HUMAN INTERACTION AND PERCEIVED LEARNING IN ONLINE VERSUS IN-CLASS TEACHING MODALITIES

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ABSTRACT

Marketing educators have exhibited strong interest in revising marketing instruction to better meet the needs of modern students and their future employers. Today, one of the more often pursued pedagogical changes is in offering classes online and not requiring the student's presence in the classroom. The purpose of this study is to compare students' desire for human interaction and students' perceptions of learning between online and traditional in-class teaching modalities.

Research hypotheses about human interaction and students' perceptions of learning are presented. A "real-world" check for a key assumption is presented and directions for future research are outlined.

INTRODUCTION

Marketing educators have exhibited strong interest in revising marketing instruction to better meet the needs of modern students and their future employers (Duke 2002). Indeed, the Association to Advance Collegiate Schools of Business (AACSB) has just promulgated a new set of accreditation standards that specifically call for continuous improvement and innovation in the instructional process (AACSB 2003).

Today, one of the more often pursued pedagogical changes is in offering classes online and not requiring the student's presence in the classroom. Of course this requires a number of changes in resources, infrastructure, and instructional approach (e.g., Cartnal and Diaz 1999; White 2000; Arbaugh 2001, 2002). One fruitful area of inquiry in instructional approaches is in comparing the outcomes of the two different teaching modalities. Several studies have sought to distinguish differences between traditional in-class and online pedagogy (e.g., Arbaugh 2001, 2002; Prater and Rhee 2003).

The purpose of this study is to compare students' desire for human interaction (face-to-face) and students' perceptions of learning between online and traditional in-class teaching modalities. Both sections offer the same subject matter yet are instructed in radically different ways. One section is taught in the traditional on-campus, in the classroom environment, while the other one is instructed online, using highly technical Internet tools.

STUDY DOMAIN AND RESEARCH HYPOTHESES

Human Interaction

The criteria for developing and delivering web-based courses of instruction are becoming more complex (Arbaugh 2002). Greenlaw and Deloach (2003) argue that electronic discussion alters the focus of the learning process, replacing the single view of the instructor, as in an on-campus course, with the various student views. This reduced reliance on the instructor increases collaboration and lessens the social distance within the online classroom environment (Arbaugh 2001). However, the resulting online collaboration is not an automatic occurrence and must be initiated by the instructor in "threaded discussions" and required group assignments (Diaz & Cartnal 1999).

This network view of learning, as opposed to the traditional, teacher-centric view, can vastly increase the amount of information available to students. However, as Santovec (2002) points out, information wealth can be a good thing but it also creates the possibility of overload, as it is possible to know the facts without the learner understanding what they mean. The traditional in-class modality does not face these concerns to the same degree since: (1) the learning situation is more hierarchical; and (2) because questions and concerns can be immediately addressed.

Thus, it has been suggested by some researchers (Greenlaw and Deloach 2003; Hutchins 2003) that student comments should be closely monitored so that instructors can adapt their courses and

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technology accordingly. This is especially true for instructors trying to build what we call Human Interaction. For purposes of this study, we define Human Interaction as the degree to which instructor efforts to reduce this social distance and alleviate information overload by engaging in immediacy behaviors (Hutchins 2003; Hughes et al. 2003).

Online instructors can employ many of the same verbal immediacy behaviors that in-class instructors do by using personal experiences, humor, addressing students by name and providing feedback in real-time or with online messages. The non-verbal immediacy behaviors of eye contact, body position, smiling, and moving around the classroom that are used by on-campus instructors are not as easily duplicated by online instructors. Online instructors can begin to build trust with this non-verbal communication process through the use of humor, emoticons and video clips (Hutchins 2003). These techniques, as Vaidyanathan and Aggarwal (2001) state, "transform the learning experience by making it more interactive and engaging" (p. 112). Our scale seeks to determine whether students in online sections value Human Interaction differently than do students in traditional, in-class sections.

Since students who select online sections may be more independent and prefer a more flexible learning environment (Worley and Dyrud 2003), we hypothesize that there will be a significant difference in the desirability of Human Interaction between online and in-class student groups (cf., Diaz and Cartnal 1999). Thus:

H_1: There will be a significant difference in desired Human Interaction between students enrolled in online sections and those enrolled in in-class sections.

Perceived Learning

For the purpose of this study, Perceived Learning is defined as additional skills or knowledge students think they have developed or acquired from the course. Halsne and Gatta (2002), in a smaller sample study, examined differences between instructional modalities in terms of learner-content interaction and concluded that there were no significant differences in learning. Consequently, we hypothesize that there will be no differences in the perception of learning between online and on-campus teaching modalities. Stated more formally:

H_2: There will be no difference in perceived learning between students enrolled in online sections and those enrolled in in-class sections.

METHODOLOGY

Survey research methodology was employed so that queries could determine the extent to which respondents hold a particular attitude or perspective (Babbie 1990). The survey that was developed included items designed to measure the students' desired degree of Human Interaction and the Perceived Learning of students enrolled in online and on-campus sections of the same course.

Instrument Development

Scale development, purification, and testing were conducted according to the protocol developed by Churchill (1979) in his seminal treatise on developing measures for marketing research. He recommends the following multiple-step process (the first four steps are not just sequential, but are also iterative):
1. Review extant literature
2. Discuss concepts with academic experts and practitioners
3. Specify the domain of the construct
4. Generate sample items and scales
5. Collect data
6. Evaluate measurement properties of scales

To begin the scale development process, the authors collected and reviewed preliminary qualitative data obtained from students enrolled in two on-campus classes (50 students) and one online class (25 students) during the 2002 Spring Semester. All students in these classes were asked to respond to two open-ended fundamental questions regarding skill improvement and perceived learning. (What was it like taking this class online/on-campus? Did your overall communication skills get any better?) This information was used to guide the development of the survey questionnaire. The questionnaire instrument then was reviewed by five business professionals selected from both the academic and practitioner communities. From this procedure, a six-item scale of Human Interaction and a six-item scale of Perceived Learning were obtained. These scales were employed in pre-test and were subjected to data-driven purification and validation in accordance with the Churchill (1979) process.

The pre-test survey instrument was administered concurrently to one online and one in-class section of the same departmental course, Spring 2003. Scale reliability was assessed according to Cronbach's alpha coefficient (Cronbach 1951), which determines the mean reliability of all possible methods of splitting the scale in half. The six-item Human Interaction scale attained a robust alpha of .962 and was retained. The six-item Perceived Learning scale

achieved an alpha of .744, exceeding the generally accepted basic research standard of .700 (Nunnally 1978).

The proposed scales were then examined for validity through principal components factor analysis. The technique for this analysis involved Kaiser normalization with listwise deletion of missing values and a VARIMAX orthogonal rotation of the factor matrix. This analysis indicated that one item in the Perceived Learning scale loaded on both factors and it was, consequently, deleted from the final scale. A re-determination of Cronbach's alpha indicated a higher reliability measure of .793 for the revised five-item scale.

The final Human Interaction scale consisted of:
1. Instruction with more human interaction would help me learn more.
2. Instruction with more human interaction would help me understand communication concepts better.
3. Instruction with more human interaction would be a better way for me to learn the content/course materials.
4. Instruction with more human interaction would contribute to my overall satisfaction with the course.
5. Being in a class with more human interaction would improve my ability to learn.
6. I would prefer instruction with more human interaction.

The final five-item scale for Perceived Learning was comprised of:
1. My interpersonal skills have improved by taking this course.
2. My technical skills have improved by taking this course.
3. My writing skills have improved by taking this course.
4. My oral communication skills have improved by taking this course.
5. This course has improved my group/team skills.

A five-point Likert scale was used to allow participants the opportunity to respond to each scale item with one of the following: Strongly Agree (5), Agree (4), Neither agree nor disagree (3), Disagree (2), and Strongly Disagree (1).

Sample

The sample for this study was comprised students enrolled in four on-campus and four online sections of the same departmental course during the Spring and Summer of 2003. Two hundred survey questionnaires

were distributed to a total of eight class sections of 25 students per section. A total of 90 survey questionnaires were collected from the online student population (90% response rate) and 98 survey questionnaires were collected from the on-campus group (98% response rate).

Data Analysis

Data collected for this study were analyzed using an analysis of variance (ANOVA) to test for significant differences between online and in-class groups regarding Human Interaction and Perceived Learning. Demographic information was summarized using frequency distribution tables for categorical data.

Study Results and Discussion

Human Interaction

Our first research hypothesis holds that there will be a statistically significant difference in students' desire for Human interaction depending on whether they are in an online or a traditional, in-class section. Specifically:

H_1: There will be a significant difference in desired Human Interaction between students enrolled in online sections and those enrolled in in-class sections.

As discussed in the previous section, a six-item scale was utilized to determine a composite value for students' desire for Human Interaction in both online sections and in-class sections. The online group mean for desired Human Interaction was 3.52, while the in-class group mean was 4.47 (see Table 1, next page). The ANOVA conducted to examine the mean differences of the two groups was significant at the .05 level ($p < .001$). Consequently, we may conclude that H_1 was supported.

Perceived Learning

Our second research hypothesis states that there will be no differences in students' perception of learning between online and on-campus teaching modalities; specifically:

H_2: There will be no differences in perceived learning between students enrolled in online sections and those enrolled in in-class sections.

As discussed in the previous section, a five-item scale was utilized to determine a composite value for students' perceived learning both in online sections and in in-class sections. The online group value for Perceived Learning was 3.95, while the on-campus

group value was 4.07 (see Table 1, below). The ANOVA conducted to examine the mean differences of the two groups was not significant at the .05 level ($p = .163$). Therefore, we may conclude that H_2 was supported.

TABLE

Study Results for Human Interaction and Perceived Learning by Teaching Modality

Construct	Online Group	In-Class Group	Significant at .05 Level?	p-value
Human Interaction (H_1)	3.52	4.47	Yes	< .001
Perceived Learning (H_2)	4.78	4.92	No	.163

The findings agree with smaller sample findings reported in the literature in the Business Communications field (Diaz and Cartnal 1999; Worley and Dyrud 2003). However, literature supporting the idea that students enrolled in online courses desire less Human Interaction (face-to-face) than those in traditional in-class sections cite student characteristics and student preferences (cf., Worley and Dyrud 2003; Hutchins 2003). Inherent in this reasoning is that students do, in fact, self-select into these sections. Given budget pressures facing many instructional institutions today, this assumption bears a reality check.

Included in our survey was the item, "I took this class online because I could not enroll in an on-campus section." The 90 online responses were evaluated to see how many responded Strongly agree (5) or Agree (4). Only 19 of the 90 indicated agreement with the item, so we may conclude that—since nearly 4 out of 5 students managed to select into online courses—self-selection into online teaching sections is supported.

CONCLUSIONS AND DIRECTIONS FOR FUTURE RESEARCH

This study explores differences in desired Human Interaction and Perceived Learning between those students taking the course in an online environment and in a traditional, in-class environment. Two research hypotheses regarding the different teaching modalities were presented; both were supported. Two key ideas for future research become clear. Research is needed to explore ways that students

can evaluate themselves so that they can self-select into the teaching modality that will best enable them to succeed. Further, studies to date have relied on self-reported student assessment of learning. The positive outcome of this study identities the need for marketing educators to incorporate cutting-edge high tech pedagogies into their curriculum while continuously improving upon and assessing the student-learner outcomes.

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