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RESEARCH ARTICLES

Faculty and Student Expectations and Perceptions of E-mail Communication in a Campus and Distance Doctor of Pharmacy Program

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Objective. To examine faculty members' and students' expectations and perceptions of e-mail communication in a dual pathway pharmacy program.
Methods. Three parallel survey instruments were administered to campus students, distance students, and faculty members, respectively. Focus groups with students and faculty were conducted.
Results. Faculty members perceived themselves as more accessible and approachable by e-mail than either group of students did. Campus students expected a shorter faculty response time to e-mail and for faculty members to be more available than did distance students.
Conclusion. E-mail is an effective means of computer-mediated communication between faculty members and students and can be used to promote a sense of community and inclusiveness (ie, immediacy), especially with distant students.

Keywords: communication, e-mail, teaching effectiveness

INTRODUCTION

Student learning in all settings, including traditional classrooms and online environments, has been linked to instructional immediacy.[1] Students are able to discern a faculty member's attitude toward them, even if the instructor's verbal and nonverbal behaviors are unclear.[2] Thus, immediacy is accomplished when teachers are able to reduce or eliminate feelings of aloofness and social distance, which may be perceived by students as lack of caring or even incompetence, and to increase a sense of "approachability."[3] Instructional immediacy is behavior that reduces the perceived distance between instructor and students.

Instructional immediacy relates to nonverbal and verbal interventions, such as eye contact, nodding, gesturing, movement toward a student, asking questions, and calling on students.[3,4] A positive environment may be achieved when communication with the student is the focus of "classroom-climate inquiry."[4] In computer-mediated communication, or e-mail, tone can serve as a surrogate for these nonverbal and verbal intentions that are important in creating immediacy.

The development of online instruction raises additional questions about how instructional or teacher immediacy can be demonstrated. Whipp and Lorentz addressed the problem of student reluctance to seek help in online courses.[5] Drawing upon learning assistance, scaffolding, teacher immediacy, social presence, and academic help seeking, they explored how 3 instructors of online courses differed in using cognitive and social supports. The instructors varied in their level of questioning, use of direct instruction, support for task structuring, and attention to group dynamics. Empowered learners have increased motivation to perform classroom tasks , feel more competent to complete assigned tasks, and perceive they have a greater impact on the learning process.[6] Empowerment of students, therefore, may be a product of teacher behavior. Behaviors that support and empower students also may create instructional immediacy. When a teacher offers high levels of clarity, positive effects on temperament and learner orientation may occur, and these behaviors theoretically can exist in either a classroom or online learning environment. However, the question that remains is whether an instructor can provide a high level of immediacy when one of the primary means of communication is e-mail.

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Using computer-mediated communication (e-mail) in a distance program transcends traditional boundaries established in a campus program. An important benchmark crucial for the quality of distance education is the process of interactivity among students and faculty members to create an effective learning environment.[7] The types of interaction among students and faculty members that may occur during the course of a distance program include advising, course content clarification, and technical assistance. This interaction can be accomplished by a variety of communication methods including e-mail, voicemail, scheduled online chat sessions, and threaded discussions on a course discussion board. Due to its ease of use, e-mail is one of the most widely used forms of communication between faculty members and students. The instant, continuous accessibility of and increased approachability to faculty members through e-mail has placed new demands on faculty members, who in the past only had to answer course-related questions during class lectures or talk with students during scheduled office visits. Thus, faculty response to student inquiries has become paramount to the success of e-mail communication.[7]

An interactive approach has been identified as one of the best pedagogical teaching styles for distance learning.[8] However, communicating by asynchronous e-mail differs from face-to-face communication in that it lacks nonverbal cues that may alter the perception of the communication and potentially affect social presence.[9,10] If students feel a connection with the faculty member, they are more likely to participate actively in virtual discussions and have a sense of satisfaction with online learning.[8] The question arises whether this same feeling of being connected can be accomplished effectively through asynchronous e-mail, and whether there is a mismatch between students' and faculty members' perceptions and expectations in this type of communication. Additionally, the nonpersonal nature of e-mail raises questions on whether the content of the message is similar and presented in the same professional manner as it would have been if delivered in a face-to-face exchange/conversation. There is little in the literature on the experiences that both faculty members and students have in communicating primarily through electronic means in a pharmacy education environment.

In 2001, we enrolled the first class of pharmacy students pursuing a doctor of pharmacy (PharmD) degree via distance education. The distance pathway was developed to mirror the traditional campus pathway. The curriculum and graduate outcome expectations for both pathways are identical. Although the course content in both pathways is identical, the delivery of content is not. Student-to-student and student-to-faculty communications occur through several forms of technology, the most frequent of which is e-mail.

The dual pathway allowed us to examine whether an instructor can provide a high level of immediacy when one of the primary means of communication with students is computer mediated (e-mail). Addressing this issue in pharmacy education is important because of the tremendous increase in hybrid and distance-learning environments. The purpose of this study was to investigate the level of immediacy generated by faculty members through measuring expectations and perceptions of students and faculty members in e-mail communication for both traditional campus and distance pathways. The primary objective was to identify congruence/incongruence of expectations and perceptions among students and faculty members in e-mail communications and identify underlying themes for incongruence. A secondary objective was to compare these expectations and perceptions between the campus and distance pathway students to determine whether expectations and perceptions differed via pathway. This secondary objective was based on anecdotal experience that led to the hypothesis that expectations and perceptions differed between the 2 groups of students.

METHODS

The study used a mixed-method design integrating quantitative and qualitative methods based on data and methodologic triangulation techniques.[11,12] The quantitative design used a cross-sectional survey instrument to determine the expectations and perceptions of faculty members and students about using e-mail communication within the program. Three parallel survey instruments (1 for students in each pathway and 1 for faculty members) were developed by the authors. Because our purpose was to assess faculty members' and students' expectations and perceptions about electronic communication, content validity was determined through appropriate domain sampling for selection and construction of the items. A table of specifications was used to define the 8 survey domains (consumer attitude among students; faculty accessibility; faculty approachability; nonverbal cues; inappropriate content; breach of ethics; professionalism; and etiquette), and to guide the respective item sampling process. The table was developed through a review of the communication and pharmacy literature and consultation with a senior faculty member in the undergraduate communications department.

The survey instruments consisted of 2 sections with 31 parallel items. The first section consisted of 25 items addressing student/faculty expectations and perceptions of e-mail communication, followed by a brief demographic

section that included 6 items. All but 3 items were constructed as fixed- response items, using either a 5-point Likert-type scale (strongly disagree, disagree, neutral, agree, strongly agree) or an item-nested response (eg, "When e-mailing faculty the day prior to an exam, how quickly do you expect a response?" <1 hour, 1 - 2 hours, 3 - 4 hours, 5+ hours). The remaining items were open-ended response items. The survey instruments for distant students and faculty members had additional items addressing specific characteristics of these cohorts (eg, number of distance course/programs previously completed, faculty member assignment, and workload) that were used for exploratory/descriptive purposes. All survey instruments are available from the author.

The faculty survey instrument was piloted with a purposive sample of physical therapy and occupational therapy faculty members within the School of Pharmacy and Health Professions. The survey instrument for students was piloted by a sample of pharmacy residents within the School of Pharmacy and Health Professions. The subsequent revisions were coordinated through an item-review process, refinement, and parallel formatting, which further contributed to the evidence supporting content validity.[13,14]

Both student survey instruments were disseminated electronically to all pharmacy students in the campus and distance pathways enrolled during the 2007-2008 academic year. The faculty survey instrument was disseminated electronically to all full-time non-adjunct pharmacy faculty members during this same time period. As an incentive, all respondents who submitted a completed survey received a 1GB jump drive. Survey responses were analyzed using SPSS, version 17.0 (SPSS, Chicago, IL).

The qualitative design component consisted of 8 student and 1 faculty focus groups. The focus group compositions were segmented by pathway and student/faculty role to ensure homogeneity of participants.[15] While purposive/theoretical sampling is preferred over random sampling in focus group research, the latter was used to select student participants to minimize sample bias.[16,17] Consequently, because of the large class sizes, random sampling was used to select participants who were less likely to be acquainted. While acquainted participants in focus groups are more open to self-disclosure, they also are less likely to discuss the underlying or implied assumptions that are frequently what the researchers are attempting to discover and better understand.[18,19] Accordingly, 5 students were randomly selected from each pathway and year (first- through fourth-year students) to participate in their respective 1-hour focus group. A purposive sample of 5 faculty members with equal teaching assignments in both pathways and at least an associate professor rank comprised the 1-hour faculty focus group. A staff member trained in focus groups and qualitative methods facilitated all 9 sessions. The semistructured script included 5 open-ended questions/probes focused on the 5 domains most appropriate for the data collection and analytical approach: consumer attitude among students; nonverbal cues; inappropriate content; professionalism; and etiquette. The focus group script of questions and probes is available upon request. The study was approved by the Institutional Review Board, in accordance with the Declaration of Helsinki, prior to initiation.

A 2-phase analytical approach was implemented. The first phase involved independent traditional analyses in accordance with the methodological paradigm. Thus, descriptive and bivariate analyses stratified by domain and participant groups were conducted on the quantitative data generated by the survey instruments. Demographic analyses across the 3 groups used chi-square and Mann-Whitney U tests for categorical and continuous data, respectively. The Kruskal-Wallis 1-way analysis of variance (ANOVA, $\alpha = 0.05$) with Bonferroni-adjusted Mann-Whitney U post hoc comparisons ($\alpha = 0.017$) were used to assess differences among the 3 groups across the 8 domains, with neutral response removed to maintain the ordinal level data.[20] No further adjustment for type I errors due to multiple significance testing were employed. Content mapping provided through the table of specifications guided all analyses. All focus group discussions were recorded, transcribed, and imported into a word processing program for latent content analysis by 2 of the authors (PAF, JJM).[16] The second phase used data consolidation and merging techniques through a consensus review by the authors to create new or consolidated variables/constructs of interest (expressed in either quantitative or qualitative form) to inform the final interpretations.[21]

RESULTS

Two hundred twenty-three distance students, 427 campus students, and 56 faculty members were contacted to participate in the survey portion of the study. Response rates were 87% (194 of 233) for distance students, 76% (324 of 427) for campus students, and 86% (48 of 56) for faculty members. The overall response rate was 80%. The 3 groups did not differ by gender or race, however the distance students were significantly older (30.1 years vs 24.7 years) than their campus counterparts ($p < 0.001$). The 2 groups of students did not differ by percentage enrolled in each program year; however, entry-level distance students were more likely to possess a bachelor's degree (64.9 % vs 41.7%; $\chi^2_{.05,\,1} = 53.24$, $p < 0.001$) or graduate degree (15.5% vs 0.6%; $p < 0.001$).

Regardless of pathway, students were more likely than faculty members to agree that students are fully responsible for their academic performance in pharmacy school (campus: $p = 0.002$ and distance: $p < 0.001$). Overall, faculty members thought that students believe they are entitled to a high level of service from faculty members (89.6% strongly agree or agree) and place a high level of expectations and demands (83.4% strongly agree or agree) on faculty members. Most faculty members (58.3% strongly agree or agree) perceived that e-mail communication between faculty members and students facilitates this consumer attitude among students.

While over 98% of students, regardless of pathway, agreed that faculty members should be accessible and approachable, there was significant incongruence between students and faculty members on specific issues. Campus students (49%) expected a shorter response time, less than 12 hours, from faculty members (25.1%) for any e-mail communication than did their distance counterparts (28%)($p < 0.001$). Additionally, campus students (27.9%) expected faculty members (15.2%) to be more available and provide shorter response times, less than 2 hours, answering e-mail questions prior to an examination compared to distance pathway students (15.5%)($p < 0.001$).

Although all groups agreed that faculty members appropriately and directly answer student questions ($p = 0.17$), faculty members were less likely than students to agree that students consistently attempt to formulate an answer to their question prior to asking a faculty member (distance: $p < 0.001$, and campus: $p < 0.001$). Faculty members agreed more strongly than their students that faculty members were accessible to answer questions by e-mail (distance: $p < 0.001$, and campus; $p < 0.001$). Only 19% of the distance students and 25% of the faculty members were aware of the toll-free number available for distance students to use to contact faculty members. Table 1 provides the details of these findings.

Faculty Members' Approachability

Faculty members perceived themselves as more approachable than did campus students ($p < 0.001$) or distance students ($p < 0.001$). Campus students and faculty members perceived students as more comfortable asking questions by e-mail than did distance students, regardless of whether the alternative was to ask questions in the classroom (campus students: $p < 0.001$; faculty members: $p < 0.001$) or face-to-face (campus students: $p < .001$; faculty members: $p < 0.001$). Faculty members also perceived students as more comfortable asking questions by e-mail (as opposed to face-to-face) than did campus students ($p < 0.001$).

Nonverbal Cues and Inappropriate Content

While all agreed that faculty members use the same tone in their e-mails as face-to-face communication ($p = 0.26$), faculty members did not share similar perceptions of reciprocated e-mail communication from students, regardless of pathway (campus: $p < 0.001$; distance: $p < 0.001$). Additionally, distance students were more likely to believe they communicate to faculty with the same tone as face-to-face in e-mails than their campus counterparts ($p = 0.008$).

All 3 groups agreed that faculty members use the same content in their e-mails as in face-to-face communication ($p = 0.26$), and that shorthand (text messaging style) is an inappropriate form for communicating content via e-mail ($p = 0.53$). Regardless, 25% of faculty members reported receiving e-mails from students using shorthand (text messaging format) that they were unable to interpret. Both campus ($p < 0.001$) and distance students ($p < 0.001$) were more likely than faculty members to believe that students communicate similar content in e-mail as in face-to-face communication. Similarly, distance students were more likely than their campus counterparts to believe their communication content was expressed equally in e-mail and face-to-face communication ($p < 0.001$). Table 2 summarizes these findings.

Ethics and Professionalism

Faculty members believed that students are less inhibited in asking for changes to assignments/tests than students believed, regardless of pathway (campus: $p < .001$; distance: $p < 0.001$). Campus students were less inhibited to ask for changes than distances students ($p < 0.001$).

Faculty members more strongly agreed that they received student e-mails that were unprofessional in tone (campus: $p < 0.001$; distance: $p < 0.001$) and content (campus: $p < .001$; distance: $p < 0.001$) than students receiving analogous e-mails from faculty members. Also, campus students reported receiving e-mails with unprofessional content from faculty members more frequently than distance students ($p = 0.006$).

Compared to students in both pathways, faculty members perceived that students are less inhibited to challenge the grading of specific items (campus: $p < 0.001$; distance: $p < 0.001$) and critiquing the overall examinations (campus: $p < 0.001$; distance: $p < 0.001$) through e-mail communication. As with unprofessional tone and content, campus students reported being less inhibited than their distance counterparts to challenge the grading of specific items ($p < 0.001$) and critiquing the overall examinations ($p < 0.001$) through e-mail communication. These findings are illustrated in Table 3.

Table 1. Responses to Survey Items Regarding Faculty Accessibility to Campus and Distance Students via E-mail

Items	Strongly Agree, No. (%)	Agree, No. (%)	Neutral, No. (%)	Disagree, No. (%)	Strongly Disagree, No. (%)
Faculty should be available outside normal business hours the night before an examination.[a,b]					
Distance	9 (4.7)	39 (20.2)	49 (25.4)	73 (37.8)	23 (11.9)
Campus	30 (9.3)	111 (34.5)	81 (25.2)	88 (27.3)	12 (3.7)
Faculty	1 (2.1)	8 (16.7)	5 (10.4)	18 (37.5)	16 (33.3)
Students try to answer their own questions prior to contacting faculty.[a,b]					
Distance	124 (64.2)	67 (34.7)	2 (1.0)	0	0
Campus	182 (56.5)	135 (41.9)	3 (0.9)	1 (0.3)	1 (0.3)
Faculty	2 (4.2)	11 (22.9)	16 (33.3)	17 (35.4)	2 (4.2)
Students consistently formulate the answer before asking a question.[a,b]					
Distance	41 (21.2)	108 (56.0)	40 (20.7)	4 (2.1)	0
Campus	50 (15.5)	211 (65.5)	51 (15.8)	10 (3.1)	0
Faculty	0	8 (16.7)	18 (37.5)	20 (41.7)	2 (4.2)
Faculty members are expected to directly answer student questions.[a,b]					
Distance	34 (17.6)	86 (44.6)	42 (21.6)	27 (14.0)	4 (2.1)
Campus	60 (18.6)	146 (45.3)	89 (27.6)	25 (7.8)	2 (0.6)
Faculty	11 (22.9)	27 (56.3)	5 (10.4)	5 (10.4)	0
Distance students consistently contact mentors first before faculty.[a,b]					
Distance	17 (8.8)	63 (32.6)	68 (35.2)	37 (19.2)	8 (4.1)
Faculty	1 (2.1)	12 (25.0)	23 (47.9)	11 (22.9)	1 (2.1)
Faculty are accessible to answer questions by e-mail.[b,c]					
Distance	42 (21.8)	130 (67.4)	17 (8.8)	4 (2.1)	0
Campus	72 (22.4)	226 (70.2)	20 (6.2)	4 (1.2)	0
Faculty	30 (62.5)	17 (35.4)	1 (2.1)	0	0
Student questions by e-mail are similar to questions they asked in classroom.[b,c]					
Distance	44 (22.8)	118 (61.1)	21 (10.9)	7 (3.6)	3 (1.6)
Campus	24 (7.5)	134 (41.6)	78 (24.2)	82 (25.5)	4 (1.2)
Faculty	1 (2.1)	28 (58.3)	11 (22.9)	8 (16.7)	0

[a] expectations
[b] Kruskal Wallis 1-way ANOVA: $p < .001$ (refer to text for discussion of post hoc comparisons)
[c] perceptions

Etiquette

There was incongruence between faculty members and students in their perceptions of e-mail etiquette. Faculty members believed that e-mail communication between faculty members and students needed improvement (campus: $p < 0.001$, distance: $p < 0.001$). Faculty members also believed that entry-level students were unfamiliar with proper etiquette in e-mail communication (campus: $p < 0.001$, distance: $p < 0.001$).

Open-ended Questions

Students were asked 3 open-ended questions on several topics. When reviewing the qualitative data, many of the responses were identified as adversarial in nature. Responses were categorized into comments regarding process, respect, or consumer attitude among students.

Process. Distance and campus students agreed that faculty members should be available and provide quick response times to e-mails. Ideally, students preferred a response within 5 to 12 hours and within 24 hours was considered acceptable. Students felt that faculty members should be available during evening hours and weekends, especially the night before an examination. Generally, students expressed frustration when e-mail response times were greater than 24 hours. Distance students felt they should receive priority service via e-mail because they are not able to meet in person with the faculty member during office hours like campus students can. In addition, distance students thought they should have equal access to faculty members, should receive the same information as campus students, and suggested faculty members should have dedicated e-mail office hours. Distance students viewed short e-mail responses from faculty members as the faculty member not taking the time to read or respond adequately to an e-mail. Campus students believed e-mail can create a barrier between faculty

Table 2. Responses to Survey Items Regarding Nonverbal Cues and Inappropriate Content in E-mails Between Faculty Members and Campus and Distance Students in a Doctor of Pharmacy Program

Items[a]	Strongly Agree, No. (%)	Agree, No. (%)	Neutral, No. (%)	Disagree, No. (%)	Strongly Disagree, No. (%)
E-mail from students to faculty have same tone as would be used in face-to-face communication.[b]					
Distance	73 (37.8)	103 (53.4)	11 (5.7)	6 (3.1)	0
Campus	85 (26.5)	198 (61.7)	23 (7.2)	15 (4.7)	0
Faculty	2 (4.2)	14 (29.2)	5 (10.4)	23 (47.9)	4 (8.3)
E-mail from faculty to students have same tone as would be used in face-to-face communication.					
Distance	43 (22.3)	99 (51.3)	37 (19.2)	13 (6.7)	1 (0.5)
Campus	55 (17.1)	210 (65.4)	34 (10.6)	22 (6.9)	0
Faculty	11 (22.9)	30 (62.5)	5 (10.4)	2 (4.2)	0
E-mail from students to faculty have same content as would be used in face-to-face communication.[b]					
Distance	67 (34.7)	118 (61.1)	4 (2.1)	4 (2.1)	0
Campus	66 (20.6)	227 (70.7)	15 (4.7)	13 (4.0)	0
Faculty	3 (6.3)	19 (39.6)	9 (18.8)	17 (35.4)	0
E-mail from faculty to students have same content as would be used in face-to-face communication.					
Distance	47 (24.4)	115 (59.6)	18 (9.3)	13 (6.7)	0
Campus	48 (15.0)	231 (72.0)	33 (10.3)	8 (2.5)	1
Faculty	8 (16.7)	29 (60.4)	3 (6.3)	8 (16.7)	0
It is appropriate to use shorthand (text messaging style) in e-mail communication to faculty/students.					
Distance	3 (1.6)	4 (2.1)	13 (6.7)	91 (47.2)	82 (42.5)
Campus	6 (1.9)	6 (1.9)	24 (7.5)	141 (43.9)	144 (44.9)
Faculty	0	1 (2.1)	8 (16.7)	17 (35.4)	22 (45.8)
I have received e-mail with shorthand (text messaging style) from a student that I could not interpret.					
Faculty	0	12 (25.0)	5 (10.4)	21 (43.8)	10 (20.8)

[a] perceptions

[b] Kruskal Wallis 1-way ANOVA: $p < .001$ (refer to text for discussion of post hoc comparisons)

members and students. In addition, they felt that faculty members should provide more detailed responses instead of telling students where to find information. Students from both pathways expressed concern over too many students questioning the results of examination questions for additional points, and felt they would be penalized if they were to question anything else in class.

Respect. Students perceived some e-mail communication from faculty members had been inappropriate, disrespectful, condescending, sarcastic, or rude. Students expressed that an e-mail reply advising them to look up the answer to their question did not convey an encouraging tone. Students often felt there was misinterpretation by faculty members of short, curt responses as being rude. Distance students suggested that constructive criticism received by e-mail can be misinterpreted as being rude and condescending. They also interpreted e-mail critiques to assignments as disrespectful rather than constructive. In addition, campus and distance students felt that faculty members did not have time to answer their questions and sensed a tone of frustration in faculty e-mails, especially when students challenged points deducted on a quiz or examination. When a faculty member received a question from a student by e-mail, and the faculty member answered the question for the entire class, students felt strongly that the student's name should be deleted from the original question before forwarding the response to the class. Campus students believed the student-teacher relationship should be more like colleagues or friends. They also stated that e-mails that do not address the student formally are disrespectful.

Consumer attitude among students. Both campus and distance students believed that they paid a large sum of money in tuition, therefore faculty members should be accessible, approachable, and available for e-mail questions. Students further affirmed that because of tuition dollars, they should have greater access to faculty members, because they were paying for an education, and faculty members were employed because of the students. A campus student wrote, "We are paying their salaries. We are consuming their product, and they should supply a good product."

Focus Groups

Consumer attitude among students. Students acknowledged that it was their responsibility to learn the material, ask questions, attend class, study, be involved

Table 3. Responses to Survey Items Regarding Ethics and Professionalism in E-mails Between Faculty Members and Campus and Distance Students in a Doctor of Pharmacy Program

Items[a]	Strongly Agree, No. (%)	Agree, No. (%)	Neutral, No. (%)	Disagree, No. (%)	Strongly Disagree, No. (%)
With e-mail, students are less inhibited to ask for assignment, quiz, or examination date changes.[b]					
Distance	1 (0.5)	24 (12.4)	46 (23.8)	91 (47.2)	31 (16.1)
Campus	15 (4.7)	98 (30.6)	101 (31.6)	89 (27.8)	17 (5.3)
Faculty	9 (18.8)	22 (45.8)	10 (20.8)	5 (10.4)	2 (4.2)
With e-mail, students tend to embellish the truth on reasons for changes.[b]					
Distance	1 (0.5)	2 (1.0)	12 (6.2)	92 (47.7)	86 (44.6)
Campus	0	22 (6.9)	58 (18.1)	164 (51.3)	76 (23.8)
Faculty	3 (6.3)	8 (16.7)	26 (54.2)	10 (20.8)	1 (2.1)
Have received e-mail from faculty/student with unprofessional tone.[b]					
Distance	9 (4.7)	44 (22.8)	25 (13.0)	67 (34.7)	48 (24.9)
Campus	18 (5.6)	68 (21.2)	47 (14.6)	125 (38.9)	63 (19.6)
Faculty	6 (12.5)	29 (60.4)	2 (4.2)	10 (20.8)	1 (2.1)
Have received e-mail from faculty/student with unprofessional content.[b]					
Distance	3 (1.6)	14 (7.3)	31 (16.1)	80 (41.5)	65 (33.7)
Campus	8 (2.5)	34 (10.6)	51 (15.9)	153 (47.7)	75 (23.4)
Faculty	5 (10.4)	22 (45.8)	7 (14.6)	12 (25.0)	2 (4.2)
With e-mail, students are less inhibited to challenge points deducted on quiz/examination.[b]					
Distance	2 (1.0)	24 (12.4)	34 (17.6)	91 (47.2)	42 (21.8)
Campus	10 (3.1)	106 (33.1)	81 (25.3)	106 (33.1)	17 (5.3)
Faculty	8 (16.7)	21 (43.8)	10 (20.8)	8 (16.7)	1 (2.1)
With e-mail, students are less inhibited to critique a quiz/examination.[b]					
Distance	1 (0.5)	22 (11.4)	38 (19.7)	88 (45.6)	44 (22.8)
Campus	5 (1.6)	84 (26.3)	100 (31.3)	112 (35.0)	19 (5.9)
Faculty	7 (14.6)	17 (35.4)	13 (27.1)	9 (18.8)	2 (4.2)

[a] perceptions

[b] Kruskal Wallis 1-way ANOVA: $p < .001$ (refer to text for discussion of post hoc comparisons)

in pharmacy organizations, and be professional. In addition, distance students recognized the self-discipline required to stay abreast of information online, and the need to be more proactive in seeking assistance from the professor or mentor. A third-year distance student stated, "The professor is not going to be able to tell by your quizzical look on your face that you don't understand like you can when you are face-to-face." Students believed it was the faculty member's responsibility to have engaging lectures and clear course expectations, be available for questions, and treat students with respect "like professionals" and not like "undergraduate students." Faculty members have the added responsibility to make the connection between course content and application to the next level of learning or to the students' future as a pharmacist. Furthermore, distance students felt it was the faculty member's responsibility to answer questions in a timely manner and to have an organized and easy-to-navigate online course.

During the faculty focus group, faculty members stated that pharmacy students are professional students, so expectations were higher, and students needed to assume full responsibility for their learning, including being engaged in the classroom, answering questions, and integrating coursework. Furthermore, even though students might not always understand why they need to learn certain aspects of the curriculum, they should have "a level of open-mindedness to learn and commitment to the entire profession."

Faculty members' accessibility. Students felt that faculty members should respond to e-mails within 24 hours. A second-year distance student stated it was "more convenient for us to ask 5 or 6 students and know we are going to get a response, than e-mailing a professor and know we are going to get a response maybe in a day or 2, if we are even lucky, because there are some professors who don't e-mail back at all." A third-year distance student said a faculty member's responsibility is "responding quickly, giving us time to digest the information, so that we can use it later on an examination. We have had problems in the past with not getting responses very quickly. . .or when you get the response it is material you have already been tested on, it is that delayed."

Nonverbal cues and inappropriate content. Students suggested that a negative tone is conveyed in an e-mail when all text is upper case, numerous exclamation points are used, a rude tone is used, questions are not answered, or the answer is evasive. Students reported trying to convey a positive tone in e-mail to faculty members by including the process they used to find the information before asking the question; using proper grammar and punctuation; proofreading prior to sending; being respectful and polite; using the faculty member's title; and including phrases like "please," "I have a quick question," "I really appreciate all the help you can offer," and "thank you for your time;" along with an exclamation mark to indicate a positive tone. Students believed that a short, 1-sentence e-mail was too concise and could be viewed as blunt or rude. A third-year campus student acknowledged that an e-mail can be perceived differently based on the student's perception of the professor's personality. A third-year distance student described an e-mail with a negative tone received from a faculty member which conveyed frustration. When asked if the tone of an e-mail was the same as the tone to use in a face-to-face meeting with a faculty member, a third-year campus student said she was more confident, aggressive, and less intimidated in asking a question via e-mail. According to a second-year distance student, more thought and time is required to develop the wording of a clear and concise e-mail question to the faculty member. Faculty members defined an unprofessional e-mail from a student based on the tone, the wording, addressing the faculty member in an unprofessional way, and sending the e-mail to the entire class rather than just to the faculty member. Faculty members advise re-reading an email for clarity, especially if it is a sensitive issue, prior to sending the email. Faculty members stated that sending a message without spelling, grammar, and punctuation errors conveyed a professional tone. Faculty members expressed concern regarding the lack of more content-related questions being asked in the classroom as well as in e-mail communication.

Etiquette. Faculty members and students stated that there should be education on e-mail etiquette. The volume of e-mails that faculty members and students receive can be overwhelming. Both groups indicated that there should be education on organizing e-mails and using calendar functions. They expressed the importance of understanding how to use the subject line in an e-mail. For example, the subject line of an e-mail should be relevant to the content of the e-mail to help the receiver decipher which e-mails to read first, and to sort e-mails into different folders. Students stated that a weekly course newsletter addressing topics that have surfaced during the week would be easier to manage than numerous e-mails.

DISCUSSION

This study examined faculty members' and students' expectations and perceptions of e-mail communication in a dual pathway professional program and whether faculty members were able to create a level of instructional immediacy given the limitations of e-mail. Incongruence existed in the perceived consumer attitude among students; faculty members believed that students placed high demands on faculty members, and that their expectations surrounding e-mail communication is an example of these demands. Faculty members perceived themselves as more accessible and approachable than students did, regardless of student pathway. When examining faculty members' accessibility, it was surprising that campus students expected a shorter response time to e-mail questions prior to an examination than did distance students. Also surprising was that faculty members and campus students more strongly agreed that students were comfortable asking questions via e-mail than did distance students. Responses to open-ended survey questions suggested that students felt they were paying for faculty members' time, including e-mail responses, and therefore, they expected timely responses.

Tone in e-mails serves as an indicator of nonverbal cues. Faculty members believed they were successful in using the same tone in classroom and electronic communication, but did not perceive students as possessing the same ability, regardless of pathway. Also, faculty members reported having received e-mails constructed with texting shorthand that impaired their ability to interpret the content. Therefore, faculty members may be more likely to misinterpret an e-mail's meaning because of the perceived tone and/or structure. Appropriate guidelines for e-mail etiquette may minimize these incongruences, especially in the areas of e-mailing process (e-mail structure, timing of responses) and respect (e-mail structure in terms of formality, blinding a forwarded e-mail).

The qualitative data provide a rich source of information to improve overall teaching effectiveness from the perspective of the student, regardless of pathway. Clear course expectations delivered through engaging lectures that make the connection between course content and future practice should be the goal, regardless of the pathway. How the lecture(s) will benefit the student needs to be obvious. Also an environment that promotes mutual respect and recognizes the student as a professional in training may foster professional development. Comments that specifically benefit distance education effectiveness have been incorporated into our department's courses

because of this feedback. For example, timely response to questions (within 24 hours), and an online course environment that is easy to navigate are standards we have adopted.

Interestingly, when viewed holistically, the data appear to indicate a difference in the level of expectations between campus and distance students. Campus students appear to require more and want it sooner than do distance students. This may be due to the difference in age; more research is necessary to form any conclusions.

The data appear to corroborate the findings of others that a distance pathway can possess the same level of immediacy as a campus pathway. All students, campus or distance, perceive the same cues of immediacy and care should be taken to ensure that e-mail reflect the desire to develop immediacy. Suggestions for improving teaching immediacy and effective computer-mediated communication are listed in Appendix 1.

Even though, to our knowledge, this was the first study of its kind, it is not without limitations. The limitations originate from specific research design and analytical issues. Four sources of error inherent in survey research include sampling, nonresponse, measurement, and coverage.[22] Several attempts were made to minimize error in the areas of sampling, nonresponse, and measurement (to some extent). Our census-sampling approach minimized sampling error by surveying the entire student body, thus eliminating selection bias due to nonrandom omission of specific students or group of students. Also, because nonresponse error was minimized through the overall response rate of 80.2%, we are confident in extrapolating the results to all of our pharmacy students.[23,24] By establishing content validity to ensure survey items' wording, development, and design, inaccurate or imprecise answers due to measurement error were minimized.

This was a single site study and was exploratory in nature. Thus, generalization to other colleges, schools, or populations is cautioned, pending further multi-site studies. Because of the novel and exploratory nature of this study, no analytical adjustments were made for the potential increase in type I errors due to multiple testing. For this reason, statistical significance should be interpreted cautiously and warrants replication in future research.

CONCLUSIONS

Student learning and teacher immediacy are intimately connected. Creating a learning environment that fosters student learning and mutual respect requires effective communication among faculty members and students. We demonstrated that a campus or distance pathway can possess an equal level of teacher immediacy through computer-mediated communication. With e-mail being the primary means of communication, whether the classroom is on a traditional campus or in a distance-learning environment, guidelines that enhance communication may aid in creating teacher immediacy, and therefore, enhance learning.

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Appendix 1. Suggestions for Improving Student Communication With Faculty Members in a Doctor of Pharmacy Program

- Enhance e-mail/virtual communication etiquette training at orientation and provide continual reinforcement sessions:
  - Outline expectations of e-mail communication, reinforce and provide examples regarding what is proper/professional
  - Outline appropriate tone and content and provide examples of misperceptions -
    - Short, curt answers may be viewed as rude; no answer viewed as disrespectful/unprofessional; all capital letters viewed as shouting
  - Outline expectations regarding when to expect responses from professors. A 24-hour turnaround is suggested
  - Appropriate way to address/communicate with professors; what to expect in return on e-mail communication
- Outline a process on whom students should contact for various scenarios/situations:
  - Course content (research first) then ask (professor, mentor, class designee)
  - Course administrative questions (IOR, class president, student liaison)
  - When is it appropriate and how to handle point disputes on quizzes/examinations
  - How to address communication issues among faculty members and students
  - Clearly outline any applicable differences for the distance students
- Provide enhanced Microsoft Outlook training and reinforcement sessions:
  - How to create class/course lists
  - How to organize e-mail
  - How to organize calendar
  - How to accept meeting invitations (respond, not respond to organizer)
  - When to reply to all vs. individual stakeholders
- Provide students with virtual office hours to help them understand how accessible by e-mail a professor is per day and week.
  - Differentiate between faculty members' roles (eg, clinical pharmacists)
- Harmonize course online pages and/or syllabi with consistent information from professors on the front page:
  - Emphasize the best/preferred contact information (e-mail, phone, etc)
  - Outline to whom to send content questions and to whom to send administrative questions
  - Expected response time in e-mail communication (< 24 hrs or > 24 hrs) to set expectations with students
  - Time deadline for e-mail questions prior to an examination/quiz
  - Tag lines to use in the header of e-mail for professors to triage their e-mail if applicable
  - Virtual e-mail office hours or office hours by phone if available. If not available this should be stated
- Provide a consistent way to post commonly asked questions by students (send a mass e-mail weekly or post on the course Web page)
- Distance students want to be acknowledged and heard:
  - Introduction e-mails by the professors and mentors sent at the beginning of the class; include who they are, their purpose/expectations in teaching the course and outlining their e-mail policy
  - Weekly update e-mails sent by the professors clarifying course material, expectations for the following week, and answering commonly asked questions
  - Feedback on assignments, projects, and examinations to allow students to learn from mistakes and feel included in the program
  - Acknowledge or say "hello" to the distance students on the captured classroom lecture recordings - helps the distance class feel included in the program
  - Distance students feel their questions are being diluted by the campus students -
    - Recommend a way for distance students to triage their questions since this is truly the only means to communicate or help dispel this myth
  - Post virtual e-mail office hours for distance learners
- Harmonize a consistent e-mail policy within the pharmacy program:
  - Expected response times, deadline for questions prior to an examination/quiz, etc
  - How to forward e-mails from students on questions (keep anonymous by removing name)
- Post actual campus office hours:
  - Some campus students feel intimidated asking questions in classroom

Abbreviations: IOR = Instructor of Record