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Does increasing communication via VLE enhance student perceptions of lecturers?

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Abstract: The current study was conducted in an effort to determine whether increased levels of communication using VLEs alters student perceptions of lecturers. Eighty-six MSc students in Computing Science participated by using She and Fisher's (2002) Teacher Communication Behavior Questionnaire (TCBQ). In addition to using the questionnaire, data from the electronic class site was used to make determinations about quality and quantity of communication. Two types of classrooms were evaluated: 1) a control condition in which the lecturer did not alter any communication aspect of the module, and 2) the experimental condition in which the lecturer posted weekly discussion topics. Significant differences were found by cultural background and gender of the students. The bulletin board postings in the experimental condition were more heavily content-based than the control condition ones. The consistency in discussion topic of the experimental condition postings, both bulletin board and email, were more fluid than in the control condition.

e-Learning, communication, culture, student perceptions, gender

INTRODUCTION

Online education is becoming increasingly popular in academia (Collis, 1996; Dutton, Dutton, & Perry, 2002; Hiltz & Wellman, 1997; Schweizer, Paechter, & Weidenmann, 2001; Spitzer, 1998; Stadtlander, 1998; Webster & Hackley, 1997). In US academia alone, of the 5655 accredited postsecondary education institutions, 1979 offer a form of distance delivery (Council of Higher Education Accreditation, 2002). The vast literature in the field indicates that the distance education programmes are being studied extensively (e.g., Buerck, Malmstrom, & Peppers, 2002; Dutton, Dutton, & Perry, 1999; Frumkin, Mimirinis, Dimitrova, & Murphy, 2004; Russell, 1999).

It is important to asses how teachers' behaviours are perceived by students since 63% of what happens in a classroom may be explained by the student's perception of the teacher's influence, a factor possibly based on teacher behaviour (van Tartwijk, 1993). Past work has found that perceptions of behaviours can influence affective learning (Anderson, 1979), cognitive learning (Gorham, 1988; McCroskey, Sallinen, Fayer, Richmond, & Barraclough, 1996; Richmond, Gorham, & McCroskey, 1987; Richmond, McCroskey, Kearney, & Plax, 1987), the effectiveness of the teacher (Anderson, 1979; Cheng & Tsui, 1996), interactions between the student and teacher (Andersen, Norton, & Nussbaum, 1981; Choi, 2002; Moller, 1998), and general student performance (Matsumoto, Garside, & Roberts, 1991; Picciano, 2002).

Student motivation is an important aspect of the learning process (Hall, 1966). Christophel (1990) defines student motivation as the process of 'how' students are taught, rather than 'what' it is that they are actually taught. Vansteenkiste, Simons, Lens, Soenens, Matos, and Lacante (2004) argue that in the classroom, increasing the quantity of motivation might positively alter the quality of the learning experience regardless of whether the motivation is intrinsic or extrinsic. Ryan and Deci (2000) feel that intrinsic tasks can be viewed positively even if a student is not interested in the task for its own sake. Rather, it could be the intrinsic desire for some future that the task leads to that facilitates the accomplishment of the task. In fact, it has been claimed that the value one places on a task predicts academic achievement (Eccles & Wigfield, 2002). The more readily a task (e.g., learning a computer programming language) leads to a future goal (e.g. being offered a high paying computer programmer job), the more motivated a student will likely be to complete the task (Eccles & Wigfield, 2002; Lens, Simons, & Dewitte, 2002; Miller, DeBacker, & Greene, 1999). However, lecturers might be able to extrinsically motivate a student to do well (e.g., success on coursework results in high grades, possibility of internships, etc).

The study described in this paper uses a framework of extrinsic motivation. It evaluates how distance students perceive teacher communication behaviours. The current study assesses the relationship between perceptions of communication behaviour and module outcome (i.e., how well the student does in the module) among other variables. It is hypothesized that positive perceptions of teacher communication will provide extrinsic motivation for the students such that students who perceive their teachers as more communicative will be more likely to do better in the module.

Distance Education
Student academic success is equivalent when measured by final grades in distance-based and lecture-based courses (e.g., Dutton, et al, 1999; Russell, 1999). Buerck, et al (2002) report that, specifically for computer science students, those enrolled in online courses performed as well as their traditional programme counterparts.

The use of computer-mediated technology may enhance communication (Schweizer, et al, 2001). Schweizer, et al (2001) report that students acknowledge disadvantages of online education such as

missed opportunities in communication, anonymity, and high demand on resources. Interaction is a critical element in the learning process (Moore, 1993; Offir, 2000). Interaction between students and teachers may be even more important in the online learning environment (Gresh & Mrozowski, 2000). While time consuming, research has shown students want to be able to access lecturers in a virtual learning environment (VLE) (Sanders & Morrison-Shetlar, 2001).

Online lecturers must transition from the instructor role to the facilitator role (Lin & Hseih, 2001). According to Gates (2000), lecturers may be able to increase their levels of interaction with online students by using effective pedagogical tools and incorporating innovative design features. The use of forced interaction and discussion on module relevant topics may assist students with embracing the material and making them feel as if they 'belong to the classroom' even if they are in distant locations.

Communication Behaviours

Communication in the classroom is comprised of communication with the instructor and communication, as a separate category, with other students (Anderson & Garrison, 1998). Communication with the instructor allows the student to ask questions but perhaps more importantly, to develop a working relationship on which to base assignments and grading. It also keeps the student feeling connected to the academic institution and provides a feeling of proximity to an expert in the field (Miller, Preston, Elbert, & Lindner, 2003). Richmond (1990) believes that there is a link between the way a teacher communicates and the way the student learns. She further argues that the connection between motivation and learning are critical; that is, those who are motivated learn more and those who learn become increasingly motivated. Motivation may be triggered by the communication style of a teacher (e.g., extrinsically created motivation).

Communication in face to face modules is comprised of spoken verbal information and nonverbal personal or social cues (Schweizer, et al, 2001). Verbal messages impact cognitive aspects of communication, while nonverbal messages appear to be the ones responsible for affective types of communication (McCroskey, et al, 1996). It has been claimed that nonverbal behaviours are relevant in educational environments because they are relied upon for true sentiment or emotions that are hidden when a verbal-only message is provided (Schweizer, et al, 2001). Eye contact and smiling are positively related to cognitive learning (McCroskey, et al, 1996); Teachers' active participation in school activities assists students in exercising skills and talents (Vansteenkiste, et al, 2004). However, in an online environment nonverbal communication may not be particularly useful. Verbal behaviours are useful in such a setting. Samples in the Netherlands, the U.S., and Australia revealed that friendly, helpful, and understanding teacher behaviour is connected to higher cognitive outcomes and positive student attitudes (Fisher, Henderson, & Fraser, 1995; Fisher & Rickards, 1997; Wubbels & Levy, 1993).

Challenging communication behaviours such as teacher questioning and reaction to student answers promotes relevance of a given topic, encourages ownership of module material, assists students in their interpretations of new module content, and connects recently learned information to information students already have (Deal & Sterling, 1997; Good & Brophy, 1974; Walberg, 1984). She (1998a, 2000, 2001) found that teacher questioning and verbal reinforcement following high performance by students are positive facets of teacher behavior (i.e., requiring students to collate new information with already-existing information, encourage ownership of educational material, and assist students in analyzing the new content). Furthermore, Comadena, Semlak and Escott (1990) found that among adult learners, a dominant teacher style was a predictor of the teacher's effectiveness.

Research shows that controlling behaviour on the part of teachers increases cognitive gains among students (Wubbels & Levy, 1993; Fisher, et al., 1995; Fisher & Rickards, 1997). A study looking at Dutch students found that girls perceive their teachers as being more dominant (i.e., controlling) than did boys (Levy, Wubbels, & Brekelmans, 1992).

A Taiwanese study reveals that student achievement is increased when students feel that their teacher exhibits behaviours such as encouragement and praise (She & Fisher, 2002). Motivation which may be provided by teacher encouragement, or praise of the student, enhances interest and involvement in class as well as students reportedly looking forward to attending lectures (Frymier, 1994).

Gender
Past work has found some differences in online student behaviour based on gender. Males prefer to work independently, develop more class postings and are more likely to ask lecturers for assistance. The females prefer more classroom interaction, use language that is more complimentary when responding to other learners, and are more likely to ask peers for help (Trego, 2004). Australian male students prefer an individualized classroom when compared with their female counterparts (Hansford & Hattie, 1989). Taiwanese girls more frequently than boys report their teachers as being understanding and friendly (She & Fisher, 2002). Several studies indicated that girls perceive their learning environments more positively than do boys, regardless of cultural background (Fraser, et al, 1995; Fisher, et al, 1997; Rawnsley & Fisher, 1997). Since females perceive their learning environments more positively and enjoy greater levels of interaction, it is logical to assume that females who feel good about an instructor will give him/her higher ratings on his/her communication skills.

Culture
The cultural background of the student may affect how the given student perceives his or her teacher's behaviour (Mehrabian, 1969; Powell & Harville, 1990). Perceptions may be influenced by a number of behaviours that differ across cultures (McCroskey, et al, 1996). Cultures need not be defined by function of being in different parts of the world; rather, cultures should be considered as sociopsychological entities in and of themselves (Lee, Matsumoto, Kobayashi, Krupp, Maniatis, & Robert, 1992). For example, an individual who considers herself Egyptian, even if she is living in London, may have more of an Egyptian cultural personality than an English one.

Teacher behaviours were not related to cognitive learning among US African-American, Asian-American, Hispanic, and non-Hispanic Caucasian groups of students (Sanders & Wiseman, 1990). In Chinese society the teacher-student relationship may be compared to the father-son one (Pratt, Kelly, & Wong, 1998). The teacher role commands a certain level of respect from the student. In return, the teacher should exercise authority over the material which he/she is teaching. Pratt, et al (1998) further argue that in Western society teachers may compromise their position as an authority figure in an effort to be more well liked. This does not provide a terribly clear picture of what to expect with regard to perceptions of communication patterns based on culture. Nonetheless, it might be assumed based on Pratt's (1998) work that Chinese students will be less likely to provide ratings of their lecturers because of the authority position which they hold. That is, it may be irrelevant to a Chinese student what he/she thinks about a teacher. The teacher is the expert and therefore respected, regardless of communication behaviour.

Current Study
It is expected that online educational communication depends on a number of social and personal variables. The current study was designed to experimentally manipulate an already developed

module to investigate whether increased levels of communication using VLEs alters student perceptions of the lecturers. Measurement of whether perceptions of the lecturers' communication behaviours tangibly influence module outcome scores will be taken. The effects of gender and cultural background are also assessed. The framework for this study is that extrinsic motivation is provided by the teacher, both online and in the classroom. As the motivation to succeed externally is provided by the teacher, via enhanced communication behaviour online, the students learn to incorporate it internally such that they become intrinsically motivated. This leads to students having higher levels of academic achievement (i.e., module outcome scores will be higher), learning will be enhanced and students will report more positive perceptions of their teachers.

METHOD

Participants

Eighty-six MSc students in Computing Science, 53 Asian and 33 Caucasian, from two modules participated in the study,. Only 8 of the participants have lived in the UK for 5 or more years, while 66 have moved to the UK in the past year. The remaining 12 students have lived in the UK between 1 and 5 years.

Materials

She and Fisher's (2002) Teacher Communication Behavior Questionnaire (TCBQ) was used to determine student perception of variations in communication style with lecturers. The questionnaire has 40 questions, comprised of five scales, each representing a type of communication. They are (a) challenging, (b) encouragement and praise, (c) nonverbal support, (d) understanding and friendly, and (e) controlling communication. It is a likert style questionnaire and questions are answered by circling 'almost never' (1), 'seldom' (2), 'sometimes' (3), 'often' (4) or 'almost always' (5). Cronbach's alpha coefficient was calculated to measure reliability on the five scales. A range of .86 to .93 on samples in Taiwan and Australia was found (She & Fisher, 2000). Validity, measured by principle components analysis, shows that the 40-item questionnaire was structured based mainly on the factor analysis and in small part on the interviews conducted with the students. Discriminant validity measures ranged from .06 to .45. These are small enough correlations between the scales to be satisfactory (She & Fisher, 2000).

In addition to using the questionnaire, data from the electronic class site was collected. Following the end of the semester, and after final grades had been posted, communication from the class bulletin board site and email correspondence was downloaded.

Two types of classrooms were evaluated. In the first, a control condition, the lecturer (Lecturer A) did not alter any communication aspect of the module. In the second, the experimental condition, the lecturer (Lecturer B) posted weekly discussion topics. Students were instructed to engage with each other and the lecturer on the discussion topics. The correspondence was looked at both for quantity of contact as well as quality of discussion (e.g., questions about coursework or due dates to more substantive questions regarding module content). To ensure that differences are not lecturer-specific only, communication only data (no questionnaires) were obtained from Lecturer B during the enhanced communication semester as well as the semester prior to the modification (the second control condition).

Procedure

Questionnaires were distributed to two groups of students. The first completed the questionnaire in spring 2004 and the second group in fall 2004. The principal researcher attended the lecture sessions, in both cases with an associate, to disseminate and collect the questionnaires, and to respond to questions about the research.

Hypotheses
The study models earlier work comparing communication patterns at the secondary school level in Australia and Taiwan (She & Fisher, 2002; She & Fisher, 2000). A framework to determine student perceptions of communication at the university level is used. It models an earlier study with similar students although this time using an experimental design (Frumkin & Murphy, manuscript submitted for publication). Several hypotheses were developed.

1) Hypothesis 1: There is a positive relationship between student perceptions of the teacher communication patterns and module outcome; the larger the degree to which a student believes the teacher interacts with the student, the higher the module outcome is for that particular student.
2) Hypothesis 2: There will be cultural differences with the Asian students reporting less overt patterns of all communication behaviours than the Caucasians due to their respectful nature towards lecturers.
3) Hypothesis 3: Female students will report greater levels of all communication patterns from their lecturers than male students.
4) Hypothesis 4: The module with enhanced communication will result in greater content, more substantive correspondence and postings and better linked discussion threads than will the module without the enhanced communication.

RESULTS

There were no significant effects found for hypothesis 1. There was a significant effect for hypothesis 2. Roy's Largest Root (F = 3.79, p < .00) demonstrates significant differences in perceptions of tutors by cultural background of the students. Additional univariate analyses were run with the cultural background variables. There were significant differences by culture and challenging behaviour (F= 2.18, p < .04), and culture and controlling behaviour (F= 4.94, p < .03) and a significant difference on a non-predicted interaction of culture by gender (F= 2.46, p < .05). Follow-up t-tests revealed findings in the predicted direction for challenging behaviour (t = -5.91, p < .01) such that Caucasian students reporting more challenging behaviour from their lecturers than did the Asian students. The same holds true for controlling behaviour (t = -3.58, p < .00 1). A t-test for culture and gender (t = -15.86, p < .00) showed that the Caucasian females were more willing to report on perceptions of their teachers than were Asian females, Caucasian males or Asian males.

A multiple regression was run to determine the significance of hypothesis 3. A significant difference was found on gender for encouragement/praise behaviour (F= 3.51, p < .04). A follow-up t-test indicated that as predicted females reported higher levels of encouragement/praise than did male students (t= 2.44, p < .02). There was an unexpected interaction effect of gender by tutor on controlling behaviour. Females rated lecturer A as more controlling than lecturer B. While it was predicted that females would in general rate the lecturers as more controlling, there was a distinct difference in females' ratings of the two lecturers (F= 3.54, p< .04).

Hypothesis 4 was partially supported. The bulletin board postings on Lecturer B's enhanced communication module (experimental condition) were more heavily content-based than the postings in the other two modules (Lecturer A and Lecturer B's non-enhanced communication module). This supports the hypothesis. However, the number of postings, irrespective of content, was higher in Lecturer B's non-enhanced communication module (35 postings) than in the enhanced communication condition (34 postings). While this is an insignificant difference, it is noteworthy that the enhanced communication module did not yield a higher number of postings than the non-enhanced condition. Lecturer A's module had far fewer postings, only 15. A comparison of the

content quality of the postings reveals that the only increase in communication for the experimental condition was by the students in their emails (see Table 1). The lecturer posted more content-based emails in the control condition. The students posted more content-based bulletin board messages in the control condition. The consistency in discussion topic of the experimental condition postings, both bulletin board and email, were more fluid than in the control condition. That is to say, the control conditions had more disjointed content-based postings while the experimental postings followed a discussion type of flow, confirming an aspect of hypothesis 5.

Table 1: Qualitative patterns of communication

	Lecturer A (Control)		Lecturer B (Second Control)		Lecturer B (Experimental)	
	Lecturer	Student	Lecturer	Student	Lecturer	Student
Email (Administrative)	2	2	0	1	0	1 (1)**
Bulletin Board (Administrative)	1	12	0	6 (2)*	0	9
Email (Content)	0	0	8	2	0	8 (1)**
Bulletin Board (Content)	1	1	2	16 (2)*	2	12

* (2) Indicates that two students posted messages containing content and administrative material.
** (1) Indicates that one student posted a message containing content and administrative material.

DISCUSSION

Hypothesis 1 posited that students would both perceive the lecturer in a communicative way (high on all communication variables) and receive higher outcome scores. This finding did not surface. It is unclear why this is the case. It is possible that nonverbal communication is heavily relied upon for perceptions of lecturer behaviour (McCroskey, et al, 1996; Philippot, Feldman, & McGee, 1992; Schweizer, et al, 2001). Nonverbal communication would be near impossible to tease out, if it even exists, in the online environment. It might not be feasible, therefore, to determine whether lecturer behaviour manifested as nonverbal communication influences student's perceptions and their module outcome.

An alternate explanation for the lack of findings is that perception of communication behaviour is not a primary contributor to module outcome scores. It could be that motivation, or lack thereof, on the part of the student is a far more significant contributor to module outcome score.

There was partial support for hypothesis 2. The significant multivariate analysis indicated that a relationship between culture and perceptions of communication behaviour exists. What is interesting to note is that the relationship was not significant for all five communication behaviours. Namely, friendly/understanding, encouragement/praise and nonverbal were not related to culture. Asian students were not expected to rate the lecturers dramatically in any category, based on their respectful style (Feng, 1994). However, the Caucasian students were expected to rate the lecturers more dramatically and this did not surface for the three communication behaviours mentioned above. Nonverbal may not have been significant for the reasons mentioned above. There is a need to further explore cultural differences between the Asian and Caucasian students, especially with respect to the two non significant variables. It is possible that the Caucasian students expected their lecturers at the postgraduate level to be more of a friend/peer than a lecturer. Thus, the Caucasian students rated their lecturers as challenging and controlling. The non-predicted finding fits with other hypothesis-based work. Both females and Caucasians would be expected to rate lecturers higher on communication behaviours, which did surface in this interaction.

The fact that there was one significant finding for hypothesis 3 bares further investigation. It is possible that females were less expectant of their lecturers, since as Trego (2004) notes they rely more on peers for help. Thus it is possible that they were unaware that the lecturers would be as encouraging as they in fact were. At the same time though, if this were the case, one would expect understanding and friendly behaviour to also have surfaced as being significant for the females. An explanation of this finding requires further research.

The fact that the females rated Lecturer A as more controlling than Lecturer B, but not both lecturers as more controlling than did males, is interesting. Lecturer B is female while Lecturer A is male. Perhaps the females felt that Lecturer B was easier to approach or acted in a less hierarchical manner so that they rated her as less controlling. Alternately Lecturer B, who uses the VLE with greater frequency, has better transitioned from the instructor to facilitator role, results in lower controlling ratings (i.e., traditional lecturers would have been more in charge of the classroom while VLE instructors are moderators) (Lin & Hseih, 2001). This finding requires further investigation on patterns of communication based on gender.

Finally, the experimental design provided additional information. The students were expected to respond eagerly to the experimental condition by posting more content-based (lecture appropriate) messages. It was also anticipated that students would continue on a consistent discussion path initiated by the lecturer. There were no greater number of postings in the experimental vs. second control condition but the content of the postings in the experimental condition was better linked from posting to posting. The students did not initiate discussions of their own, but they did respond to the lecturer's content-based postings. While this is a positive outcome, it is unclear whether the preparation and follow-up work required by the lecturer to post weekly discussions is worthwhile. If simply comparing Lecturer A to Lecturer B's experimental condition, one would conclude that the experiment was a success as there were many more postings. Yet, with the inclusion of the control condition from Lecturer B, it appears that the difference is a lecturer difference more so than an experimental one. Recommendations to Lecturer A, and other lecturers who have low participation in online discussions, may be to impose a structure similar to the experimental condition.

CONCLUSION

Taken together, this research provides insight into VLE courses. While they do not appear to be detrimental to the student's performance, altering the communication design of the module does not seem to enhance final module grade and/or student perceptions of the lecturer. All three conditions yielded students with similar academic success rates.

Perceptions of lecturer communication behaviour is related to various factors, such as gender and culture. The findings on culture and gender yielded interesting results. What surfaces as the most interesting result is the lack of consistent findings across communication behaviours. Research should be conducted to determine whether students do not pay much attention to the lecturer's behaviours and whether this varies based on type of course (undergraduate, postgraduate). Research should also assess how or if other aspects of enhanced communication, besides posting weekly discussion topics, appeals more to students and/or increases academic outcome. Finally, ways to increase motivation through enhanced communications should be investigated.

Frumkin

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