

Full Length Research Paper

Non-verbal immediacy's role in student learning

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Clear and effective communication is essential. Nonverbal communication specifically has a vital role in communication. There is inconsistent data on the effect of nonverbal communication used by instructors and the impact on student learning within the higher education environment. This research study sought to find distinct correlations between instructors' nonverbal communication and student learning. Based on quantitative and qualitative data, college students (N=80) from a midsize Midwestern university reported distinct findings that progressed the study of nonverbal communication. Students attended class with one of two variable instructor-lecturing types: utilizing higher nonverbal immediacy, or lower nonverbal immediacy. The instructors lectured the exact same material from a script. Students provided data through tests, surveys, and focus groups that delivered substantial evidence of the relationship between instructors' nonverbal immediacy and student learning. Using the results of this study, university administrators, faculty, and professional development officials could find beneficial information for the success of higher education instruction.

Key words: Nonverbal, Nonverbal immediacy, nonverbal communication, teaching, lecturing, student learning.

INTRODUCTION

Effective instructors' lectures are essential for enriching student learning environment (Leathers and Eaves, 2008). As so, instructors are responsible for communicating as clearly and effectively as possible to their students. Nonverbal communication by the instructor can help provide clarity and help students interpret the instructors' verbal communication (Chesebro, 1999, 2003; Houser and Frymier, 2009; Mehrabian, 1981; Smith and Cotton, 1980; Smith and Land, 1981). Thus, one can theorize that utilizing not only effective verbal communication, but also effective nonverbal communication fosters a more enriched learning environment for students.

One definition of nonverbal communication was stated

by Henley (1977) as, "how we say things with our body postures and movements, facial expressions, gestures, touching, eye contact, use of space, and so on" (p. 2). For the purpose of this study, the definition of nonverbal communication included instructors' eye contact, hand and arm motions, facial expressions, voice fluctuation, and moving around the front of the classroom while never behind a lecter or other barrier (Frechette and Moreno, 2010; Moore et al., 2010; Teel, 2011). Additionally, nonverbal immediacy represents the physical and psychological closeness a student feels with his/her instructor based upon the instructor's nonverbal communication (Andersen, 1979; Mehrabian, 1961, 1971,

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1981).

Barnum and Wolniansky's (1989) findings suggest 70% of communication is nonverbal, while Fromkin and Rodman's (1983) findings state that 90% is nonverbal communication. A study by Pease and Pease (2004) found that 83% of communication comes from nonverbal communication. According to these, and many other researchers, there is a consensus that nonverbal communication accounts for over half of communication.

Maximizing students' academic achievement is the primary goal for any educator. With this being the goal, instructional communication is an area that can benefit any instructor in the classroom. Kelly and Kelly (1982) stated that award-winning teachers compared their instructing to a theatrical performance. The purpose of this research study was to examine the relationship between instructors' nonverbal communication and students' learning.

Hypothesis

Hypothesis: Greater use of nonverbal immediacy cues are associated with greater short-term recall of course information. This will be measured by comparison of pretest and posttest scores, survey scores, and focus group answers.

Since the early 1960s, there has been research interest in the role of instructors' nonverbal immediacy on student learning (Anderman and Kaplan, 2008; Andersen, 1979; Christophel, 1990; Frechette and Moreno, 2010; Gorham, 1988; Kearney et al., 1985; Leathers and Eaves, 2008; Mackay, 2006; Powell and Harville, 1990; Richmond, 1990; Sime, 2006; Teel, 2011; Woolfolk, 1978). There are two founding researchers who began the trend of nonverbal communication in education. Mehrabian (1961) was the first to study the significance of nonverbal communication in the classroom. Andersen (1978) took Mehrabian's findings and further associated them to the instructors' presentation style. Mehrabian (1971) stated that nonverbal immediacy has a strong relationship between interpersonal relationships, "People are drawn towards persons and things they like, evaluate highly, and prefer; and they avoid or move away from things they dislike, evaluate negatively, or do not prefer" (p. 1). This interpersonal attraction guided the hypothesis for this empirical research.

The purpose of this research was to add valid data to a heavily debated topic. Research in the past has concluded instructor nonverbal immediacy affects student learning (Burroughs, 2007; Comadena et al., 2007; Zekia, 2009), but an almost equal amount of experiments show no such relationship (Andersen, 1979; Chesebro, 2003; Frechette and Moreno, 2010). This research comprised validity steps from past experiments while it strategically planned against their limitations such as presenting video

taped lectures and gathering data from non identical lectures.

Development of study

This was a mixed method study utilizing quantitative and qualitative research. This study's quantitative method included pretest, posttest, and surveys collected from students in four introductory speech courses. Test scores and survey results were compared for two courses taught with an instructor utilizing higher nonverbal immediacy and two courses taught with an instructor utilizing lower nonverbal immediacy. This study's qualitative data comprised one focus group per course.

The population of this study included all undergraduate students from a co-ed, private, midsized Liberal Arts University in a residential town outside of St. Louis, Mo. In a town of about 68 thousand, this university comprised over 8 thousand undergraduate students at the time of this research. This university consisted of 66% White, 16% Black/African American, 4% Hispanic and 10% International students. With a large Missouri student population, the culture's communication is typically open and friendly. The sample of this study included 80 undergraduate students during the spring 2013 semester. Of that sample, there were 40 males and 40 females.

In order to maximize the validity of this study's data, the development of the lecture was important; the exact same lecture was used for all four sections. A memorized script and complimenting PowerPoint presentation were used in every course. The two lecturing instructors memorized the lecture script so not to verbally give one course more or different information than the others.

A third party rater, who sat in the back of all four classrooms, had a copy of the script in front of her during the presentations to make sure the lecturing instructors did not deviate from the script. All three experiment-members met twice before the experiment dates to practice the lecture and build a consistent verbalization of information.

METHODOLOGY

This experiment utilized four introductory speech courses all regularly taught by the same professor. Prior to the experiment dates, the regular professor informed students that a guest speaker would be presenting during the following class. The regular professor was not in the room for any of the four classes to negate any students' apprehension to complete the voluntary tests, survey, or focus group. The lecture topic fit within the classes' current class discussion but was not previously covered.

Three individuals actively contributed in this study. Instructor A's responsibility was to instruct two class lectures utilizing higher nonverbal immediacy. Instructor B's responsibility was to instruct two class lectures utilizing lower nonverbal immediacy. Instructor A and B were demographically similar – mid-20s, white, male, and dressed similarly. Moore et al. (2010) stated that personal

appearance including body type, body image, and clothing directly affects the formation of first impressions.

Third party rater C's responsibilities included: to make sure instructor A and instructor B stayed to the lecture script by verbally giving the same information, verified instructors utilized their nonverbal cues by completing a form, and lead the focus groups. Instructor A lectured on April 29, 2013 at 9 and 10 A.M. and instructor B lectured on April 29, 2013 at 2 P.M. and April 30, 2013 at 11 A.M.

To begin class, third party rater C sat in the back of the room and the lecturing instructor (A or B) prepared the PowerPoint for the lecture. The same PowerPoint was used for all four sections. The lecturing instructors did not speak with any students prior to the beginning of the lecture to negate any instructor-student relationship bonding.

Students were given a pretest (see Appendix A) upon entering the class, and asked to complete the questions to the best of their knowledge. As this information was new to students, any questions they knew had been learned outside of this class. Students were told not to fill in answers during the lecture, but they were able to take notes if they wished.

Once all tests were turned upside down, the lecturer began the scripted presentation. Instructors A and B both gave scripted greetings and presented the entire scripted material in about 30 min. Instructor A walked around the front of the classroom while utilizing a wireless clicker to navigate through the PowerPoint. Instructor A also frequently used hand gestures, strong student eye contact, and fluctuated his voice and facial expressions.

Instructor B stood behind the computer monitor stand and navigated through the PowerPoint via the computer mouse. Instructor B also used minimal hand gestures, little student eye contact, and rarely fluctuated his voice and facial expressions. Instructor B used minor amounts of these nonverbal techniques so not to be unnatural and lead students to believe they were being deceived.

During the lecture, no questions were allowed by students to maintain consistency and strengthen adherence to the scripted material. Upon completion of the presentations, instructors A and B gave a survey (see Appendix B) to students that asked for students' perceptions of the lecture/instructor.

While students completed the survey, instructors A and B then handed out the posttest (see Appendix A). The pretest and posttest questions and answers were exactly the same. While students completed the posttest, instructors A and B told the class that the third party rater C would conclude the class session. Instructors A and B then left the classroom, and third party rater C came to the front of the room.

Once all surveys and tests were complete, third party rater C spoke to the class. She told the students that the lecture was part of an experiment but all information included in the lecture was valid and pertained to their class objective. Students were given an option to be part of the experiment or opt out. Every student was given a release form and students were told to fill out the form and turn it into instructor C if they wished to participate in the study. If students did not wish to participate in the study, they were told to keep the pretest, survey, posttest, and release form and discard the pages on their own.

Third party rater C then asked for volunteers to be part of a focus group after class. Three volunteers from each class were given a \$5 gift card to Subway for their participation. Selection included the first three students to indicate their willingness to volunteer. There were 12 of the initial 80 participants that volunteered and thus part of the four focus groups. Those students not participating in the focus group were then allowed to leave the classroom. There were no negative feelings expressed by those who did not receive a gift card. The audio-recorded focus groups took between 10-12 min.

Students who did or did not participate in the paper data collection experiment or focus group were not identified to the regular class instructor. This was told to the students so they did not feel as if their participation would positively or negatively affect their class grade.

Limitations

1. Due to the varying classroom, it is difficult to control every aspect of the classroom's learning condition (classroom time, room condition etc.).
2. Some survey questions forced students to choose from a variety of answers. These answers may have resulted in students answering differently than if essay questions were given. Multiple-choice questions were chosen to promote completeness.
3. Due to the ethical restraints, the instructors were not able to perform their role for an entire semester. Only one day from each class was utilized. An entire semester utilizing these nonverbal communication variables would result in further data.
4. This study's population was a convenience sample of the United States colligate system. The data drawn from this study specifically represent one university.

RESULTS

Null Hypothesis: Greater use of nonverbal immediacy cues are not associated with greater short-term recall of course information.

A two-tailed independent-samples t-test confirmed that participants in the "effective" condition improved ($M = 9.22$, $SD = 2.03$) significantly more than those in the "poor" condition ($M = 6.44$, $SD = 2.94$), $t(78) = 4.95$, $p < .001$.

There was an increase in the mean scores in all indicators. This difference was statistically significant with a t -test value of 4.95, so the null hypothesis could be rejected during this time frame. Data support the alternate hypothesis that students in the higher nonverbal immediacy classrooms retain greater knowledge than those in the lower nonverbal immediacy classrooms, when considering comparison of post-test scores to pretest scores (Table 1).

Using quantitative measures, statistically significant results were found to support this hypothesis. The average increase in test score was 2.77 points greater in the higher nonverbal immediacy classes than the lower nonverbal immediacy classes; this is an increase of 21% of all possible points. Any information the students knew prior to this lecture would be factored out of the measurement.

The survey results also showed a positive correlation between instructors' nonverbal immediacy and student learning. The indication of a positive association between students and their perception of learning was determined to be the percentage of "slightly agree" plus the percentage of "strongly agree" accumulated from questions on the survey. A t -test for difference in proportion was

Table 1. Pretest/posttest comparison: effective nonverbal communication and poor nonverbal communication.

Effective nonverbal communication (n = 41)	Poor nonverbal communication (n = 39)	Statistical significance of the difference
$M = 1.07, SD = 0.93$	$M = 1.18, SD = 1.00$	$t(78) < 1.0, p > .50$
$M = 10.29, SD = 2.00$	$M = 7.62, SD = 3.10$	$t(78) = 4.61, p < .001$
$M_D = 9.22, SD_M = 2.03, SE = .32$	$M_D = 6.44, SD_M = 2.94, SE = .47$	$t(78) = 4.95, p < .001$

Independent-samples t-test (all three were planned comparisons); t-Test: Two Sample for Means.

conducted for these questions between the classes taught by the higher nonverbal immediacy instructor and the classes taught by the poor nonverbal immediacy instructor. Observable data showed a difference in the positive perception of student learning, from 87.8% in the effective nonverbal communication classes, to 57.7% in the poor nonverbal communication classes. A two-tailed independent-samples t-test confirmed the observable data, $t(78) = 4.29, p < .001$. Students do perceive that they learn more from an instructor who utilized higher nonverbal immediacy.

During the focus groups, students were asked if their learning is impacted by the instructor's nonverbal communication. Students from the higher nonverbal immediacy classes all agreed that the instructor's nonverbal communication affects how much they learn. They all concurred that their attention to the lecture was high because of the effective use of nonverbal communication. One student stated, "Sometimes when (instructors) are speaking, I just won't pay attention because I am bored, but I paid attention to this one."

From the focus groups, student learning was strongly affected in the lower nonverbal immediacy classes. Five of the six focus group students said the instructor's nonverbal communication caused them to not pay as much attention to the lecture as they know they should have, while one student said, "Well me personally, I don't think (nonverbal communication) affects me that much. Because in other classes, you know, we have books. Whatever I don't get from (instructors) I can get from the books." This student went on to say, "Actually, I think I learned a lot."

The other five students from the lower nonverbal immediacy group said they did not feel like they learned much from the lecture. One student stated, "I got distracted easily with doodling on my paper. So I listened to the first half, but I don't remember anything from the second half." Another student stated, "I agree. I kind of wondered off. I tried focusing on the PowerPoint, but that was bad too." Students from the higher nonverbal immediacy focus groups did not say anything negative about the same PowerPoint.

Interpreting findings

While interpreting the findings from this research study, it must be clear that a classroom analogue design was utilized. Students in the introductory speech course met during their regular class session, and listened to a typical class lecture. This lecture was students' first encounter with the instructor, and it was only for a limited time on one day. Generalization to an entire course is limited until further research can be conducted on a long-term scale. That being noted, this study provided a positive relationship between instructors' nonverbal immediacy and student learning.

This study provides significant information for those instructing in the higher education environment, specifically for lecturing. This data suggest nonverbal communication is a tool to provide a more effective lecturing style for students.

Since instructor clarity is essential for increased student academic achievement (Chesebro, 1999, 2003; Houser and Frymier, 2009), this research outlines specific nonverbal elements, which assist instruction:

1. Strong eye contact with students
2. Frequent use of voice fluctuations
3. Devoid of a lectern, computer, or any other object that would form a barrier between the instructor and the students
4. Frequent use of facial expressions
5. Frequent use of hand gestures

Conclusion

In order to be more effective, instructors need to understand how lectures can improve students' learning experiences (Maher, 2008). One area of observation for increasing the success of lectures is instructors' nonverbal immediacy.

Sims and Sims (1995) stated, "Institutions of higher education are always looking for ways to make their educational initiative more effective. Higher education

administrators and instructors at all levels are constantly under pressure to provide more effective and efficient services” (p. 1).

The data collected from this study, emphasized by the literature, concluded one major theme: instructors’ nonverbal immediacy effects student learning. This study exemplified that point through quantitative and qualitative measurements.

This study has found an association between instructor-student relationships built from instructors’ nonverbal immediacy and student learning. Professional development programs in higher education could benefit from providing nonverbal communication training to instructors. Understanding and being able to effectively use nonverbal communication is a powerful tool for any instructor.

Conflict of Interests

The author has not declared any conflict of interests.

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Appendix A: Pretest/Posttest

Persuasion Questions

1. List as many of the seven persuasion techniques you know.

2. "This weekend only, everything in the store is 20% off. Act now!" This is an example of which persuasion technique.

- a) reciprocity
- b) consensus
- c) scarcity
- d) consistency

3. Give an example of how you could use the authority persuasion technique to convince people to use their seat belts.

4. Which persuasion technique is most used by non-for-profit organizations?

- a) reciprocity
- b) consensus
- c) scarcity
- d) consistency

5. What is a speech of refutation intended to do?

6. What are two ways you can get a response from the audience before they leave?

Appendix B: Survey

Circle one

Male Female

- 1) I enjoyed the presentation.
 1 - Strongly Disagree 2 - Slightly Disagree 3 - Slightly Agree 4 - Strongly agree
- 2) I would take a course with this instructor.
 Yes No
- 3) I feel that I learned a lot from the material presented by the instructor.
 1 - Strongly Disagree 2 - Slightly Disagree 3 - Slightly Agree 4 - Strongly agree
- 4) I liked the instructor's presentation style.
 1 - Strongly Disagree 2 - Slightly Disagree 3 - Slightly Agree 4 - Strongly agree
- 5) I think the instructor is credible in the topic of using visual aids in presentations.
 1 - Strongly Disagree 2 - Slightly Disagree 3 - Slightly Agree 4 - Strongly agree
- 6) How many years of experience do you think the instructor has in coaching presentations?

Less than one year

1-2 years

3-5 years

More than 5 years

7) I think an instructor's nonverbal communication during lecture affects how much I learn.

1 - Strongly Disagree; 2 - Slightly Disagree ;3 - Slightly Agree; 4 - Strongly agree