivate myself to think about more points and offer more information to others and then we can form our solution in our group. I felt motivated because a lot of different opinions (FE-OPI) rush to you and a lot of fresh ideas come to your mind. We really got a lot of positive comments (FE-CMT) from group members in the online discussions.*”

Finally, a more widely held perception among students was that feedback generated in the online discussions was useful and convenient from a practical standpoint. For example, Interviewee 7 was of the opinion that, “*...the virtual classroom is very useful. It can arouse different comments (FE-CMT) and opinions (FE-OPI). Online participation encouraged us to exchange our ideas, challenged us to think and made us reflect on our own and others view points and comments (FE-CMT).*”

From an overall perspective, the results demonstrated that students were comfortable using an online collaborative text-based dialogue system, through application of the “Blackboard Virtual Classroom.” Students excelled in the use of the “Blackboard Virtual Classroom” and the online textual dialogues demonstrated strong support for the construct of feedback in supporting intrinsic motivation.

5. Discussion

Most of the comments generated by students in the interviews were consistent in supporting the construct of feedback and its measures. The following emergent trends were noticeable:

- Compared to the human face-to-face dialogues, all the students found the online textual dialogues resulted in higher positive feedback, given the rich nature of the discussions and the more personal interactions with each other and the tutor. These types of synchronous activities seemed more familiar to them and gave them ample opportunities to influence the directions of the topics under discussion.
- A significant benefit arising from the online textual dialogues was that these discussions compelled students to give more serious thought to the issues being discussed online and the effects the use of technology has on their learning behaviors.

- Another significant benefit of communicating via computer seemed to include individual development of thoughts and ideas, feeling part of an online community, gaining insights about different people and learning from each other (Palloff & Pratt, 2007). This also included the advantages of overcoming isolation, enhancing personal power and making it less threatening to be able to contact others. Students felt that by using the computers for online discussions, they could learn faster, become more creative and write better. They felt they had more control over their learning behaviors and more opportunities to practice their written English dialogue skills.
- Compared to the human face-to-face dialogues, participants in the online dialogues seemed less apprehensive about being evaluated by others and more willing to participate in the discussions and give positive feedback. They felt less affected by wait time, turn-taking and other elements of traditional face-to-face interactions, thereby enabling them to participate as much as they wanted to in the discussions along with opportunities for gainful contributions being more uniformly distributed among them.
- From observation, students who were shy or felt inhibited in human face-to-face dialogues, found a “voice” in textual dialogues and tended to participate more actively in these discussions.

The technology-supported online discussions in this study were able to stimulate the subjects through the use of content and graphics. The subjects, who were part of the collaborative text-based dialogue system, were excited about the use of computers and, especially, the use of the “Blackboard™ Virtual Classroom” program. We noticed that the subjects seemed eager to arrive at the computer laboratory and work on their computers. Once in the laboratory, they would immediately log into “Blackboard™” and enter into the “Virtual Classroom,” to begin their online dialogue, thereby generating comments and sharing ideas with the other participants. What we found in this study, in our observations of subjects engaged in the collaborative text-based dialogue system, was that this system allowed for individual assimilation, reflection and critical thinking (Greenlaw and DeLoach 2003; Paré and Joordens 2008). Subjects in this study seemed to learn on their own whilst engaged in the online discussions, but for the most part we needed to coach and guide them in the use of the “Blackboard™ Virtual Classroom” program. This implied that there needed to be accountability and guidelines for learning, in order for subjects in this study to gain a rich learning experience.

In general, the use of online dialogue may directly support individual learning goals that are meaningful and useful. For example, if the learning goal of an individual is to

learn how to articulate and defend his or her ideas, the use of online dialogue may support that goal. An individual may feel that text-based dialogue system helps to extend the discussions that take place in class. In effect, this helps the individual to gain a deeper understanding of material and it also provides an opportunity for him or her, to apply course content to his or her own experiences. Finally, an individual may learn to appreciate the variety of perspectives that can be shared amongst all participants in the text-based dialogue. We observed the following benefits of supplementing face-to-face dialogues with on-line dialogues:

Enhanced Communication

The use of a collaborative text-based dialogue system in this study provided an effective way to increase communication between subjects. We observed that by adding the “Blackboard™ Virtual Classroom” to the FB2501 “Management of Information Systems (MIS2)” course for online dialogue, we increased individual student motivation and participation in the discussions. Subjects in the study were more willing to participate in these dialogues and the fact that there existed a measure of anonymity in the online dialogues, appeared to serve as a motivating element. As such, subjects seemed to feel more empowered, more daring and more confrontational, whilst giving expression to their ideas. The online communication, put emphasis on subjects’ communication skills, knowledge of the elements of verbal exchanges and

thus, on how to interact with each other in meaningful ways, as compared to face-to-face dialogues.

Sharing of Perspectives

Research supports that, “As learners become aware of the variations in interpretation and construction of meaning among a range of people [they] construct an individual meaning” (Alexander and Murphy 1998). The online dialogues provided subjects in this study, an opportunity to submit their comments. Each subject could then view another participant's comments and learn through exposure to different perspectives. This seemed to benefit subjects in the study, because they could combine new comments and opinions with their own and develop a solid foundation for their learning. In addition, the online dialogues also allowed for giving and accepting feedback and for greater individual reflection.

The subjects in this study also seemed aware of the significance of their responses and learned to ask questions of themselves and others. Given sufficient practice, subjects in this study were able to incorporate questioning techniques into the online dialogues, so as to enhance social interactions and dialogue. The astuteness of questions asked greatly influenced the depth of thinking of the subjects. Thought-provoking questions required that subjects go beyond the facts and knowledge (i.e. recognizing

assumptions, implications and consequences) in the exercise of judgment in the online dialogues.

A Sense of Equality

Another benefit of using a collaborative text-based dialogue system in this study is that, it reinforced the subjects' sense of equality. Each individual had the same opportunity to "speak up," by submitting comments without typical distractions such as seating arrangements, volume of student voices and gender biases. Shy and anxious subjects felt more comfortable expressing ideas and backing up facts when submitting comments, instead of speaking face-to-face in a classroom.

Hence, the online dialogues in this study facilitated the establishment of an environment in which subjects' felt comfortable in the exchange of information and ideas. This enabled each subject to participate and contribute to the dialogues, without individual reservations of being identified or appearing to ask inappropriate questions.

Therefore, the removal of social cues such as appropriate decorum and propriety and/or facial expressions, through online text-only discussions, made even shy participants feel more confident about communicating with others. In essence, the collaborative text-based dialogue in this study helped maintain protocol and cordiality

amongst subjects in the discussions, thus promoting a greater sense of community, as compared to the face-to-face dialogues.

5. Conclusion

The findings in this study indicated that using an online textual feedback led to higher positive feedback in supporting student intrinsic motivation compared to feedback in a human face-to-face setting. Our research design in this study showed limited external validity for a number of reasons. Firstly, deliberate samples were representative of the population (i.e. students). However, the research design needed to take into consideration, the limitations of being able to generalize to a target population such as all students from all countries. Therefore, it was important to recognize that categories of subjects in this study (i.e. individual versus group, racial, social, geographical, age, sex and personality, etc.), could not be generalized to all populations. In this study, deliberate sampling for heterogeneity was limited, even though students were composed of males/females, from a variety of different economic and social backgrounds and with different values placed on achievement.

From the study, individual feedback in the form of verbal praise was considered an important factor supporting individual intrinsic motivation. The online textual dialogues seemed to encourage positive feedback offered by subjects in this study, by

providing an electronic medium that allowed for greater participation in the learning process and increased the contribution of information between participants. The online collaborative text-based dialogue system offered to participants in this study provided them with clear information about the success and quality of outcomes of their discussions (Romanov & Nevgi, 2008). However, it was not so much the amount of feedback, but rather the meaning of the feedback, which was important to them. Subjects in this study seemed more inclined to interpret the textual feedback as informational.

The text-based feedback in the form of verbal praise, may enhance individual intrinsic motivation, especially when the feedback is perceived as sincere, promotes autonomy, promotes positive information and conveys standards and expectations of the individual that are realistic and not disruptive. On the other hand, feedback perceived as controlling may delay or stifle the development of an individual and thus undermine individual intrinsic motivation. Thus, rather than asking when feedback enhances individual intrinsic motivation, this study has attempted to ask about the conditions (i.e., online text-based versus face-to-face dialogue), under which individual feedback supports individual intrinsic motivation. This study is a cautious

yet assured step towards assessing textual feedback to support student intrinsic motivation using an online collaborative text-based dialogue system.

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