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Nonverbal immediacy behaviors and online student engagement: bringing past instructional research into the present virtual classroom

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ABSTRACT

Nonverbal immediacy behaviors are underresearched in the online teaching environment. Using social presence theory as a guiding framework, this study explores several online nonverbal immediacy behaviors: emoticons/figurative language, color, cohesion, visual imagery, and audio in course design; response latency, length, time of day, and message frequency in forums; and type and promptness of feedback via grading and email. Coding of 51 online courses found that more consistent use of nonverbal immediacy behaviors was related to students' reports of higher course engagement. However, the nonverbal behaviors most associated with engagement were the ones not used as often. Findings indicate instructors can improve the effectiveness of online learning environments via nonverbal immediacy behaviors.

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Sloan Consortium reported in 2013 that nearly 6.7 million students in the United States were taking at least one online course (Allen & Seaman, 2013). With 32 percent of students taking online courses, educators need to explore better ways to engage them. Learning occurs best when students are involved with the content, other students, and the instructor. Thus, engagement is a necessary but not sufficient occurrence for effective online learning (Kehrwald, 2008) and instructors need to understand how to enhance it. In traditional classrooms, immediacy behaviors play an important and positive role in engagement (Roberts & Friedman, 2013). They likely play a similar role online.

Research has found that immediacy behaviors, defined as verbal and nonverbal communicative actions that send positive messages of liking and closeness, decrease psychological distance between people (McCroskey & Richmond, 1992) and positively affect student state motivation (Fallah, 2014). Such findings are mirrored in online verbal immediacy and its positive effects on student engagement (Waldeck, Kearney, & Plax, 2001).

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However, nonverbal behaviors have been considered absent or negligible in online courses (Waldeck et al., 2001) despite there being many nonverbal immediacy behaviors that could impact student engagement. For instance, time can communicate. The length of time it takes an instructor to respond to a discussion post and the length of that response can create impressions for students about the approachability and warmth of the instructor, as can course design choices such as inclusion of images and color. Such choices, along with using the online platform effectively, create the environment or ecology of the course (McLuhan, 1962). Because new media used in online courses change the landscape of the classroom, the ecological perspective should be useful for researchers and faculty interested in online teaching. Such a perspective forces us to consider all of the media that may be included in online courses, recognizing that a mixture of media (e.g., forums, wikis, chats, videos, etc.) is likely more effective (McLuhan, 1964), and that richer, more interactive media will help enhance student learning (D'Arcy, Eastburn, & Bruce, 2009).

Social presence theory

Choosing a mixture of media that allows for more immediacy behaviors can help create social presence or the feeling that the teacher is a *real* person (Kehrwald, 2008). Early applications of social presence yielded a theory (Short, Williams, & Christie, 1976) that situated social presence as a quality of the medium being used. Telecommunication media were considered along a warm–cold spectrum based on their potential to communicate intimacy and immediacy. Warmer or richer media, due to the presence of more verbal and nonverbal cues (Biocca, Harms, & Burgoon, 2003), allowed mediated or remote others to be more "present." Later research using the social presence theory framework posited that the behaviors of the communicators within text-only media could create intimacy and immediacy and, thus, more social presence (Danchak, Walther, & Swan, 2001; Oztok & Brett, 2011).

In today's online courses, instructors can do both. Instructors can choose media that are warmer (e.g., video, audio), and they can choose to behave in cold media in ways that enhance immediacy (e.g., emoticons in emails), thus creating more immediacy and heightened social presence. Gunawardena (1995) found that social presence was related to increased affect for the instructor and the course. Tu and McIsaac (2002) further explicated social presence into three dimensions: social context, online communication, and interactivity. Among other things, they found that online communication consisted of being expressive, conveying feeling and emotions, and being meaningful. Interactivity included nonverbal elements such as immediacy, being pleasant, responsiveness, and message length. In online classrooms, student engagement is related to social presence, and both are crucial to creating a successful learning environment (Gunawardena, 1995; Kehrwald, 2008).

Online student engagement

Online student engagement is not well defined in existing literature. Definitions include the time and energy that students put toward their learning (Kuh, 2003) and a sense of being personally connected with classmates and instructors (Kehrwald, 2008).

Handelsman, Briggs, Sullivan, and Towler (2005) defined student engagement in the traditional classroom as involving four factors: skills engagement, emotional engagement, participation/interaction engagement, and performance engagement. In this study, we use the Handelsman et al. (2005) definition to explore the neglected area of online nonverbal immediacy behaviors. An online instructor cannot smile or use vocal variations. Or can she? Recent research supports that the following nonverbal behaviors are likely to have immediacy effects in online learning environments: tone, chronemics, and feedback.

Tone

Just as instructors cannot *not* communicate; they cannot *not* set a tone. For instance, a plain, text-heavy course sets a cold tone and suggests a lack of concern for students. Tone allows for being expressive and conveying emotion, the second dimension of social presence (Tu & McIsaac, 2002). While the following literature suggests that instructors should set tone purposefully, using a variety of strategies, these approaches have yet to be examined in the classroom setting.

Emoticons and figurative language

With the absence of paralanguage in the online classroom, emoticons are used as nonverbal cues to create tone by expressing emotion, being inviting, strengthening messages, and avoiding miscommunication (Derks, Bos, & Von Grumbkow, 2008). According to Lo (2008), "[e]moticons allow receivers to correctly understand the level and direction of emotion, attitude, and attention expression," (p. 597). Their use enriches communication and creates social presence.

Figurative language also shapes receiver perceptions. Varied fonts (Great idea), punctuation (Great idea!!!), capitalization (GREAT IDEA), and nonverbal vocalization (greaaaat idea) help express emotion. Instructors can use figurative language (Epp, Green, Rahman, & Weaver, 2010) to create immediacy and presence even in a "cold" medium. Tone is also created through the aesthetics of course design.

Aesthetics

Although online immediacy behaviors including visual imagery, typographic design, color, and cohesion are likely more subtle than those directly associated with the instructor, they play a role in students' engagement and comfort with the course.

Visual imagery. Visuals include images, graphs, models, clipart, and video. David and Glore (2010) explained that visual content serves an instructional function and thus, links directly to the performance and involvement of the instructor. Visual imagery can be used to appeal to the senses or evoke emotion, conveying nonverbal intention as effectively as words. Instructors can use personalized visual imagery (e.g., images that may be familiar to local students or images that convey the "instructor as person" such as pictures or videos of self, hobbies, pets, favorite places) to better construct students' virtual reality, their own self-identity, and relationships between students and themselves. Visual imagery can impact immediacy and presence in terms of both perceived effort in adding content and of images that personalize the instructor.

Typographic design. Bomba and Clark (2003) explained that "fun" fonts can serve to relax a stringent, academic tone. While "serif" fonts aid overall legibility, they are perceived as colder and more rigid. The "visual treatment of text" refers not only to fonts but also to the colors in which they appear (Lee & Boling, 1999).

Color. Referred to as the "language of screen design" (Lee & Boling, 1999, p. 5), color and its effects apply to visual appeal, unity, harmony, and symbolism (Alsudani & Casey, 2009; Petrovici & Ahmed, 2012). Colors can introduce emotions such as joy, excitement, fear, and sadness (Petrovici & Ahmed, 2012). Appropriate use of colors other than beige and gray is likely energizing, attention getting, and engaging for online students.

Cohesion. The use of imagery, typography, and color are crucial elements in overall cohesion along with unity/harmony, use of space, layout, and alignment (Alsudani & Casey, 2009). Aesthetics are an indication of nonverbal intent and bridge the online course interface with users' triggered emotions (David & Glore, 2010), potentially increasing immediacy. Thus, aesthetic aspects merit attention.

Chronemics

Aspects of time that may send immediacy messages in online classrooms include: response latency, time of day messages are sent (Kalman & Rafaeli, 2005), length of the message (Tyler & Tang, 2003), and frequency of messages (An & Frick, 2006). These chronemic elements in emails, forums, and discussion posts can build the interactivity referred to by Tu and McIsaac (2002), creating social presence and engagement (Kalman & Rafaeli, 2005).

In computer-mediated communication (CMC), chronemics are indicated by a timestamp displaying the time a message was sent and indicating lag time between initial message and response (response latency). Response time is crucial for instructors of online classes in creating their "responsiveness image," (Tyler & Tang, 2003; Walther & Tidwell, 1995) also part of the interactivity dimension of social presence (Tu & McIsaac, 2002). Through a responsiveness image, instructors can convey a positive perception of accessibility, availability, and maintenance of continuous interaction. Given longer response latency or silence, instructors create a less positive responsiveness image by indicating unavailability, dominance, or that the receiver is unimportant (Tyler & Tang, 2003; Walther & Tidwell, 1995).

In business, the time of day a message is sent (Walther & Tidwell, 1995) may affect responsiveness, with messages sent during business hours associated with greater relational equality. However, students seem to place more importance on prompt responses than on time of day, perhaps because in college there are no real "business hours."

Chronemics also include the amount of time an instructor spends crafting messages, indicated by length of response. Short responses are perceived as hurried and that the original message was not thoroughly read (Tyler & Tang, 2003). Frequency of responses also matters to students, who believe they would learn better if instructors consistently participated in discussion and provided prompt feedback (An & Frick, 2006).

Feedback

Given the time and effort students spend on graded assignments, it is no surprise that these assignments allow opportunities for instructors to build positive responsiveness images. Bonnel, Ludwig, and Smith (2008) found that timing is the most important aspect of feedback to some students. Prompt feedback allows students to learn from prior mistakes while completing new assignments. Research has also found that the type of feedback matters. Assignment feedback typically comes in the form of video, audio, written comments, grades without comments, and automatic grading. The richer the medium, the more likely the instructor was to have a strong social presence (Burke & Chidambaram, 1996). Researchers have found that the higher the media richness of an online course, the higher students rated course satisfaction and interactivity and the more cohesive students felt (Knight, Pearson, & Hunsinger, 2008). Using media richness theory, Daft and Lengel (1984), discussed four factors of the communication medium likely related to social presence: immediate synchronous feedback, the number of cues and channels, personalization, and language variety. These factors created a ranking of media channels, from least to most rich: numeric documents, impersonal writing, personal writing, phone (audio), and face to face. The Daft and Lengel (1984) rankings coincide with the feedback channels students prefer. Video and audio feedback have been reported as being more personal than other forms of feedback (Ribchester, France, & Wheeler, 2008). Other studies suggest that students prefer written comments as opposed to grades without comments or computer generated grading (Bonnel et al., 2008).

Evidence concludes that there are several online nonverbal immediacy behaviors. Student perceptions of social presence, instructor identity, and responsiveness can be affected via tone, created by emoticons, figurative language, aesthetics such as typography, color, cohesion and visual imagery; chronemic elements like response latency, response length, time of day, and message frequency; and type and promptness of feedback. As social presence theory posits, the use of such elements allows communicators to create intimacy and immediacy and, thus, higher levels of social presence and, subsequently, higher student engagement. This postulate supports the notion that social presence is about the channel and, just as importantly, about the behaviors of the users. To explore these factors, three research questions and one hypothesis are posed.

Given that no existing research was uncovered examining the categories of nonverbal immediacy behaviors of interest to this study, the first two questions explore the frequency of different types of nonverbal immediacy behaviors in online courses.

> RQ_{1a}: How frequently are the different types of nonverbal immediacy behaviors used in online courses?

> RQ_{1b}: Are some types of nonverbal immediacy behaviors used significantly more frequently in online courses than others?

Because immediacy behaviors are related to state motivation, social presence, and engagement in the traditional classroom, we propose that these variables will be related to student engagement in the online classroom.

> H_1: Student engagement is significantly higher in courses with high levels of teacher nonverbal immediacy behaviors than those with low levels of nonverbal immediacy behaviors.

Given that nonverbal immediacy behaviors vary in type, warmth, and function, question two explores which behaviors might yield higher reports of student engagement.

> RQ_2: Do students report higher levels of engagement with high levels of some nonverbal immediacy behaviors versus others?

Method

Participants

Participants were courses and students. Nonverbal instructor immediacy behaviors were coded in online courses, and students in the courses were asked about behaviors that coders could not see. Therefore, instructors were requested to: (a) allow coders to explore their online courses, and (b) forward an email to students in the class requesting their participation in an online survey. In this way, 51 entirely online courses were recruited from a potential pool of 206 unique courses at a regional Midwestern comprehensive university. Fully underway courses were coded during weeks nine through 14 of a 16-week semester. Courses ranged from first-year to graduate level across 23 disciplines including business, engineering, physics, communication, English, mathematics, and nursing. Class size ranged from one to 44 with an average of 26.4.

The student sample from these courses consisted of 178 participants (126 females and 52 males) ranging in age from 18 to 67 ($M = 28.9$; $SD = 10.6$; $Mdn = 24$). There were 19 first-year students, 31 sophomores, 44 juniors, 67 seniors, 13 graduate students, and four who identified as other. Although 178 students reached the last question of the survey, not all completed every question. Student responses were recorded for 38 of the 51 coded classes. Response rates ranged from 3% to 47% of the class (excluding the 100% response rate from a class with only one student). The average response rate was 19%.

Instruments

Online nonverbal immediacy coding scheme

Immediacy behaviors were measured in two ways. First, a coding scheme was created to describe how regularly various types of nonverbal immediacy behaviors were used within an online course. Previous immediacy coding schemes have been created, but many address student perceptions of behaviors. For instance, the Nonverbal Immediacy Scale (Richmond, McCroskey, & Johnson, 2003) measures immediacy by asking students or the instructor to rate how often the instructor gestures, makes eye contact, or smiles. For the purposes of this study, there are two issues: (1) most of these behaviors are not present or apparent online; and (2) there is controversy over using student perceptions to rate instructor immediacy behaviors (Roberts & Friedman, 2013). Thus, this coding scheme considers any behaviors apparent to an observer as well as student perceptions for those areas only available to students in the class (e.g., response times to emails).

Based on the literature, variables were created for aspects of tone: visual-audio (both content and personal related), images (both content and personal related), fonts/emoticons, color, cohesion/harmony/unity, use of medium; aspects of chronemics in forums: response length, latency, and frequency; and aspects of feedback: latency in email and grading feedback along with channels measured via student responses. Variables relate to nonverbal immediacy in terms of the instructor's perceived effort, time, and tone.

Coders were trained to evaluate the instructor's nonverbal immediacy based on behaviors or choices in the online course. Coders did not have access to engagement data and instructors were not aware of the study's specific purpose. The unit of analysis was the entire course. This coding system was developed and piloted by the authors in an iterative process. Coders worked with a sample class using the initial coding scheme and all coauthors discussed differences. Enhancements were made in the coding manual, and another round of coding was done. Eventually, the coding system was dropped from five to three levels within each variable (low, medium, and high immediacy) to improve clarity (recommended by Neuendorf, 2002). Revision of the coding manual continued until all four coders felt it was clear and 85–90% agreement was reached. Once that occurred, pairs of coders coded 25 or 26 courses.

The determination of high, medium, or low for each variable was based on how consistently each type of nonverbal behavior was used. For instance, video/audio was considered as being used "consistently" (high) if it occurred at least every 2–3 weeks. Tone was considered "emotionally expressive" (high) when more than half the pages used fun fonts, emoticons, vocalizations, or punctuation to indicate emotion. Variables were coded for 51 classes.

Because this is an exploratory coding system, two content analysis reliabilities are reported: percent agreement and Scott's pi (see Table 1). Percent agreements ranged from 64% to 100%. For each pair, only two variables fell below 80% agreement. Scott's pi ranged from −.07 to 1.00. Reliability coefficients for variables *images: content-related, fonts/emoticons, cohesion/harmony/unity*, and *use of medium* for one pair of coders and *cohesion/harmony/unity*, *use of medium, forums: chronemics-latency*, and *forums: chronemics-frequency* for the other pair of coders fell below .60 indicating that additional training and revision are needed. Most of the difficulty in the cohesion and medium categories came in distinguishing between good/satisfactory and optimal. Definitions of these categories should be further refined. Another issue in coding online courses is that they are not linear. Even when being systematic and conscientious, coders may miss a page, link, or image, and therefore may not experience the same course. To resolve that and any other discrepancies, coders met each week, after coding 5–6 courses, to talk about any differences, explain their reasoning, and/or look at the disputed areas together. In this way, all discrepancies were resolved before any analysis occurred.

Table 1. Interrater reliabilities.

	First coder pair		Second coder pair	
Category	Percent agreement	Scott's pi	Percent agreement	Scott's pi
Visual-audio: content related	80	.61	100	1.00
Visual-audio: personal related	80	.65	84	.68
Images: content related	68	.42	96	.93
Images: personal related	80	.67	92	.85
Use of fonts/emoticons	72	.55	80	.65
Color	84	.71	80	.63
Cohesion/harmony/unity	88	.33	64	.35
Use of medium	88	−.07	80	.50
Forums: chronemics—time spent	80	.69	84	.73
Forums: chronemics—latency	96	.91	76	.50
Forums: chronemics—frequency	84	.70	80	.57

Online responsiveness and feedback

Immediacy behaviors were also measured with a survey asking students' perceptions of instructor responsiveness to email and via feedback on assignments. To assess email responsiveness, the survey presented the Likert-type statements: "My instructor usually responds to email within 24 hours;" "My instructor responds to email during all hours, including evenings and weekends;" "My instructor always responds to individual emails;" "My instructor generally only sends group emails;" "When my instructor sends an email, it is generally long enough to be clear and fully answer my questions/concerns."

One item significantly lowered the reliability of the scale: "My instructor generally only sends group emails." While the other four items had interitem correlations of .5 and above, all interitem correlations with this item were below .2. There was no consistent relationship of this item with the other four, making it a poor measure of email responsiveness. Once that item was removed, the measure yielded a Cronbach alpha of .87. The range for this four-item measure was four to 20 with a mean of 16.1 ($SD = 3.5$). The course average of these responses was used to code each course as low, medium, or high for email responsiveness.

The survey also asked about responsiveness in terms of feedback promptness and feedback channels since Witt and Kerssen-Griep (2011) found that more nonverbal immediacy during feedback led to students viewing instructors as more credible, competent, trustworthy, ethical, and honorable. Timeliness of feedback was measured by asking students whether their instructor's feedback was "delayed," "timely enough to use it," or "very prompt." The most frequent answer provided by participants in each course regarding the timeliness of feedback was coded for the feedback latency of the instructor. Students were asked which feedback channels their instructors used: no feedback, just the grade; rubric without comments; rubric with comments; email with comments; written; audio/video responses; real time (e.g., Skype, FaceTime); or other. Based on the richness of the feedback channel, such as, ability to convey immediacy and/or intimacy in terms of Tu and McIsaac's (2002) online communication dimension, the warmest channel reported by students was used to code instructor feedback as either cold (e.g., no feedback, just the grade), tepid (e.g., rubric with comments), or warm (e.g., audio, real time). In this way responsiveness was coded for 38 classes.

Online student engagement

Student engagement was measured with the online student engagement scale (Dixson, 2010, 2015). This scale, based on Handelsman et al.'s (2005) measure of student engagement in traditional classrooms, consists of 19 Likert statements measuring a student's perception of his/her interaction, participation, thinking, and feelings about the course. It asks students to assess how characteristic it is of them to perform particular behaviors such as "Looking over class notes between getting online to make sure I understand the material" or "Applying course material to my life" as well as four global items about engagement with other students, the instructor, the course overall, and the course compared with other courses. The scale has reported reliabilities between .86 and .95 (Dixson, 2010, 2015). This sample reported a Cronbach alpha of .93. Correlations with the four global items were all significant ($p < .001$) with $r = .48$ ($df = 177$), $r = .30$ ($df = 176$), $r = .62$ ($df = 174$), and $r = .49$ ($df = 176$), respectively. The overall mean for student engagement reported by students across classes was 71.27 ($SD = 12.72$; $n = 174$) or about 3.75 on a

5-point scale. This is slightly higher than the mean of 3.41 found in a previous study of 176 students across six Midwestern campuses (Dixson, 2010). The mean of student engagement calculated at the course level was 71.65; $SD = 10.26$; $n = 38$. If more than one student responded, the average of student responses was used.

Analysis and results

Frequency of nonverbal immediacy behaviors

Given the mixture of data types, analysis was accomplished in several ways. Table 2 indicates the frequency with which the various nonverbal immediacy behaviors were found (RQ_{1a}). High/consistent use was found for visual, audio and images related to content. Use of the medium (e.g., embedded URLs, video, discussion forums) and cohesion (organization, consistent headings) were also found to be "optimal" in 42 and 35 of the 51 courses, respectively. The immediacy behaviors associated with personal video and audio, and discussion forums, specifically posting often and responding quickly, were least likely to be consistently used.

To determine if some types of nonverbal behaviors were used statistically more frequently in online courses than others (RQ_{1b}), chi-square tests were run on each of the 14 variables to determine if there were significant differences between the high, medium, and/or low levels of each category coded.

While significant chi-squares were reported for 11 of the 14 nonverbal immediacy behaviors, only five were significant with the high category being the most frequent category: *visual-audio: content related:* $\chi^2(2) = 32.59$, $p < .0001$; *image: content related*: $\chi^2(2) = 20.12$, $p < .0001$; *cohesion/harmony/unity:* $\chi^2(2) = 32.82$, $p < .0001$; *use of medium:* $\chi^2(2) = 56.59$, $p < .0001$ and *feedback: latency:* $\chi^2(2) = 14.89$, $p < .001$ (see Table 2 for all chi-square results).

Therefore, the answer to RQ_{1b} is that visual-audio and images related to content as well as consideration of design, use of medium and prompt feedback are the nonverbal immediacy behaviors most consistently found in the courses analyzed.

Student engagement and nonverbal immediacy behaviors

To determine if student engagement levels were perceived as higher in courses with more frequent use of nonverbal immediacy behaviors (H_1), we created high, medium, and low coding for nonverbal immediacy for the courses themselves. Courses coded as high had more of the 14 codes as high than as low and vice-versa for low courses. Medium courses either had all codes as medium or had the same number of high and low codes across the 14 ratings.

An ANOVA supported the hypothesis that students in "high" courses would report higher levels of engagement: $F(35,2) = 4.04$, $p = .026$. The mean engagement score of the high group was 74.82 ($SD = 9.60$; $n = 25$). The medium group had a mean student engagement of 65.62 ($SD = 8.27$; $n = 5$). The low group mean was 65.55 ($SD = 9.86$; $n = 8$). Effect size (η^2) was .19. Tukey's post hoc test indicates the pairwise comparisons between means show no significant difference between medium and low groups of nonverbal immediacy,

Table 2. Chi-square for immediacy behaviors.

	Visual-audio: content related	Visual-audio: personal related	Images: content related	Images: personal related	Fonts/ emoticons	Color	Cohesion	Use of medium	Forums: time spent	Forums: latency	Forums: frequency	Feedback: latency	Feedback: email	Feedback: channels
Observed *N* High	36	18	32	4	7	21	35	42	13	1	8	21	17	13
Observed *N* Medium	10	5	11	23	23	24	14	8	15	4	8	15	21	25
Observed *N* Low	5	28	8	24	20	6	2	1	23	36	35	2	0	0
χ^2	32.59	15.65	20.12	14.94	8.68	10.94	32.82	56.59	3.29	33.30	28.59	14.89	.421	3.79
df	2	2	2	2	2	2	2	2	2	2	2	2	1	1
p <	.0001**	.0001**	.0001**	.001**	.013*	.004*	.0001**	.0001**	.19	.0001**	.0001**	.001**	.52	.05*
Effect size*	.62	.48	.53	.48	.37	.42	.62	.74		.63	.60	.52		.30

*Significant at .05; **significant at .001 * Contingency Coefficient (Reinard, 2008).

likely due to low numbers in each of these categories, with a marginal difference ($p = .056$) between high and low immediacy groups.

The underlying argument is that nonverbal immediacy helps create instructor social presence, which increases engagement. Student engagement was significantly correlated with instructor presence, as measured by global item, "How well do you feel you know your instructor." Given the finding that higher immediacy courses had higher reports of student engagement, we ran the follow-up test to see if higher immediacy courses also had higher reports of instructor presence. Higher immediacy courses had significantly higher means for instructor presence ($M = 3.53$; $SD = .72$; $n = 25$) than medium ($M = 2.49$; $SD = .66$; $n = 5$) or low immediacy courses ($M = 2.33$; $SD = .89$; $n = 8$): $F(35,2) = 9.75$, $p < .0001$. Effect size (η^2) was .36. Tukey's post hoc test showed that the mean differences were significant between both high and low ($p < .001$) and medium and low ($p < .021$) categories of nonverbal immediacy. These results indicate that courses with higher immediacy scores also report stronger perceptions of instructor presence.

Student engagement and categories of nonverbal immediacy behaviors

To examine whether particular types of nonverbal channels had a stronger impact on student engagement scores than others (RQ_2), categories of conceptually linked variables were created, since nonverbal messages rarely work alone. Visual-audio: content related, images: content related, and use of medium were characterized by using audio, video, URLs, etc. to enhance engagement with course content (indirect immediacy) and thus became *visual-audio images: content related (VAIC)*. Likewise, visual-audio: personal related, and images: personal related functioned to enhance engagement and social presence of the instructor (direct immediacy) and were grouped as *visual-audio image personal related (VAIP)*. Tone: use of fonts/emoticons, color and cohesion/harmony/unity all contributed to the aesthetic of the class (indirect immediacy) and were identified as *tone*. The three forums categories: Forums: chronemics—time spent, chronemics—latency, and chronemics—frequency related to posts (direct immediacy) became *forums*. Finally, the three survey categories about instructor responsiveness (direct immediacy) to email, latency of feedback and feedback channels formed the category, *responsiveness*. Once these categories were created, courses were coded as low, medium, or high for each. This coding was done in a similar fashion to the courses themselves: if the ratings within a category had more high than low ranks, it was coded as high, and so on for medium and low.

Results were mixed for RQ_2. To explore whether some nonverbal immediacy behaviors were more likely to affect engagement, ANOVAs were run on engagement means within each of the five categories comparing low, medium, and high courses. Two categories showed significant differences in engagement means dependent on level of nonverbal immediacy: *Forums*: $F(2, 35) = 3.97$, $p = .028$; $\eta^2 = .19$; and *Tone*: $F(2, 35) = 6.49$, $p = .004$; $\eta^2 = .27$. VAIP was not significant although the means were in the direction hypothesized, with the highest mean for engagement in the courses coded as highest for this type of immediacy behavior. The mean for high (74.06) and medium (73.97) VAIP were very close, so perhaps some personally related images are effective in raising immediacy. Responsiveness was, likewise, not significant, but that may be due to only one course being coded as low. As can be seen in Table 3, the highest means for engagement were for

the high groups of *Forums* with a mean of 78.9 and *Tone* at 74.74. These engagement means were significantly above the courses coded as low. Tukey's post hoc tests indicated, as expected, that the significant difference in engagement based on forum and tone were due to differences in the high and low categories. No direct comparisons of the means for courses rated as high in the five categories was possible because the groups are not independent of each other (i.e., a course reported high in forums could also be reported high in tone). A summary of results can be found in Table 4.

Discussion

This study set out to explore nonverbal immediacy behaviors in the online classroom and discover indicators of a relationship between nonverbal immediacy behaviors and student-reported engagement in online classes. Different levels of nonverbal immediacy behaviors can be seen ranging from the features of course design to specific behaviors in responding to students. Some of this variation, as early social presence theorists argued, is about the choice of medium. The finding that *visual-audio: content related*; *image: content related; cohesion/harmony/unity*; and *use of medium* were significantly more often scored in the high range indicates that instructors are already choosing media that are warmer and, thus, creating more social presence and student engagement as well as effectively building on the second dimension of social presence: online communication (Tu & McIsaac, 2002). However, other means for enhancing social presence with immediacy cues are likely not being used to their full potential. Courses were less likely to frequently use visual-audio or image personal, color, fun fonts, emoticons, and figurative language. Perhaps instructors lack time or consider these elements unimportant or unprofessional. Because instructors can create immediacy with little effort in the traditional classroom, they may not see the parallel need in online classrooms.

The same parallel exists for the importance of chronemics in online forums. Cooperative learning in the classroom is best facilitated by the instructor periodically visiting groups, offering direction, or asking focused questions. Students can see the instructor visiting groups in the traditional classroom, but this is not possible online. If an instructor is not responding within group forums, it may seem as if the instructor is absent from the "room." Visiting online forums/groups often may be necessary to develop immediacy. This would exemplify a very straightforward adaptation of behaviors being able to create more social presence regardless of the medium. Findings indicate that instructors may not value forum responsiveness in the same way that they value quick feedback. Given that courses with prompt feedback had higher engagement it is likely that courses with higher instructor interaction in forums would also yield more student engagement.

Responsiveness (email/feedback) was not significant but also only had one course in the low category; thus, instructors are paying attention to prompt and useful feedback. From this data set, it seems that instructors are focusing on those aspects seen as directly affecting learning (course design, content, feedback) and indirectly affecting immediacy. Instructors were less likely to pay attention to aspects of the course with indirect effects on learning but more direct effects on immediacy such as use of color, figurative language, and responsiveness in forums.

Table 3. Means and ANOVAs for combined variables.

		Forums*	Tone**	Responsiveness	Visual-audio-image: content	Visual-audio-image: personal
Low	*M*	68.66	59.94	65.67	70.71	69.74
	SD	10.27	8.65	N/A	20.8	11.09
	N	25	6	1	4	21
Medium	*M*	74.03	71.18	73.43	74.33	73.97
	SD	4.33	6.44	9.96	N/A	12.16
	N	4	8	6	1	8
High	*M*	78.91	74.74	71.50	71.69	74.06
	SD	8.56	9.73	10.56	8.99	5.35
	N	9	24	31	33	9

	Sum of squares	df	Mean square	F	Sig./η^2
*Engagement * Forums*					
Between groups	720.20	2	360.10	3.97	.028*
Within groups	3174.62	35	90.70		
Total	3894.81	37	Tukey significance between high and low = .024	.19	
*Engagement * Responsiveness*					
Between groups	55.42	2	27.71	.25	.78
Within groups	3839.39	35	109.70		
Total	3894.81	37			
*Engagement * Tone*					
Between groups	1053.44	2	526.72	6.49	.004**
Within groups	2841.37	35	81.18		
Total	3894.81	37	Tukey significance between high and low = .003	.27	
*Engagement * Visual-audio-image: content related*					
Between Groups	10.79	2	5.39	.05	.95
Within Groups	3884.03	35	110.97		
Total	3894.81	37			
*Engagement * Visual-audio-image: personal related*					
Between Groups	171.46	2	85.73	.81	.46
Within Groups	3723.36	35	106.39		
Total	3894.81	37			

Note. Given five ANOVAs, Bonferroni correction for .10 alpha would be .05; for .05 alpha it would be .01.
*Significant at .05; **significant at .01.

Table 4. Summary of results.

Key finding	Most used nonverbal immediacy behaviors	Higher engagement scores found in course with significantly higher use of these immediacy behaviors
Student engagement significantly higher in courses with more nonverbal immediacy behaviors	Visual-audio: content related Image: content related Cohesion/harmony/unity Use of medium	Forum Tone

The second goal of the study was to explore the connection between nonverbal immediacy and engagement. Findings indicate that indirect aspects of online courses, such as color, figurative language, and visual-audio: content related, may have greater effect on student engagement than the direct categories instructors use most often. The finding that courses scoring higher in immediacy overall also scored significantly higher in student engagement is consistent with the social presence theory postulate that immediacy leads to social presence, which promotes student engagement. The direct test of immediacy to the social presence of the instructor supports a primary principle of social presence theory and indicates that nonverbal immediacy behaviors should be considered just as important in the online classroom as in the traditional classroom. Tests within nonverbal grouped categories (i.e., high, medium, and low, which do not overlap) indicate that, of the five categories, *VAIC*, *VAIP*, *tone*, *forums*, and *responsiveness*, two were significant. Analysis of *tone* and *forums* showed that students in courses rated as high in these categories reported significantly higher engagement scores than those rated as low. Thus, two of the categories instructors are *not* as likely to pay attention to may be key to creating social presence, community, and student engagement. Adding color; using figurative language, emoticons, and fun fonts; and being more responsive and "present" in forums and other active communication areas within online courses could have a positive impact on student engagement. These behaviors may most directly impact immediacy. The results support Oztok and Brett's (2011) assertion that individuals can create warmer, more productive spaces within a given medium. Key individuals in that process are instructors and their choices and behaviors within online courses.

Limitations and implications

Limitations to this study are typical: all courses were drawn from a single university. Although 51 courses is a fairly strong number to code and a wide diversity of disciplines was represented, surveying more students from a larger, more diverse sample would be better. Specifically, a more balanced sample of courses coded as low ($n = 8$) or as medium ($n = 5$), would provide a stronger test of differences. The 19% student response rate is better than expected given no incentive for student participation. However, it is likely that the 19% of students who responded were more engaged in their courses than their classmates who did not respond. Also, the coding manual and coder training need improvements to raise interrater agreement in categories with less than .60 Scott's pi. A

design in which courses high in one category were not high in another category would allow for direct comparisons of the impact of various nonverbal immediacy behaviors.

Investigating nonverbal immediacy behaviors in the online class contributes to the scholarship of teaching and learning. Existing research indicates that learning can be just as effective in the online environment as in the traditional classroom (Maki & Maki, 2007). It is now time to explore the similarities (e.g., nonverbal immediacy behaviors affect engagement) and differences (e.g., use of color and emoticons rather than smiles, gestures, and paralanguage) between online and traditional classrooms in terms of nonverbal immediacy and student engagement. Further work is needed to refine the coding manual and consider if any potential categories were missed. Ideally, experimental work will be done to test if a particular category impacts student engagement more than others. Repeating the study could confirm if results are replicable on more diverse campuses.

Although the use of feedback channels, time, and color have been previously studied in CMC, this study represents a comprehensive look at these elements framed as immediacy behaviors and explored in terms of social presence and student engagement. Media ecology and media richness perspectives provide an explanatory framework for how the online environment can be used to enhance immediacy and, thus, increase social presence. Social presence theory provides the connections between immediacy, social presence, and students' engagement with the content, the instructor, and each other. Findings indicate that such investigation is a rich topic for communication scholars and for online instructors. Exploring nonverbal immediacy will enrich learning environments for the increasing number of students in online classrooms.

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