

Volume 4, 2021

Electronic ISSN 2578-2568  
Print ISSN 2640-4524

# ***JOURNAL OF COMMUNICATION PEDAGOGY***

Published by the Central States Communication Association

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*Journal of Communication Pedagogy* (Electronic ISSN: 2578-2568; Print ISSN: 2640-4524) is published annually each spring by the Central States Communication Association, 1903 W. Michigan Ave, Western Michigan University, Kalamazoo, MI 49008. The journal is open access and available from the Central States Communication Association website (<http://www.cscs-net.org>).

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# ***JOURNAL OF COMMUNICATION PEDAGOGY***

**Volume 4**

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# INTRODUCTION



Journal of Communication Pedagogy

2021, Vol. 4, 1–2

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DOI:10.31446/JCP.2021.1.01

Central States Communication Association

## Editor's Note to Volume 4 of the *Journal of Communication Pedagogy*

***“If you build it, they will come.”***

Deanna D. Sellnow 

In the 1989 film, *Field of Dreams*, major baseball league player Shoeless Joe Jackson is credited with saying “If you build it, they will come” (Robinson). Although Jackson was talking about building a baseball field, this line came to mind as my editorial team (Dr. Renee Kaufmann, associate professor at the University of Kentucky, and America L. Edwards, University of California Santa Barbara doctoral student) and I were putting together Volume 4. In fact, it was only 4 years ago when the Central States Communication Association saw a need, took a leap of faith, and created this journal. Metaphorically, they built it and we (authors, editorial board members, reviewers, and readers) came.

Founding editor, Dr. Scott Myers (West Virginia University), launched the first volume in 2018 by firmly setting the tone for *JCP* as an outlet for expanding the notion of what constitutes instructional communication and communication pedagogy research. The vision persisted as Volume 2 focused on the role of instructional communication pedagogy throughout the communication curricula. In 2020, my editorial team and I published Volume 3, which we entitled: *Where do we go from here?* This volume further clarified the goal of *JCP* as a vehicle for thought-leaders to change the world in powerfully positive ways. Today, the exigence for launching this journal has become abundantly clear. In fact, we have already expanded the number of issues per year from one to two. Even after doing so, our acceptance rate is under 30%.

This first issue pushes the envelope in a couple of important ways. In lieu of an “invited forum,” we highlight a special section edited by Dr. Jihyun Kim, associate professor at the University of Central Florida. Dr. Kim’s special section focuses on machine teachers in education. These three cutting-edge manuscripts challenge readers to consider how we might integrate human-robot teaching teams, computer technology, and virtual reality into instructional communication and communication pedagogy in meaningful ways. In addition, we offer six original research studies that illustrate the value

Deanna D. Sellnow, University of Central Florida, Orlando, FL

CONTACT: [deanna.sellnow@ucf.edu](mailto:deanna.sellnow@ucf.edu)

of expanding the reach of our research beyond traditional classroom settings, as well as best practices and a reflective essay.

Warren and colleagues focus on the need for training to improve communication among health professionals regarding invisible chronic illness (ICIs) using mHealth technology. Donovan and colleagues follow by proposing a 12-step instructional communication training program for pharmacist students. The next three articles focus on using audio podcasts to teach vocal performance (Hill et al.), improving how we implement learning management systems in online classes (Swerzenski), and examining how to improve instructor-student feedback (Ashby-King et al.). This set of manuscripts closes with an agenda-setting piece for the introductory communication course in a “new normal” based on a meta-synthesis of published scholarship (Anderson et al.). The best practices and reflective essay also move beyond traditional pedagogies and contexts. More specifically, Strawser proposes best practices to transform training and development practices in business and industry tailored to a multigenerational workplace and Chorley expands our thinking about best practices for managing public speaking anxiety when performing online. Finally, Diers-Lawson challenges readers to integrate immersive, engagement-based strategies in public relations courses in a reflective essay.

Together, these articles illustrate how and why the *Journal of Communication Pedagogy* provides space for expanding the parameters of instructional communication research and communication pedagogy. We hope readers are inspired to continue stretching how we think about and embrace instructional communication research and communication pedagogy as catalysts for positive change, not just in classrooms but also in the communities where we live and work.

## Reference

Robinson, P. A. (1989). *Field of dreams* [Film]. Universal Pictures.

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# Toward Improving Physician/Patient Communication Regarding Invisible Chronic Illness (ICI): The Potential of mHealth Technology in Instructional Communication

Jami L. Warren , Karen Clancy, Christy F. Brady, Kendall Rump, and Tayla New-Oglesby

**Keywords:** invisible chronic illness, postural orthostatic tachycardia syndrome (POTS), mHealth technology, instructional communication, IDEA model, medical legitimacy

**Abstract:** Patients that suffer from invisible chronic illness (ICI) such as autoimmune conditions, neurological conditions, and gastrointestinal problems often struggle to obtain a proper medical diagnosis due to a lack of objective indicators to help health-care providers diagnose patients with ICIs. Thus, researchers conducted interviews with 21 participants with Postural Orthostatic Tachycardia Syndrome (POTS) to determine what messages they received from health-care providers as they pursued a diagnosis, how they interpreted those messages, and what role mHealth technology may play in improving patient/provider communication and effective diagnosis/treatment of ICIs. Several themes regarding potential instructional communication intervention content emerged from the interview data, including physician communication to patients, patient interpretation of physician communication, and information-seeking via mHealth technology. Directions for future research and implications for patient and provider instruction and training, including utilizing the IDEA model, are discussed.

Invisible chronic illness (ICI) refers to a broad range of neuropathic and nociceptive illnesses characterized by “chronicity and symptoms that are not externally manifested” (Donoghue & Siegel, 2000, p. 4). ICIs include, for example, lupus, rheumatoid arthritis, fibromyalgia, HIV infection, multiple sclerosis, chronic fatigue syndrome, irritable bowel syndrome, epilepsy, and Postural Orthostatic Tachycardia Syndrome (POTS) (Donoghue & Siegel, 2000).

Jami L. Warren, Karen Clancy, Christy F. Brady, Kendall Rump, and Tayla New-Oglesby, University of Kentucky, Lexington, KY

CONTACT: [jami.warren@uky.edu](mailto:jami.warren@uky.edu)

Although millions of people around the world suffer from ICIs, obtaining an accurate diagnosis is difficult because symptoms are often both unobservable and immeasurable (Donoghue & Siegel, 2000). For example, a patient with chronic fatigue syndrome may describe relentless fatigue; however, the fatigue is not necessarily measurable via currently available diagnostic tests. Thus, physicians must rely on systematically ruling out other disease possibilities. Consequently, ICI patients often end up seeing numerous physicians and paying for many costly tests in their attempt to diagnose the condition. Moreover, when ICI tests come back negative, physicians often conclude that the symptoms are caused by stress, exhaustion, hysteria, or even conjured up in the patient's head (Donoghue & Siegel, 2000). After months and sometimes years searching for accurate diagnoses, many patients stop trying to find answers due to exhaustion and frustration.

Thorne and colleagues (2004) argue that the most significant challenge may be rooted not in diagnostic testing (although that is certainly a factor), but in communication failures based on perceptions of legitimacy. In other words, because no objective indicators exist to diagnose ICIs, these “invisible diseases” lack medical and social legitimacy. To clarify, “healthcare professionals disbelieve your symptomatic reports and interpret your complaints as psychosomatic” (p. 304). Thorne et al. (2004) also suggest that “the relationship between objective indicators and social legitimacy seems to be a potent variable influencing the experience of individuals with chronic diseases and their communication with professional health care providers” (p. 305). As Allen (2008) explains, these “serious, complex, and often debilitating medical disorder(s)” are often trivialized as being “in the patient's head” due, in large part, to misperceptions among health-care providers based on lack of awareness and empirical research (p. 289). Consequently, patients begin to doubt themselves, which may, in turn, adversely impact self-concept and self-esteem (Larun & Malterud, 2007). Thus, it seems plausible that instructional interventions could reduce misunderstandings, improve communication, and increase medical legitimacy about ICIs among health-care professionals.

The perception among health-care providers that ICIs are not legitimate physical illnesses often leads to stigmatization of patients seeking treatment. Goffman (1963) describes stigma as “an attribute that is deeply discrediting” (p. 2). Patients with ICIs are stigmatized as having “blemishes of individual character, [which are] perceived as weak will, domineering or unnatural passions, treacherous and rigid beliefs, dishonesty” (p. 2). In essence, health-care professionals may stigmatize patients as malingerers or suffering from mental illness rather than as someone who is, in fact, physically ill (Donoghue & Siegel, 2000). As a POTS patient, Mel Pruett explains, “At 16, I woke up, and I was just sick. I spent years being undiagnosed, being told it was all in my head” (cited in Layne, 2020, para. 2–4). She further claimed that the worst part is “the stigma with an invisible condition makes you feel invisible” (para. 9). Consequently, many stigmatized patients like Mel Pruett not only pay exorbitant fees and face long diagnostic delays, but also suffer from emotional trauma (Collins, 2019). Emotionally traumatized patients may experience additional complications that also affect quality of life among their families and caregivers (Kira, 2001).

One particularly difficult ICI to diagnose is POTS. As is the case with many ICIs, these patients often face long diagnostic delays because they rarely “look sick.” When POTS patients describe a variety of symptoms, including lightheadedness, palpitations, weakness, exercise intolerance, and fatigue, they are misdiagnosed as psychosomatic rather than legitimate (Kavi et al., 2016). For example, in a large cross-sectional study of POTS patients, Shaw and colleagues (2019) found that, on average, POTS patients struggle for 4 years and see an average of seven different physicians in their attempt to get an accurate diagnosis.

Tori Foles and her spouse (Super Bowl LII MVP Nick Foles) recently brought attention to the toll diagnostic delays and misdiagnoses have on patients and their families in an interview conducted at the annual meeting of Dysautonomia International, a nonprofit organization devoted to patient empowerment via research and education (LaMotte, 2018). Tori, a POTS patient, explained how doctors tried to attribute her symptoms to a mental health issue, like anxiety or depression (LaMotte, 2018). Some doctors also suggested Tori may have a virus, but as the former Arizona Wildcat volleyball player explained, “I had never heard of one where you are dizzy all the time. There were a lot of times I couldn’t get out of bed” (para. 2). In fact, according to research conducted by the Mayo Clinic, POTS affects patients much like “what is seen in congestive heart failure or chronic obstructive pulmonary disease” (para. 8). As her spouse, Nick, explained, “It’s crazy, we spent a whole month at the Mayo Clinic” where they also got engaged before having a courthouse wedding. They never had a wedding ceremony or a honeymoon (para. 15–16).

Tori and Nick Foles are not alone in these kinds of struggles. POTS affects 1 to 3 million Americans (and millions more around the world); most of them young, healthy women (Tori was 23) (Dysautonomia International, n.d.). Because so few doctors are educated on the symptoms, many dismiss POTS and other ICIs as psychological (e.g., depression, anxiety, hypochondria) or as a “woman thing” or that they were merely seeking attention. One comprehensive study conducted by Kavi and colleagues (2016) revealed that this “psychiatric mislabeling” was common among POTS patients. In fact, 3,471 (or 77%) of the participants in Shaw and colleagues’ (2019) POTS study were misdiagnosed with a psychiatric condition prior to eventually being diagnosed with POTS. For these reasons, POTS is called the most common condition no one has heard of (LaMotte, 2018).

Unfortunately, this problem is not unique to POTS patients. For example, this “psychiatric labeling” and struggle with legitimacy has been noted in studies on patients with a variety of ICIs, including temporal lobe epilepsy (Beletsky & Mirsattari, 2012), chronic fatigue (Kralik et al., 2005), fibromyalgia (Sim & Madden, 2008), lupus (Brennan & Creaven, 2016), and irritable bowel syndrome (Jones et al., 2009). Participants in these studies suffered from misdiagnoses, perceptions of illegitimacy, as well as being stigmatized by physicians as having a mental health issue rather than a physical condition (Thorne et al., 2004). Clearly, a communication breakdown between health-care professionals and patients suffering from ICIs is occurring. Consequently, patients experience delayed diagnoses, misdiagnosis, stigmatization, and emotional trauma, as well as a significant reduction in quality of life (Csecs et al., 2020).

With the expansion of internet technology and web-based tools, a wealth of resources are now available to patients seeking information beyond what they learn in the doctor’s office (Voruganti et al., 2017). Most are intended for patient self-management and are based on the assumption that patients are aware of them, have access to them, and are proficient in using them (Granja et al., 2018). They range from telemedicine for routine office visits to patient portals that provide 24/7 access to medical reports. Unfortunately, however, based on their systematic review of 221 articles, Granja and colleagues (2018) discovered that as many as “75% of implemented eHealth should be considered a failure” (p. 2). To improve success, they conclude that eHealth communication interventions must focus on “quality of care, with particular attention given to improved diagnosis, clinical management, and patient-centered care . . . at the earliest possible stage” of implementation with ongoing assessment from that point forward (p. 10).

One promising development in the eHealth area of the health-care industry is mobile health technology (mHealth). Most of the literature on mHealth technology focuses on increasing knowledge about health issues and changing health behaviors. For example, Tarver and Haggstrom (2019) found that tailored patient-centered technologies were effective at increasing cancer-specific knowledge among underserved populations and increased cancer screening behaviors for those populations. Other studies found that mHealth technology affected health behavior change related to physical activity (Hardeman et al., 2019). Several systematic literature reviews reveal similar effects of mHealth technology on chronic disease management as well as medication adherence in cardiovascular disease patients (Ah-Le et al., 2018; Gandapur et al., 2016). mHealth technology has also demonstrated its utility in detecting and managing heart rhythm changes and atrial fibrillation among undiagnosed populations (McConnell et al., 2018).

Patient testimonials also support the argument that mHealth may be useful in improving ICI diagnostic accuracy and treatment. For example, when then-prominent New York lawyer Lauren Stiles contracted POTS 4 days after a snowboarding accident, her doctors dismissed her symptoms as being all in her head (Stieg, 2018). She went to the internet and printed 30 journal articles about POTS. When she handed them to her neurologist, he told her not to go on the internet and took them home to read. When he came in the next morning, “he said ‘Holy s\*\*\*! You have POTS’” (cited in LaMotte, 2018, para. 29–30). In essence, mHealth technology could aid in the diagnostic process by providing patients with objective evidence to communicate with their physicians. This may, in turn, increase legitimacy, decrease time to diagnosis, and reverse quality of life consequences faced by stigmatized patients and their families.

To achieve these outcomes, we argue that instructional communication interventions be developed and implemented with physicians and other relevant health-care professionals, as well as with patients experiencing ICI symptoms and their families. To date, no empirical research exists to examine patient-provider communication as it may serve as instructive communication mitigating misdiagnoses and stigmatization of ICIs. In this manuscript, we explore perceptions of 21 POTS patients regarding the patient-physician communication they experienced. Ultimately, this exploratory study may lay important groundwork for developing effective instructional interventions to help medical professionals ask questions and interpret responses in ways that encourage legitimacy about their disease and, in the process, reduce the tendency to stigmatize patients suffering from these ICIs.

## Theoretical Grounding: IDEA Model

Sellnow and colleagues (2015) argue for expanding the scope of instructional communication research beyond conventional classroom contexts. More specifically, they suggest doing more research in health contexts, as well as in technology-enhanced environments. One theoretical model they advocate for doing so is the IDEA model (Sellnow & Sellnow, 2019). IDEA is essentially an acronym standing for the four key elements in effective instructional messages as they occur beyond conventional classroom settings. These elements are internalization (perceived value/utility/relevance), distribution (master narrative delivered via multiple communication channels and trusted sources), explanation (accurate science translated intelligibly to diverse audiences), and action (specific action steps for reducing risk and mitigating harm).

Although the model was originally conceived to predict and explain instructional communication best practices in risk situations and crisis events, its utility has been demonstrated in other contexts including health contexts (e.g., Frisby et al., 2014; Miller et al., 2017; Schraedley et al., 2020; Sellnow-Richmond et al., 2018). For example, the IDEA model has been used to design effective messages and interventions

that improve compliance rates around food safety, biosecurity, health epidemics and pandemics, agricultural biotechnology, as well as natural disasters and human-induced ones. We argue that the IDEA model may also serve as an appropriate framework for developing instructional interventions focused on improving patient/provider communication. More specifically, the IDEA model provides a guideline for interventions regarding the nature and impact of invisible chronic diseases (affective learning), use of mHealth to reduce misunderstandings that lead its misdiagnoses and stigmatization (cognitive learning), and reduced time required to obtain an accurate diagnosis and develop an effective treatment plans (behavioral learning).

We contend that mHealth technology may play a significant role in improving communication through instructional interventions using the elements in the IDEA model. First, it may be a fruitful resource for empirical data that motivates health-care providers to take invisible symptoms seriously. Second, patients and providers could rely on mHealth as one channel for communicating accurate science around ICIs. Third, mHealth technology presents accurate data-driven science in language that a layperson can understand, which can improve communication among patients using the resource and providers following frameworks for communicating science more successfully with patients and families. Finally, mHealth technology may serve as a resource for patients and families seeking actionable instructions while seeking diagnoses and for health-care providers to create action plans to share with patients and families.

## Research Questions

This study focuses on the types of messages POTS patients receive from their physicians, as well as how they interpret those messages. We were also interested in possible relationships existing among mHealth technology information and physician/patient communication regarding ICIs. Therefore, we posed the following research questions:

**RQ1a:** What messages did POTS patients receive from health-care providers as they pursued a diagnosis for POTS?

**RQ1b:** How did POTS patients interpret the messages received from health-care providers as they pursued a diagnosis for POTS?

**RQ2:** What role might mHealth technology play in improving patient/provider instructional communication interventions and effective diagnosis/treatment of invisible chronic illnesses (ICIs)?

## Methods

### Participants

Participants included United States residents diagnosed by a physician with Postural Orthostatic Tachycardia Syndrome ( $n = 21$ ). Of the 21 total participants, 15 were female, and six were male. Participants' ages ranged from 19 to 70 (mean age = 37). All participants identified themselves as Caucasian except two that identified themselves as multi-racial. These demographics align with statistics reported by the National Institute of Neurological Disorders and Stroke that 80% of the cases are diagnosed in Caucasian women aged 15–50 years (Collins, 2019).

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Participants reported having experienced a wide range of symptoms consistent with POTS (e.g., dizziness, pre-syncope or syncope, tachycardia, gastrointestinal problems, low blood pressure, visual disturbances, circulation problems, headaches/migraines, brain fog, fatigue, shortness of breath, trouble sleeping, nerve pain). Participants also reported having seen a number of different health-care providers (some as many as 100) including primary care physicians, cardiologists, neurologists, gastrointestinal specialists, allergists, endocrinologists, pulmonologists, hematologists, immunologists, rheumatologists, geneticists, ear nose and throat specialists, infectious disease physicians, chiropractors, and pain management specialists. Finally, participants reported having numerous medical tests including extensive bloodwork, various types of imaging tests (MRIs, CT Scans, ultrasounds), EKGs, holter/event monitors, echocardiograms, electrophysiology studies, EEGs, EMGs, vision tests, allergy tests, gastrointestinal procedures (endoscopy, colonoscopy, barium swallows), skin biopsies, balance tests, sleep studies, and various autonomic nervous system function tests (tilt table test, QSART).

## Procedures

Participants were recruited via social media, the Research Match database, and advertisements on a large Southern public university's website. Study advertisements were approved by the university's health-care system and Institutional Review Board. Interested participants were directed to contact the primary investigator of the study. A screener was conducted with the participant via email or phone to ensure he or she had been diagnosed by a physician with POTS and was over the age of 18. Participants were also notified that they would be paid \$25 for their participation in the study. After the participant met the study inclusion criteria, a virtual interview was set up for a later date between the participant and one of three research team members.

Semi-structured qualitative interviews were conducted with participants via Zoom. Once the Zoom interview began, the consent was read to the subject, who then verbally agreed to participate in the study. Interviews were also recorded in Zoom so that they could be later transcribed. Interviews varied in length and ranged from 45 minutes to 90 minutes and produced 330 pages of transcribed data. Participants were asked a variety of questions focused on their experiences and interactions with the health-care system and health-care providers as they pursued a diagnosis for POTS. Sample interview questions included asking participants to describe when they first began experiencing symptoms they now know are related to POTS; to recall when they first saw a physician for those symptoms; to describe the communication that occurred between the physician and themselves; to list what tests, if any, the physician ordered; what aids may have been used to facilitate communication between physicians and patients; and other related questions.

## Data Analysis

One coder used an open coding technique to analyze the 21 interview transcripts to identify initial themes or categories (Lindlof & Taylor, 2002). The coder developed and defined a tentative codebook and met with three other coders to review the codebook. All four coders used the codebook to independently code one interview transcript. Codes for all four coders were entered into an Excel file to examine agreement among coders. Coders agreed 85% of the time. Coders met to discuss the interview and resolve any disagreements or discuss categories/themes that needed to be added to the codebook. Coders then independently coded the same additional four interview transcripts to ensure agreement about themes and items categorized within them. This is also when coders determined whether any

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new themes or categories needed to be added to the codebook. Then, each independent coder coded an additional four interview transcripts to complete the coding process for the entire sample.

## Results

Several themes regarding potential instructional communication intervention content emerged from the interview data. We arrange these themes under the headings of physician communication to patients, patient interpretation of physician communication, and patient information-seeking via mHealth technology. The data revealed both harmful and helpful communication by physicians. Harmful communication consisted of comments dismissing the legitimacy of the symptoms, stigmatizing the disease as a mental health issue, and attributing the symptoms to some other pre-existing condition. Helpful communication consisted of compassionate caring and validating patient symptoms as real. Patient interpretations focused on two areas: giving up and relief. Patient information-seeking focused on mHealth and is illustrated through the experience as described by two patients with POTS.

### Physician Communication to Patients

One theme that emerged from the data was physician communication to patients. This theme is divided further into two subthemes: harmful and helpful messages.

#### *Harmful Messages From Physicians*

**Lack of Concern.** Nearly every participant talked about physicians being dismissive about their symptoms signaling any legitimate medical condition. These comments typically occurred after medical test results came back normal or negative. For example, Ashley stated,

I mean, I probably saw 20 doctors there [medical center]. I saw a neurologist, an ophthalmologist, another cardiologist, a rheumatologist, a dermatologist, like, every doctor they had, and every single one said, ‘you seem fine. All of your tests are normal. There’s nothing wrong with you.’

Similarly, Ava described an experience when she could hear physicians speaking about her outside of the exam room before entering. She explained, “I could hear them, like, just saying that, you know, I thought something was wrong with me, but nothing was wrong with me.” POTS patients often look healthy so physicians do not always believe something is wrong. For example, Paula discussed an interaction she had with a cardiologist and said, “He was very dismissive, and um, you know, sort of almost laughing at the fact that I was describing these symptoms. Because, I was in my twenties, I looked very healthy, and it was difficult to be taken seriously.” Paula went on to say, “I would say, generally speaking, doctors don’t like it when they can’t come up with an answer. And, if they can’t come up with an answer, eventually they’re going to just wash their hands of you. So, you get pretty good at preempting that and just moving on.” Essentially, participants struggled to gain legitimacy with physicians because they often did not appear sick.

Participants also expressed concern that physicians did not listen to them. For instance, Blaire exclaimed, “She [cardiologist] did not, like, she came in and wouldn’t listen to me. And she never did any tests.” Similarly, Blake reported:

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They [neurologists] would definitely listen the least. So, each of them would do an MRI, which you know, is fine. That's their [neurologists'] protocol. And if they didn't really see anything from there, they almost seem to not be interested at that point. You know, either it was beyond their, you know, normal expertise or they just didn't think that it was a big enough problem.

As a result of perceiving health-care professionals as not listening or as trivializing their symptoms, participants felt misunderstood, which led some to give up pursuing an accurate diagnosis.

**Misdiagnosis.** Many participants talked about medical professionals misdiagnosing their symptoms and attributing them to something other than a physical illness. For example, many physicians attributed symptoms to a mental health issue, such as anxiety or depression. For example, Callie recalled a period of time when she saw a cardiologist during her high school years. She remembers the cardiologist speaking to her mother, "oh, sometimes children, they can just get a little anxious and scared and they just think something is wrong with them, even though it's not. There's nothing wrong." Callie went on to say,

Unfortunately, it [the experience with the cardiologist] was kind of just a prelude to what was going to happen the next couple of years. Because, I went through a lot of cardiologists where they've told me, 'oh, it's all in your head.' They've [cardiologists] told my parents, 'oh, she's just looking for attention and that's why she's passing out.'

Similarly, Ava described seeing a cardiologist and said, "I think he [cardiologist] just did an EKG and that was it. And then he said everything was fine. So, he put me on some, like, anxiety medication—he said it [symptoms] was like anxiety and depression." Joyce described her journey through the health-care system and stated,

Throughout all this [seeing various physicians] I'm getting a lot of mentions of depression and anxiety. So, I went to see a psychiatrist to get an assessment, just so I would know. And, I could also have that information to provide to other doctors. It'd be nice to have something to show them.

Katie had a similar experience with a primary care doctor that made her visibly emotional during the interview. She said, "He literally said, 'there's nothing wrong with you. We've tested everything. Here's a, you know, referral to see the psych department and a prescription for benzos [benzodiazapines].'"

Many participants in this study felt like Joyce did, in that they needed to prove that they did not have a mental health issue with each physician they saw.

Although both male and female participants experienced physicians attributing their symptoms to a mental health issue, females experienced this more often especially during an initial visit (during an emergency room or primary care physician visit for example) than males did. During initial visits, physicians tended to attribute male participants' symptoms to other issues, as described below.

Often, participants' symptoms were attributed to other issues, such as obesity, exhaustion or stress, or some other physical issue. Although women experienced some of these attributions, men were more likely to experience them. For instance, Blake discussed his initial visits with three different general practitioners and stated, "they [physicians] would say things that were just so generic. They would all go, 'you know, it's chronic fatigue or you know, you're just out of shape or something.'" Similarly, Blaire

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noted when visiting with her cardiologist, “she [cardiologist] came in and 100% assured me that I don’t have POTS and I should look into losing like 10 pounds. What she saw was just like, my body type, which I didn’t need to lose 10 pounds. It was just a very long appointment for no reason.”

Physicians also attributed males’ symptoms to exhaustion or stress. For instance, Eli described an experience when he passed out in a motel room while traveling for work. He said,

I got real lightheaded. And the next thing I know, I’m laying sideways in a motel room, and 45 minutes later, the maid calls an ambulance for me. I couldn’t move a muscle in my body, except for my eyes. When I got to the hospital, the doctors wrote it off as exhaustion because of the number of hours I was working.

Eli went on to describe the second time he passed out, during a vacation. He recalled, “I knew I wasn’t exhausted then. So I made an appointment with my family doctor. My family doctor wrote it off as vasovagal syndrome. You know, that was just another answer. And another week went by and I was back on the road [for work].”

Both male and female participants reported physicians dismissing their symptoms. However, female participants’ symptoms were attributed to mental health issues more often than male participants. Also, male participants’ symptoms were more often attributed to other issues, such as obesity, stress, or exhaustion. Although participants in this study overwhelmingly described harmful messages from physicians, all of them did eventually find their way to a diagnosis. During this process, most at least had one positive experience with a physician.

### ***Helpful Messages From Physicians***

**Listens and Validates or Believes the Patient.** Participants appreciated when physicians listened to their concerns and allowed the participants to have a voice in their own care. For instance, when Blaire was speaking about the neurologist who eventually diagnosed her, she said,

He usually doesn’t make me do things that make me super uncomfortable. So, it’s really nice to have that kind of choice. Where if I say, ‘I don’t want to do that; it’s not of great value to me,’ he just was like, ‘Okay. Your boat, you steer it.’ He’s definitely been my rock through the whole thing.

Ava also described positive communication behaviors that one of her physicians exemplified,

Whenever it is time to like, sit and listen, he [cardiologist] does that. And so, the way, so his, the tone of his voice. He sits there and listens and soaks everything in. You can just tell, when you’re talking to him, you can just tell he’s soaking everything in, and like, trying to think of the best way to help. He’s so sweet. You get to see it in his face.

Katie also eventually found a physician who listened. She stated, “So, um, the DO [doctor of osteopathy], I felt was the first person who actually allowed me to tell my story, um, and like, here are all the things wrong with me.” Katie went on to describe her experience with that physician and stated, “it was the first time in that decade that I felt somebody was like, ‘I’m listening to you. You’re right. I admit that I can’t help you and am sending you to someone else.’”

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It was very important for participants to feel like their physicians believed them. Many found that experience relieving or validating. For instance, Igor discussed his childhood pediatrician and explained,

He didn't really have any background in this [POTS] but he never, never wavered in believing that you know, everything I was saying was really what I was experiencing. He never suggested psychological treatment. He referred me to the doctor that eventually made my diagnosis.

Igor went on to suggest that physicians should “put their egos aside and accept that the person who has the most insight into what is happening is the patient.” Participants appreciated physicians who listened and believed them but they also appreciated when they felt like physicians cared for them, even if they could not help them achieve a diagnosis.

**Caring and Responsive.** Participants also really appreciated when they perceived physicians cared about them, even if they were not certain what the problem was. For instance, Callie spoke about one of her physicians and said,

I absolutely loved that doctor. He was a really caring guy, really respectful, very knowledgeable as well. And he was able to put things in a vernacular that I could understand. But, he was respectful enough to know that, since I knew enough about my health at that point, that he could tell me things that normal doctors wouldn't.

Eli also described a positive experience he had with one caring physician. Specifically, he stated,

The only one, and this is the honest truth, the only one that actually cared, and was willing to figure out what was wrong with me was Dr. [name of physician]. He did not give up on me until he figured it out. All the other ones just went through their, you know, went through their spiel and wrote ya off and sent you on your way.

Ava described specifically asking for a physician that she knew to be caring. She recalled,

I personally asked for Dr. [name of physician] because I knew that he was, he cared, and that, he like, he really just genuinely cared about his patients. He would always take the time to listen and you know, he had very good bedside manner.

Although many physicians were helpful to the participants in meaningful ways, harmful messages from physicians were often very challenging for participants in ways that negatively affected their journeys through the health-care system.

### ***Participants' Interpretation of Physician Communication***

Not surprisingly, participants experienced many positive and negative emotions related to the messages they received from physicians. For instance, participants often gave up on seeking a diagnosis as a result of messages they received from their physician. However, participants often felt validation from physicians as well. These themes are described in more detail below.

**Giving Up and Questioning Self.** As mentioned earlier, participants in this study often spent years seeking a diagnosis to explain their symptoms, only to face their physicians not listening to them, being dismissive, or attributing their symptoms to a mental health or other issue. As a result, participants often gave up on the process. For example, Callie stated,

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I actually stopped seeing doctors about my condition and I was lying to my mom and not telling her that I was passing out, because no one was helping. So, like, I'd pass out at school and they're [school officials] like, 'well, you know, your parents know about this?' I'm like, 'oh yeah, you know, my parents know it's pretty normal.' And I just wouldn't tell my mom when I got home.

Similarly, after hearing physicians dismiss her condition outside of her exam room, Ava said,

I actually got my feelings hurt by that, and I was just like, I'm not gonna say anything to anybody anymore. I'm just going to forget about it. So, I kinda let it, I kind of just brushed it [symptoms] off for awhile.

Katie was also emotional when she described a physician referral to see a psychiatrist (described earlier in this manuscript). She stated, "And that was, you know, probably the most influential doctor who led me to stop seeking treatment."

Participants often described sadness or frustration over the process. For instance, Eli mentioned having a conversation with his wife. He said,

After about the fifth or sixth year [of seeking a diagnosis], I'd just gotten so depressed with it all. I told my wife, 'I'm not going to any more doctors. I'm done.' And then I went for, I don't know, maybe a year and a half, and it [condition] started getting worse. And that's when I went back to the doctor. I probably cycled through 20–25 doctors.

Participants did not just give up after several negative meetings with physicians. They even questioned their own sanity. For example, after being misdiagnosed multiple times by different physicians, often with a mental health issue, Laura said,

I had many doctors suspect that [mental health problem], although none of them were psychiatrists. So, I actually went to a psychiatrist. So, like, maybe I am losing my mind, you know? You have enough people telling you that, you start to internalize it and believe maybe this is what's happening to me.

Ava described a similar feeling after seeing many physicians that attributed her symptoms to anxiety and depression. She said, "I didn't even want to try, cause I was like well, maybe I am crazy. Like, maybe there isn't anything wrong with me, you know?" Although messages from physicians often left participants feeling defeated, participants felt relieved when they were listened to or diagnosed properly by their physicians.

**Validation or Relief.** Participants often felt a sense of validation or relief when they finally found someone who could help them or who believed them. For example, Katie explained her experience with an integrative medicine specialist,

He's like, 'people come to see me all the time who have been mentally and emotionally damaged by doctors telling them there's nothing wrong with them, when there's obviously something wrong with them. So many people come to me with this exact story. It's terrible.' It made me feel heard and seen.

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Angela also described a positive interaction with the physician that diagnosed her. She recalled,

He basically asked me to tell my story from the beginning. [He] listened to all of it, validated everything I was saying. He said, 'yeah, I'm pretty sure you have POTS, it sounds like you have POTS.' It was amazing. It was like a breath of fresh air.

Because participants often felt the need to “prove” their illness to their physicians, many tried to find aids that helped them communicate with their physicians so that the physicians would listen and believe them.

### ***Patient Information Seeking Via mHealth Technology***

One theme that resulted from this study was participants' use of mHealth technology and its perceived impact on their diagnostic processes. More specifically, during two of the 21 interviews, participants discussed their use of mHealth technology and its perceived impact on each of their diagnostic processes. The two case studies described below highlight how mHealth technology may aid patients in obtaining a diagnosis and achieving legitimacy with their physicians more quickly than their peers. Participants' names have been changed to protect confidentiality.

**Case Study 1: Amy.** Amy is a 28-year-old Caucasian female who began experiencing symptoms of POTS in August 2017. She is physically fit and enjoys running for exercise. Amy purchased a Fitbit a few years prior to the onset of her symptoms because she enjoys running and wanted to track her heart rate. Amy had just completed a half marathon when she began noticing symptoms of POTS. She noticed that her resting heart rate was much higher than it typically was. Her resting heart rate was 160 bpm and would increase from there when she ran for exercise. Amy also began feeling badly even after light exercise. She experienced cramps, problems with her balance, and brain fog.

Amy showed many of the graphs of her heart rate from her Fitbit to her primary care physician to demonstrate her higher than normal heart rate. Amy's primary care physician became very invested in her case and referred her to several specialists, including a neurologist and cardiologist. Those specialists ordered several tests for Amy, including bloodwork, an MRI brain scan, a Holter monitor test, stress test, and balance test, among many others. Many of Amy's tests came back normal, except her Holter monitor test, which showed anomalous tachycardia as well as her balance test, which confirmed her balance challenges. Amy eventually saw a dysautonomia specialist who diagnosed her officially with POTS. Although it took 2 years for Amy to be officially diagnosed with POTS, she believes that the initial data from the Fitbit she provided to her primary care physician expedited the process for her. For example, in her interview, Amy said,

I think it helped a lot that I brought actual data to back up the things I was saying. It wasn't just me walking in saying, 'I feel like crap a lot.' I had graphs with my heart rate data compared to my, like, running speed, and it just showed this really sharp incline.

Unlike other study subjects, Amy reported that her primary care physician never mentioned anxiety and/or depression to her as a possible cause of her symptoms. Amy attributes this directly to the data she acquired from her Fitbit that demonstrated her high heart rate and heart rate fluctuations. She went on to say, “So, that was kind of hard for them [health-care providers] to say, 'Oh, it's all in your head,' or, 'Oh, that's anxiety.' Like, um, you know. It's hard to argue with the graph.” Amy's Fitbit provided some

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objective data for her to give to her physician. In sum, Amy believes this decreased the amount of time it took her to achieve a diagnosis for her symptoms and does not know if she would have a diagnosis today without the Fitbit.

**Case Study 2: Alan.** Alan is a 28-year-old Caucasian male who serves in the military. Alan first began experiencing symptoms as a teenager when he passed out unexpectedly. He still experiences dizziness upon standing, low endurance, and struggles with his military training. He began paying attention to his heart rate because his smartwatch indicated his heart rate stayed in the maximum range for too long. His resting heart rate stayed at about 115 bpm and it would increase up to 200 bpm during exercise and would stay in that range for too long. Alan used an app on his smartwatch called Samsung Health and he was able to read American Heart Association information about prolonged increased heart rate. During his interview, Alan stated,

I've noticed my heart rate was, like, in the maximum range. So every time we'd [military] go out and do a run, cause we run like three to four times a week. My heart rate would be anywhere from 185 up to 200 beats a minute, like during the run. And they [smartwatch] even have a section on the App they call like Samsung Health I think, [which] is what I was using. And according to the American Heart Association, you're not supposed to be staying in your max heart rate for very long because it causes like long term stress on your heart. And so that's why I'm like, okay, I should probably talk to somebody about this.

Alan finally spoke to a physician about his symptoms in 2017. He showed the physician screenshots from his smartwatch that demonstrated the types of exercises he engaged in and how long his heart rate stayed in the maximum range. At first, his physician did not take his symptoms very seriously and attributed the high heart rate to a medication Alan was taking. However, after looking at Alan's screenshots again, the physician agreed that Alan's symptoms were not normal. Alan explained that his physician said, "Okay, this is pretty weird." Alan continued and stated, "like, he [physician] finally admitted [that there was a problem] during that appointment, so he wrote me a referral to go see a cardiologist." Alan saw two cardiologists and two neurologists and endured several tests, including bloodwork, an ultrasound of his heart, an MRI, a stress test, and a tilt table test. It took 2 years for Alan to obtain a diagnosis but eventually a neurologist diagnosed Alan with POTS based on his tilt table test results.

Both participants obtained a POTS diagnosis within 2 years of their initial visit with a physician. The average time to diagnosis for the total sample in this study was approximately 5 years. This is consistent with previous studies conducted on POTS patients. As mentioned earlier, participants' average time to diagnosis in the large POTS study conducted by Shaw and colleagues (2019) was 4 years. One of the primary differences among the two cases described in this manuscript from other participants in the same study was the use of mHealth technology to aid the participants in their diagnostic journey.

Participants in this study described grueling symptoms that fueled often years-long journeys through the health-care system to achieve diagnoses. It seems that messages from physicians can leave patients feeling stigmatized and affect their journeys through the health-care system. In those cases, mHealth technology may help patients gain legitimacy with their physicians and assist them in achieving a diagnosis. Messages from physicians can also be helpful to patients as they navigate the health-care system. Better training for both patients with ICIs and physicians treating patients with these potential diagnoses may result in positive experiences for patients and physicians alike.

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## Discussion

Although patient/provider communication is improving through research and professional development programs, results from this examination reveal several important conclusions. First, physician communication continues to be ineffective based on patient expectations, perceptions, needs, and desires. This conclusion confirms Thorne and colleagues' (2004) claim that perhaps the most serious challenge comes in the form of failed communication based on misperceptions among health-care providers who refuse to consider these invisible diseases legitimate physical illnesses. Consequently, nearly 20 years later, we continue to struggle with obtaining accurate and timely diagnoses of these "serious, complex, and often debilitating" medical conditions (Allen, 2008, p. 289). Our results revealed that ICI patients continue to spend on average 5 years pursuing an accurate diagnosis and treatment plan. This extends the IDEA model theoretical perspective to suggest that, much like novel diseases (e.g., COVID-19), one must explain science in terms of both what is known and unknown, as well as what is being done to find out (Sellnow & Sellnow, 2019). Such transparency would avert health-care providers from sharing misinformation and the negative consequences of doing so.

Second, most ICI patients are misdiagnosed by medical professionals who continue to claim the symptoms are psychosomatic or "in the patient head" (Allen, 2008, p. 289). This is particularly troubling because these misdiagnoses may lead to patient's doubting themselves and even giving up the search for an accurate diagnosis and treatment. This stigmatization of ICI patients may, in turn, adversely affect self-concept and esteem, as well as patient/family quality of life (Csecs et al., 2020; Larun & Malterud, 2007). This study supports Yang and colleagues (2007) argument that stigma is "a social, interpretive, or cultural process" that threatens "what is most at stake for actors in a social world," that is, "lived value" (p. 1524).

Third, results of this study extend existing research by exposing the positive affect when patients believe health-care providers are truly listening and sincerely believing them and their stories. Participants concluded that these providers genuinely cared about them, which softened the blow of having to pursue additional testing. The IDEA model of effective instructional risk and crisis communication purports that demonstrating compassion through effective listening is critical to success (Sellnow & Sellnow, 2019). Conclusions from this study extend that theory to health-care diagnosis and treatment of invisible chronic illnesses (ICIs).

Finally, when used appropriately, mHealth technology may save time, money, and frustration for both health-care providers and patients by tracking symptoms in real time. The patients in this study reported, on average, about 5 years of testing before reaching an accurate diagnosis. However, the two patients (Amy and Alan) that reported using mHealth devices (Fitbit, smartwatch) achieved accurate diagnoses and treatment plans in less than half the time. More specifically, both participants had a POTS diagnosis a full 2 years sooner than the average for most POTS patients (Shaw et al., 2019). It seems plausible that the objective data provided by participants may have contributed to physician perceptions of medical legitimacy and, thus, reduced time to diagnosis for these participants. A shorter time to diagnosis could also improve other health outcomes such as stress and financial burden. These findings have several implications for future work in this area.

## Implications

Results from this study illustrate the role health communication interventions could play to improve outcomes for both patients and providers dealing with ICIs. Clearly, reducing the time it takes to confirm an accurate diagnosis of these invisible diseases ought to be a primary goal among health-care providers. However, results of this study confirm research pointing to improved communication may play a vital role in doing so. Although research has suggested doing so, a gap remains in moving these recommendations to applied practice (e.g., Brennan & Creaven, 2016; Jones et al., 2009; Kralik et al., 2005).

One theoretical model that could fill this gap is the IDEA model for effective instructional risk and crisis communication (Sellnow & Sellnow, 2019). To clarify, the internalization component of the IDEA model illustrates the role of conveying care and compassion to motivate participants to trust spokespersons (Sellnow & Sellnow, 2019). Regarding ICIs, providers could learn to begin by asking patients to share their stories, engaging in active listening, and responding that they believe patients are suffering from a medically legitimate condition that is difficult to diagnose because many of the symptoms are unobservable and immeasurable (Donoghue & Siegel, 2000). The explanation component argues that accurate science needs to be shared transparently in terms of what is known, unknown, and being done to find out, as well as translating information intelligibly to disparate publics. Patients can learn to use mHealth technology to collect empirical data in real time, which can be shared with their health-care providers. Providers can learn strategies to encourage patients to use mHealth technologies through well-designed actionable instructions.

In fact, the World Health Organization held a summit in Cape Town in 2011 and recommended creation of a “national eHealth development toolkit” that would include a section on “global mHealth best practice” (Kay et al., 2011, p. 69). If designed and implemented effectively, such instructional communication interventions could improve perceived legitimacy among health-care providers and reduce stigmatization of ICI patients. By making mHealth technology instruction a key component of these interventions, it is plausible that time required to obtain an accurate diagnosis could be reduced substantially and patient quality of life could be improved sooner (Donoghue & Siegel, 2000; Kavi et al., 2016; Thorne et al., 2004). Other researchers that have observed the issue related to legitimacy for patients with ICIs have also discussed the need for improved training for health-care providers.

## Limitations and Suggestions for Future Research

The present study was exploratory in nature and based on a small sample size. Although the experiences of the 21 participants in this study provide important insights into this topic, studies that include larger and more diverse samples would be useful in moving this research trajectory forward. Also, because the study participants were recruited only from social media support groups and a university health-care studies website, we can assume that all were actively seeking information related to POTS. It would be helpful to expand the sample to include POTS patients that are not motivated to actively seek information about the ICI. Finally, this present study focused on the potential uses of mHealth technology among POTS patients. However, recent research reveals that COVID-19 “long-haulers” are experiencing POTS-like symptoms (Nguyen, 2020). mHealth technology should be examined as it may function in other health conditions that are novel, difficult to diagnose, and in many ways unobservable and immeasurable.

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## Conclusion

Individuals who suffer from invisible chronic illnesses (ICIs), such as many autoimmune disorders, chronic pain, fibromyalgia, epilepsy, and postural orthostatic tachycardia syndrome, often struggle for years to obtain an accurate medical diagnosis. Because the symptoms of these complex medical conditions are unobservable and immeasurable using existing procedures, health-care providers often conclude that the symptoms are psychosomatic rather than illustrative of a legitimate medical condition. Consequently, patients report feeling invisible and stigmatized as imagining the symptoms in their heads. Accordingly, patients and their families suffer from diminished quality of life for years.

Conclusions from this study are encouraging, however, in that they point to the potential of instructional communication health interventions based on the IDEA model theoretical framework as a best practice to address these challenges. Interventions would focus on improving communication via internalization (e.g., listening, believing, compassion/care), distribution (e.g., in-person, synchronous online webinars and chat rooms, asynchronous web-based modules), explanation (e.g., accurate science about what is known, unknown, and being done to find out, as well as translated intelligibly), and action (e.g., specific instructional action steps for using mHealth technology to collect empirical data that may inform speedier diagnosis). As a result of such instructional interventions, patient-provider communication could be improved and mHealth technology be utilized not just as a cool gadget but as a useful tool for tracking symptoms in real time, enriching health-care practice, improving patient quality of life, and saving lives.

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# The 12 Fundamentals of Highly Effective Communicators: Teaching Theory-Based Professional Communication to Pharmacy Students

Erin E. Donovan<sup>1,2</sup> , Laura E. Brown<sup>1</sup> , Calandra Lindstadt<sup>3</sup> , Billy Table<sup>2,4</sup> ,  
Elham Heidari<sup>5</sup> , Andrew Coolidge<sup>1</sup> , Suheib Omran<sup>5</sup>, and Sharon Rush<sup>5</sup>

**Keywords:** pharmacy communication, communication theory, instructional communication, pharmacist training, health-care providers, clinical communication

**Abstract:** Pharmacists are increasingly expected to communicate skillfully, yet few Doctor of Pharmacy (PharmD) curricula include theoretically-derived or evidence-based communication training. The 12 Fundamentals of Highly Effective Communicators is a pedagogical tool that we developed to teach principles of communication to two consecutive cohorts of PharmD students in their second year (P2). Students were asked to reflect on which of the 12 Fundamentals they found most helpful in their pharmacy training and practice. The most frequently selected Fundamental was “There is no ‘one size fits all’ message that will work in EVERY situation.” Students provided specific examples of how they perceived that these Fundamentals could help them have effective and appropriate interactions with patients and colleagues.

Erin E. Donovan, Moody College of Communication, Center for Health Communication, The University of Texas at Austin, Austin, TX

Laura E. Brown, Moody College of Communication, The University of Texas at Austin, Austin, TX

Calandra Lindstadt, Stan Richards School of Advertising & Public Relations, The University of Texas at Austin, Austin, TX

Billy Table, Center for Health Communication, Department of Population Health, Dell Medical School, The University of Texas at Austin, Austin, TX

Elham Heidari, College of Pharmacy, The University of Texas at Austin, Austin, TX

Andrew Coolidge, Moody College of Communication, The University of Texas at Austin, Austin, TX

Suheib Omran, College of Pharmacy, The University of Texas at Austin, Austin, TX

Sharon Rush, College of Pharmacy, The University of Texas at Austin, Austin, TX

CONTACT: [erindonovan@utexas.edu](mailto:erindonovan@utexas.edu)

Communication is a critical aspect of providing effective health care (Foronda et al., 2016; Vermeir et al., 2015). Take, for example, the case of a 71-year-old American widow who suffered tremendous physical and psychological harm because she dutifully took her prescription medications (da Silva & Krishnamurthy, 2016). Over the course of 3 months she experienced ambulatory dysfunction, tremors, personality changes, and multiple visits to the hospital due to an error: the patient was prescribed the anti-hypertensive medication Norvasc, but instead was dispensed Navane, an antipsychotic. Health records indicated numerous missed opportunities for intervention by multiple health-care providers before the error was finally caught and corrected. Errors such as this are the result of a complex interplay of factors, but communication lies at the heart of many such instances. Pharmacists play a crucial role in caring for patients, from correcting prescriber errors to properly informing patients and caregivers on what to expect from medications; communication breakdowns can result in serious injury or even death (Hassan, 2018; Lloyd et al., 2016; Rust et al., 2020). Skillful pharmacist communication is one crucial means of improving outcomes and processes—yet there is a dearth of published best practices for teaching theoretically sound pharmacy communication.

As health-care organizations seek ways to improve patient outcomes while reducing operating costs, patient safety and satisfaction are receiving increasing attention. Meanwhile, pharmacists are increasingly expected to demonstrate skillful communication, even as observational studies from community pharmacies suggest that pharmacists struggle to perform effective patient counseling and patient-centered communication (Murad et al., 2014; Puspitasari et al., 2009). There is evidence that poor communication is associated with frustration and nonadherence in patients (Martin-Vazquez, 2016; Rickles et al., 2016) as well as burnout among pharmacists (McKinley & Perino, 2013; Wright et al., 2010). Improved communication benefits patients, professionals, and the public: Effective pharmacist communication is associated with better understanding of and proper use of medication among patients; better health outcomes for patients; and better quality of life for both patients and pharmacists (Clifford et al., 2006; Rahim & Shah, 2010). Meta-analytic work provides support for including communication education in pharmacy curricula to improve the quality of interprofessional and patient-provider interactions (Jin et al., 2018). Yet currently, only a few of the most innovative pharmacy schools even emphasize extensive experiential training in communication (Svensberg et al., 2017). Additionally, practical and professional programs tend to approach communication from a deficit-model, transactional paradigm (Manojlovich et al., 2015). These circumstances pose both a pedagogical challenge and an opportunity. As the demand for better communication in pharmacy settings increases, universities will need to respond. Communication teacher-scholars are uniquely positioned to bring theoretically-driven and evidence-based training to pharmacy programs.

The original research presented in this manuscript describes the development and evaluation of a set of theoretical principles of effective communication practices that were taught to Doctor of Pharmacy (PharmD) students to help them communicate more successfully in their current and future practice by understanding and applying foundational communication concepts. First, we establish the context for the present study and detail the origins of the theoretically-driven and empirically-supported 12 Fundamentals of Highly Effective Communicators. Then, we summarize our research methods, report the principles of effective communication our learners found most valuable, and provide examples of how students envisioned themselves translating communication theory to pharmacy practice.

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## Communication in Pharmacy Education

A broad and deep communication curriculum can benefit pharmacists, patients, and the health-care system. As medication dispensing becomes more automated and team-based health care becomes more common, pharmacists are increasingly providing direct patient care for preventive behaviors and chronic disease management, and coordinating regularly with fellow health-care providers to provide comprehensive care for patients and communities (Carter, 2016; Eckel, 2015; Funk et al., 2019; Pedersen et al., 2014). Yet, many individuals who self-select into a pharmacy career may not arrive with robust interpersonal communication skills (Jetha et al., 2020). To prepare pharmacists for their roles, communication training has been progressively emphasized by the field's major accrediting bodies, the American Council on Pharmaceutical Education and the Center for the Advancement of Pharmacy Education (Medina et al., 2013). The ability to communicate effectively with patients and colleagues is included among the many educational outcomes required for PharmD graduates. For example, in the domain of patient care, pharmacists are expected to be able to interview patients using an organized structure and medical terminology adapted for the audience; listen actively and ask appropriate questions to gather patient information; establish rapport and build trust; demonstrate empathy; and communicate persuasively (Medina et al., 2013).

Those and other learning objectives were the basis of a redesigned professional communication skills course in our university's college of pharmacy, led by the first, second, and last authors of the present study. Our intention was to bring communication theory to pharmacy communication, and our approach was mindful of Dannels's (2002) work on communication in the discipline that has encouraged theoretical depth and sophistication in such efforts. One of our pedagogical strategies was to distill core principles of effective communication into a format that would be accessible and meaningful to our learners, and could be used by other instructors to help connect concrete tasks to theoretical principles. We called this teaching tool "The 12 Fundamentals of Highly Effective Communicators."

## The Origins of the 12 Fundamentals

The research team included scholars from the communication and pharmacy disciplines who were charged with improving the PharmD communication training program. The 12 Fundamentals of Highly Effective Communicators are theoretically-driven and evidence-based. They include assumptions from which communication teacher-scholars have operated for decades and are consistent with expert perspectives on skillful communication in health professions (e.g., Bylund, 2017). They are theoretical in themselves, as well. Rather than a set of discrete and context-dependent skills (e.g., highly effective communicators write succinct emails; highly effective communicators do not assume to know which pronouns people use), we sought to develop a set of guiding principles that cut across channels, settings, tasks, and audiences (e.g., intraprofessional, interprofessional, patient-pharmacist). These cross-cutting ideas could then be revisited throughout the semester as we integrated them in different lessons as varied as showing patients how to administer self-injections; managing conflict in the workplace; and advocating for innovative policies in pharmacy practice.

The 12 Fundamentals are also evidence-based. They derive from two banks of evidence, in particular: (1) published scholarship on effective communication strategies in interpersonal, organizational, and health contexts; and (2) our own systematic observations about the needs, values, and priorities of our learners (Donovan et al., 2018). After piloting a new version of the pharmacy communication course, we analyzed student and instructor feedback and identified the need to develop a teaching tool for subsequent

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semesters that would encapsulate important enduring understandings about skillful communication. As we grew to know these learners, we saw that PharmD students, who tend to come from hard sciences such as chemistry, appreciated when information was provided via bullet points and mnemonics that facilitated memorization. They are used to learning material that is organized in numbered lists, such as the top 200 prescribed medications. We also observed that they had difficulty connecting the theoretical principles to the practical skills and struggled to generalize communication strategies more broadly from one task to another. We designed the 12 Fundamentals to help students construct a clear bridge from practical, task-oriented competencies (e.g., writing an email to a colleague) to context-spanning theoretical concepts (e.g., multiple goals theory).

## The 12 Fundamentals of Effective Pharmacy Communication

We present the list of fundamentals in Table 1. Next, we elaborate to explain how the fundamentals of effective communication that we trained our future pharmacists to understand and employ are substantiated by influential texts, theories, and thought leaders in our field.

**TABLE 1**  
**The 12 Fundamentals of Highly Effective Communicators**

*Highly effective communicators understand that . . .*

1. There is no “one size fits all” message that will work in EVERY situation.
2. Communication has both verbal and nonverbal components.
3. Communication takes place in physical and psychological contexts.
4. There are benefits to tailoring messages to different audiences.
5. Multiple, sometimes competing, goals shape interactions.
6. Communication has two dimensions, content and relationship.
7. Communication is a teachable and learnable skill set that requires ongoing practice.
8. You cannot NOT communicate.
9. Communication alone cannot solve all problems; however, it is a component of all solutions.
10. Meanings are in people (not in words).
11. Communication is irreversible.
12. Good communication is cooperative.

## Theoretical Bases of the 12 Fundamentals

Several interrelated theoretical currents informed the creation of the 12 Fundamentals. For example, one is grounded firmly in communication theory and practice (#7, Communication is a teachable and learnable skill set that requires ongoing practice). We are particularly indebted to the contributors and co-editors of the text *Professional Communication Skills* (Ford et al., 2015), which lays out several of the 12 Fundamentals in our university’s basic course, to orient students to primary assumptions about how communication between people occurs, and how it can be accomplished with greater or less success. These and the other Fundamentals that we added to the Ford et al. (2015) list are based on the frameworks that we review next.

**The interactional view of communication.** Many contemporary theories of interpersonal communication rest on the foundations laid out by Watzlawick and colleagues (1967) in their book *Pragmatics of Human Communication*, including the concepts of digital and analog communication and ideas about the metacommunicative activities of interlocutors. The collection of observations organized in that volume is known as the interactional view of communication. Our 12 Fundamentals, for example, included the premise that “You cannot NOT communicate” (Fundamental #8), which was advanced by Watzlawick et al. to theorize that the behaviors of any interactants are subject to being interpreted, correctly or not, as communicative in nature. Fundamental #6 from our list is Watzlawick et al.’s axiom that “every communication has a content and relationship aspect” (1967, p. 54). Content involves the words and gestures themselves (the message), and relationship refers to how the words and gestures ought to be understood or are assigned meanings (the meta-message). This idea has been established previously as an important feature of communication training in medical education (Hoffman-Longtin et al., 2018). As communication scholars know, this axiom undergirds the basic idea that communication does far more than facilitate the exchange of bare, unambiguous data. Facts and opinions are embedded in situational, interpersonal, cultural, and historical contexts (Fundamental #3). This communication has both verbal and nonverbal components (Fundamental #2).

A patient picking up a prescription may say to a pharmacist, “Wow, that medicine is so much more expensive than I thought it would be.” According to the interactional view, every utterance can be analyzed in terms of its content as well as its relationship-level information, all of which are contextually situated. In this particular case, for example, the meaning of “expensive” depends on each person’s socioeconomic resources. The statement about the medication’s cost may be heard as more than a mere observation or conveyance of surprise. It may be an expression of distress or an indirect request for assistance, and the patient may be communicating relationship-level information to the pharmacist: you are someone who I believe is able and willing to help me. Meanwhile, the pharmacist may purse their lips in irritation about yet another high drug cost and a health-care system that is aggravating and failing patients. The patient may perceive that nonverbal signal as *irritation with* the patient, rather than a sign of *solidarity with* the patient. All of these cues have implications for subsequent cognitive, emotional, and behavioral reactions. Watzlawick and colleagues asserted that the ability to perceive and accommodate both the content and relational aspects of communication is “the *condition sine qua non* of successful communication” (1967, p. 53; emphasis original).

**Multiple goals theories of communication.** Communication is a purposeful and strategic activity that people use to accomplish their personal and social objectives. Goals theories articulate the ways that individuals pursue goals through symbolic interaction (Daly & Wiemann, 1994; Dillard, 1997), and help to illustrate how communication challenges can be recognized and overcome in health-care settings (Donovan, 2019). Primary goals define social interaction, whereas secondary goals shape, enable, and constrain the communicative strategies that people employ (Dillard et al., 1989). So, for example, the primary goal of a pharmacist may be to teach a patient how to use a corticosteroid inhaler. Because a secondary goal is to build rapport with the patient, the pharmacist listens attentively when the patient begins telling a story about his asthma flaring up while camping with his family and mentions a shared fondness for a state park nearby.

According to multiple goals approaches to interpersonal communication, competent communicators attend to the multiple task, identity, and relational demands of social situations (Clark & Delia, 1979;

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Dillard, 1997). This premise leads to Fundamental #5. The task of persuading a patient to come in for a comprehensive medication review may entail the pharmacist communicating about her professional identity, “This is a part of my job that I really enjoy, even though a lot of patients don’t even realize I do it.” The patient and pharmacist who discuss the local music scene may connect in ways that benefit that consultation and any future interactions. Multiple goals perspectives also demonstrate that any given utterance is subject to a variety of interpretations, depending on the traits of the interlocutors, their relationship history, the conversational context, and so on (Goldsmith, 2004). Suggestions from a pharmacy manager may be heard as efficiently direct by one member of a care team, but unnecessarily brusque by another. Thus, the basis of Fundamental #10, which coheres with the interactional view as well.

**The cooperative principle.** Grice’s concept of conversational implicature (1989) rounded out our 12 Fundamentals. Grice’s theorizing about language and semantics included a set of four maxims that facilitate cooperative communication by defining ways in which people ought to contribute to conversation: Quantity (provide enough information but not too much); Quality (be truthful); Relevance (stay focused on the relevant topic of conversation); and Manner (be clear). According to Grice, when communicators adequately adhere to these guidelines for interaction, they are being cooperative and ought to achieve effective communication. The cooperative principle and its maxims are reminders that communication is an interdependent process in which interlocutors rely on each other to accomplish their goals. These ideas are core tenets of contemporary notions of communication competence (e.g., Spitzberg & Cupach, 1989).

The cooperative principle is explicit in Fundamental #12, “Good communication is cooperative,” and implicit in the fundamentals that encourage students to adapt to their audiences for the sake of being clear, on topic, honest, and brief enough without being perfunctory (the last of which dovetails with the two other theoretical frameworks). Two related fundamentals state that tailored messages are advantageous (#4, “There are benefits to tailoring messages to different audiences) because, as #1 states, “There is no ‘one size fits all’ message that will work in EVERY situation.” Finally, based on our formative research, we added Fundamental #9: “Communication alone cannot solve all problems, however, it is a component of all solutions.” This fundamental was developed to acknowledge the limits of what even the most competent communication can accomplish, particularly in health-care settings. It is true that medication errors are a persistent and preventable problem that could be minimized with better communication. On the other hand, some errors could be reduced if electronic health records flagged contraindications more reliably. We wished to acknowledge this reality in our teaching.

## Research Questions

The main purpose of this study was to examine PharmD students’ perceptions of the utility of the 12 Fundamentals of Highly Effective Communicators in their training and professional practice. The theoretically-grounded 12 Fundamentals became a framework for our content delivery throughout a semester-long course on pharmacy professional communication, and they were summarized into a teaching tool to which students could refer. Two research questions were posed to help us evaluate them:

**RQ1:** Which of the 12 Fundamentals do PharmD students report as being most helpful?

**RQ2:** What opportunities do students see to translate the 12 Fundamentals into practice?

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## Methods

### Study Design

This project was part of a larger pharmacy communication curriculum intervention study which occurred over 3 years and received IRB approval from our university. Data reported in this manuscript were collected from two sequential cohorts of second-year (P2) PharmD students at a large Southwestern university in the United States with a top-5 pharmacy school. All participants were enrolled in a required pharmacy professional communication course as part of their P2 curriculum. The first iteration of the new course was piloted in Fall 2017, after which the 12 Fundamentals were created based on insights gleaned from teaching and participant observation. They were then integrated into the course in Fall 2018 (Year 1; Y1) and Fall 2019 (Year 2; Y2) in slightly different ways. Between 2018 and 2019, the makeup of the teaching team, and thus some of the content delivery, changed after one of the primary instructors left and a new lecturer was hired. Consistent between Y1 and Y2 were the list of 12 Fundamentals themselves; the faculty member who supervised the majority of the communication skills labs where they were taught; two of the Teaching Assistants who worked with her both years; and our weekly team meetings to confer about lesson plans and assessment.

### Participants

**Y1.** There were 122 participants in the first cohort. Available demographic information about the sample includes self-identified sex (65.2% women), race/ethnicity (34.1% Asian or Asian American; 34.1% Caucasian/White; 19.7% Hispanic or Latino/a/x; 1.5% African American/Black; 6.1% Other or Unreported), and highest earned educational degree prior to beginning the PharmD program (72% Bachelor's; 22% high school; 1.5% Master's).

**Y2.** There were 114 participants in the second cohort. Available demographic information includes self-identified sex (68.4% women), race/ethnicity (34.2% Asian or Asian American; 29.8% Caucasian/White; 19.3% Hispanic or Latino/a/x; 5.3% African American/Black; 11.4% Other or Unreported), and highest earned educational degree prior to beginning the PharmD program (69.3% Bachelor's; 26.3% high school; 4.4% Master's). The two cohorts were not markedly different from each other on these demographic variables.

### Procedures

**Communication skills labs.** The communication course followed a lecture-lab format over a 15-week semester, such that the entire cohort convened for a 1-hour lecture, accompanied later that week by a 3-hour communication skills lab/discussion section of approximately 40 students each. During lab, students engaged with the material more deeply through active learning and practice. The 12 Fundamentals were taught during labs across the first 3 weeks of the course and were referred back to throughout the semester as additional lessons amplified their propositions. In this way, the 12 Fundamentals constituted a framework that lab instructors used to connect discrete communication skills (e.g., interviewing for a job in a pharmacy, advising a patient about smoking cessation) to broader theoretical principles (e.g., tailoring, contexts). Instructors supplied and solicited real-world examples of the 12 Fundamentals from students during discussions and also commented when students demonstrated them during role-plays and other active learning opportunities.

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Key learning objectives for the labs included (1) discovering the relevance of communication, as teachable and learnable, to pharmacy practice; (2) developing the self-awareness necessary for continuous improvement based on an ability to summarize and critique one's own areas of expertise and areas for improvement; (3) demonstrating interpersonal competence when being observed and analyzed by peers, and when observing and analyzing one's peers; (4) producing audience-focused messages tailored to colleagues, patients, subordinates, and supervisors; and (5) performing fundamental professional communication skills such as impression management, managing uncertainty, rapport building, and active listening. The 12 Fundamentals were produced to help guide learners to achieve these five objectives while practicing concrete skills aligned with CAPE educational subdomains, such as patient interviewing, establishing rapport and building trusting relationships, and communicating empathy.

An example of a typical day in lab consisted of an interactive lecture framing communication skill(s) (e.g., week three addressed effectively providing and receiving feedback up and down the hierarchy and successfully handling workplace conflict) and concepts (e.g., week three introduced the concepts of dialectical tensions, temporality of communication, cognitive frames, and styles of conflict management) to be covered that day. Each topic was accompanied by an activity wherein the students applied and practiced what they had just learned followed by group discussion and feedback. The concept of growth mindset (Dweck, 2006) was employed throughout the course by building in opportunities to practice multiple attempts. For instance, in week three students drafted messages regarding workplace feedback (one as a pharmacy manager to a pharmacy technician about a workplace customer complaint, and another as a technician responding to a manager complaining about their workplace conduct) and completing a self-assessment of their own conflict-management style. Students were encouraged to make connections to them during the discussion to the 12 Fundamentals (e.g., "How might the Fundamental *you cannot NOT communicate* relate to your preferred style of conflict resolution?").

**Y1 data collection.** At the end of a lab session after the 12 Fundamentals had been taught, students were asked to complete a written reflection assignment. They were given two open-ended prompts: *What pharmacy communication knowledge or skill do you have now that you didn't have before lab today?* and *How will you utilize or implement this knowledge or skill at work or at school?* Responses were submitted electronically during the lab. Additionally, a survey was administered at the end of the 15-week course. To assess which of the 12 Fundamentals was considered most helpful, students were asked one question in the survey reflecting on this lesson: *This semester, you have learned the 12 Fundamentals of Effective Communication. Below is a list of the fundamentals. Please select the ONE that has been the most helpful for you to know.*

**Y2 data collection.** During Y2, the study procedures were amended slightly for two reasons. First, the changes on the teaching team meant that the content of the lectures and labs did not match the previous year's syllabus exactly, so a true comparison group was not available and the end-of-semester survey was not repeated. Second, the end-of-session reflections were no longer a consistent component of each week's lab, but instead more emphasis was placed on preparing for the capstone communication objective structured clinical exam (OSCE), during which students would interact with a trained standardized patient actor and perform their communication skills. Students were tasked with helping the patient work toward a health behavior goal. Afterward, they were asked to view the video recording of their OSCE and write a self-critique. Among the prompts was *Review the 12 Fundamentals of good communicators that we reviewed throughout the semester. Which of the 12 Fundamentals helped you during your OSCE?*

**Data analysis.** Data from the reflection assignment and OSCE self-critique were content analyzed for the presence of the 12 Fundamentals. Student responses were not limited to only one code, because codes were not mutually exclusive and students could mention one, some, all, or none of the fundamentals. Using the verbatim manifest content, coders noted as many fundamentals as were mentioned in each open-ended response. Acceptable intercoder reliability was reached between two independent coders/authors analyzing a random sample of 25% of the data. Because the categories were not mutually exclusive, percent agreement was used to determine intercoder reliability. Percent agreement was 90% for Y1 and 99% for Y2. The few discrepancies were discussed and resolved by the research team. The remainder of the data was divided up between the two coders for coding. Our strict content analytic techniques prevented us from interpreting and inferring too much from participants' responses; we did not want to give ourselves credit for content we believed we had taught them unless it was unambiguously evident in the data. A potential disadvantage of our coding strategy is underreporting; we may have missed content about the 12 Fundamentals that students found valuable, but paraphrased or synthesized rather than used the wording from the list we taught them.

To answer RQ1, descriptive statistics were calculated from Y1 end-of-semester survey responses and from the Y2 OSCE self-critique data. The Y1 data, provided by 55 students, yielded 55 separate mentions of the 12 Fundamentals, whereas the Y2 data yielded 182. We attribute this difference in *Ns* to the fact that the Y2 data collection involved a graded assignment, whereas the Y1 survey was optional. These descriptive statistics are available in Table 2. We calculated *z* scores to test differences between the proportions with which students mentioned each fundamental between Y1 and Y2, simply for reference. However, we note again the variation in the teaching team and data collection procedures, and so we remain cautious about drawing any conclusions from those tests. The bulk of the results section describes the findings for RQ2, where we report exemplars from students' descriptions of how they had been applying the 12 Fundamentals and how they anticipated using them in their current and future pharmacy practice.

## Results

Table 2 displays the frequencies with which each fundamental was mentioned in students' responses to answer RQ1. In both the Y1 and Y2 datasets, the most frequently reported fundamental was "There is no 'one size fits all' message that will work in EVERY situation."

### Students' Reflections on Using the 12 Fundamentals

The second research question addressed specific ways students reported that they had used the 12 Fundamentals, or envisioned themselves using them, in their work as practicing pharmacists. When asked how the 12 Fundamentals would inform their future professional communication, students described diverse opportunities in the workplace to apply each of the fundamentals. We present some excerpts below that exemplify students' responses.

**There is no "one size fits all" message that will work in EVERY situation.** This was the most frequently cited fundamental in both cohorts. It reflects the fact that there is no perfect message that will work for every patient, every time. Students noted that even common messages cannot apply to all situations, as they learned to recognize times when some conventionally appropriate phrases could be misplaced: "Saying 'have a great day' every time is not appropriate" and "My go-to line is 'have a nice day' . . . today's lecture made me realize that this is not always the most appropriate means of ending a conversation."

**TABLE 2**  
**PharmD Students' Evaluations of the 12 Fundamentals of Highly Effective Communicators**

Communication Fundamental	Y1 Frequency (%)	Y2 Frequency (%)	z Score From Difference Between Proportions Test
1. There is no "one size fits all" message that will work in EVERY situation.	14 (25.5%)	42 (23.1%)	$z = 0.36$
2. Communication has both verbal and nonverbal components.	5 (9.1%)	31 (17.0%)	$z = -1.44$
3. Communication takes place in physical and psychological contexts.	1 (1.8%)	0 (0.0%)	$z = 1.82$
4. There are benefits to tailoring messages to different audiences.	7 (12.7%)	14 (7.7%)	$z = 1.15$
5. Multiple, sometimes competing, goals shape interactions.	9 (16.4%)	7 (3.8%)	$z = 3.24^*$
6. Communication has two dimensions, content and relationship.	0	23 (12.6%)	$z = -2.77^*$
7. Communication is a teachable and learnable skill set that requires ongoing practice.	3 (5.5%)	10 (5.5%)	$z = -0.01$
8. You cannot NOT communicate.	2 (3.6%)	2 (1.1%)	$z = 1.28$
9. Communication alone cannot solve all problems, however, it is a component of all solutions.	2 (3.6%)	9 (4.9%)	$z = -0.40$
10. Meanings are in people (not in words).	8 (14.5%)	6 (3.3%)	$z = 3.10^*$
11. Communication is irreversible.	1 (1.8%)	1 (0.5%)	$z = 0.90$
12. Good communication is cooperative.	3 (5.5%)	37 (20.3%)	$z = -2.58^*$
Total codes	55	182	

Students also acknowledged that their patients are unique and require individualized care, so even if they arrive at an interaction with a general plan, they needed to be ready to adapt. One student noted, "While I did have a plan on what I wanted to approach and how I wanted to approach different topics, when I got into the OSCE room, I realized that the entire plan needed to be modified." And another stated that this fundamental helped them to remember that "each patient is different, has different problems and needs . . . this helped me listen to what the patient had to say first and minimize any bias that I may have unconsciously developed while reading the patient background." Overall, this fundamental seemed to operate as a reminder for our students that each interaction is a fresh exchange with a unique individual.

**Good communication is cooperative.** Several students in the Y2 cohort mentioned this fundamental when reflecting on their OSCE interaction with a standardized patient, and a few of the Y1 students wrote about it as well. The cooperative nature of communication refers to the fact that all participants can contribute to produce understanding. Students applied this fundamental by emphasizing their role and the steps they could take to improve the communication process by working together and achieving some consensus, for example:

I wanted to make sure that I gave the patient time to respond and give me feedback. Any plan wouldn't work if the patient wasn't ready to be involved. I let her talk as much as she wanted about how the past month had been going. Without her being willing to share information, we wouldn't have gotten to any sort of resolution.

This fundamental is derived from theoretical propositions about appropriate behaviors for negotiating conversational space and time appropriately. Our students also seemed to interpret it not just as “work cooperatively with your conversational partner” but as “be agreeable.”

**Communication has both verbal and nonverbal components.** A true fundamental of communication, this category indicates students’ understanding of the importance of nonverbal aspects of communication. They mentioned that remembering this fundamental in their work environment would help them better understand their patients: “I will look for verbal and nonverbal cues to from the patient (as well as myself) to see if it [sic] affecting our communication process and see if any latent messages are being transmitted.” They also stated that considering the verbal and nonverbal components of communication could help patients better understand their pharmacist:

I am going to try and be more present and aware of my nonverbal communications. I think it is very easy to get caught up in the pace at work and so sometimes my body language doesn’t match what I am trying to perceive [sic] to my patient.

In critiquing their OSCE video, one student who mentioned this fundamental observed that the standardized patient did most of the speaking,

but to show that I was listening and engaged . . . I nodded and smiled a lot to let her know that I was actively listening to her and that I cared . . . [both verbal and nonverbal communication] convey messages.

Several students associated the benefit of nonverbal responses with demonstrating care beyond simply showing interest in the speaker.

**There are benefits to tailoring messages to different audiences.** Benefits to tailoring messages refers to the importance of remembering that different messages will likely resonate more successfully with different audiences. Some Y1 students mentioned means of identifying different audiences: “Thinking about how the patient is acting, the patient’s age, the patient’s understanding, and the time constraints will help me better know how I should present information to my patient.” They also considered more nuanced indicators, such as health literacy levels. Following their OSCEs, Y2 students talked about relying on this fundamental because it enabled them to engage in problem-solving with their patients; for example: “I tailored my suggestions to Mr. Chen’s individual barriers and motivations. Every patient is different, and this fundamental helped me to connect with Mr. Chen on a personalized level to help him.” This fundamental seemed to help our students connect the dots between adapting their own expertise to match the knowledge of the individual with whom they were communicating.

**Multiple, sometimes competing, goals shape interactions.** With this category, students commented on the fact that people can have a variety of objectives in any communication setting which may or may not be complimentary. Students acknowledged that being aware of competing goals could help them better understand where patients are coming from: “Now that I am aware of this, I will always take the time to step back and think about what the other person wants to get out of the interaction.” They also described how they could improve patient care by recognizing and managing the competing goals they sometimes face, for instance:

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Although I cannot control competing 'goals' of those that I communicate with, I can certainly try and control my own goals that may negatively impact the conversation. For example, just because I may be in a rush does not mean that I should let that impact the level of care that I give to my patients.

Thinking about competing goals seemed to provide context for misunderstandings or difficult encounters, while also creating some space for a more neutral investigation of such situations.

**Communication is a teachable and learnable skill set that requires ongoing practice.** In both cohorts, 5.5% of students mentioned this fundamental, which refers to the fact that good communicators are made, not born, and that communication skills can be developed and refined through time, effort, and preparation. The students seemed to find this fundamental comforting: "I thought it was good to know that communication IS a teachable and learnable skill that 'requires ongoing practice.' The last bit of the sentence makes learning proper communication seem more hopeful." They also repeatedly indicated their intention to begin practicing their skills. As one student put it:

I wasn't always a great communicator myself, and my first several attempts preparing for this OSCE made me realize how much I still needed to learn . . . while I am no expert in communication, I know I have gotten far better at those skills ever since the beginning of my pharmacy curriculum. But, this was only accomplished through constant practice . . . there is always something to be learned at the end of it that I can apply the next time.

This fundamental was also reinforced through the lab structure by providing consistent opportunities for practice, feedback, and revision.

**Meanings are in people (not in words).** This category is a reminder to students that the same phrase can have very different meanings for different individuals. This fundamental encouraged the students to consider the patient's perspective: "I will think more about both understanding complicated things in a pharmacist perspective and patient perspective. Being able to understand and explain complicated or nuanced things in an effective way will be key for patients." It also prompted them to think through solutions to avoid miscommunication: "I will try to give things multiple labels to help the patient identify the object of discussion and learn what other labels they may hear." The students' responses to this fundamental suggested that it helped them conceptualize how interactions between those with high and low health literacy could play out in practice.

**Communication has two dimensions, content and relationship.** Students mentioned this fundamental when they were remarking that what they say cannot always be taken at face value. Some students created a shorthand for this fundamental, referring to it as "two-dimensional communication." Similar to the previous category, they applied it as a lens when they were thinking about what their actions could mean to a patient, for example, explaining the reasons for a conversation about health behavior change was meant to be a friendly way to provide care, not a way of being heavy-handed. Students also seemed to interpret this fundamental as emphasizing the importance of building rapport and creating a sense of ease with patients (e.g., "I did this by introducing myself in a friendly manner").

**Four remaining categories.** There were four fundamentals that were mentioned by fewer than 5% of participants in either cohort of students: (1) "Communication alone cannot solve all problems, however,

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it is a component of all solutions”; (2) “Communication takes place in physical and psychological contexts”; (3) “You cannot NOT communicate”; and (4) “Communication is irreversible.” Although infrequent, they were each meaningful to a handful of students. In essence, these fundamentals served as reminders to students to be intentional about their behavior, to take the other person’s perspective, and to do their best to be aware of what could complicate or facilitate their communication with patients and colleagues.

## Discussion

Several contributions to literature on communication pedagogy emerged from this project. First and foremost, the 12 Fundamentals proved a useful tool that supported our teaching and our students’ learning. We anticipate that it could work for a variety of communication classrooms. Based on the findings of this study, it would appear as though pharmacists-in-training particularly valued communication principles that emphasized audience adaptation and tailoring of messages. Although such a notion is rather basic to communication teacher-scholars, it seemed to be important and newsworthy to PharmD students. The recognition that effective communicators are strategic communicators who adapt to a listener’s goals, values, and skills is highly relevant in a pharmacy setting, where pharmacists have to distill complex information (e.g., “This is how your diabetes medication works and why you need to take it every day”) and break bad news (e.g., “That prescription is no longer covered by your insurance”) to diverse patient populations. Being cognizant of the benefits of tailoring messages to their patients and colleagues should help future pharmacists be more successful, which in turn could improve patient health outcomes. Indeed, our students provided personal examples of how they envisioned themselves using their Fundamentals to provide more patient-centered care.

There were some differences in the reported usefulness of the Fundamentals, depending on whether we asked students about communication in the pharmacy practice more generally (Y1) or with respect to an acute patient consultation setting (Y2). The Y1 students tended to select Fundamentals that emphasized attending to multiple goals, tailoring for different audiences, and the unique context of each individual, while Y2 students gravitated toward reminders of the cooperative principle, nonverbal dimensions, and communication’s role in building relationships. Pharmacy is a diverse communication ecosystem which includes other pharmacists, technicians, and physicians, as well as patients. It is perhaps not surprising that when they imagined communicating, our students chose Fundamentals that helped them consider the diverse backgrounds and experiences of others. On the other hand, a patient consultation task (Y2) might prompt students to focus more on cooperative communication as an inroad to rapport building and shared decision-making. If so, this finding is encouraging, because in spite of the emphasis on shared decision-making as a health care best practice, evidence indicates that clinicians elicit patient preferences only about half the time (Covvey et al., 2019). Although our Y1–Y2 data do not permit a direct comparison, this trend in the data is worth consideration and further investigation.

A core strength of this project is that it connected theory to practice via interdisciplinary training and systematic observation. Through the process of translating ideas from communication theory alongside our pharmacy practice educators, we interlaced the 12 Fundamentals throughout the semester using real-world examples in our lectures and lessons. This collaboration enabled us to demonstrate the relevance of the fundamentals to students’ anticipated clinical and retail pharmacy contexts, lending credibility to the concepts and prompting our learners to reflect on where theoretical ideas about communication would

apply to their professional lives. We practiced what we preached, employing the principles of tailoring, multiple goals, and cooperation in our teaching. Our own communication abilities were stretched as we worked through the new challenges of conveying our knowledge to a PharmD student audience. This project in itself, then, was an example of communication across disciplines that is highlighted in the literature as one of the consistent challenges in health-care settings. Our teaching strategies also contributed to the external validity of the research study.

Practically speaking, this study provides communication teacher-scholars and those in other fields with a tool that successfully distills some foundational theories in communication and scaffolds them so that learners can connect them to applied settings. Our learners were able to see the value of abstract communication principles and demonstrate their usefulness in the field in a variety of contexts, including patient interviewing, delivering feedback, and interprofessional interactions. They began using the 12 Fundamentals as a shorthand way of reflecting on their own behavior or their classmates' communication strategies while practicing during lab. Although it was the case that most of our students wrote about the usefulness of the 12 Fundamentals in the context of patient-provider communication, this may be a matter of timing and priming, due to the fact that we surveyed them near the end of the semester when we had been focusing on patient-provider communication in preparation for their OSCE. In the lab discussions, students routinely brought up communication issues in their current internships as well as peer-to-peer interactions as instances wherein the 12 Fundamentals either helped or could help the situation.

Four main limitations of the study provide clear opportunities for replicating and triangulating these findings. First, it was our goal to weave the fundamentals in throughout the entire semester so that students had a sense of the concept mapping and progressive skill development upon which the course was based. However, the downside of this is that we cannot confirm that the 12 Fundamentals lessons themselves were exclusively responsible for students' perceptions about the most helpful fundamental at the end of the course. An experimental design with tight internal validity could help to overcome this limitation: future testing of the 12 Fundamentals might give students a more controlled and immediate communication task to minimize measurement error. A second limitation is a potential Hawthorne effect. We prompted students to reflect on the utility of the 12 Fundamentals as part of graded assignments and a survey for extra credit. Thus, the data they provided may have been biased (e.g., from social desirability). Third, the teaching team, some content delivery, and data collection shifted during Y2. Although most of the curriculum was the same and the 12 Fundamentals did not change, some contamination is to be expected. On that note, though, the consistent emergence of Fundamental #1, "There is no 'one size fits all' message that will work in EVERY situation," as the most frequently reported Fundamental, remains important. Fourth, our coding was rigid in its prioritization of manifest content. We did not allow ourselves to read too much into students' responses, and thus we may have overlooked something that they truly learned and valued, but paraphrased.

In conclusion, the 12 Fundamentals of Highly Effective Communicators adequately translated abstract ideas from communication theory to tips that PharmD students can use in pharmacy practice. Moreover, the principles communication scholar-teachers take for granted, such as the value of tailored, person-centered communication, may be new and noteworthy to practitioners in other fields. Becoming more aware of and addressing this in applied settings has the potential to improve communication in pharmacy settings, as well as a myriad of other professions that rely on effective communication for success.

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### Note

Dr. Lindstadt is now a Postdoctoral Associate in the School of Communication and Information at Rutgers University. Dr. Table is now a Postdoctoral Research Fellow with the Department of Population Health at the Dell Medical School, and with the Center for Health Communication, at the University of Texas at Austin. A previous version of this manuscript received a top paper award from the NCA Training and Development Division.

### Acknowledgments

The authors extend their thanks to Dr. Ashley Garling for her collaboration on the course in which this research was conducted.

### Declaration of Interest Statement

The authors had no potential competing interests to report.



# The Power of Voice: Using Audio Podcasts to Teach Vocal Performance and Digital Communication

Amanda Hill 

**Keywords:** voice, speech, vocal performance, podcasts, instructional communication, pedagogy

**Abstract:** Today's students often speak through mediated technologies. Thus, understanding how nonverbal cues impact meaning-making is key to understanding effective communication across mediums. This case study explores a group project where students created audio podcasts to teach others about a specific aspect of communication studies while considering the way sound and vocal performance affect the transference of the message. This article examines the use of audio podcasts as a vehicle for teaching university students about the power of paralinguistic and chronemic nonverbal behaviors.

The fact that much of our communication today is transmitted through technological devices points to the need to better understand how verbal and nonverbal communication works in these environments. When texting, for example, we rely on our ability to analyze the symbols (be they letters, words, emojis, or otherwise) to know what our “speaker” is communicating. Yet, texting removes the tonal qualities of sound from the message. A similar removal happens when considering audio-only communication such as audio podcasts.<sup>1</sup> Instead of removing the sound-based qualities of the messages, however, podcasts remove all visual nonverbal messaging, leaving only aural nonverbal cues. For students today who often speak through such mediated technologies (M. Anderson & Jiang, 2018), understanding how sound and visuals work separately and together is key to understanding effective communication across mediums.

1. A podcast refers to a digital media file that can include both audio and video elements. In this article, I will use podcast to speak specifically of audio-only podcasts such as those that you might hear on radio programs.

This paper explores how audio podcasts may be used to teach a specific aspect of communication studies while considering the way sound and vocal performance affect the transference of the message.

## Why Podcasting?

Podcasting has gained traction in recent years as technologies become increasingly mobile and capable of supporting audio recording and editing practices. Podcasts became a popular teaching practice in higher education in the early 2000s (e.g., Bolden, 2013; Bolden & Nahachewsky, 2015; Powell & Robson, 2014; Struck et al., 2013). Lee and colleagues (2008) contend that podcasting “is a powerful way of stimulating both individual and collective learning, as well as supposing social processes of perspective-taking and negotiation of meaning that underpin knowledge creation” (p. 501). The project studied in this article extends these studies by composing content-driven messages prioritizing the spoken word over a written analysis.

In many ways, podcasts serve as a new composition medium for students. Podcast composition, while related to written and spoken composition practices, is markedly different in important ways. As a classroom learning initiative, media aesthetics and media literacy have become major components of our everyday communication practices, in both overt and unconscious ways (Erstad, 2010).

## Voice as a Sonic, Nonverbal Cue

Project goals included collaborating to produce a product about communication studies, as well as to contend with the sound and use of voice. By creating unscripted podcasts, students could focus more specifically on vocal performance and audio recording. As Weidman (2015) writes, “Technologies of sound reproduction, broadcasting, transmission, and amplification draw attention to powers and possibilities of voices separated from their ‘original’ bodies or voices produced at least partly through nonhuman sources such as microphones . . .” (p. 232). This attention can be felt at both the hands (and, perhaps, ears) of the listener.

Sound plays a crucial role in how we analyze a speaker’s communication. Spoken communication has at its core two layers of transference: the linguistic layer and the paralinguistic layer. The linguistic layer considers the message sent by the words spoken and the meaning of those words. The paralinguistic layer considers the way in which those words were spoken. The paralinguistic layer thus includes a wide range of acoustic vocal cues that convey the meaning of the message as well as indicates the speakers’ relationship to the content of the message. Paralinguistic factors include emphasis on certain words, pitch, intonation and musicality, tone and timbre, and vocal fillers such as “um” or “like.” Compounding the paralinguistic layer are chronemic communication behaviors, which focus on components of time in speech, such as the rate at which someone speaks, where someone chooses to pause or be silent and for how long (or the opposite—where someone omits pauses), and how people take turns in conversations. These nonverbal factors help the listener assess the likeability, authenticity, genuineness, relatability, and authority of the message being conveyed and are all paralinguistic vocal cues a listener can use to detect meaning from and assess the intent of the spoken message.

That said, these traits are, in effect, a performance of identity. Following Goffman, Papacharissi (2009) argues that “Given the level of control over verbal and non-verbal cues in a variety of online contexts, individuals may put together controlled performances that ‘give off’ exactly the ‘face’ that they intend”



(p. 210). He further suggests that these performances are situational and “comprised of intentional and unintentional impressions given off or ‘expressions given off’” (p. 210).

As performances of identity, paralinguistic and chronemic behaviors of speech can be affected by factors such as age, gender, cultural background, and personality (Crystal, 1971; Zhang et al., 2017). Studies have shown an ability to recognize likeability (Burkhardt et al., 2011; Gallardo et al., 2017; Weiss & Schoenenberg, 2014), extroverted-ness (Mairesse et al., 2007), pleasantness (Pinto-Coelho et al., 2013); warmth and attractiveness (Gallardo & Sanchez-Iborra, 2019), and flirtatiousness, awkwardness, and friendliness (Jurafsky et al., 2009) through paralinguistic and chronemic behaviors and have shown that recognizable traits, such as likeability, are influenced by gender (see: Gravano et al., 2011; Weiss & Burkhardt, 2010). Additionally, many of these factors are influenced by the circumstances surrounding the speaker at the exact moment of speech. While these traits are critical for all public speaking, they are particularly relevant in mediated spaces such as podcasts. As Schandorf (2012) writes, “In face-to-face, physically immediate contexts, language relies on nonverbal ‘paralinguistic’ cues whose necessary functions are not entirely lost in mediated interaction, but are reconfigured as the media of their communication change” (p. 321). In the case of group podcasts, this change remediates dialogic aspects of communication. With a group recording assignment, speakers must further contend with the interaction of such factors among themselves. While this paper focuses on the nonverbal communication factors that are apparent in listening to recorded podcasts, it is worth imagining that there are physical nonverbal behaviors taking place behind the scenes of the records. Yet, even with this limited scope of nonverbal behaviors, having students create podcasts becomes a way for students to tune into their own nonverbal practices, especially those in dialogic spaces like in conversational podcasts. Understanding the conversational component of group recordings highlights the ways these nonverbal behaviors change when we encode and decode meaningful messages.

## Focusing on Voice: The Importance of Nonverbal Communication

Understanding the importance of nonverbal communication may lead to future success in many life situations. Significant research has been conducted on first impressions interviewees create with potential employers based on their nonverbal visual and vocal cues (see: Anderson & Schakleton, 1990; DeGroot & Motowidlo, 1999; Forbes & Jackson, 1980; Miller et al., 2018; Russel et al., 2008). As DeGroot and Motowidlo (1999) write,

Nonverbal vocal cues such as pitch (e.g., Edwards, 1982), speech rate (e.g., Brown, 1980), and pauses (e.g., Scherer, 1978) that have been linked to the favorability of impressions formed by listeners might also affect interviewers’ judgments but have not yet been studied as much as visual cues in the context of employment interviews. (p. 986)

Miller et al. (2018) suggest that unintentional nonverbal vocal cues may manifest as a result of interview anxiety, with interviewees showing “speech disturbances” such as stuttering and verbal fillers (p. 26). I focus here on the importance of interviews as they are directly linked to the career trajectory of our university students and we aim to make them competitive in their chosen career paths. Research has shown that being competitive in the career field includes being able to communicate effectively and efficiently. As Miller et al. explain, “If anxious interviewees are emitting less effective cues, then it is important to identify those cues that are negatively affecting interviewers’ perceptions” (p. 26). To which



I would second their ultimate call to action, that it then becomes necessary to educate interviewees in behaviors such as vocal quality and tonality, the use of filler words, mumbling, and effective structuring of thoughts. Podcasting allows for this thorough reflection on voice and the way it is used. At the same time, it is important to recognize that interactions, such as those described above, are formed in hegemonic social contexts, which privilege White people speaking Standard American English. Discrimination and “sounding ‘different’” (Cocchiara et al., 2016) have been shown to affect hiring and workplace practices (see also: Fryer & Levitt, 2004; Luo, 2009) and using Black English has been shown to be identified as “less credible” (Billings, 2005).

Sounding “different” additionally affects the practices of radio and podcasting. While radio and podcasts remain relevant in popular culture and have diversified to meet some needs of current audiences, radio holds tight to hosts who can speak in what is described as a standard American accent (“Talk American,” 2018). In the episode “Talk American” (2018), NPR’s *Code Switch* host, Shereen Marisol Meraji, explains,

... when we’re thinking about someone’s accent, let’s be honest—we’re making judgment calls. We’re listening to the way they speak to tell us whether they have power, whether they’re trustworthy, whether they’re smart, kind, annoying, innocent or guilty. We use people’s accents to discern if someone is like us or if they’re not like us.

Knowing this, what does it mean to teach paralinguistic and vocalics to diverse undergraduate students at a Hispanic Serving Institution? How can I help students learn to speak in ways that effectively express their messages without advancing a culture dominated by standard American accents and Whiteness? Balancing an educational directive that embraces teaching and understanding nonverbal communication for the purposes of confidence and success in situations such as job interviews with an understanding of society’s stereotypes of a person’s vocalics is an important and difficult consideration. Although this sort of deep reflection is outside of the purview of this article, it is a component of the project that I have greatly contemplated and one that continues to require thoughtfulness.

As Weidman (2015) writes, “Sonic and material experiences of voice are never independent of the cultural meanings attributed to sound, to the body, and particularly to the voice itself” (p. 232). Weidman (2015) contends that voice is intrinsically linked to the person who is speaking and that as such sound becomes a secondary consideration: “Almost before we can speak of the sound itself, we attribute the voice to someone or something” (p. 235). If we consider Weidman’s insight in proximity to the research on nonverbal cues and interview success, we begin to see that voice becomes an intrinsic extension of the body, and one that can have profound effects on the outcome of the person as a whole. Weidman (2015) further explains that “Voices are not only sonic phenomena; they are material, in the sense that they are produced through bodily actions” (p. 235). In this way, voice as an extension of bodily identity performance. The same cultural contexts and factors that influence how we perform identity through our bodies affects the ways we use our vocal instruments. Weidman (2015) explains that these vocal practices include both the mechanically learned skills to produce sound as well as the way in which we learn and adopt the performative qualities of voice, including traits like timbre, volume, speed, and power. Thus, the production of sound through voice become “creative expressions of social and cultural identity” (p. 235). For a diverse HSI like St. Mary’s University, where some students speak Spanish as their first language, the performance of identity through vocal sounds, language, and word choice is apparent in ways that might be overlooked by White students speaking Standard American English. These performed qualities may speak to social and cultural identities that are performed both consciously and unconsciously at any given time. Yet, despite the effects nonverbal vocal cues can have

on students' success, I find that many have never considered the sonic practices of their own voices and the impressions these experiences make.

## Podcasts as a Teaching Tool: A Case Study

### Background and Goals

Podcasts were completed by students in three sections of a college-required, undergraduate course titled "Fundamentals of Oral Communication." This course is currently required of all students enrolled in the College of Arts, Humanities, and Social Sciences. There are a total of 47 students, ranging from freshmen to seniors. Additionally, the school is a Hispanic Serving Institution (HSI) where approximately 70% of the student body identifies as Hispanic. The course covers intrapersonal communication, interpersonal communication, and group communication, and students engaging in practices of public speaking, group discussion, and problem-solving over the course of the semester. Because "Fundamentals of Oral Communication" is mandatory, I intentionally sought ways to engage students in meaningful and innovative learning. Podcasting became an effective tool to help students consider how the qualities of sound affect the overall effectiveness of a message's communication. The goal of the assignment was to address the following research questions:

1. How would students engage with concepts of and their own practices with nonverbal communication in a platform that allows them to record and revisit their communication? What would students gain from such a reflection?
2. How would students engage in collaborative composition using audio as the medium? What nonverbal practices would students consider in the composition process?

### Methodology

This project was informed by practices of critical pedagogy and what Freire (1970, 2005) describes as the "banking concept of education" (p. 72). The banking concept suggests that the student is an empty vessel to be filled with an educator's knowledge. Freire (1970, 2005) argues that this system "serves the interests of oppression" (p. 77) and writes that it is, "Based on a mechanistic, static, naturalistic, spatialized view of consciousness, it transforms students into receiving objects. It attempts to control thinking and action, leads women and men to adjust to the world and inhibits their creative power" (p. 77). Thus, students are pawns in a system of oppression. In response, Freire (1970, 2005) proposes "problem-posing education," which uses reflexivity to engage students to consider larger questions of societal structures (p. 79). The podcast assignment acts as a meta-communication assignment, where students reflect on their communication practices while simultaneously speaking about a practice of communication that interests them. Hence, students share their own experiences and knowledge on topics of their choice to become "critical co-investigators in dialogue with the teacher" (Freire, 1970, 2005, pp. 80–81).

Groups of three to four students each created an educational podcast targeted toward peers about a specific aspect of communication studies. In doing so, students work with digital audio recording and editing technologies as a means to discover how composition works in a digital medium. This project afforded them an opportunity to work collaboratively on a single assignment as they discussed research, as well as how to organize the material. As students executed best practices of group communication, they also identified the various roles they played in their groups. In all but one case, students choose

their own groups. The podcasts were expected to range between 10–12 minutes, giving each student at least 3 minutes of total speaking time throughout the length of the podcast. Students could choose between three types of podcasts: a fictional narrative, a conversational style podcast, or a radio essay.

The groups who created fictional radio dramas all chose to place their narratives inside fictional radio shows. One group's radio show let listeners call in and receive relationship advice; another addressed the topic of communication in cyber bullying; and a final group addressed intrapersonal communication in the building of one's self-concept.

While these groups' podcasts were entertaining and had some good analysis of effective and problematic communication in each of these situations, the students in these groups scripted their podcasts before recording, an action I had banned in the assignment instructions. Reading the scripted material impacted their vocal qualities such as pitch, tone, and intonation to meet their ideas of the characters/roles they were portraying. Additionally, the podcasts reflected less use of vocal fillers as a result of the scripting. As this paper seeks to explore the unintentional nonverbal vocal cues students used in the creation of their podcasts, this discussion will focus solely on the 10 conversational podcasts, which were not scripted before being recorded.

I initially provided students with a list of potential topics in which they could engage. While obviously not comprehensive to the many niche fields of communication studies, I aimed to provide a wide-ranging list of ideas to motivate and directly speak to the students' interests and imaginations. The list included:

- ▶ The gendering of voices
- ▶ How Gen Z communicates
- ▶ Relationship advice
- ▶ Cultural communication practices
- ▶ Aggressiveness/bitchiness dichotomy
- ▶ Generational communication preferences
- ▶ Advice for speaking up in class
- ▶ Advice for effective group communication
- ▶ Passive aggressive communication and other options
- ▶ Advice for public speaking
- ▶ Advice for dealing with roommate conflicts
- ▶ Direct communication
- ▶ Advice for dealing with disagreements
- ▶ Advice for intrapersonal communication
- ▶ How to talk to someone who's depressed
- ▶ How to get people to listen to you
- ▶ How to communicate for activism/making change
- ▶ How to talk to strangers
- ▶ The differences between digital communication methods

Ultimately, the 10 podcasts that employed a conversational approach to engaging with the content ranged in quality and content material. Topics addressed within these groups included the history and use of slang, the communication of fake news, sports communication (specifically communication between

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players and coaches), the intersection of gender and communication, the history of communication technologies, and effective communication in times of disagreement.

## Organizing and Recording the Podcasts

Students created projects collaboratively to create an annotated bibliography of potential research. In addition, student groups created a short one-page podcast pitch detailing what the podcast was going to be about, what question(s) it would examine, how it would relate to communication studies, and why this topic was important, both in general and to the field of communication studies. These two documents were due before production on the podcast began and required approval from myself before they could continue. This allowed me to properly gauge the scholarship and authority of their references as well as the importance and potential impact of their podcast's content.

Once the annotated bibliography and the pitch were approved, students began organizing their thoughts to begin recording their podcasts. The majority of students recorded their podcasts on their phones, although some groups accessed the Sound Recording Studios available through our Academic Media Center (AMC). This studio space proved useful to some students. As one student wrote in their final reflection,

the studio room worked out very well for us in producing the podcast because we didn't have to worry about any external noise, we had access to a mic, and the computer in the room had GarageBand already set up so all we had to do was plug in the mic and hit record.

Smartphones additionally proved well equipped to handle the needs of this assignment and many students even used their smartphones to edit the recordings directly after creating the sound file. I introduced the students to the software Garageband, which is available on Apple devices. I chose this program because it is free, easy to use, and because many of the students had either an iPhone or a Mac computer.

However, other students didn't have easy access to this software, so I additionally recommended programs like the shareware Audacity and the apps Wavepad Audio Editor and Lexi's Audio Editor, which are available on Android devices. I met individually with students using one of these additional programs to help them learn to understand and utilize the software. Realistically, the role of audio editing will fall to only one student, so having that student identified early was useful to know which students would need support in this area and to ensure that every group had access to some kind of audio editing technology.

After students edited the podcast down to the required 10–12 minutes, students were then asked to create transcripts of the audio. The transcripts easily allowed me to ensure the podcast content was coherent and cohesive as well as to ensure that the students had appropriately accounted for their sources and created appropriate citations. The transcript, recorded podcast, annotated bibliography, and podcast pitch became a package that helped me assess the work of the students individually and as a group.

This assessment was based in research about what characteristics combine to create effective aural performances. Warhurst et al. (2013) put forth a list of general characteristics of radio performances after thematically categorizing interviews from nine radio employers and educators. The list includes: content and personality (knowledge); voices can deliver certain elements; voices that suit the actual station (vernacular style and gender); easy to listen to (warmth, depth of pitch, clarity of speech, animation, no faults, distinctive voice); conversation with the listener/sound real and natural; different

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to radio voices in the past; ability to read; and multiskilled (p. 219). For this assignment, I focused on the factors that easily translated from the radio industry into the classroom: content and personality; easy to listen to; and conversation with the listener/sound real and natural. As such, students were assessed both on their content and their performance and on the ways in which these came together. Content-related criteria included the knowledge and composition of the work including the introduction, body, and conclusion of the podcast, and performance criteria included the use of language and voice, clarity, listenability, length of time engaged in speaking, and professionalism. At the intersection of content and performance, students were evaluated on the adaptation of their podcast to the audience (their peers) and whether their podcasts concluded within the allotted time (10–12 minutes). The content-related criteria specifically sought to address the research and narrative or argumentative arc of the podcast, while the performance criteria sought to engage students in a specific reflection of their voice as an instrument of audio communication. The performance criteria looked at whether or not the podcast was creative, engaging, and interesting (listenability) as enhanced by the content as well as their vocal enthusiasm; their application of language (syntax, semantics, and pragmatics); and their use of voice as an instrument to convey the message.

## Project Outcomes

Some common vocal performance issues included mispronunciation of words, monotony of vocal pitch and tone, and the use of filler words. Groups that excessively<sup>2</sup> used words such as “um,” “uh,” or “like” within their conversations were docked points for the overall performance. While it should be noted that these words are very common in everyday conversation and these podcasts were based in conversational tones, it was important that the students work to curb these filler words so that their podcasts would maintain a sense of authority and professionalism. Additionally, the transcripts allowed me to visually see instances where students used vocal fillers while they were talking. Interestingly, two groups opted to omit verbalized instances of “um” and “uh” in their transcripts, while retaining the word “like.” This distinction may indicate that the students in my class understand words such as “um” and “uh” to be vocal fillers that show a lack of forethought and authority, while “like” does not hold the same meaning for them, perhaps indicating that “like” is such a common component of modern vernacular it goes unrecognized and/or is deemed acceptable as a filler word by modern-day college students. Eight out of the ten unscripted conversational podcast transcripts included the words “uh” or “um,” while they all included the word “like” (in its common slang usage as a filler word). The most damaging to an appeal of authority was the mispronunciation of information and names. Where this lack of knowledge might be hidden in written communication, the ability for students to pronounce the names of scholars and content material is imperative for spoken works such as podcasts. Mispronunciations here act as vocal cues to inform the listener that the speaker is ill-informed, thus calling into question the remainder of their work.

Some students were aware of their vocal performance while they were recording and a desire to “make a conversation was smooth and perfect,” as one student wrote. Some students commented that this was difficult for them to achieve. One student commented that the thing he would change if he got to create another podcast “would definitely be to relax and breathe during the podcast because sometimes I tended to speed up or sound very uptight. Be smoother in having the conversation with my classmates” [sic]. Each of these students noted a desire for chronemic and paralinguistic smoothness, which they

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2. Excessively here means that the use of such filler words was distracting from the overall message.



felt would make them sound more natural. Smoothness, in this case, might best be described as a slower rate of speaking and a naturally flowing vocal cadence. Indeed, many students commented on the naturalness of speaking and related this vocal performance back to physical qualities such as tenseness and awkwardness, and the desire for smooth conversation often directly correlated with an ability to create “authenticity.” One student reflected,

The podcast was kind of awkward to try and record at first because we didn’t know how to start off and how to get comfortable doing it, but we all got over it shortly because [name redacted] had us just talk for a little while we were recording (unrelated discussion) and that put us through the motions. I think it worked out nicely and flowed fairly well, we did not discuss with each other the topics we were going to talk about beforehand so that when we did record it would be fresh and be a more authentic conversation versus having a more rehearsed one.

Another wrote, “We really tried to focus on making this podcast very conversational, like many of the conversations we had in class so we tried to limit the formal tone and kept eye contact with each other. I think this helped our podcast with its authenticity.” Yet another student remarked, “the fact that we didn’t have a set script help [sic] us be more conversational and sound more natural.” Notably, each of these student responses speaks to the impact (either overtly or covertly) sonic vocality has on the listener’s understanding of the podcast’s authenticity and naturalness. They further point to a desire to make podcasts based in unrehearsed conversation where group members could discuss their chosen topic with clarity and seemingly without effort. While this might be a goal for all forms of public speaking, for podcasts, natural conversations further indicate a chronemic ability for group members to take turns effectively and considerately in order to keep the conversation moving forward.

Additionally, the podcasts were embedded with the performative quality of the speakers and played a role in the ways in which students approached the assignment. For example, some students spoke of the comfortability they had with one another as factors that contributed to their ease with being recorded and using the recording technology. One student wrote, “What worked in the podcast was that we were all very good friends, so filming [sic] was not only fun but ran very smoothly.” Another reflected, “Each of us was comfortable with one another so recording and speaking in our group setting was not hard for anyone.” This comfort affects the ways in which students speak with one another, especially their vocalics and the ways in which they take turns to give space for others in the conversation. Other students struggled to engage in the podcast assignment due to the nuanced communication style of recording vocal performances. One student wrote,

I felt a bit uncomfortable recording myself because I felt like it was not natural. In the beginning of recording, I would look at [name redacted] and start laughing because of how weird I felt and then she would start laughing.

This discomfort would equally affect a speaker’s paralinguistic layers, as this student points out. The feeling of performing can create a specific approach to speaking that takes away from natural vocal patterns. While the student eventually “got it under control,” she wrote that it ultimately influenced the role she felt she took in the group communication process, indicating that to compensate for her discomfort, she took on the role of the joker. The role of the joker (or clown) has been traditionally described as a negative, self-centered, and attention seeking (Benne & Sheats, 2007; McLean, 2005), and although I, and others (such as Hartley, 2009) don’t necessarily view it as such, it was introduced in



our classroom as a “negative” group communication role. These students seem to indicate that a level of comfortability among team members helped to eliminate added pressures to “perform” when it came time to record and speak in front of their peers. One student wrote in her reflection that she actively contributed to the smooth flow of the conversation by using nonverbal touch cues to help her peers determine when to finish talking: “as we were practicing I would occasionally hold a hand for a person to pause so someone else could jump in.” Here, this student shows how haptic and visual nonverbal communication also played a role in the creation of the podcast. This sort of communicative signal is not known to any listener unless the speaker directly indicates it to them, as in the case with this student’s written reflection.

A further consideration to the “performative” nature of the podcast assignment is the fact that the students could rerecord and edit out sections of recorded content, should it not be deemed suitable by their standards. One student commented that his group recorded 23 minutes of conversation, and then had to edit the podcast down to at least the 12-minute mark. The concessions students made about which material to include and which not to include are in themselves a type of performance as they dictate how the listener will hear and respond to the content of their podcast. Additionally, it is worth noting that some students would have been interested in utilizing more sound editing effects. One student reflected that for him, the “genuineness” of his group’s podcast was aided by the incorporation of additional sound elements: he writes, “we added an introduction along with some smooth jams and . . . an intermission as a break.” Another student wrote, “If I were to do this again I would’ve . . . incorporated some kind of soundboard and other edits to make it more interesting.” Further, even though the course may not be a class geared toward learning how to produce media using technology, it remained an important component to educate students in, as this is how the students would ultimately complete their podcasts.

Some students felt more training in audio editing would have aided their overall effectiveness in their communication. This student reflected that a visit to the Academic Media Center would have benefited the overall production of his group’s podcast: “if we could, we get trained on how to use the recording equipment from the AMC to have a clearer recording of the podcast.” Future iterations of this project will require further thought as to how to make students feel more comfortable with the recording and editing technologies.

## Final Thoughts

The podcasts created in my “Fundamentals of Oral Communication” courses encouraged students to think critically about a specific facet of Communication Studies while fostering dialogue and teamwork skills. First, the project encouraged students to think in a new way about communicating information in an engaging manner while considering the paralinguistic and chronemic aspects of their own nonverbal communication. These projects are the first step to engaging students in conversations of how voice and vocal performance affect the practice of conveying messages. For an introductory communication course, it serves as a tool to allow students to consider the behaviors and trends they employ when speaking. The podcasts allow the students to practice consolidating their thoughts through live speech (although some may choose to rerecord) as well as give them a recording through which they can reflect on their own practices. Using such reflections, we can discuss how different behavior patterns affect listener comprehension and understanding. It opens a space for communication courses to connect to course content to social issues and current events. Talking about identity and voice provides a way to make this content relevant to our students as well as deepen their understanding of how communication

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works in specific ways that affect their lives, such as interviewing for jobs. As discussed above, vocal cues and vocal performance influence the perception of the identity and body from which the voice manifests and can influence crucial interactions our students will face upon graduation. Podcasting can be an influential way to engage students in learning to contend with their nonverbal performance cues, especially their paralinguistic and chronemic behaviors, within or outside of mediated technologies and help them apply effective communication skills for success in a myriad of real-life situations.

Overwhelmingly, students were excited about the project. One student wrote,

I really enjoyed this project and making this podcast. I've always heard about them and listened to a couple and I always thought of how cool it was and always wanted to do one of my own, and this was the time I got the chance to do so.

Based on the outcomes, I plan to continue incorporating this assignment in my course. However, future iterations will require deeper thought about how to further complicate the social contexts of paralinguistics. This includes consideration of how paralinguistic traits are taught and learned across gender, culture, and economic divides. Helping students understand the barriers to effective communication, that is, helping them understand the privilege of “sounding White” and how to combat this privilege and its corresponding stereotypes can ensure students have a realistic comprehension of the ways nonverbal communication works, for better or for worse. This work will additionally help me as an educator teach in a way that does not unconsciously reinforce these standards or stereotypes. This will allow this assignment to implement more of a critical pedagogy approach to studying nonverbal communication.

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# Critically Analyzing the Online Classroom: Blackboard, Moodle, Canvas, and the Pedagogy They Produce

J. D. Swerzenski 

**Keywords:** critical pedagogy, software studies, online learning, learning management systems, instructional communication

**Abstract:** Working from the crossroads of critical pedagogy and software studies, this study analyzes the means by which teaching technologies—in particular the popular learning management systems (LMS) Blackboard, Moodle, and Canvas—support a transmission model of education at the expense of critical learning goals. I assess the effect of LMSs on critical aims via four key critical pedagogy concepts: the banking system, student/teacher contradiction, dialogue, and problem-posing. From software studies, I employ the notion of affordances—what program functions are and are not made available to users—to observe how LMSs naturalize the transmission model. Rather than present a deterministic look at teaching technology, this study calls for closer examination of these tools in order to rework teaching technologies toward critical ends.

The day leading up to Spring Break 2020, my home university of UMass-Amherst made the decision to close campus for the remainder of the semester and shift to an all-digital format. Our situation was no doubt a common one across U.S. colleges: professors, many of whom had never taught online, now had roughly a week to redesign their in-person courses to a fully digital format. In response, many faculty in our department began to send around articles and other resources outlining best practices for teaching online. The advice was appropriately practical: How to manage your class by keeping up with attendance, building detailed rubrics, and communicating project instructions clearly (Center for Teaching and Learning, 2020); How to translate standard classroom practices to the digital space by restructuring PowerPoint presentations, making online materials visually engaging, and following digital accessibility



standards (Darby, 2019); How to best present yourself by ensuring your webcam lighting was good, making lots of eye contact, and keeping thoughts short (Moore & Hodges, 2020); and What to make of new online teaching terminology like (a)synchronous, MOOC, and learning management system (Hetsevich, 2016). Each article offered functional pragmatic advice. And for the most part, each was unconcerned with the role of critical thought in the online space.

None of this should be too surprising. Quick and dirty solutions were the order of the day; instructors needed to act, not reflect. However, our sudden move to online teaching is unlikely to be just a flash-in-the-pan. The trend toward online classes in higher education has been underway for well over a decade now. As of 2019, at least 34% of college students took one or more classes online, with 17% taking all their classes without stepping foot on a traditional campus (Lederman, 2019). Many predict that “pandemic pedagogy” will push even more classes into this format, as universities invest heavily in online systems and the training to operate them (Blumenstyk, 2020; Lederman, 2020). Where platforms like Blackboard, Moodle, or Canvas once played a blended role alongside in-class activity, they will likely govern a larger role in our courses going forward. Both the scope and speed of this shift demands that we cast a more critical eye at online teaching tools. As Manovich (2013) notes, no technology is neutral. Like any medium, these tools always assert some degree of influence over content. So to what degree are these online platforms affecting the way we teach?

This study works from the crossroads of critical pedagogy and software studies to analyze how the technology through which online courses are facilitated influences critical thought. My analysis focuses on the three most popular learning management systems (LMSs) currently used in American higher education: Blackboard, Moodle, and Canvas (Edutechnica, 2020). These platforms, I argue, perpetuate a transmission model of education in which knowledge is unproblematically transferred from teacher to student (Freire, 1970). Although this “transmission logic” has long been a hegemonic force in education, LMSs threaten to naturalize the model via our everyday use of these technologies. Left unchallenged, our increased reliance on LMSs could foreclose critical opportunities to use the classroom space as a platform from which to challenge hegemonic knowledge structures and formulate new understandings of the world.

I operationalize “critical” via four Freirean (Freire, 1970) concepts central to critical pedagogy—banking education, student-teacher contradiction, dialogue, and problem-posing—analyzing how each concept is either upheld or undermined within Blackboard, Moodle, and Canvas. From software studies, I employ the concept of affordances, or what a given piece of software does or does not allow users to do (Manovich, 2013). By analyzing LMS affordances such as permission settings, learning analytics, grading tools, and other functions, I demonstrate how these teaching technologies ultimately promote a transmission approach in opposition to Freirean pedagogical ideals. To avoid a deterministic view of LMSs or teaching tools in general, I conclude by calling for educators to attend more closely to LMSs and the manner in which they influence pedagogical teaching practices. From this standpoint, we may begin to develop strategies for redeploying these technologies toward more critical ends.

## Critical Pedagogy in the Online Classroom

Though software studies and critical pedagogy have not been integrated frequently, together they offer a uniquely powerful set of tools for analyzing learning management systems. Critical pedagogy in



particular provides a lens through which to assess and reimagine how teaching occurs in the online space. Freire (1970) first identified and critiqued the “transmission model” of education, a mode of classroom instruction in which knowledge is transmitted from teacher to student. The four Freirean concepts analyzed for this study outline both how to understand the logics behind the transmission system as well as how educators might replace it with critically-minded pedagogy:

1. *The banking system*: This skill-and-drill approach positions teachers as holders of knowledge and students as empty receptacles into which the teacher deposits knowledge. As Freire (1970) notes, the performance of both teacher and student is gauged by their adherence to these roles. “The more completely he fills the receptacles, the better a teacher he is. The more meekly the receptacles permit themselves to be filled, the better students they are” (p. 58).
2. *The student-teacher contradiction*: The teacher, as the clear authority in the classroom space, authorizes what does and does not count as true knowledge, typically in order to perpetuate hegemonic understandings. Critical pedagogy looks to resolve this power imbalance, or the student-teacher contradiction, by acknowledging both groups as co-producers of knowledge.
3. *Critical dialogue*: Working from the equal position as knowledge co-producers, students and teachers share and build on their collective understanding of the world to recognize connections between their individual problems and the social context. For Freire (1970), “only dialogue, which requires critical thinking, is also capable of generating critical thinking” (p. 81).
4. *Problem-posing approach*: After building mutual understanding through dialogue, students and teachers move from reflection on the problem into concrete action. This transformation thus requires not just a building of critical understanding of the world but the empowerment to go into the world and change it.

As both a critique of the transmission model and a conceptual framework for offering an alternative, critical pedagogy acts less as a set of structured teaching strategies than a meta-questioning of pedagogical practice itself (Sholle & Denski, 1994). My use of these four key Freirean concepts functions in a similar fashion, offering less a set of hard criteria than a questioning framework by which to observe how LMS affordances support critical or transmission style pedagogical approaches.

Software studies provide the tools necessary to adapt Freire’s (1970) original critique to fit online learning environments. Originating from McLuhan, Kittler, Hayles, and other media ecologists’ focus on how media technologies shape cultural practice, software studies places critical attention on the form (or platform) in which content is transmitted (Manovich, 2013). Unlike previous mediums such as radio or television, which exerted relatively small influence over most classrooms throughout the 20th century, software has dramatically reshaped educational practice (Buckingham, 2013; LeBlanc, 2013). Software’s ability to act as a meta-medium—capable of simulating a typewriter, encyclopedia, television, or almost any other pre-existing media form—made it highly adaptable to most classroom spaces (Manovich, 2013).

Software also overcame the material restrictions of these earlier mediums, allowing users to access content outside the classroom space. Starting from introduction of the PLATO computer-assisted instructional system in 1960, software began to shift the means by which students encountered class materials, their instructors, and their classmates (Watson & Watson, 2007). By 2014, over 99% of higher education institutions implemented a content-management system (CMS) of some kind to handle assignment

submissions, attendance logs, gradebooks, and other administrative tasks (Rhode et al., 2017). While CMSs and other related tools worked within the context of an in-person class, LMSs shifted the entire class experience online, providing “the framework that handles all aspects of the learning process” (Watson & Watson, 2007, p. 28). Since the onset of the pandemic, I argue that LMSs have become normalized in higher education, a reversal of its former reputation as the domain of “less prestigious” institutions such as for-profit colleges (House-Peters et al., 2019). Instead, developers built sizable and profitable markets in the corporate world, with business-oriented LMSs including Blackboard for Business, Moodle Workplace, and Bridge hosting leadership development, certification, and other training courses. More recently, attitudes toward online teaching have been shifting within higher education, pushed in part by Harvard, MIT, and Stanford’s heavy investment in online platforms like edX and (more likely) the demonstrated earning potential that online classes offered (House-Peters et al., 2019; Lewin, 2012). To meet demand, developers largely repackaged corporate LMS systems to higher education, ensuring that much of the same DNA remained (Coopman, 2009).

As a universal language and infrastructure for how our world now runs, software exerts huge, often invisible cultural influence. Moreover, Manovich (2013) and other software studies theorists contend that ignoring the cultural dimensions of LMSs allows educators to understand only “the output that appears on a computer screen rather than the programs and social cultures that produce these outputs” (p. 9). To denaturalize this often-unseen influence, software studies conceives of LMS technologies not as tools merely used by educators, but as environments that actively reshape the encounter between student, teacher, and content. Tracking the affordances given to students and instructors on Blackboard, Moodle, and Canvas offers perhaps the clearest means of making visible this reshaping influence, demonstrating how software directs the user within a given LMS environment based on what functions it does or does not make available (Manovich, 2013).

Williamson’s (2020b) investigation of learning analytics tools documents Canvas’s implementation of predictive algorithms to provide study recommendations, real-time performance feedback, and personalized learning experiences for students. Such affordances actualize a datafied ideal of education—the “smart campus” or “University 4.0” as they are often referred—in which the LMS provides not just the teaching environment but conducts much of the actual teaching as well. The push toward this centralized, neoliberal model funnels funding toward the private firms that develop LMSs, with universities paying up to 50 to 60% of student enrollment fees to license a platform like Canvas (Williamson, 2020b). Martínez-Guillem & Briziarelli (2020) further track how LMS affordances such as shell classes, in which the content from an online class can be cloned and retaught in subsequent semesters, has recomposed academic labor. Faculty become “mere producers of marketable instructional commodities that they may or may not themselves deliver,” a further advancement in this neoliberalization trend in education (Smith et al., 2018).

These and other related studies identify online learning environments as critically compromised: set in a transmission model that makes it increasingly difficult to challenge hegemonic knowledge structures. In the following section, I further analyze these forces at play within Blackboard, Moodle, and Canvas. I chart how the affordances of these tools support the transmission model by advancing the banking system and student-teacher contradiction, while inhibiting critical dialogue and problem-posing approaches.

## Analysis

Results of this analysis are arranged into four pedagogical concept areas. These are the banking system, the student/teacher contradiction, dialogue, and problem-posing. As illustrated in the following paragraphs, unexamined use of LMSs as mere tools for instruction poses a threat to critical pedagogy in higher education.

### Concept 1: Banking System

For critical pedagogues, the classroom provides a space for “pedagogical practices capable of creating the conditions for producing citizens who are critical, self-reflective, knowledgeable, and willing to make moral judgments and act in a socially responsible way” (Giroux, 2011, p. 3). The biggest obstacle to this goal is what Freire (1970) calls the banking system of education. As the underpinning of the transmission model, the banking system sets the educational encounter on the empirical model of data transfer: The effectiveness of a class can be judged on the quantity of information transferred to the student. So to what degree do LMSs implement the banking system?

In analyzing the rhetoric Blackboard, Moodle, and Canvas use to describe themselves, there is a clear emphasis on language such as efficiency, workflow, actionable data, reliability, and flexibility. As pieces of software, it makes sense that these programs would implement the terminology of technical performance. What’s more interesting is the means by which they apply this same logic to educational performance.

Blackboard (2020a): “With a modern, intuitive, fully responsive interface, Blackboard delivers a simpler, more powerful teaching and learning experience.”

Canvas (2020a): “Open, intuitive, and born in the cloud, Canvas streamlines all the digital tools and content that teachers and students love, for a simpler and more connected learning experience.”

Moodle (2020a): “Moodle is a learning platform designed to provide educators, administrators and learners with a single robust, secure and integrated system to create personalised learning environments.”

In highlighting the importance of responsiveness, security, intuitiveness, streamlining, and robustness, these descriptions offer a window into the value system at play in each platform. There’s a distinctly corporate flavor of much of this language, an artifact perhaps from the business-oriented LMS platforms from which these higher education versions were adapted (Coopman, 2009). Beyond corporate jargon, the neoliberal ideology of the corporate world is also applied here. Education is framed in the language of the market, as a transaction of knowledge between instructor and learner (Svensson & Wihlborg, 2010). Both teacher and student are treated as consumers, receiving the “content they love” (i.e., personalized environments, responsive interfaces, streamlined tools, etc.). LMSs offer the ideal infrastructure for this flow of knowledge from teacher to student to occur, a neoliberal vision of the university as “high-tech, digitally-driven, data-intensive, and partly automated” (Williamson, 2020b). We can see the transmission logic further illustrated through Blackboard’s (2020b) “Are Your Courses Exemplary?” rubric:

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## Blackboard Exemplary Course Program Rubric

Blackboard

The Exemplary Course Program recognizes instructors and course designers whose courses demonstrate best practices in four major areas: Course Design, Interaction & Collaboration, Assessment, and Learner Support. Submitted courses are evaluated by a peer group of Blackboard clients using the Exemplary Course Program Rubric.

### SCORES AND VALUES IN THE EXEMPLARY COURSE PROGRAM RUBRIC

The Exemplary Course Program Rubric uses numerical point values for each standard. These point values (from 1 to 5) have been assigned to indicate the relative importance of that standard, with values of 5 representing compulsory standards. Compulsory standards must be met in order to receive an Exemplary course award. The 14 compulsory standards are as follows:

#### Compulsory Standards:

- › Goals and objectives are clearly written, appropriate for the course level, and aligned to desired outcomes
- › Content is made available or “chunked” in manageable segments (i.e., presented in distinct learning units or modules)
- › It is clear how the instructional strategies will enable learners to reach course goals and objectives (e.g., instructions or overview of course activities is provided and aligned to course objectives)
- › Course design includes guidance for learners to work with content in meaningful ways (e.g., clear instructions, content outline, video, course orientation) and how to proceed
- › The design and delivery of content integrate alternative resources (e.g., transcripts) or enable assistive processes (e.g., voice recognition) for those needing accommodation
- › Course files (e.g., documents, PDFs, presentations) are easily readable by assistive technologies (e.g., screen readers, screen magnification)
- › A rubric or equivalent grading document is included to explain how participation will be evaluated
- › It is clear to students how performance in an assessment(s) will be evaluated (e.g. rubric, equivalent grading document, section in syllabus)
- › Assessment activities occur frequently throughout the duration of the course
- › Multiple types of assessments are used (e.g., research project, objective test, discussions, etc.)
- › Orientation materials explain how to navigate both the LMS and the course
- › Contact information for the instructor is easy to find
- › Course/instructor policies (e.g., decorum, behavior, netiquette) are included and easy to find
- › Learners have the opportunity to give feedback to the instructor regarding course design and course content both during course delivery and after course completion

**FIGURE 1 Blackboard Exemplary Course Program Rubric (2020b)**

The standards provided here—goals “aligned to desired outcomes,” guidance provided for learners to work “in meaningful ways,” orientation materials explaining “how to navigate both the LMS and the course”—all emphasize structure and control, ensuring a smooth transfer of knowledge from instructor to student via technology. In practice, Blackboard’s notion of an “exemplary” class differs a good deal from the banking system Freire critiques: we have no authoritative teacher drilling knowledge into docile students in the traditional sense. Yet the top-down orientation of learning remains. As a mediator between teacher and student, LMSs in many respects heighten the tendency toward the banking system by conditioning students on the correct means of “orienting” themselves in the online space to achieve “desired outcomes.”

The physical framing of the teacher–student encounter may change, yet the standard of a set sender and receiver or knowledge remains intact. Opportunities for students to become more than a receptacle for



knowledge by reversing this one-way flow of information requires working upstream against Blackboard's desired outcomes.

Blackboard's course standards also demonstrate an empirical rationalization of epistemology. Knowledge is framed as a discrete object, with effective pedagogy situated as a process of increasing the acquisition of knowledge objects. Knowledge itself is not questioned, but it is naturalized as an accepted truth. As Giroux (2011) notes, "Under the guise of neutrality, scientific knowledge and all theory become rational on the grounds of whether or not they are efficient, economic, or correct" (p. 33). In this way, classrooms reproduce hegemonic social, political, and cultural beliefs, unable to offer the critical space needed to challenge knowledge claims or systems of power (Darder, 2003).

The descriptor "intuitive" used in Canvas and Blackboard promotional language gestures toward this reproduction tendency. The intuition to "know what the user wants" isn't about knowing the user, but in knowing what the user is supposed to do: complete assignments easier, grade faster, and so forth (Blackboard, 2020c). The ideal online classroom constructed in these materials thus reproduces not just the transmission model, but the logic of ideal software performance by transferring information from sender to receiver as efficiently as possible. As Martínez-Guillem & Briziarelli (2020) note, the transmission framing of the classroom reflects a larger neoliberal push toward theorizing classes as commodities. "LMSs channel a normalization of connectivity by remediating foundational worldviews of current capitalism, such as free circulation of commodities information, commodification of knowledge, or the logistic annihilation of space by time" (p. 13).

This "annihilation" of spatial and temporal constraints of the traditional classroom afforded by LMSs is not an altogether negative quality for many scholars. For Agarwal (2013), these systems allow higher education to reach students that might not have had access to the privileged spaces of residential campuses. Classes can also be scaled and repackaged in new ways that have not been available before, affording hundreds or even thousands of students the ability to enroll in a single course (House-Peters et al., 2019). Yet giving more students access to the classroom does not equate to empowering them within it. Students are still largely framed as passive receivers of knowledge. It's the teacher's role that changes most in the LMS environment, shifting from the authoritative knowledge provider of the Freirean model to the more sidelined role of online course facilitator. The scalable courses House-Peters et al. describe don't just allow for enrollments well beyond the bounds of a traditional lecture hall; they can also be reused by institutions over and over again. The emergent cottage industry of course building has risen to build these "course shells," with "master teachers" building courses and selling their intellectual property to institutions for a one-time fee (House-Peters et al., 2019; Martínez-Guillem & Briziarelli, 2020). In place of a traditional professor or instructor who formulates the content of the course, these classes can then be run by a "facilitator," a deskilled role in which instructors oversee large, multi-section courses with the majority of content already set in place. These changes shift authority not from teachers to students, but to the course shell, and, by extension, the platform on which it is hosted. As House-Peters et al. (2019) note:

In some cases, 50 percent of gross tuition revenue has gone to the private firm before any money is returned to the higher education partner. This drives not only the need for very large student enrollment numbers, but also puts increasing pressure on instructional costs, forcing many institutions to further 'adjunctify' their teaching workforce with inexpensive, contingent labor. (p. 11)

Adjunctifying is not only a cost-saving measure, it also strips instructors of their own critical capacity to challenge knowledge structures. LMSs are not necessarily weakening the banking system as restructuring it. Knowledge is not banked from teacher to student, but from system to student, with the teacher taking a tertiary role of facilitator (House-Peters et al., 2019). LMSs sell this reimagined transmission model of education to institutions as offering optimal efficiency, allowing the most knowledge to be transferred to the most students using the least number of instructors. Further, the push to mediate (and increasingly automate) all classroom encounters through the LMS further naturalizes hegemonic ideas, mystifying the process by which knowledge can be challenged or created by students or teachers in the classroom. Left unchallenged, LMS systems will heighten the use of transmission approaches in education by further reducing students to mere receivers of content and deskilling teachers such that they too have little control over what or how content is taught.

## Concept 2: The Student/Teacher Contradiction

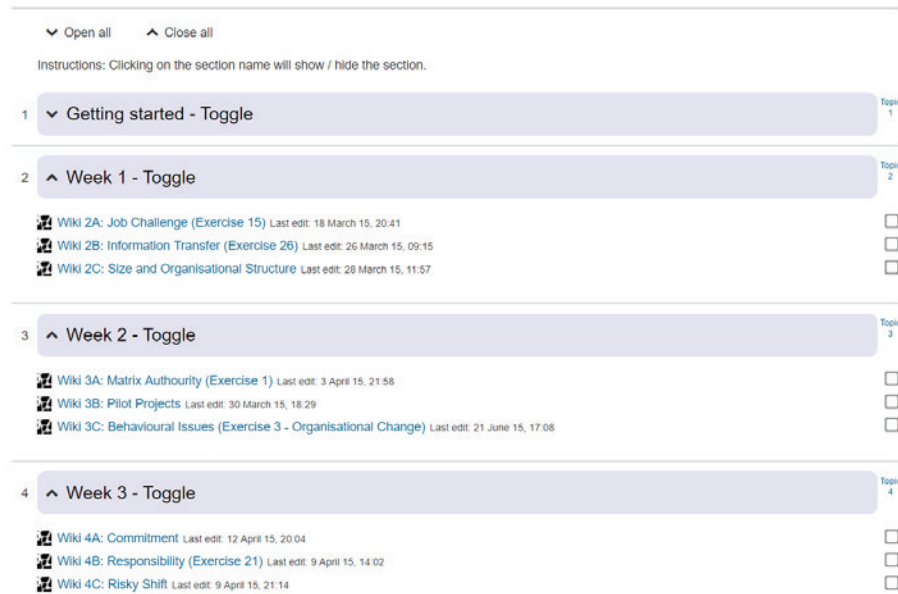
Resisting a transmission approach requires a resolution of what Freire (1970) calls the teacher–student contradiction. Teachers no longer maintain authority over their students by imparting facts to them in a top-down model, but “reconcil(e) the poles of the contradiction so that both are simultaneously teachers and students” (p. 59). For scholars like House-Peters et al. (2019), LMS platforms help resolve the contradiction by destabilizing the power dynamics of teacher and learner. Students, for example, can move through online spaces in ways that were unavailable in traditional classrooms, selecting how, when, and at what pace they wish to engage with course materials, instructors, and classmates. LMSs also decenter the teacher, breaking from the spatial standard of the instructor standing at the head of a class, lecturing down at students that has long typified educational practice. For Gilchrist-Petty (2018), the online environment supports this decentering of teacher authority, with online roles such as discussion leader, content presenter, and peer reviewer affording students “the privilege of having autonomous ownership in the classroom experience” (p. 103).

Even with these advantages, there are other equally powerful ways in which LMSs reinforce the teacher–student contradiction, or more accurately, the student–system contradiction. The most prevalent of these measures is the use of clearly defined roles within the learning environment, including facilitator, course builder, student, instructor, and grader. Roles provide a clear hierarchy within the online teaching space, and are constantly reified through functions such as permissions settings, assessments, and tracking tools. As owners of the course, instructors are able to assign and withhold permissions related to what students can and cannot add or edit within the platform. Through separate student and instructor views, platforms create separate environments for teachers and students to inhabit, providing different affordances for individual users depending on their ascribed role. Interstitial roles such as facilitator and grader further complicate the LMS ecosystem, ensuring that questions of who does or doesn’t have power within the online space are always present for users.

Following this emphasis on power and oversight, platforms like Blackboard and Moodle provide a huge range of tools for instructors to “keep track” of students. The Performance Dashboard tool, for instance, offers “pertinent information about each user’s progress and activity” including time of last course access, quantity of discussion board posts, and “review status,” a metric used to track students’ progress on reviewing specific items (Blackboard, 2020c).

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**FIGURE 2** Blackboard's Retention Center sends alerts to instructors triggered by missed deadlines, low grades, minimal activity, not logging in (2020c).

Moodle further provides tools such as “Competencies and Activity Completion” to track “the level of understanding or proficiency of a learner in certain subject-related skills,” as well as positive reinforcement functions such as badges and other progress-based awards (Moodle, 2020b). Williamson (2020a) records that these sorts of “student surveillance technologies” have been further adopted to “monitor students’ virtual attendance, ‘proctor’ examinations, assess social-emotional learning and well-being, and enable schools to fulfil their safeguarding responsibilities” (para. 13).

In terms of affordances, tracking tools are among the most robust functions on all three LMSs. Appropriately, these functions are perhaps the most visible selling point to universities, with platforms like Blackboard pitching their education analytics tools as helping institutions to “overcome barriers to student success” and “keep(ing) learners on-track to optimize institutional outcomes” (Blackboard, 2020h). In line with the transmission model, metrics like “student success” and “institutional outcomes” are predetermined not by the student or even the teacher. Resolving the student-teacher introduction becomes an even more elusive process within the LMS-mediated class as the top-down authority shifts from an embodied instructor to an abstract online system. Instead, teachers and students become more alienated as “automation creep(s) into the pedagogic encounter between educators and students” (Williamson, 2020a, para. 12).

Tracking and analytics tools are no doubt helpful for instructors, especially given the difficulty of maintaining student engagement in online learning spaces. Yet they further reflect a hegemonic logic of control, one far removed from the critical goal of questioning power (Apple, 2012; Giroux, 2011). Rather than resolve the contradiction between teacher and student so that both might become co-producers of knowledge, power is exerted even more prominently through the top-down authority of the LMS itself, rendering students and teachers less able to collaboratively question hegemonic knowledge structures. LMS platforms may afford new modes of interaction for teachers and students; however, the tracking and constant evaluation of student movement by teachers makes it difficult to view these new modes as enabling greater agency or equality between both groups.

### Concept 3: Dialogue

For Freire (1970), dialogue acts as a means of engaging students as equals, a full resolution of the teacher–student contradiction in which “teacher-of-the-students and the student-of-the-teacher cease to exist” (p. 67). Framing students as equal participants within the classroom space requires educators to value the cultural and experiential knowledge they hold. For Orelus (2013), “knowledge is acquired through social, cultural, and historical transactions with people and exposure to varying sources of literature” (p. 12). It is through dialogue that knowledge must be “continuously expanded on, re-examined, questioned, and constantly put to tests” (p. 12). Dialogue must then function as a critical process that creates multiple understandings, while moving students and teachers to “often uncomfortable places of learning and unlearning” (Wink, 2005, p. 48).

For proponents of LMSs, the online format affords new opportunities for interaction not available in traditional classrooms. Communication functions including Announcements, Blogs, Discussion Boards, Direct Email, Group Chats, Journals, and Wikis provide a range of structures for student-to-student, student-to-instructor, and class wide messaging to occur. House-Peters et al. (2019) note how these tools expand classroom communication possibilities “by facilitating multiple opportunities for engaging in shared learning processes, shifting the computer from a coldly rational information source to a communication medium” (p. 92). LMS messaging functions allow for dialogue between individuals to be unrestricted by physical proximity, opening the academy to many populations who might otherwise be excluded.

Communication is also unrestricted by time. Platforms can mimic the in-person classroom through synchronous learning, staging discussions in the moment (House-Peters et al., 2019). However, the majority of messaging functions on Blackboard, Moodle, and Canvas work asynchronously, a format that is often preferred by many students (Caplan, 2005). In expanding classroom communication options, new affordances available through LMS platforms can address some of the more salient critiques of critical pedagogy. As Ellsworth (1989) notes, setting dialogue as a pedagogical ideal disciplines students who might feel uncomfortable expressing their ideas in a crowded class situation. For Bali (2014), the high value placed on dialogue is a deeply Western concept, one that has the potential to punish students of different cultural backgrounds for whom such participation is not expected. By contrast, asynchronous means of communication remove the pressure of needing to perform dialogue in the moment, allowing students and teachers to engage in discussion at their own pace. Video and audio recording tools also expand the modes by which students can engage in dialogue, allowing a degree of agency to students not often available in traditional classrooms (Proszak, 2019).

Dialogue in critical pedagogy, however, is not just about the format of the discussion, but in its content. So can LMS platforms enable critical dialogue? All three platforms certainly provide functions for this sort of dialogue to thrive. For instance, in Blackboard’s Reflective Learning feature, “students can use a journal or blog to collect observations, thoughts, concerns, notes, progress, and opinions that may not be shared otherwise” (Blackboard, 2020d). Moodle and Canvas’s Wiki functions likewise allow students to contribute their own knowledge to the course: “There is usually no central editor of a Wiki, no single person who has final editorial control. Instead, the community edits and develops its own content. Consensus views emerge from the work of many people on a document” (Moodle, 2020c). Functions like the Wiki feature offer the potential to destabilize rigid teacher/student roles within LMSs as well as offer the opportunity for student-driven dialogue to flourish in the online space.

Performance Dashboard										
Last Name	First Name	Username	Role	Last Course Access	Days Since Last Course Access	Review Status	Adaptive Release	Discussion Board	Customize Retention Center	View Grades
Dubois	Alyssa	adubois	Student	Feb 15, 2013 12:01:31 PM	4	0		3	3/5	
Farrell	Andy	afarrell	Student	Feb 18, 2013 1:26:48 PM	1	0		3	1/5	
Cooper	Ashby	acooper	Student	Feb 19, 2013 9:21:39 AM	0	0		0	1/5	
Lopez	Bruce	blopez	Student	Feb 19, 2013 9:23:47 AM	0	0		1	1/5	

**FIGURE 3 Moodle's Wiki feature allows students and instructors to post new articles, edit each other's contributions, and add content. Wikis are self-contained within the class Moodle page (2020c).**

For all these potential benefits, LMSs' emphasis on grading dialogue seems to undercut many opportunities for critical engagement. Blackboard champions grading discussions and other vehicles for classroom dialogue as "encourag(ing) thoughtful contributions" and "let(ting) them know how they performed and can shape the improvement of future interactions" (Blackboard, 2020e). There is certainly a practical logic to rewarding certain students for posting thoughtful responses or punishing others for writing only a few words to collect participation points. Grading discussion posts also acts as a means of ensuring that students participate in classroom dialogue at all, often a difficult task in online courses when instructors make posting voluntary (Burke & Fedorek, 2017).

Yet graded discussions, like many LMS features, reflect an empiricist logic of knowledge acquisition. Discussions are not a mode of self-expression, but a task requiring a correct demonstration of information. For many reading response-style posts, the pressure to receive full points compels students to summarize the text rather than offer their personal interpretation on, problems with, or misunderstanding of it (Mintz, 2020). Grading reinscribes teachers and the authorized text as the ultimate authority, foreclosing opportunities for students to speak back or engage on their own terms. From a critical pedagogy perspective, authentic dialogue at the level of student and teacher is impossible so long as these power dynamics remain in play.

There are other problems to consider with the student-to-student dynamic as well. Dialogue, as Freire (1970) conceives it, is a process of relationship building, of forging understanding. Given this, it's worth considering the quality of dialogue generated through LMSs. Graded discussions often work against this ideal, with students incentivized to collect points by posting rather than engaging with each other's ideas. The introduction of grading tools for discussions and other assignments further hinders authentic dialogue by automating the assessment process. For example, Blackboard's AI-assisted "discussion analysis" function provides metrics including length of post, sentence complexity, critical thinking level, and word variation, all means by which instructors can more easily calculate grades (Blackboard,

2020e). Such tools reinforce the notion that the value of a given post is predicated on the students' ability to reproduce information from the course rather than challenging or elaborating on this knowledge they receive.

The scalability of LMSs can also counteract their ability to provide a platform for dialogue in which understanding can be achieved. Within a large online class, it is easy for students to feel anonymous, or perhaps worse, unaccountable, a trend seen recently with “zoombombing” and other trolling efforts to disrupt classes (Lorenz & Alba, 2020). Considering the many affordances LMS platforms offer for teachers and students to interact, there is great potential not only to recreate in-person dialogue, but also to conceive more inclusive means through which dialogue can occur. Tools like Wikis and Discussion Boards point to this promise, allowing students to pool collective knowledge and build and share their own experiential and cultural knowledge on a range of subjects. As Gilchrist-Petty (2018) notes, taking participation grades can be a valuable tool for building classroom dialogue and understanding, given that instructors provide students with a wide range of outlets through which students can participate. However, this form of dialogue must be given a place to thrive within online learning spaces, an effort that will require educators to work against many of the affordances that are offered by LMS developers.

### Concept 4: Problem-Posing

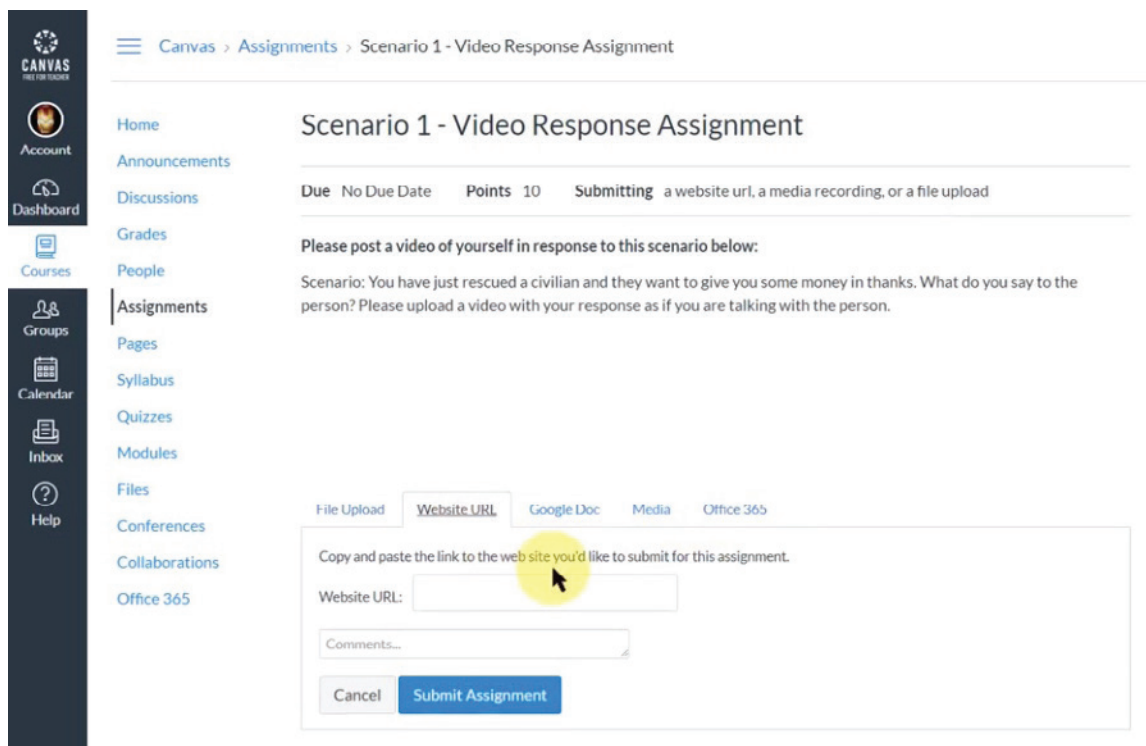
In opposition to the transmission model, Freire (1970) offers the problem-posing method of education. Through the process of problem-posing, students name the problem, reflect on it, and formulate actions that set out to resolve it. Action might take many forms, be it challenging harmful representations by producing alternative media texts or resisting oppressive policies through political organizing efforts. For Suoranta et al. (2005) the power in problem-posing comes in the ability “for human beings to apprehend their reality as social beings and to equate knowledge with power. Knowledge should not passively reflect the real world but rather knowledge should allow the human being to actively influence reality and its development” (p. 200). Problem-posing is at the heart of transformative movements such as Critical Activism Pedagogy, which aims to “put meat on critical pedagogy’s theoretical bones” by “providing students with real-life opportunities to act collectively against injustice” (Frey & Palmer, 2017, p. 26). The problem-posing approach aims to push students away from the passive role of learner and toward that of community organizer, social justice advocate, and change agent (Artz, 2017).

One of the more powerful ways LMS platforms support problem-posing methods is by affording the use of multimedia tools. As a metamedium, online teaching software naturalizes the use of video, social media, and web texts, making it particularly easy to bring the sorts of media content that plays a significant role in most students’ everyday lives into the classroom (Coiro, 2003). Beyond modernizing classroom materials, the integration of multimedia also offers students the chance to “assess, analyze, and evaluate messages across different media” (Proszak, 2019, p. 128.) For House-Peters et al. (2019), the opening of who can be in a class and what content be deployed within it also has powerful potential for research-based courses:

The creation of new kinds of integrated publics—in classrooms, in communities, in networks—can offer sites for engagement and learning while, at the same time, function as research contexts for considering issues of identity, globalization, and the tacit barriers inhibiting meaningful understanding within and between diverse groups of people. (p. 95)

Bringing in multimedia texts cannot be a gimmick with which to attract student attention, but must act as a means of opening up conversations around representation and identity (Share, 2009). The

integration of video, audio, and other multimodal tools also allows students to create projects outside of the traditional essay while engaging subjects that affect their communities and lives more closely. Goodman (2003), Morrell et al. (2013), Share (2009), and other critical media literacy scholars have demonstrated the power of multimedia projects as a form of student action, offering students the ability to speak back to hegemonic representations through the production of their own texts. LMS platforms offer an infrastructure through which video and other assignments can be submitted and evaluated, opening opportunities for instructors to integrate more multimedia assignments into their teaching. By giving students an “active role in sharing video, audio, and text materials,” these affordances can build media literacy skills and prompt critical reflection (Proszak, 2019, p. 128).



**FIGURE 4** Canvas’s (2020b) video response assignment function, which allows students to upload video footage from a range of sources including YouTube, Google Drive, or local files.

Yet despite the capability of LMS platforms to host multimedia content, these affordances are directed primarily at instructors and course builders. For students, there are relatively few opportunities to contribute their own multimedia content within the LMS environment. Posting a video on a discussion board to Moodle or Blackboard requires students to upload an existing video file rather than providing the tools to record it within the platform. Adding audio or image content may also be hampered by file type or size restrictions. For assignments, multimedia functionality is limited even further. Only Canvas currently offers a dedicated function for multimedia assignments that allows instructors to view video content or mark up images within the system (Canvas, 2020b). On Blackboard and Moodle, the submission process for a video assignment requires students and instructors to use third-party apps to create, view, and store content. These workarounds make it difficult for students to utilize multimedia within the given structure of the LMS, let alone afford them an active role in sharing video, audio, or digital materials within the online course environment.



By contrast, all three LMSs afford a range of functions for submitting and grading text-based content. Integrated assessment features like TurnItIn, SafeAssign, and ULTRA provide plagiarism detection and faster workflow between graders. Blackboard, Moodle, and Canvas also come stocked with pre-set templates for quizzes and essays that give instructors multiple options for creating text-only assignments. Emphasizing text-based forms makes business sense. For one, doc and pdf files are far less taxing on LMS servers than gigabyte-sized video or audio clips. Text is also easier to analyze, making it the ideal format for the predictive grading tools and learning analytics that LMSs are eager to have universities adopt (Williamson, 2020b).

So while it is possible to implement multimedia projects in the online space, LMS platforms direct users away from multimedia usage by affording limited functionality to these tools. By contrast, the robust functions offered for creating, receiving, and assessing text-based assignments normalize these forms as the standard student “work” on the platform.

There are also issues of efficacy and ethics to consider in looking to transform the world through problem-posing approaches via an online class. While online courses may seem to offer an ideal space for the “integrated publics” House-Peters et al. (2019) describe to emerge, it’s worth questioning how these new publics can offer any meaningful action. For Dean (2005), this issue is one of communicative capitalism. Online communication tools may provide means of connection, yet action is foreclosed in the digital space, where it is unable to affect real-world change. While Dean offers a relatively pessimistic view of online activism, her critique points to the need to ensure “transformative” actions result in meaningful change in the physical as well as the digital world.

There is then the matter of whether LMSs provide a safe environment for any problem-posing action to occur. For one, the institutional relationship between universities and LMS providers means these platforms have access to students and teachers’ personal data. From Blackboard’s (2020f) Terms of Use:

Any information that you provide to Blackboard, including first name, last name, email address, and any other information including personal information you have provided, may provide, or may be collected by us in connection with your use of the Products will be collected, maintained and used in order to provide the Products to you or your institution. (para 8)

As the company’s Privacy Statement further details, Blackboard retains the rights to “share personal information with partners and other third parties,” “transfer information outside the country,” and use personal data to “conduct marketing to promote our products and services” (Blackboard, 2020g). Beyond personal data, there is also the issue of content students might create and upload to the platform. From Blackboard’s (2020f) Terms and Services:

By submitting, posting or displaying Content on or through the Products, you grant us a worldwide, non-exclusive, royalty-free license (with the right to sublicense) to use, host, store, copy, reproduce, process, adapt, modify, publish, transmit, create derivative works from, communicate, display, and/or distribute such Content in any and all media or distribution methods (now known or later developed) as part of providing any of the Products. (para 11)

Of the three platforms, Blackboard is an outlier in its claims to user data. From Canvas’s (2020c) Terms of Service Agreement:

When you use our Service, you provide us with things like your files, content, messages, etc. (“Your Content”). Your Content is yours. You represent that you have all necessary right, power, and authority to use the Service and share Your Content and will comply with all applicable laws when doing so. (para 3)

While this is good news for those whose institutions use Canvas (Moodle lists similar protections in its Terms of Service), the choice of whether or not to consent to sharing personal information or work is typically not one instructors or students are given. As Williamson notes (2020b), the ability of LMSs to collect data is the basis of their value. This datification approach ensures LMSs can automate many of the roles once ascribed to the instructor via predictive grading, virtual attendance records, and engagement scoring. The increased adoption of these tools will further make the LMS indispensable to institutions. By extension, it is necessary for students and instructors to participate on whichever LMS is provided by their university, with no chance to question their privacy or intellectual property rights. So while platforms may offer a feasible platform for students to engage in potentially radical or social change-oriented activities, the monitored nature of these environments raises difficult questions as to whether these are safe contexts for learners or educators to pursue transformative work.

## Conclusion

As courses in higher education increasingly migrate online, LMS will play a more pronounced role in shaping educational practice. The direction of this influence is toward a transmission model of education, a force exerted tacitly via the affordances these technologies extend to students and teachers. In emphasizing a streamlined transfer of information via their software, LMSs advance a banking model of education in which students are treated as empty receptacles of knowledge rather than producers of it. The optimal online classroom functions as a portal through which knowledge is transferred as efficiently as possible, against the Freirean vision of the classroom as a space in which to challenge hegemonic knowledge structures and build collaborative understandings. LMSs do not resolve the student-teacher contradiction but shift authority from the teacher to the system itself. Through permissions and defined roles, LMSs antagonize and alienate both teachers and students from forging common understanding. The robust learning analytics, engagement scores, and tracking tools afforded by LMSs also advance the empiricist logic of the transmission model. Education is framed as a process of acquiring knowledge objects, a datafied ideal in which the platform ensures users perform correctly in their given role. Knowledge itself is naturalized in its transmission, foreclosing opportunities for both students and teachers to question the hegemonic beliefs underpinning the information being transferred.

Multimodal and asynchronous discussion tools afford new ways for dialogue to occur in the classroom; however, the potential for this dialogue to achieve critical pedagogy goals of sharing personal experience, creating new understandings, or challenging hegemonic beliefs is undermined by an insistence on graded responses. When augmented by AI-assisted grading tools, LMS grading functions privilege the reproduction of old-school assessment and tracking standards, rewarding students for rehashing pre-coded responses instead of expressing divergent or original views. Finally, the ability to enact change via a problem-posing approach is sapped by a lack of robust student creation tools as well as a perpetuation of traditional text assignments as “real” student work. LMS data collection practices further make platforms dubious spaces from which to engage critical reflection or stage transformative action.

Left unchallenged, LMSs will likely reproduce a transmission model of education, rendering it difficult to stage critical reflection or action. Yet while platforms like Blackboard, Moodle, and Canvas do exert

great influence, they need not dictate all educational practice within the online learning environment. Rather than adopt tools as they emerge, educators must work to adapt these tools to fit their own pedagogical goals. Taking pedagogical control first requires a critical appraisal of the LMS platform itself, one requiring an understanding of the technical, ethical, and legal dimensions of the tool. For example, if the goal is to create authentic dialogue, an instructor can adapt the permission settings on a standard discussion board so that students are able to post new threads, upload multimedia content to posts, and edit their own content. In line with Gilchrist-Petty's (2018) recommendation, instructors can assess engagement in classroom dialogue not by word count or the metrics provided through default "discussion analytics" functions, but via a range of alternate participatory actions also available on the platform such as replies to other posts or peer feedback activities. If the goal is to empower students in the classroom, instructors must stay vigilant to the LMS tendency toward datafication, surveillance, and automation. So while grading assistants like TurnItIn or Discussion Analytics may potentially save time, these tools rarely reward the sorts of critical responses teachers may value. If the goal is to have students create transformative work, instructors might have to dig deeper into the platform to find tools aligned with these goals. Collaborative features like Wikis break out of the transmission model by giving value to the information students contribute within the online classroom environment. Proszak's (2019) use of peer review discussion leader roles, while often complicated to set up, can also provide students a valuable sense of agency often missing in the LMS-sanctioned transmission model. Or given the technical and privacy issues of many LMSs, Green and Chewning's (2020) suggestion of using primarily open-source software—while relegating LMS usage to the minimum degree mandated by one's institution—might be necessary to better achieve critical goals.

Adapting LMSs to support critical goals is uphill work. The bevy of assistive features and learning tools Blackboard, Moodle, and Canvas offer to instructors do make teaching easier. And given the rushed introduction many had to these platforms post-pandemic, it makes sense to go along with what the tool offers rather than challenge it at every click. Yet as LMSs settle into a more permanent role within higher education, going along is less an option, especially for educators who value the classroom space as a critical platform from which to challenge harmful representations, build collective understanding of the world, and empower student voice. We must build out from a commitment to these critical teaching practices and employ online teaching tools in ways that enable authentic dialogue, critical reflection, new understanding, and meaningful transformation to emerge.

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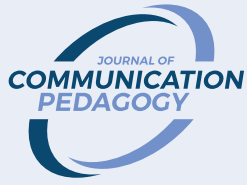
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# Defining Feedback: Understanding Students' Perceptions of Feedback in the Introductory Communication Course

Drew T. Ashby-King , Raphael Mazzone , Lindsey B. Anderson 

**Keywords:** instructor feedback, qualitative, introductory communication course, instructional communication, rubrics, communication education

**Abstract:** Feedback is an essential part of the teaching/learning processes. This statement is especially true in the introductory communication course where students receive feedback throughout the presentational speaking process. This paper explores how students define useful feedback based on 1,600 qualitative questionnaires that asked students about their perceptions of feedback. A thematic analysis of a randomly selected subset of 163 responses uncovered two themes: (1) feedback content characteristics (e.g., specific, constructive, praiseworthy, and purposive) and (2) process of instructor-provided feedback (e.g., iterative, timely). Based on these findings, a set of best practices for providing feedback is offered as a means to improve teaching/learning in the introductory communication course.

Feedback is a complex communicative activity that guides pedagogy and provides an avenue for the (co)construction of meaning between students and instructors. In an instructional setting, feedback can be used to communicate the specifics of an assignment, set instructor expectations, explain what a student is doing well, and identify areas of improvement; thus, becoming an important resource that helps students improve performance (Booth-Butterfield, 1989).

The introductory communication course is a site where feedback is especially important, where feedback takes a variety of forms (e.g., formative and summative) and comes from multiple sources (e.g., instructors, peers, family; Jones-Bodie et al., 2020). In addition, feedback is used for a multitude of

reasons including improving oral communication skills to reducing speaking anxiety (LeFebvre, 2013; Reynolds et al., 2004). Providing meaningful feedback can help students achieve learning outcomes. More broadly, understanding feedback as a communicative process could also have implications for enhancing training and development programs and manager–employee communication in organizational settings.

Given the importance of this communicative process broadly and in the introductory communication course more specifically, it is important to understand how students define meaningful and useful feedback. As such, this paper seeks to explicate student perceptions of instructor-provided feedback that can inform common practices by instructors and administrators and facilitate teaching/learning.

## **Instructor Feedback as a Communicative Process**

Feedback, assessment, and evaluation are the primary means of achieving instructional objectives (Jensen & Lamoureux, 1997). Instructors give feedback to guide students throughout their educational endeavors. When providing feedback, instructors do not always successfully balance providing constructive criticism with maintaining positive relationships with their students (Hadden & Frisby, 2019). Therefore, examining instructor feedback is an important avenue of scholarship because feedback is central to the teaching/learning process and is not always viewed by students as useful (Malachowski et al., 2013; Martin & Mottet, 2011). This point is especially true in the introductory communication course context where students are working toward achieving learning outcomes that are central to the communication discipline and for students' engagement with society at large (Mello, 2016).

Providing feedback is a communicative process that includes both descriptive and evaluative information to establish performance criteria while providing suggestions for improvement (Booth-Butterfield, 1989; LeFebvre, 2013; Reynolds et al., 2004). Instructor feedback should be used as more than a measure of performance. It should also be embedded in the assessment process to help students learn from instructor feedback about their mistakes (Evans, 2013; Small & Attree, 2016). To ensure instructor feedback serves this objective, it is important to understand the feedback students identify as most useful.

## **Instructor Feedback and Student Outcomes**

Much of the communication and instruction research on instructor feedback (e.g., Dannels et al., 2011; Kerssen-Griep & Witt, 2015; King, 2016) has been guided by feedback intervention theory (FIT; Kluger & DeNisi, 1996). FIT suggests that when feedback is focused specifically on learning a task it will lead to more positive outcomes compared to feedback that focuses on a meta-task (i.e., feedback that is not specifically related to an assignment; Kluger & DeNisi, 1996). Guided by this notion, scholars have explored how instructor feedback influences student outcomes.

Scholars have identified that how instructors deliver verbal feedback influences students' perceptions of said feedback (see Kerssen-Griep & Witt, 2015; Witt & Kerssen-Griep, 2011). When instructors use face-attentive communication and nonverbal immediacy behaviors students were found to view the feedback as more credible (Witt & Kerssen-Griep, 2011). The use of face-threat mitigation strategies was found to help instructors deliver feedback that students viewed positively and helped instructors maintain positive student-instructor relationships (Clark-Gordon et al., 2018; Kerssen-Griep & Witt, 2015). When providing written feedback, instructors' language use is important because it was found to influence students' self-efficacy and their perception of their instructor as providing emotional support. Based on these findings, scholars emphasized the value of giving personalized feedback to each student

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about their performance (Hadden & Frisby, 2019). Examining the student perspective, Dannels et al. (2011) found that students wanted instructors to provide feedback that included specific suggestions on how they could improve that focused on their work and not on them as a person. As such, it becomes important to further develop an understanding of students' perceptions of feedback and these findings could draw further connection between instructor feedback practices and students' learning outcomes.

## When Instructors Give Feedback

Examining when instructors give feedback is also extremely important as offering feedback at different times in the teaching/learning process leads to different learning opportunities for students (Hazel et al., 2011; King et al., 2000). Formative and summative feedback are central concepts that explore when different types of feedback should be delivered to students. Formative feedback—feedback that is given on low-stakes assignments that prepare students for final assessments—is an opportunity to enhance student learning by providing feedback early so it can be used to improve assignments before final submission (Bollag, 2006; Fluckiger et al., 2010). This is important in the introductory communication course because it provides students the opportunity to get feedback on low-stakes assignments (e.g., preparation outlines) so that improvements can be made before oral presentations (Broeckelman-Post & Hosek, 2014). In contrast, summative feedback is offered on major learning assessments at the end of a unit as a way to measure and communicate how much a student has learned and retained (Dixon & Worrell, 2016; Dolin et al., 2018). Iterative summative assessments can also be used when formative feedback cannot be given by scaffolding assignments, so they build on one another, and then offering forward looking feedback on each (Broadbent et al., 2018). It is important to note that for this process to be effective the quality of the feedback needs to be high (Grosas et al., 2016).

Although some scholars suggest that students do not use feedback (e.g., Crisp, 2012), Small and Attree (2016) found that students do use feedback when they believe it can be applied to improve their performance on an upcoming assignment. Students have also suggested that providing feedback throughout the semester rather than waiting until the end is more valuable (Carless, 2020) and that quality feedback (i.e., that can be used by students) is more important than quantity.

## Instructor Feedback in the Introductory Communication Course

The introductory communication course facilitates the development of transferable skills that may benefit students throughout their academic careers and lives (Ruiz-Mesa & Broeckelman-Post, 2018). The introductory communication course is central to general education throughout the country (S. Morreale et al., 2016; S. P. Morreale, 2020). Introductory communication course instructors use feedback as a motivational tool to promote student learning, improve students' presentational speaking, and reduce their students' anxiety and stress (Reynolds et al., 2004). Simply put, feedback is central to helping students improve their oral communications skills (LeFebvre, 2013). Within the introductory communication course, instructors are a key source of feedback as their comments have been found to lead to increased student performance in the area the feedback was given (Gardner et al., 2017; Smith & King, 2004).

Instructor feedback is often perceived by students to be more valuable than other forms (e.g., peer feedback; Semlak, 2008). However, scholars suggest that valuable instructor feedback must be descriptive and constructive, as well as shared in a timely fashion (King, 2016; Reynolds et al., 2004; Simonds et al.,

2009). Instructor praise had been suggested as a valuable form of feedback (Brophy, 1981; Titsworth, 2000). Because students may interpret and respond differently to praise, however, it cannot universally be thought of as a concrete way to enforce behaviors and actions (Brophy, 1981).

To expand research on instructor feedback, scholars have argued that the student perspective should be examined (Simonds et al., 2009). Responding to this call, Jones-Bodie et al. (2020) found that personalized instructor feedback was viewed by students as a key learning resource in the introductory course. We extend the work by Jones-Bodie et al. to examine the following research question:

**RQ:** How, if at all, do students define useful feedback in the introductory communication course?

## Method

### Participants and Procedures

Participants included in this Institutional Review Board-approved study consisted of 1,860 undergraduate students at a large research-intensive university in the mid-Atlantic who were enrolled in their institution's introductory communication course during the Fall 2019 semester. The majority of participants were first-year students representing myriad majors.

Participants were invited to participate in week 9—after students had completed at least three major presentational speaking assignments—and they were able to complete the survey throughout the remainder of the semester. The invitation to participate was posted on the course learning management system (LMS) and participants were prompted to comment on their experience receiving feedback in the introductory communication course. Although not directed to specifically comment on feedback related to oral presentations, the majority of written feedback students received from their instructors focused on oral presentations and presentation outlines.

Participants provided informed consent and then answered six open-ended questions: “What is feedback? How would you define it?” “How do you receive feedback on your performance in [course number] (e.g., rubrics, written feedback, peer evals)?” “When do you want feedback? When is it most relevant?” “What type of feedback is useful/not useful?” “How can we make instructor feedback more helpful/useful?” and “Tell me about a time when you received feedback from your instructor that was helpful/useful?” Students who chose not to participate were provided an alternate assignment that earned the same amount of course credit participants received.

### Data Analysis

We began data analysis by assigning each participant a unique identifier. After an initial review of the data set, we determined that responses completed in under 60 seconds did not contain enough data for analysis. Therefore, we filtered out any participants who did not answer any questions or completed the survey in less than 60 seconds. This removed 198 submitted questionnaires and resulted in 1,662 viable participant responses for data analysis. From the remaining participant responses, we drew a 10% random sample and conducted a thematic analysis on 163 participant responses. Taking a 10% random sample provided us with a manageable subset of the data for the subsequent analysis.

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In order to analyze the subset of data, we followed Braun and Clarke's (2006) six steps to thematic analysis. We used thematic analysis because this approach allowed us to consider the meaning of participant responses across the data set in the context they were provided, rather than coding for isolated words or phrases. We began by familiarizing ourselves with the data. The first and second author reviewed the larger data set and completed an initial line-by-line reading of participant responses included in the subset of the data used for analysis. Next, the first author open coded the data using the constant comparative method to identify ideas that were recurrent and forceful across the data set (Glasser & Strauss, 1967; Owen, 1984; Tracy, 2020). Participants' were provided unlimited space to respond to the open-ended questions. Therefore, if participants responses were short (e.g., one sentence or phrase) they were compared with the previous response and provided a separate code if different. When a participant's response included multiple sentences or phrases they were compared to one another. If a participant's response to a question included content that had different meaning each sentence or phrase was coded separately.

After initial codes were generated and organized into preliminary themes (e.g., codes including constructive, specific, and detailed contributed to the theme characteristics of feedback), the first and second authors met to discuss the results of the analysis. The second author reviewed the data and analysis and confirmed the preliminary themes were representative of the data. A data check—a process similar to member checks in other forms of qualitative data analysis (e.g., interviews; Tracy, 2020)—was conducted by revisiting the larger data set to confirm the themes represented participants' responses. Two additional 10% random samples were drawn—each including 164 participant responses—and the first and second authors each reviewed one additional subset of the data and confirmed the themes generated from the initial analysis represented the larger data set. We concluded our analysis by defining and naming each theme and selecting participant quotes that best represented each theme and their respective subthemes.

## Results

Our inductive thematic analysis produced two themes. We discuss them as: (1) characteristics of feedback and (2) process of feedback.

### Characteristics of Feedback

Participant responses that fit within this theme focused on identifying the specific characteristics that made the feedback from their instructors useful. They discussed different ways their instructors crafted feedback messages that made them useful. These included messages that were specific and provided suggestions for improvement, used praise to identify areas the participant did well, and contextualized rubrics used to grade students' assignments. This section further explores three subthemes: (1) specific feedback; (2) praiseworthy feedback; and (3) purposive feedback.

#### *Specific Feedback*

Participants described useful feedback as constructive and specific in nature. They explained that useful instructor feedback identified specific areas of improvement and provided suggestions as to how those improvements could be made. One participant explained, "constructive feedback is the most useful feedback since it lets you know where you may have went wrong and gives you insight into how to

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improve yourself.” Another explained, “feedback that offers changes, corrections, and helpful tips is useful.” As emphasized by these participants, feedback that was critical in a constructive way and provided specific avenues for improvement was useful. As one participant explained, feedback that was “[just a] simple comment such as when someone tells you ‘good’ or ‘great job’” or “just having a grade” were not useful forms of feedback because they do not identify specific areas of improvements or offer suggestions as to how said improvements could be made.

### ***Praiseworthy Feedback***

Praise, when used well, was also identified as a characteristic of useful feedback. Participants explained that when praise was used to identify specific aspects of their assignments that they did well it was a useful form of feedback because it let them know what they should continue to do in future assignments. However, they did not think that praise helped them improve. As one participant explained, “compliments can be helpful in knowing what you did well.” Another shared that useful instructor feedback included “praise to motivate the student.” Participants were aware that constructive, specific feedback that provided suggestions for improvement was most useful, but that being able to identify things they did well through praise from their instructor was useful and “[gave them] confidence in [their] abilities.” One participant identified that, “written praise will be more meaningful and will be more likely to influence a student than a number.” Therefore, praise was seen as a valuable form of feedback compared to just being assigned a numerical grade because it helped students identify what they did well, motivated them, and increased their confidence level.

### ***Purposive Feedback***

Connected to the desire for specific feedback, participants also identified assignment rubrics as a useful form of feedback when used well by instructors. In other words, simply being told the point value they received for each rubric category alone was described by participants as broad and not useful on their own. One participant explained, “clearly written feedback is useful. Only circled numbers on a rubric is not useful.” However, participants highlighted the usefulness of constructive feedback in the form of comments connected to each category of the rubric. As one participant said, “my [instructor] provides elaborate feedback in each category of the rubric which is incredibly helpful . . . emphasizing each rubric category is great.” When asked how feedback could be improved, one participant said instructors could “respond to every aspect of the rubric for each student.” Another explained that “instead of just using rubrics, it would be helpful if instructors were to provide explicit examples of where students need to improve and where they are doing well.” By providing a comment for each aspect of the rubric, participants explained that instructors are able to take the broad rubric and contextualize it for each student’s assignment or presentation. This was exemplified by the following participant comment: “my instructor included detailed feedback in my graded rubric that told me what I needed to work on in order to improve my public speaking abilities.”

At their core, participants characterized useful feedback as constructive and specific that focused on areas of improvement and provided strategies that could be used to improve for future assignments. Praise that was given for specific aspects of the assignment was useful in helping participants identify areas of success. Finally, when using a rubric, instructors can take a purposive approach by providing a comment for each area of the rubric which was identified as useful by participants.

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## Process of Feedback

Although specific characteristics of feedback were highlighted by participants as important, they also noted that the process of receiving instructor feedback was an important aspect of the feedback's usefulness. Specifically, how and when participants received their feedback from instructors were important aspects of the feedback's usefulness. The three subthemes further explored here highlight important aspects of the process discussed by participants: (1) a timely process; (2) an iterative process; and (3) a communicative process.

### *A Timely Process*

Participants discussed the need for timely feedback upon the completion of an assignment. When assignments in a course build on one another, participants explained that getting feedback soon after completing their assignment allowed them to use the feedback to improve aspects of future assignments and remember how they did on their assignment. One participant said, "I want feedback after all assignments just so I am aware of what my strengths [and] weaknesses are and I can do better in the future." Another explained, "feedback is more relevant immediately after a presentation so it is available for the next one." In contrast, when feedback was provided long after they submitted the assignment it was not useful because they would not be able to easily recall how they did on the assignment and they likely would have done significant work on the next assignment, or could have already turned it in, without knowing how they could have improved. For example, one participant said, "I believe the feedback [I received] was always useful, but sometimes I received it too late to implement into my next presentation." Participants wanted feedback as soon as possible after the presentation was delivered in order to make sure they remember how they performed. One participant explained, "I want feedback right after a presentation and before my next presentation so that it is fresh in my head what I did wrong and how I can improve and so that I can do better next time." Another said,

I want feedback right away so I can write it down or remember since the speech would have been fresh in my head. It is definitely most relevant right after your speech. I feel like a couple days after, you are going to not be in that same performing head space that you would have been right after the speech.

Participants highlighted the value in receiving specific feedback in a timely manner after completing the assignment to make improvements on future assignments.

### *An Iterative Process*

Receiving feedback from instructors before their final assignments were turned in, or presentations were given, was described as extremely useful to students. They explained that it allowed them to evaluate how they were doing before turning in the final assignment. For example, one participant explained that, "feedback is most relevant before an assignment is due . . . feedback before it's due is important because it will help you improve before the assignment [is due]." Another explained, "I want feedback before a presentation. This is because it will help me to better my presentation before actually giving it." Participants provided two key examples of feedback they got during the process of completing assignments in their introductory communication course that were useful: (1) using preparation outlines as an opportunity for learning and (2) using scaffolded assignments.

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**Opportunities for Learning.** Getting instructor feedback on preparation outlines was seen as an opportunity for participants to understand if they were on track for the assignment and learn about changes they could make to improve their speech before presenting it to the class. One participant explained they “want feedback on [their] outline to make sure [their] speech is coherent and heading in the right direction before [they] give the speech.” Another provided the following example: “when my outline was in the wrong direction, my instructor [gave] me pieces of advice to help me set a thesis and work from there in a more concise and correct direction.” A third shared, “I want feedback for preliminary assignments (rough drafts, preparation outline, etc.). This is relevant because it gives me ideas on how to improve my final product.” These examples highlight that participants valued feedback on their preparation outlines because it provided opportunities to learn what they could improve as they were preparing to present their speeches, so they could apply the feedback in order to present the best speech possible.

**Scaffolded Assignment.** Participants also identified scaffolded units where students give the same presentation more than one time and receive feedback in between as valuable. Specifically, participants highlighted the value of getting feedback on formative assignments—in this case their first informative presentation—so that they can make changes for summative assignments that were worth more points—in this case the second time they give their informative presentation. They explained that getting constructive feedback and then having the opportunity to apply it before presenting again was a useful way for instructors to design their course and provide feedback. One participant explained:

A time when I have received helpful/useful feedback was after giving my informative presentation. I got my rubric back with my grade and suggestions on how I would present better. These suggestions really helped me with my performance for my next [informative] speech.

Another participant said:

Receiving feedback during informative presentation one was most helpful because it helped me to really better my second informative speech. I was given constructive feedback to help me better present the information I had, and also reword and restructure my information to better connect to my audience. This feedback has helped me with my other presentations, because I recognize how important it is to connect to the people you speak toward.

Participants found that by applying the feedback they got on their first informative presentation (a formative assignment) they were more successful on their second informative presentation (the summative assignment), ultimately helping them be more successful throughout the remainder of the semester. Additionally, if instructors do not have the capacity to include this assignment format in their course, our participants suggested that even having the opportunity to practice their presentation for their instructor to get feedback was valuable. One participant explained it would be useful to “incorporate more dry run speeches before the speech date so we can practice our speech before an audience and get feedback.” Another said, “instructor feedback is more helpful if you had the opportunity to practice part of your speech for your instructor . . . to get feedback beforehand.” Creating opportunities for students to receive feedback before completing their summative assignment was viewed by participants as a specific way that instructors could provide more useful feedback.

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Through opportunities for learning and scaffolded units that included formative and summative assignments, participants emphasized the value of getting feedback from their instructors throughout the process of preparing for a presentation. They viewed these processes as useful because they were able to make changes and improvements prior to submitting or presenting the major assignment for the unit based on the suggestions made by their instructor.

### ***A Communicative Process***

Finally, when asked how feedback from their instructor could be improved, a number of participants emphasized one-on-one, in-person feedback as a way receiving feedback would be more useful. One participant explained, "I think instructor feedback could be more helpful if we do one on one conferences to talk about our progress." Another said, "instructor feedback could be more useful if we had built-in time where we could meet with a professor one on one so that the feedback resonates better with the student." A third said feedback could be improved by "giving students more opportunities to talk one on one with their instructor." Getting feedback from instructors in person rather than through a learning management system or other form of mediated communication was viewed as allowing instructors to engage in immediacy behaviors which provide the possibility for students to feel more comfortable about getting feedback from their instructors.

## **Discussion**

This study examined how students enrolled in the introductory communication course define useful instructor feedback. Students identified feedback as useful in terms of content characteristics and feedback process. Useful content characteristics are specific, constructive, praiseworthy, and purposive. The feedback process was most useful when it was delivered in an iterative and timely manner.

### **How Students Prefer to Receive Feedback**

This study's findings extend previous literature on instructor feedback. Our participants suggested that useful instructor feedback should be specific and constructive while focusing on how students can improve on their assignment. Further, they suggested that praise was a useful form of feedback when used to identify things a student did well. These findings support previously articulated typologies of feedback (Reynolds et al., 2004; Simonds et al., 2009) and suggestions that when used intentionally praise is an effective form of instructor feedback (Brophy, 1981; Titsworth, 2000). These types of feedback our participants perceived as useful aligned with FIT's (Kluger & DeNisi, 1996) key proposition that feedback focusing on the task at hand will lead to more positive outcomes for students and prior research (Dannels et al., 2011). Students identified that broad feedback that did not address specific aspects of their assignment (i.e., meta-task feedback) were not useful to them. Thus, our findings suggest that students' perspectives on useful feedback support FIT's central proposition.

Our examination also extends previous research regarding instructor feedback (Reynolds et al., 2004; Simonds et al., 2009) by exploring when instructors should deliver feedback to make it useful for students. More specifically, students need to receive feedback with enough time to make changes before submitting their next assignment or giving their next presentation. This finding supports Hazel et al. (2011) and King et al.'s (2000) argument that immediate feedback can help improve student performance. Supporting King et al.'s (2000) finding that delayed feedback helped students with the planning aspects of assignments, our participants suggested the written feedback provided after a presentation was useful

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when it was given to students with enough time to apply the feedback on future assignments. This supports Broadbent et al.'s (2018) suggestion that feedback provided on summative assessments should include formative elements as students indicated they used feedback to improve future similar assignments. Furthermore, this implication becomes especially salient in the online teaching/learning environment where the process of interpreting feedback is mediated; so timeliness becomes more important to give students time to process the meanings and respond as needed.

Within the communication discipline, many courses—especially in the introductory communication course—ask students to complete writing and presentational speaking assignments that are unique but also include components (e.g., writing and delivery) that do not change from assignment to assignment. Therefore, instructors should provide feedback that includes characteristics that make it useful, but that it is also provided before students' next assignment is due so they can use the feedback to inform how they approach their next assignment (Bailey, 2009; Small & Attree, 2016). Our findings support the argument that instructors should provide formative feedback on summative assessments in the introductory course and communication discipline at-large (Broadbent et al., 2018).

The limited usefulness of rubrics as a form of feedback was also noted by participants. Simply selecting a point value for each rubric category was not thought of as useful feedback. This point underscores the need to provide written feedback that extends beyond a rubric checklist. Simonds et al. (2009) explained that instructors should use specific language from the rubric to connect student evaluation with their expected performance. Our participants suggested that rubrics should be used not only to set clear and consistent standards for grading but should also be an avenue for providing each student with personalized feedback related to their individual performance in each rubric category (Hadden & Frisby, 2019; Jones-Bodie et al., 2020). Providing constructive comments that offer suggestions for improvement for each rubric category can help students identify the areas of their presentation they should work to improve by providing an approach to doing so that can be easily understood by students (Smith & King, 2004). As rubrics are often used as a way to communicate feedback with students within the communication discipline and introductory communication course, it is important for instructors to note that, as one participant said, "circled numbers on a rubric [are] not useful." Instead, individualized and specific feedback rather than broad statements or stock comments are useful to students (Hadden & Frisby, 2019; Jones-Bodie et al., 2020).

## **Pedagogical Implications for the Classroom**

Courses should be designed to provide students with a number of opportunities to receive formative feedback that create opportunities for learning and improvement. Our findings suggest three ways instructors could approach providing this feedback in their courses and resulted in the suggestion of three best practices. As the introductory communication course was the context in which we collected data, our examples are set in this context, but could be adapted to a variety of different courses. First, instructors should provide feedback on formative assignments (e.g., preparation outlines) prior to students completing the summative assessments for the unit (e.g., oral presentation). Peer workshops have previously been suggested as an approach to providing students with feedback on formative assignments (Broeckelman-Post & Hosek, 2014). As students perceive instructor feedback to be more valuable than peer feedback (Semlak, 2008), instructors should also provide feedback on students' formative assignments, that is available to students prior to their summative assignment, as an avenue to provide useful formative feedback that students can use to finalize and improve the unit's culminating assignment.

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Second, the first unit of the semester could provide students with the opportunity to complete the same assignment (e.g., informative presentation, first writing assignment) twice with the opportunity to receive and implement suggestions between submissions. This provides a unique opportunity for instructors to give students useful feedback that can be applied by students when they revise and resubmit the assignment. This is valuable because students often get feedback on their work in one format (e.g., an outline) and then apply that feedback to another format (e.g., oral presentation, essay). This process could lead students to misinterpret and ineffectively adapt their instructor's feedback. By scaffolding assignments and providing formative feedback on an assignment that shares the same format as the summative assessment students can directly apply feedback when revising the assignment for the second submission rather than having to adapt feedback from an outline or other formative assignment.

Third, participants discussed the value of getting feedback when meeting with their instructor in an in-person setting. Students valued these interactions because they provided the opportunity for instructors to present feedback to students in a way that resonated with them. In-person feedback meetings also provide the opportunity for instructors to engage in immediacy behaviors that help students feel more comfortable receiving instructor feedback (Witt & Kerssen-Griep, 2011). Scholars have previously suggested instructors employ immediacy strategies through written feedback (Gardner et al., 2017). Our findings suggest that providing feedback in-person could provide instructors another avenue to engage in immediacy strategies that help them more effectively communicate feedback to their students. Moreover, holding these meetings early in the semester could help students successfully apply instructor feedback throughout the semester. This finding also provides some support for the usefulness of peer mentoring that students receive in communication centers. When students attend a meeting at the communication center, they have the opportunity to receive feedback in-person (Anderson et al., 2015; Stewart et al., 2021). This provides the opportunity to get feedback prior to completing the summative assessment offering alternative methods for students to receive useful formative feedback even if it is not coming directly from their instructor.

Ultimately, our findings and subsequent discussion led to the development of three best practices instructors can use to provide useful feedback. Instructors should provide constructive and specific feedback on each aspect of the assignment being assessed. Instructors should provide feedback on formative assignments, such as outlines, prior to students submitting the summative assessment. While engaging in this practice, instructors should provide students with time-sensitive formative feedback, enabling students to apply that feedback on their summative assignment. Instructors should also provide formative feedback on summative assignments to guide student's improvement on future assignments. This can be done by providing students with specific suggestions on how they can improve on each area being assessed.

## **Practical Implications Beyond the Classroom Context**

As a communicative process, the giving and receiving of feedback occurs in contexts beyond the traditional classroom. We suggest that our findings can be transferred to offer practical implications for training and development programs and manager–employee communication in organizational settings. First, similarly to the scaffolding of assignments in traditional classroom settings, we suggest that when designing training and development programs organizations design programs that include intentional feedback throughout the process. For example, training could be organized into two sessions where skills are taught during session one. Participants then complete activities that apply the skills between

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sessions and receive feedback from the facilitator. Then session two provides the opportunity for specific learning and development to occur guided by the feedback received.

Second, manager–employee relationships often involved the giving and receiving of feedback. Many organizations have formal annual or biannual employee review processes where managers offer feedback to guide employee improvement. However, based on our findings these processes, although valuable, are likely too far removed from when employees completed the task they are being offered feedback on. We suggest that managers give feedback and offer suggestions for improvement throughout the year as mistakes or areas for improvement are identified, rather than only at specific times during the year. This way, employees have the opportunity to address mistakes and improve their performance in a timely manner toward achieving individual and organizational goals.

## **Limitations and Directions for Future Research**

Although this study's findings are valuable, they should be considered in light of a few limitations. We were able to get a large number of responses from students but, due to the nature of the online questionnaire, participants' responses lacked depth. We were unable to probe for additional responses or ask clarifying questions. To understand the student perspective further, researchers should use qualitative interviews or focus groups which would provide the opportunity for follow-up and clarifying questions in order to gain a deeper understanding of students' perceptions. Further, this study's participants were asked to focus their responses on feedback received in the introductory communication course. Scholars could extend this research by investigating students' perceptions of feedback in communication courses more broadly or across disciplines. It would also be useful to see if/how students' perceptions of, as well as their expectations for, instructor feedback differ in online environments. This information would be useful as higher education grapples with the transition to virtual teaching and could produce insights that support student learning.

This study focused on what made feedback useful for students but did not ask students how they used feedback. Researchers should explore how students use the feedback they get from their instructor. One approach to this would be to analyze students' reflective essays. An assignment asking them to outline how they applied the feedback they received, how they utilized the feedback from one assignment and applied it to the next, and how the feedback effected that transition would provide the opportunity to gain this insight. In line with this suggestion, scholars should also consider exploring how, if at all, students are taught to interpret the feedback they receive so that they can effectively use it. This study only focused on understanding what made instructor feedback useful. Future research could explore what makes peer feedback or feedback received from communication center visits useful to gain a greater understanding of the usefulness of the variety of feedback students receive in the introductory communication course.

We acknowledge the pedagogical implications suggested based on this study's findings could be labor-intensive for instructors to implement in practice. Therefore, as instructors begin to use these practices when providing feedback, additional research and assessment is needed to further understand how they influence students' experiences in the course, improvement from assignment to assignment, and overall learning and development. For example, scholars could examine student perceptions of their improvement when completing scaffolded speaking assignments; or how, if at all, students use instructor feedback on preparation outlines as they prepare for speaking assignments. These avenues for future

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research would give instructors additional information on the value of the pedagogical practices we suggested and would provide additional insight into the nuanced ways undergraduate students perceive and use instructor feedback.

College courses provide an opportunity for students to develop skills that will help them engage effectively in academic, civic, personal, and professional life. To achieve these outcomes, however, instructors must provide useful feedback. To be useful, content must be specific and purposive, offered in a timely and iterative manner, as well as be both formative and summative. In doing so, students will leave the course and academy equipped with essential lifelong skills.

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# Mapping Research Directions in the Introductory Communication Course: A Meta-Synthesis of Published Scholarship

Lindsey B. Anderson , Ashley Jones-Bodie , and Jennifer Hall

**Keywords:** introductory communication course, meta-synthesis, qualitative, communication education, instructional communication, higher education

**Abstract:** The introductory communication course has a history of producing meaningful scholarship that shapes teaching and learning at institutions of higher education around the world. The scope of this research is broad and, as such, calls for a meta-synthesis of trends in and avenues for future research. This project examines published work from the past decade—2010 through 2019—in key outlets that regularly publish introductory course-focused research (*The Basic Communication Course Annual*, *Communication Education*, *Communication Teacher*, *The Journal of Communication Pedagogy*). This analysis of 98 articles revealed that publications tend to focus on three primary areas: (1) students and instructors, (2) the structure of the course, and (3) assessment—while calling for future research to “replicate” past studies. Based on this meta-synthesis, we propose directions for future scholarship that will continue to impact teaching and learning practices beyond replication.

The introductory communication course typically focuses on public speaking, interpersonal communication, or a hybrid of the two areas (NCA, n.d.). It is also frequently required as a general education “front porch” of the discipline course (Beebe, 2013). In this role, the introductory course welcomes and exposes new undergraduate students to the major and serves as an entrance to academic careers for graduate students and future faculty (Valenzano et al., 2014). The general nature of the course

Lindsey B. Anderson, University of Maryland, College Park, MD

Ashley Jones-Bodie, University of Mississippi, University, MS

Jennifer Hall, Brian Lamb School of Communication, Purdue University, West Lafayette, IN

CONTACT: [lbander@umd.edu](mailto:lbander@umd.edu)

also exposes those outside the discipline to communication, making it an important outward facing component of the discipline.

The introductory communication course also serves as a foundation for important research that shapes teaching and learning practices at institutions in the United States (U.S.) and around the world (Morreale et al., 2017). Moreover, students taking an introductory course are often surveyed for communication education—with scholarship exploring the teaching and learning that takes place within the communication discipline (Morreale et al., 2014), as well as instructional communication research—with scholarship examining the communicative strategies used in the teaching and learning process (McCroskey & McCroskey, 2006; Sellnow et al., 2015). As such, just as the introductory course serves as the “front porch” of the discipline, research surrounding the introductory course acts as the front porch for communication pedagogy scholarship. One opportunity scholars studying the introductory communication course could capitalize more strategically on is to position this research as it applies to broader audiences both in the discipline and beyond it.

Despite prior research aimed at providing overviews of the introductory course from a variety of specific perspectives, a number of important questions are currently unanswered. For example, what are the prominent areas of research with regard to the introductory course across outlets that publish communication education scholarship? What aspects of the course and pedagogical research are not garnering research attention and what calls for future research have gone unanswered? Thus, meta-synthesis research like this may offer both established and new scholars insight into the knowledge gaps yet to be addressed through future research.

This project examines a broad scope of introductory communication course published in four key outlets from 2010 through 2019, in four key outlets that have historically supported exploration of the introductory course. Ultimately, conclusions drawn here will highlight implications for instructional communication practice, as well as suggestions for future research questions to explore.

## Background of Introductory Course Scholarship

Given the prominent position the introductory course holds in the communication discipline (LeFebvre & LeFebvre, 2020), much research has focused on it. This synthesis-focused research ranges from broad overviews (history) to research specific assessment to outlet specific scholarship. The following sections describe relevant research in each of these areas.

### Historical Reviews

The long line of research documents the history of the introductory course. Most notably, Valenzano and colleagues (2014) explored the trajectory of the course and tracked its changes and enduring characteristics over time. Here the authors also keep an eye toward what the future could look like given this evolution. Similarly, Morreale and colleagues (2014) traced the evolution of communication education and instructional communication. More recently, Sellnow and colleagues (2015) provide a brief account of the history of instructional communication illuminating four areas beyond the traditional classroom context that benefit from this scholarship: risk and crisis situations, technology-enhanced environments, digital games, and forensics education.

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In addition to the previous historically focused studies, Morreale et al. (2010) produced a multi-decade series of survey studies which specifically document the introductory course in its modern form over time. This longitudinal project traces back to 1968 and is currently in its ninth iteration. With the goal of collecting representative data that captures the status of the course at different points of time (2010), the project draws on over 50 years of data collection to provide a documentation of the consistencies and changes of the introductory course. Although earlier editions of the project were primarily descriptive in nature, the most recent edition in the series (Morreale et al., 2016) took a more interpretive approach, using the collected data to look forward. In doing so, the authors developed insights about the progression of the introductory course and made recommendations to continue to build on the “front porch” metaphor (Beebe, 2013).

## Assessment Reviews

A second area of scholarship focuses on assessment, such as gauging the effectiveness of course-level and programmatic learning outcomes. In many ways, research examining assessment in the intro course can be difficult to define as a singular area since the scope (e.g., course, program) and focus (e.g., activities, learning outcomes) of the work can vary widely. For instance, administrators can assess learning outcomes that range from cultural competence to effective delivery using a variety of methods that they may or may not classify as assessment research. Despite these challenges, such assessment reviews provide a broad view of knowledge surrounding the introductory course. This research ranges from examining best practices for achieving learning outcomes while others look at the adoption of common core competencies. For example, Engleberg (2016) made the case for adopting core competencies that the introductory communication course should achieve. These competencies serve as central tenets that introductory courses can gather around regardless of the course format (e.g., interpersonal, presentational speaking) and illustrate that undergraduate students meet expected competencies (Morreale et al., 2011).

## Outlet-Specific Reviews

A final area of synthesized research in introductory course scholarship is focused on examining work that appears in one specific outlet—the *Basic Communication Course Annual* (see Hunt et al., 2005; Joyce et al., 2019). In the initial synthesis of research appearing in this outlet, Hunt and colleagues (2005) uncovered a lack of empirical and theory-driven research. By 2019, however, 85% of the articles published in the *Annual* were grounded firmly in theory. Although these studies illustrate progress in introductory communication course scholarship, the present essay will provide additional insight from a macro-perspective.

Overall, studies to date focus on three general areas: examinations of history of the course, examinations of course assessment articles, and examination of scholarship published in one specific journal. Although these studies contribute our understanding of the introductory course and the landscape of research in communication pedagogy and instructional communication, this project extends that work to focus on such scholarship published in multiple outlets as it may make a case for publishing such work in a broader array of communication journals. With these overarching goals in mind, we pose the following research question:

**RQ:** What research trends are reflected in introductory communication course scholarship published between 2010 and 2019?

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## Method

To answer our general research question, we gathered published articles focused on the introductory communication course from four publication outlets over the past decade. The selected journals were chosen because of their status as nationally-recognized academic journals and prominence as key outlets for introductory course scholarship. The journals for this project included: (1) the *Basic Communication Course Annual*, an outlet devoted to the publication of introductory course research and housed by the University of Dayton; (2) *Communication Education* and (3) *Communication Teacher*, two instruction-focused journals published by the National Communication Association; and finally, (4) the *Journal of Communication Pedagogy*, a peer-reviewed publication of the Central States Communication Association that publishes instructional communication research.

Once the journals were selected, we individually reviewed all volumes and issues from 2010–2019, searching for articles focused on the introductory communication course. A number of specific criteria guided the analysis. These criteria included that some aspect of the article's research question(s) was focused on the introductory course; that there was a systematic, research-based approach to the work; and that the focus on the introductory course was stated explicitly within the article.

We opted not to include articles where the only connection to the introductory course was the inclusion of introductory course students as participants/respondents. These specific articles did not meet our selection criteria when the focus of the work itself did not pertain to the introductory course. In addition, we did not include teaching ideas and best practices articles but did include reflection essays as those essays included some systematic assessment of practice. These selection criteria, focused on time frame and research emphasis, supported our goal of compiling a holistic view of research focused on the introductory communication course over the past decade. In all, 96 individual published articles were included in the data set.

Once the data set had been determined, we divided the total collection and individually coded for common themes using a constant comparative approach (Glasser & Strauss, 1967; Tracy, 2020). We then met as a team to review our individual analyses—taking the time to problematize and confirm the findings. By completing this process, we were able to illuminate a synthesized view of the research across the decade. Our work was guided by the goal of meta-synthesis of published research focused on the introductory course across the four publication outlets for the entire decade.

## Overview of Data Set Characteristics

When examining the full set of articles included in this study, a number of general and methodological characteristics and data emerged as important to note. These data included information regarding authorship, distribution of articles across journal outlets, general methodological characteristics such as article type and study focus, and specific aspects of the research articles including overall method, subjects, and type of data. The following sections provide a brief overview of these data set characteristics.

### Authorship

These articles represented 75 unique, first authors and 167 total, individual authors. A small number of first authors, 15 in total, had authorship on more than two articles; 30 total first authors published two

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or more articles. This view of the data set helped to demonstrate the variety of authorship and the depth of communication scholars who contributed to the development of knowledge about the introductory course across the four publication outlets.

### **Outlets**

Of the 96 articles, nearly half came from the *Basic Communication Course Annual*. However, relevant articles were published in each of the other journals every year, as well. Moreover, the number of articles published each year increased in the final 2 years of the decade, which coincides with when the *Journal of Communication Pedagogy* (JCP) began publication. The *Journal of Communication Pedagogy* published 10 articles that met the inclusionary criteria in both of its first years of publication. Despite not existing for the first 8 years of the analyzed decade, we opted to add JCP as part of the data set to avoid excluding relevant data that otherwise met our overall criteria.

### **Article Type**

In general, two types of articles—essays and research articles—were published in these journals over the course of the decade. More specifically, 86% of the articles ( $n = 83$ ) were original research studies. Only 13 articles were coded as reflection and forum essays. The research articles used a variety of approaches from quasi-experimental studies to self-report survey studies to rhetorical analyses to content analysis of textbooks.

### **Study Focus**

Three major areas of focus emerged within the research articles: (1) 72% ( $n = 60$ ) focused on the student experience and outcomes ( $n = 60$ ), (2) approximately 10% ( $n = 8$ ) focused on faculty and administrator experiences, and (3) about 18% ( $n = 15$ ) focused on course overview examinations. Overwhelmingly, the research articles focused primarily on student outcomes (e.g., public speaking anxiety, perception of communication competence, willingness to communicate, etc.), as well as student perceptions in the introductory course.

### **Subjects/Participants and Data Type**

Two additional themes emerged in the analysis of the research articles. First, the types of subjects/participants included in the study fell into three categories: students as subjects/participants ( $n = 62$ ), faculty/GTAs as participants ( $n = 13$ ), and “other” ( $n = 8$ ). The predominance of students as study participants aligns with the predominance of studies focused on student outcomes and experiences. Second, multiple data types were also collected for studies focused on faculty and on the course itself. However, for studies focused on student outcomes and experiences the primary type, representing 58% of data collected, was self-report information ( $n = 36$ ) via surveys both quantitative and qualitative in nature. The remaining research articles focused on students gathered information via “mixed” data (15 articles) with some combination of student self-report information and faculty-evaluated measures (e.g. speech grades, midterm grades, attendance) or gathered information from faculty-evaluated measures alone (seven articles). Overall, the majority of articles focused on the introductory course over this decade examined student experiences and outcomes via self-report survey data.

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## Findings

Through the meta-synthesis process, we (1) critically explored the current focus of introductory communication course research as well as (2) identified the proposed future research avenues that scholars in this area have put forth. In the following sections, we explore these two areas of findings in detail.

### Meta-Synthesis Findings: Focus of Published Research

As a first stage of the meta-synthesis process, we identified the topics of focus published in introductory communication course scholarship during the past decade (see Table 1). In the meta-synthesis, three primary subsets of article focus emerged: (1) characteristics of the students and instructors, (2) structure of the course, including delivery and framing, and (3) assessment of programs, learning outcomes, and assignments/activities.

TABLE 1 Summary of Findings		
Subset Category	Focus of the Article	Counts (Number of Articles)
Characteristics	Communication Apprehension	8
	Instructor Traits	6
	Student Traits	19
Structure	Course Approaches	15
	Instructor Training	2
	Online	6
	Speech Center	5
	State of the Course	8
Assessment	Assessment	18
	Feedback	5

### Characteristics

The first primary subset of article focus in the published introductory course research centered around observable characteristics of both the students and instructors ( $n = 25$ ). The focus of this research included demographic information as well as status traits.

**Student Traits.** In the published studies, students' characteristics were often a feature of the research. The demographics of students, such as their nationality (e.g., if they were an international student) and race (what one article referred to as "whiteness") were often incorporated as components of the research as ways of defining and categorizing groups for comparison. For example, studies might compare international students' outcomes to domestic students as part of the study design. The articles also examined aspects of status, such as native/non-native or multilingual speakers, dual enrollment status, or veteran status. Two additional key student characteristics that emerged through the meta-synthesis were examinations of students' self-efficacy as well as growth mindset.

Another often studied trait was communication apprehension, with eight additional articles attempting to uncover student characteristics that contribute to or mitigate feelings of communication apprehension.

Across these studies, communication apprehension was consistently examined in combination with other student traits. For example, studies examined whether communication apprehension was higher in particular groups of students based on specific demographic characteristics.

Finally, a number of studies discussed whether students had high or low self-efficacy or if students had adopted a growth mindset mentality and how these student traits might relate to communication centers/speech centers. Often, this research advocated for student-accessible resources such as university speech centers.

**Instructor Traits.** In addition to articles focused on student traits, an additional six articles honed in on characteristics of instructors teaching the introductory communication course. These articles centered on prosocial behaviors such as teacher immediacy, credibility, humor, and self-disclosure. The meta-synthesis also illuminated less of a concentration on demographics related to instructors but did touch on the power-laden tensions that graduate teaching assistants (GTAs) often manage in the dual roles they enact in academe.

### **Course Structure**

The secondary primary subset of topics of focus for introductory course scholars was a focus on the structure of the course ( $n = 21$ ). This topic included examinations of course delivery (e.g., online, in-person, hybrid) as well as frames applied to the class (e.g., service-learning, learning communities).

**Delivery.** Within the examined articles, a focus emerged concerning what constitutes the “best” or “most effective” means for delivering the introductory course. Several of the articles ( $n = 6$ ) specifically examined the course delivery method—online only, using a hybrid format, or traditional in-person context—and drew implications/best practices based on these forms of delivery.

**Frames.** Similarly, the framing of introductory communication course as service-learning or learning communities also emerged as a sub-area of research ( $n = 21$ ). This research ranged from taking an applied perspective (e.g., asking “big questions”) to using a rhetorical lens to design the course. In addition, the efficacy of specialized sections and/or learning communities was prevalent. For example, one article compared an engineering focused section of the introductory course to a traditional, general one. Overall, the articles focused on the structure of the course including format (e.g., online vs. virtual) and framing (e.g., civic engagement, honors sections).

### **Assessment**

The final subset of topics of focus in the introductory communication course research was a broad focus on assessment ( $n = 18$ ). This research ranged from large programmatic assessments (e.g., core competencies), to learning outcomes assessments (e.g., engagement and learning) and assignment-level assessments (e.g., the effectiveness of using video to improve competency). For example, LeBlanc and colleagues (2011) used a pre-test post-test methodology to gauge the improvements made in primary learning outcomes, including communication knowledge, conflict management, and intercultural communication skills.

Learning outcomes assessments at the course level and assignment levels were also key subtopics that emerged from the assessment line of research. For instance, Westwick and his colleagues (2019) examined how students’ reported levels of anxiety and communication competence changed in an honors version

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of the introductory course. At the assignment level, LeFebvre and his co-authors (2016) assessed the use of video recordings to complete a self-assessment and, in doing so, connected the activity to speaking competency outcomes. Overall, in this context, assessment was a consistent and popular area of focus within the research.

## Meta-Synthesis Findings: Future Research Directions

The second area of analysis guiding this meta-synthesis examined the proposed future research directions across the data set articles. In choosing to analyze the discussions of future research in these articles, our aim was to determine what overarching future areas of study were proposed in the published scholarship. The suggestions included in future research discussions could serve as a map of where scholars could focus future efforts. The agendas put forth across the articles were predominately focused on “replication.” Overall, a clear majority of the articles ( $n = 67$ ) used a quantitative methodology and their proposals of future research focused on replication of these same methods. It is worth noting that only 20 research articles used another form of inquiry (e.g., qualitative, rhetorical analysis).

In addition to advocating for replication of studies, scholars also highlighted the need for longitudinal data as well as performance data to supplement the overrepresentation of student self-report measures. For example, numerous articles advocated for the inclusion of faculty-evaluated measures such as the Competent Speaker Speech Evaluation Form (see Morreale et al., 2007) or the Oral Communication Assessment Rubric (see Avanzino, 2010) in combination with students’ own impressions of their work.

When viewed holistically, the arguments for future research directions, by focusing primarily on replication, did not include discussion of a breadth of methodological perspectives that could garner new insights. Thus, a missing valuable component in the future research directions analyzed through this meta-synthesis was an expansion of topics to serve as future research foci. While we had anticipated potential discussion of future possibilities moving beyond the foci of the included studies, for example suggestions of future work that could better account for the changing nature of higher education, the academy, contingent work (e.g., adjuncts) and the student population, these were not the foci that were uncovered in the meta-synthesis.

## Discussion

Through this meta-synthesis of the past decade of introductory communication course research, we identified research foci/topics of articles across the decade, as well as synthesized future research directions. This project supports the extension of the front porch metaphor by highlighting introductory communication research in ways that “add curb appeal” and invite students, instructors, and administrators from across the communication discipline to examine introductory course scholarship (Beebe, 2013, p. 22).

## Conclusions and Implications

First, the meta-synthesis revealed a core group of authors who regularly publish this type of work along with other scholars who infrequently research the introductory course. As such, this project emphasizes the need for increased participation in introductory course research through the acceptance of more topically and methodologically diverse research. The implementation of this endeavor would make the “front porch” more inviting and can take several forms. One such avenue for this expansion is urging

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scholars and introductory course outlets to apply introductory course research to other areas and fields. Often, scholars are exposed to academic outlets (e.g., conferences, divisions, journals) when they see possible overlaps with their areas of expertise and when they work with and/or are mentored by others who have presented/published in different outlets. By urging the application of introductory course research onto broader areas, we may see a broadening and diversification of the array of scholars submitting to introductory course outlets as a result.

Second, and related to the previous point, our work uncovered a high level of insularity in terms of topics published about introductory course scholarship. As such, researchers in this area might be constraining themselves by focusing too much on the unique introductory course context and may need to expand this research to draw implications to instructional communication and/or communication education specifically and higher education more broadly. Although these data are important to introductory course directors, as well as to departmental/college administrators, scholars should also consider how it matters to those whose work is related to introductory course scholarship (e.g., communication education or instructional communication; see Morreale et al., 2017) as well as to other academic disciplines and campus constituencies. By focusing on introductory course research without connections to other communication constituents, the contributions that this scholarship makes become sequestered. For instance, the future research that takes place in the introductory course could uncover best practices for creating an active approach to teaching and learning in virtual settings, it could document shifting needs for instructor training, and could explicate nuances in terms of communication apprehension felt during online classroom interactions (e.g., breakout rooms, presentations). All of these topics would be of interest to communication scholars as well as instructors and administrators who work in higher education settings.

This shift toward expansion beyond the current narrow focus would further highlight the value that the introductory course brings to the discipline and beyond and would draw the connections to other communication scholars who may not see their research fitting within the scope of the introductory course outlets. In order to expand the “front porch,” we argue that journal editors and conference program planners should create calls for papers that would help build “connections” across areas, to help counter the insularity of the sub-discipline.

Finally, given the findings of this meta-synthesis with regard to methodological focus within the articles, we advocate for a greater representation of diverse research methods used in introductory course scholarship. By deploying an array of data collection and analysis methods that builds upon the rigor of research articles from the past decade, as well as developing new measures (e.g., psychophysiological) that would be novel in this type of research, we could develop a better understanding of the teaching/learning/administering experience surrounding the introductory communication course. This shift would provide an even stronger foundation for extending these findings to teaching and learning in communication specifically and higher education contexts more generally.

## Limitations and Future Research

In addition to the findings and implications of this study, there are a few limitations that should be noted to inform future research directions. For instance, we limited our meta-synthesis to specific outlets that regularly publish introductory communication course scholarship. It would be interesting to see how, if at all, this research is presented in other, more general communication journals (e.g., *Communication Studies*, *Communication Quarterly*) and journals of higher education (*Arts and Humanities in Higher*

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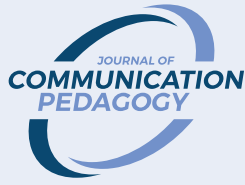
*Education, The Journal of Higher Education, Teaching in Higher Education, Journal of Teacher Education*). In a similar vein, we reviewed articles from the past decade, 2010–2019. It could be useful to apply a broader scope to see how introductory course research has evolved over a longer time frame, in a multitude of outlets, potentially combining previous work providing overviews of the field with the methodological approach of this study.

In closing, the introductory course is a significant aspect of the communication discipline and informs research and teaching in higher education. We hope that through this critical and reflective meta-synthesis, scholars will continue to build on this strong foundation for research endeavors in the coming decades. By examining where we have been, where we are now, and mapping where we can go, scholars and administrators will be better equipped to navigate shifting introductory communication course terrain and continue to make important contributions to teaching and service at institutions of higher education.

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# Training and Development: Communication and the Multigenerational Workplace

Michael G. Strawser 

**Keywords:** instructional communication, training and development, generational differences, multigenerational workplace, millennials, organizational communication

**Abstract:** Communication practitioners, especially those who facilitate training and development workshops, should focus on generational differences as a subset of their communication training efforts. This article positions the multigenerational workplace and generational differences as a relevant topic for communication trainers and provides cursory information related to different generations. Ultimately, 10 best practices to address generational differences in business contexts are discussed.

I open this essay with a confession: I was initially compelled to study instructional communication because I rebelled against “how I was taught.” Throughout my undergraduate experience, lecture was the primary instructional delivery method. Over the years, I have softened my crusade against lecture and now acknowledge it as one tool in an instructor’s toolkit. However, I still find myself rebelling against the status quo. In this way, I am a typical millennial.

The word millennial tends to bring forth a variety of reactions, some of them positive and some quite negative. In the corporate world, the millennial appeal has led to substantial training and development content (Freifield, 2018). I offer this essay of best practices for instructional communication when working with millennials because I believe communication scholars are uniquely suited to address generational differences and to adapt instructional methods for success among professional development trainers working in both for corporate and nonprofit contexts (Schullery, 2013).

Michael G. Strawser, University of Central Florida, Orlando, FL

CONTACT: [michaelstrawser@ucf.edu](mailto:michaelstrawser@ucf.edu)

Organizations face significant pressure to retain young workers, thus highlighting the importance of consultants and trainers who provide insight into organizational culture, generational identity, and communication (Hughes, 2020). To address these needs, generational training and development is growing in popularity. Thus, this essay proposes data-driven and research-based best practices for communication-based multigenerational workforce training and development.

## Generations in the Workplace

Schullery (2013) argues that a generation consists of those born between a specified year range who share major life experiences including pop culture, economic conditions, and natural disasters. What makes this essay even more important is that five or more generations may be employed in one organization simultaneously (Traditionalists, Baby Boomers, Generation X, Millennials, and Generation Z/iGen). While different generations tend to have different workplace expectations, some core objectives are relatively constant among them. For instance, all generations desire “meaningful work, professional development and advancement opportunities, a positive work-life balance” (Strawser et al., 2019, p. 188). Communication breakdowns often occur, however, based on the various ways such expectations are expressed across generations (Smith, 2019). To clarify, Pollak (2019) posits that the primary difference between generations in the workplace is rooted in communication styles. For example, millennials, the largest group populating the workforce today, crave clear and efficient workplace communication, especially with regard to communication and technology use (Morealle & Staley, 2016; Watkins & Smith, 2019). These generational differences may lead to misunderstandings and interpersonal conflict (Bright, 2010). Fortunately, training and development in communication improve corporate climate and reduce conflict by fostering synergy across generations. Ultimately, these factors improve not only employee satisfaction and motivation, but also productivity (Meier & Cassar, 2018).

Before discussing training and development best practices, however, I first provide operational definitions summarizing characteristics of each generation (see Table 1). These data come from Pew Research Center reports and are to be interpreted as generalizations rather than absolutes (Dimock, 2019).

These generational differences manifest themselves in myriad ways (Taylor, 2014). Because communication researchers are audience analysis experts, Schullery (2013) posits that we are particularly well-suited for helping managers address communication and conflict successfully among the generations represented in the workplace. Essentially, instructional communication scholars are subject matter experts for workplace training and development (Hall, 2016). Hence, the following paragraphs describe 10 best practices to address generational differences in business contexts based on current training and development literature and experience.

### Best Practice 1: Know the Topic

By “know the topic,” I mean we need to include credible voices of scholars representing multiple generations, as well as tailor our examples and approaches in ways that honor generational differences. For instance, trainers are likely to motivate audience members to pay attention when they hear/see scholars representing their generation referenced in the workshop. In addition, accurate birth date ranges for each generation are hot debate topics. In fact, some of these debates led the Pew Research Center to revise birth year categorizations for both millennials and iGen. Moreover, names for each generation are also a topic of debate. While names like baby boomers and millennials have become commonplace, others are not as widely understood. Right now, iGen and Generation Z are mutually exclusive although

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**TABLE 1**  
**Generational Differences**

Generation	Year Range	Characteristics
Traditionalists	Born Pre-1945	This demographic, otherwise known as the Silent Generation, arrived at the tail end of the “Greatest Generation.” Most were born as the Great Depression and WWII were dying down. Members of this group are rule-followers. They are more conservative, traditional, respectful, and sacrificial.
Baby Boomers	1946–1964	Depending on the source, Baby Boomers are considered workaholics, materialistic, and greedy. In addition, Boomers tend to gravitate toward the concept of the “American Dream” and have (or have had) issues with work/life balance. They are also responsible, exceptionally loyal to their children, and ambitious.
Generation X	1965–1980	Members of Gen X are small in number compared to their predecessors and successors. They are rebellious. They saw their parents work, constantly, and wanted more balance. They are also independent as many of them had parents who both worked. X revels in pessimism. They are skeptical, cynical, and suspicious.
Millennials	1981–1996	Stereotypes for this group typically include entitled, perfectionist, achievement-oriented, tolerant, confident, tech-savvy, unfocused, “me”-first, etc. Millennials have grown up in a world of constant advocacy. Rarely did they have to fight for themselves because others, specifically their parents, fought for them.
Gen Z/iGen	1997–2012	Generation Z grew up in a digital world. They are digital natives and digital enthusiasts. They tend to have a risk averse existence. This group is entrepreneurial, image-driven and focused on their personal “brand,” and they are deeply connected to their values and social causes.

in most circles iGen is the preferred nomenclature. Thus, trainers may find more success using iGen rather than Generation Z referencing Jean Twenge’s (2018) work.

## Best Practice 2: Start With Theory

When working with clients in matters related to generational differences, consider using Strauss and Howe (1991) and their work on generational theory as a starting point. Starting with a theoretical framework can help explain difficult concepts. The importance of theory, however, must be balanced with an applied approach. Meaning, do not overcomplicate theoretical dimensions. Use theory as a guide and as evidence to support claims, but translate it to be intelligible to lay audience practitioners.

## Best Practice 3: Make the Communication Connection

Generational differences are a matter of identity, culture, and communication. Do not be afraid to make explicit communication connections for the training audience. *Communication is the organization.* Making communication connections to generational differences positions the consultant as one who can help with larger issues. If you can help an organization train their people to have more effective relationships across the generational spectrum then, potentially, they will bring you back to work with executives or even work on larger projects.



### **Best Practice 4: Survey the Generations**

No matter where training occurs make sure you know something about your audience before the session. At times this can be accomplished by meeting with a supervisor. However, hearing from only one voice may skew what training the trainees really need. When possible complete a needs assessment (Tobey, 2005). A needs assessment can provide insight into your audience and can help quantify what differences and issues *really* do exist across the generational spectrum. Is it solely knowledge? Do boomers not know what their millennial counterparts want? Or, is it more relational? Does conflict prevent effectiveness? Sometimes you may not be able to adjust training accordingly but even a quick pre-training assessment can help give you targeted insight.

### **Best Practice 5: Become Familiar With Popular Press Experts**

Our first priority should be to consult academic resources. However, many popular press experts can be extremely helpful. Pollak (2019) is a well-respected and sought-after popular audience generational consultant. I also visit popular press websites, articles, and resources to understand generational differences in the workplace. For those interested, the *Harvard Business Review* also publishes articles related to generational differences and leadership/management.

### **Best Practice 6: Tie Generational Differences Into Your Research Agenda**

Generational differences can serve as independent variables in a wide range of studies. For instance, is there a difference in health campaign effectiveness between different generations? Does generation affiliation impact intercultural competence? Infusing generational differences into your research can reinforce expertise and help you achieve additional notoriety as an academic by publishing additional scholarly articles on the subject.

### **Best Practice 7: Familiarize Yourself With Talent Optimization**

Some training and development conversations with clients seem to really focus on significant issues like culture, relationships, and human resources. For communication scholars and educators who may not be familiar with human resources, it may be worthwhile associating yourself with talent optimization and recruitment/retention strategies. We often hear that generations have different expectations in the workplace (Parry & Urwin, 2017); however, we addressed earlier that expectations are generally similar. Where managers can benefit from communication training and development about the generations is talent optimization. What motivates a millennial or iGen employee to engage differs from that of a traditionalist or baby boomer. For example, an employer or manager from the traditionalist generation may assign a task to iGen employees and expect them to comply simply out of respect for authority. However, they are likely to be more successful in motivating these employees to perform a task by offering some freedom for entrepreneurial thinking and creativity regarding how they do so. Again, success is rooted in communication training and development around audience analysis and job description tailoring.

### **Best Practice 8: Know the Business and Communicate Your Market Value**

Communicating generational consulting deliverables in monetary terms can lead to more success with a client initially while building toward a long-term relationship. This is hard to do without thorough

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knowledge of the company and the industry or without access to key performance indicators. Therefore, do your research when and where you can. If you can articulate how positive generational relationships, reverse mentoring, or other key components of generational consulting may help the bottom line you will be well on your way to a valuable training and development experience.

### **Best Practice 9: Publicize Your Efforts**

Engagement in public scholarship can help build your brand and reinforce your expertise. There are numerous ways you can engage different audiences. Radio hosts and even local morning shows are always looking for experts or content. In addition, popular press outlets, like local business publications, or online periodicals, are interested in generational differences. There are numerous examples of popular press submissions related to generational differences already on the market (Strawser, 2018, 2019). You can carve your own path as a generational expert by taking your research and translating it for the public. Also, you should establish a website that emphasizes your public training and development persona (Legacy Communication, 2020).

### **Best Practice 10: Start at Home**

If you are in higher education, your students will provide insight into their wants and needs as well as workplace communication expectations. Not all training and development professionals have access to a population as information-rich as our students. This is invaluable. You have access to incredible knowledge in this regard. I am a proponent of using my students as a case study, asking them about their workplace experiences, and then using that information to inform my clients.

Generational expertise is desirable not just in the professional workplace but our own higher education institutions as well. Be willing to work with other academic departments at your institution to provide insight into their students. Instructional preferences are certainly different from workplace expectations, but we can be calculated with how we teach students based on current generation research. If you understand communication expectations of Generation Z you can adjust your classroom communication frequency and modality. You can then be a resource beyond the academy but also within your institution as well.

## **Generational Content**

The general best practices are offered as tools to think strategically about generational differences when designing communication training and development workshops. The next section focuses specifically on some cautions to consider as well.

### **Generational Differences Are Stereotypes, Not Prejudices**

Preface your generational training by reminding the audience that at their core generational differences *are* stereotypes. In essence that's the point. We are trying to identify generalizable traits about a group of people who have been born 15–20 years apart. If unchecked though these stereotypes can lead to prejudices. By now you are probably aware of the “Okay, Boomer” movement. Millennials too have been typecast for years (Rentz, 2015). Our differences need not lead to negative prejudices. Instead, celebrate generational differences when you train and highlight how unique skills can transform the workplace.

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## Contextualize Generational Differences

Generic generation training is everywhere. There are already pre-established training curricula related to generational differences one can easily find online. The key is to take generational research and contextualize it for that industry. For example, think about training as it relates to the culture of the organization first and as it relates then to the clients or customers. If you are focused on hospitality, generational differences will impact relationships; if you are an insurance agency, generational differences will impact sales; and so on. The best trainers can take even the most generic information and apply it to specific situations to maximize value.

## Understand Your Outcome

What do you (or your client) want to accomplish with this training? In most cases the end goal is probably to increase generational intelligence and subsequently to equip high-performing teams. No matter the goal, make sure to provide avenues to assess your effectiveness.

## Become a Generational Consultant

These best practices are not exhaustive but could include communication training and development practices and outcomes based on generational audience analysis and adaptation. As communication scholars, our understanding of culture, identity, engagement, technology, and now generational considerations, may serve as valuable training and development resources in the increasingly diverse workplace today and tomorrow.

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# Variations on Exposure Therapy: Best Practices for Managing Public Speaking Anxiety in the Online Communication Classroom

Sarah K. Chorley 

**Keywords:** public speaking anxiety, exposure therapy, response prevention, systematic desensitization, instructional communication, habituation

**Abstract:** Exposure and response prevention (ERP) therapy techniques offer unique opportunities for comprehensive management of public speaking anxiety in the online public speaking classroom beyond exposure to only the speech-giving act itself. This best practices article outlines nontraditional strategies for incorporating ERP practices in a distance-learning setting.

Researchers have used *exposure therapy* as a theoretical lens to support the idea that the more a student is exposed to a public speaking situation, the more their public speaking anxiety (PSA) will decrease, while using the speech-giving act (SGA) as the unit of exposure (e.g., Finn et al., 2009). While this technique can be effective, it does not necessarily directly expose students to the actual phenomena they fear. To clarify, students who fear public speaking tend not to be anxious about the *successful* delivery of a speech. Rather, their anxiety is rooted in things like embarrassing themselves, their mind going blank, being unable to continue talking, saying foolish things and not making sense, trembling, shaking, or showing other signs of anxiety (Stein et al., 1996). Exposure therapy, combined with *response prevention*, has been used to treat a host of anxiety disorders by exposing patients to the *very thing* they fear (Abramowitz, 1996). It follows that exposure therapy used to mitigate public speaking anxiety ought to borrow further from treatments used for fear-based disorders by exposing students to their actual fears (in safe settings) and incorporating *response prevention* to create the most comprehensive PSA-management strategies possible. In this essay, I present 10 best practices for incorporating exposure and

Sarah K. Chorley, Metropolitan State University of Denver, Denver, CO

CONTACT: [schorley@msudenver.edu](mailto:schorley@msudenver.edu)



response prevention (ERP) into the online public speaking classroom as it specifically addresses these aforementioned anxiety-provoking fears.

### **Best Practice #1: Identify Students' Key Fears**

Early in the semester, ask students to confidentially submit their top five fears concerning public speaking to an online Dropbox. My experience indicates that the responses will focus on fear of embarrassment about making a mistake or appearing nervous to their peers (e.g., forgetting parts of the speech, sounding shaky or stuttering, blushing, sweating) (Hofmann et al., 1995). Compile a list of the most common five to seven fears identified in the Dropbox responses. Listing their fears in this way helps students identify where to target their PSA management work and helps you identify the most commonly shared fears among the class.

### **Best Practice #2: Restructure Conceptualizations of Embarrassment and Anxiety**

Our fear responses can sometimes be helpful. For example, when standing on the edge of a cliff, my hands get sweaty, my stomach drops, and my head feels dizzy; my brain is trying to tell me to back away from the cliff through bodily signs because it senses immediate danger. In that case, my brain is on to something: there is immediate danger of harm if I were to fall off the cliff. However, our brains can sometimes indicate immediate harm when there is none and show the same bodily signs (Kovner et al., 2019). When this happens, we have to retrain our brains to differentiate between what is *dangerous* and what is merely *unpleasant*. We have all experienced unpleasantness and we know we can survive it.

The previous paragraph is how I help students restructure their perceptions of embarrassment and anxiety: comparing “true” danger to the *unpleasantness* of what could happen to them during a speech. Sometimes called *de-catastrophizing* (Radomsky et al., 2010), reframing fears related to public speaking as only “unpleasant” will pave the road toward students being willing to engage with them. Since one of the most common fears about public speaking is embarrassment of some kind, I like to use it as an example of a fear that is merely *unpleasant*. I argue that embarrassment has four qualities: temporality (the human body cannot possibly stay embarrassed forever because embarrassment will inevitably go down on its own over time), safety (no one has ever died from embarrassment), subjectiveness (not everyone considers the same things to be embarrassing), and universality (everyone, at some point, has felt some sort of embarrassment).

To present the concept of *de-catastrophizing* and the four qualities of embarrassment, design a lecture video with an accompanying slide show using the language above. This video can be used alone or extended to include best practice #3.

### **Best Practice #3: Introduce Exposure and Response Prevention**

Intentional exposure to anxiety, accompanied by education and response prevention, can help us manage it better (Himle & Franklin, 2009). When explaining exposure therapy concepts to your class, *use the metaphor of an inoculation*: if you are exposed to a small bit of a virus in a safe way, your body builds an immunity to it so when it encounters the virus in the wild, you are less likely to contract the disease. Similarly, when you are exposed to incremental bits of anxiety in an intentional way, when you encounter it in a speech-giving situation, you are less likely to be incapacitated.

For their first taste of exposure therapy, create a YouTube playlist of embarrassing public speaking videos of your choice. Some of my favorites include bungled answers to pageant questions and political speeches gone wrong. Next, either continue your video that you started above (restructuring embarrassment and anxiety) or create a new one in which you prepare your students for their first experience with exposures. Ask them to ready a pen and paper for the video, and then let them know that you are going to show them some clips of people experiencing embarrassing moments in public speaking. Have them record what they feel both emotionally and physically while watching the others experience embarrassment (explain you'll do the same) and ask them to try not to push down any of those feelings as they are experiencing them. Then, play the clips live during your video, picture in picture (so that you are visible alongside the YouTube clips), allowing some time to pass silently after the video ends, in which you can show that you are also recording your physical and emotional reactions. After a minute or so, tell students what you recorded: for example, I would say that physically, I felt my hands sweat and my stomach tighten, and emotionally, I felt embarrassed for the speakers I saw in the clips. You can inform students that other, normal physical symptoms of anxiety or embarrassment include shortness of breath, pounding heart, restlessness, headache, and head tension (Kendler et al., 1987). Tell students that the more they know about what their bodies do when they feel anxious, the better they'll be able to manage their bodily symptoms of anxiety when it is time to give a speech.

### Best Practice #4: Approach Fear Hierarchically

Most anxiety management theory suggests that fear should be approached *hierarchically*; that is, smaller fears should be tackled before more intimidating ones (Abramowitz, 2006). Students can create fear hierarchies in a couple different ways: first, they can rank the phenomena they listed as their top fears, or second, they can break down one single fear into ranked levels. As an example of the second hierarchy format, if a fear were "I will forget what I am saying during a speech," that could be dismantled into smaller, incremental bits, such as, "I will forget one line of my speech, look down, find my place, and quickly pick up where I left off," all the way up to, "I will forget a large chunk of my speech, not be able to find my place on my outline, my face will turn red, and I will stop my speech in the middle and retake my seat, completely embarrassed." In either hierarchy setup, have students rank their fears on a seven-point scale where *one* represents low, manageable anxiety and *seven* represents very high, unmanageable anxiety. Students may then, in turn, start to confront each fear starting with the most manageable, using imaginative and/or *in vivo* exposures, explained below.

### Best Practice #5: Assign Imaginative and In Vivo Exposures

Once students have identified their specific fears associated with public speaking and ranked them hierarchically, they can begin engaging in exposures targeting specific fears, starting at the bottom of their hierarchy. For both imaginative and *in vivo* exposures, students are to record the date, their peak anxiety level, their final anxiety level, and total elapsed time.

For imaginative exposures, students should write a script that details their fear happening *in the present tense*. Using the example above, if a student fears forgetting what they are saying mid-speech, their script could say, "I walk up to the lectern. I am feeling nervous. I start my speech confidently, but halfway through, I forget what I am saying. I feel my hands sweating and my face get hot. I look at the audience for reassurance, but they stare back, blank-faced." These scripts should not have a resolution; they should end in uncertainty to intentionally provoke anxiety. When doing an imaginative exposure, the student should read the script out loud while imagining the scenario happening to them and note their peak

anxiety level on a scale from one to seven. As soon as they finish reading the script, they should start a timer and then wait for the anxiety to go down *on its own* without any intentional anxiety-relieving interventions such as distractions or reassurances. When their anxiety level goes down by half, they may stop the timer and record their time elapsed and final anxiety rating. If their anxiety rating does not drop by half within 30 minutes, they are to abandon the exposure and move their thoughts to something else.

*In vivo* exposures are timed, recorded, and executed in the same way, but they are done *in person* or *live*. Using the same fear as an example, if a student fears forgetting what they are saying mid-speech, they could design an *in vivo* exposure in which they set up a video call with a friend, start to tell them a joke, but pretend to “forget” the punch line. In that case, they would still not do anything artificial to relieve their discomfort, for example, telling their friend, “I’m doing this for a class!” Rather, they would hang up from the video call and wait for the anxiety to go down with time. Have students do each exposure at least five times; their peak anxiety should go down the more they do each exposure. If students are apprehensive about doing these exposures, they can do their first few with you over a video call, where you would also engage in whatever exposure they are doing.

These exposures will accomplish two things: first, students’ overall public speaking anxiety will decrease. Second, the more students encounter and survive their fears, the more confident they will be in their ability to survive them in the future during an actual public speech.

## Best Practice #6: Encourage Habituation

I have often said to myself, “you’re going to do fine; you’re going to do fine” when I’ve been nervous about speaking in public. While rituals like chanting seem like they help in the moment, they actually tend to make anxiety worse (Himle & Franklin, 2009). Instead, it is more effective to confront a fear and slowly allow the body to *habituate* to anxiety over time. Habituation, that is, “the inevitable natural decrease in conditioned fear” (Abramowitz, 2006, p. 410), is a learned skill. Even though our bodies achieve habituation naturally, we can be resistant to it and have to practice allowing it to take over. Let students know that habituation takes time; it is not our first instinct to sit with anxiety and let it go down on its own. One way to facilitate habituation is to resist reassuring your students in the outcomes of their speeches. For example, if a student asks you during online office hours, “Do you think I’m totally going to mess up this speech?” an instinctual response might be, “Of course not! You’re going to do great.” Instead, to encourage habituation, you could try something like this: “It’s possible you could mess it up. That could happen. What do you think you would do if you messed up?” The second response encourages the student to confront the possibility of failure and habituate to their anxiety. Consequently, it is important here to refrain from reassuring the student of the improbability of their feared outcome occurring, as this would inhibit habituation. After you sense some initial habituation, you may offer encouragement (rather than reassurance) involving the student’s ability to endure such a catastrophe, such as: “You have prepared well, and you could handle it if you made a mistake.”

## Best Practice #7: Prevent Ritualistic Responses

*Response prevention* is a strategy borrowed from the treatment of psychiatric disorders such as obsessive-compulsive disorder that has not yet been used to manage PSA. However, response prevention is a key facilitator for habituation by “blocking the performance of anxiety-reducing rituals that would foil the habituation process” (Abramowitz, 2006, p. 410). Therefore, it is vital that we encourage students to resist

ritualistic behavior that may artificially decrease their anxiety during the habituation process. These behaviors can include seeking distractions (e.g., listening to music during exposures or abandoning exposures), reassurance-seeking (e.g., asking friends or family if they think their public speaking fears will come true), checking (e.g., making sure they have all their necessary materials for a speech after they already checked multiple times), mental rehearsal (e.g., excessively walking through each step of a speech in their mind even though they've already practiced sufficiently), avoiding (e.g., not practicing to prevent anxiety), chanting (e.g., saying "that won't actually happen" during an exposure), confessing (e.g., telling an exposure partner about the activity to alleviate anxiety), superstitious behavior (e.g., touching or rubbing a good luck charm during exposures), or physical tics (e.g., leg bouncing, foot tapping, or skin picking). These types of behaviors should be explained to students during the explanation video as blocks to habituation, and subsequently, hinderances to the successful management of their PSA.

### **Best Practice #8: Co-Design Creative Exposures**

Work with students remotely (either via email or a video call) to help them design creative exposures, both imaginative and *in vivo*. For example, if a student fears appearing foolish to an audience, there are countless ways they can safely experience and habituate to embarrassment that you can help them create. For example, they could attend a video meeting with lipstick or food in their teeth, spill something in public, cite a fact incorrectly to a group of people, or make their voice crack in front of others. If a student seems hesitant to engage in a certain exposure, help them think of something smaller they could do that would provoke less anxiety and work their way up. I have found that students start to have fun with coming up with increasingly creative and more difficult exposures as we celebrate the accomplishments of smaller exposures.

### **Best Practice #9: Model Therapeutic Behavior**

Exposure and response prevention can be intimidating. To encourage buy-in and participation, show students that exposures are doable by making a video of you doing some yourself. Engage in exposures that target one of your specific fears and capture the whole process on camera; modeling exposures for your students will help them feel bold enough to take the first step to participate in exposures themselves (Foa et al., 2012). In the video, talk your students through the habituation process and let them know what ritualistic behaviors in which you are tempted to engage. Show the students how to time exposures and record your peak and final anxiety levels. This will go a long way to encourage students to participate in their own ERP practice.

### **Best Practice #10: Debrief Exposures and Semesters**

Ask students to reflect on each set of five exposures by noting their physical and emotional sensations during peak anxiety, the speed at which anxiety subsided, how others reacted (if *in vivo*), and how they handled any criticism of others (if applicable). This debriefing may be assigned as a short written essay or a video journal entry. Typically, students are surprised at how well they were able to handle anxiety. I have also had students reflect on being pleased on knowing exactly how their body reacts to anxiety, so they know how to handle it when it comes up on speech day. Students have also reported a sense of pride that they now know how to handle anxiety and embarrassment.

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Close to the end of the semester, when most or all students have turned in their exposure record sheets and debriefing assignments, post a video reflecting on the semester's practice. Congratulate the students on their hard work confronting their PSA and let them know they can use these same strategies to manage other anxieties in their lives.

## Practical Applications Beyond Classroom Settings

Exposure and Response Prevention (ERP) theory and practices address fears and anxiety beyond public speaking and can therefore be used in other communication settings where apprehension might be a hinderance. For example, these practices could be used to help a student manage the anxiety concerning an upcoming job interview during one-on-one coaching. As another example, these practices could be used to help new hires manage organizational socialization anxiety by thinking through any trepidations of taking on new tasks or roles.

## Conclusion

Using these best practices to incorporate exposure and response prevention into your online public speaking classroom helps students achieve comprehensive and effective PSA management by targeting their specific fears instead of merely using the SGA itself. While it may feel like a large task for students to engage in these assignments, students have found it incredibly helpful. As one student put it:

The exposures showed me that the anxiety didn't last forever. I knew the signs for my nervous streaks, and I learned how to deal with said signs. I believe that the way you did it was very helpful. I do better with hands-on kind of stuff—the anxiety exposures related it to real-life situations.

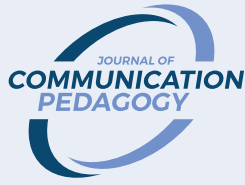
Since public speaking remains one of the most dreaded fears, it seems prudent to include best practices like these in our courses in the academy and training programs in industry, as well.

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# Eureka: Identifying What It Means to Practice Student-Centered Teaching in a Hypermodern Age

Audra Diers-Lawson 

**Keywords:** instructional communication, personal ethnography, social cognitive theory, entertaining overcoming resistance model, extended elaboration likelihood model, universal design

**Abstract:** Contemporary professional reports and research suggest that in corporate communication and related programs, we are not creating environments for modern students to thrive nor are we meeting the industry's expectations in a "hypermodern" world. Using personal ethnography, this article analyzes industry-articulated limitations in the knowledge and skill sets of new communication practitioners, reviews contemporary literature identifying the learning needs of today's students, and proposes a set of best practices based on the literature and the author's own journey as a higher education practitioner of 20 years. Best practices identified here incorporate elements of entertainment, engagement, and an "open-world" approach that places the student experience at the core of each class and overall course design.

The introduction of social media and digital tools have fundamentally changed the ways people engage with organizations—shifting from mass communication models to more adaptive and engagement models (Fotopoulou & Couldry, 2015). People can customize the information they consume, the places from which they access information, and what they do with that information. Though the positive and negative outcomes of these changes can be debated, the operational realities for people in corporate communication, and public relations more specifically, are undeniable (Briones et al., 2011).

All of this is emerging at a time when questions about the readiness of new graduates to enter the workplace is generating considerable debate within the field of communication. Some research

suggests that new graduates have core skills deficiencies compared to supervisor expectations (Todd, 2014). For example, some research points to lack of competence in the growing field of social media (Macnamara et al., 2015; Tench et al., 2013; Zerfass et al., 2013). Other research identifies the difficulties in developing the necessary critical and creative thinking skills to be effective corporate communication practitioners (Tallent & Barnes, 2015). Moreover, in an era where crises are increasingly common and social responsibility is expected for doing business, research also suggests that new graduates value transparency and ethical decision-making as public relations practitioners (Curtin et al., 2011). Yet, only a minority of development needs for communicators are addressed through suitable training programs (Zerfass et al., 2012).

Additionally, Generations Y and Z are fundamentally different from the generations that came before them because they are moving into hypermodern times and a changing communications landscape (Zerfass et al., 2017). This inevitability includes technological shifts and familiarity with hypermodern tools and techniques for engagement on personal and professional levels. Unfortunately, research also suggests that not all “digital natives” are proficient in digital literacy (Buckingham, 2015; Hargittai, 2010).

Given these realities, I argue that traditional approaches to education and training in corporate communication are often inadequate to meet the requirements for the profession and the new generation of practitioners. In fact, I suggest that the field—its practitioners and academics—needs to reconsider the relationship between digital environments, access to the field from diverse populations, and take the opportunity to redefine our relationships to knowledge in the new digital environment (Littlejohn et al., 2012). Therefore, using the arguments for universal design in higher education as a framework, I reflect on my own experience and propose best practices grounded by three learning and persuasion theories—social cognitive theory, entertaining overcoming resistance model, and the extended elaboration likelihood model. I also identify best practices for course design and activities based on these experiences and theories.

## Universal Design in Education

I tend to think of the changes to both the educational environment and modern student interests and concerns as parallel to the evolution from two-dimensional platform games (e.g., Donkey Kong) in the 1980s to open-world multi-platform games (e.g., World of Warcraft, Grand Theft Auto) of today. Just as these games required larger skill sets, the skill sets required of instructors have also grown substantially. Palmer (2014) argues, for instance, that today’s students tend to be multimodal (i.e., visual, tactual, kinesthetic) learners rather than auditory learners due to conditioning brought on by the modern multimedia environment.

Palmer (2014) and van Ingen et al. (2015) discovered that one critical problem for modern learners is a lack of self-efficacy largely attributable to consistent helicopter parenting. This means that students today are often self-confident and high-achieving learners focused on goals of good grades and good jobs, but are also resistant to negative feedback, which they interpret as a roadblock to their goals. When teachers fail to appreciate student resistance to negative feedback, students fail to trust in instructors and the educational process.

Palmer (2014) argues that the principles of universal design provide a template for modern approaches to higher education. Universal design is based on three educational design principles: (1) providing resources and learning materials supporting multi-modal learning ranging from visual aids, videos,

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in-class exercises, and lectures; (2) providing an immersive environment where students can discuss the convergence of theory and practice, developing exercises that maximize student learning, and collaborations between instructors and students to target professional skills; and (3) providing multiple methods to engage student learners using flexible goals, methods, materials, and assessments to create expert learners that are resourceful, knowledgeable, strategic, goal-oriented, purposeful, and motivated.

## **The Role of Personal Ethnography in Communication Education Design and Delivery**

Because of the nature of our role as educators with new groups of students and/or different classes each semester, auto-ethnographic methods can help to systematically capture those “eureka” moments as we critically evaluate our performance against our own objectives, as well as the expectations of our students, departments, and universities. Crawford (1996) describes eureka moments that emerge when doing personal ethnography that can inform research and theory development.

Crawford (1996) grounds his analysis in two assumptions. First, he argues to remove the privilege of research from ethnographies because expertise in any area comes from personal experience. Second, he argues that expertise is subject to what we can verify as well as emotional vulnerabilities, intellectual instability, and academic suspicion. Accordingly, he posits a second assumption that “old” ways of making meaning are obsolete because we, as ethnographers, ought to focus on our own behavior as relating information about situations or cultural events.

Crawford (1996) proposes three primary advantages of this approach. First, it allows the ethnographer to be mindful of relationships they might build during their own experiences. This means that the ethnographer does not have to artificially separate him or herself as “researcher” to suspend interpersonal relationships. Second, he suggests personal ethnography also decreases the intrusiveness of the inquiry because the researcher uses his/her own experiences as a basis for analysis. At the heart of Crawford’s argument is the proposition that we are already in interesting contexts of study as we negotiate our daily lives. Taking the ethnographic turn simply suggests that we make ourselves aware of the consequences of our actions. Third, he argues that we cannot “know” everything about any group, but analyzing singular interactions produces new knowledge and insights that can serve as a window for readers to better understand the groups or phenomena studied.

Crawford (1996) suggests that personal ethnography is an effective means for achieving these goals. First, as his discussion of the “ethnographic turn” described the background to any narration is particularly important. This helps to set the stage and contextualize the personal experiences of the ethnographer in the narrower schema of the study. Second, he emphasizes that the story told is that of the ethnographer and that it should be the narration of those observations. Third, a focus on the personal experience and observations of the researchers also suggests that we are trying to describe other people, but it is accomplished through framing their experiences in our worldview. Finally, the voice of the ethnographer is one of many possible voices. To this extent, he argues that the personal ethnography is more like a guerrilla action, something subtle, yet potentially powerful in creating a larger narrative. Crawford suggests that this process helps to foster reflexivity on the part of the ethnographer, repositions the authors as the object of inquiry, and fragments the perception of the ethnographer’s awareness (i.e., they cannot be all-knowing if it is just one of the possible stories being told).

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In practice, therefore, personal ethnography is a viable way to critically reflect on teaching pedagogy, address problems that have emerged across multinational data-based projects and connect theory with experience in the classroom in order to draw out grounded recommendations from my own experiences that can be tested and evaluated with future research.

### Three Eureka Moments

I recall three such eureka moments in my career as an academic. First, I have a competitive speech and debate background and was a part of nationally competitive teams both as a student competitor and as a coach. This is worth mentioning because in my third year at university I had a conversation (argument) with my coach that fundamentally changed my perspective about communication and even influences my research agenda today. Before this conversation, I used to think it was enough to be right—so I researched, I read, and I believed that having truth on my side was the only thing that mattered (ah, the joys of being 20 and an idealist). After losing a very frustrating elimination round of debate where my opponent was simply wrong—I had better evidence and presented it, but I still lost, I was venting in the van ride home. My coach very patiently tried to offer reasonable explanations, but I still maintained a single-minded righteous indignation at how I was wronged because I had truth and better research on my side. Finally, my coach heard enough and proclaimed (and yes, I still remember the quote 25 years later), “*How long are you going to keep making me defend a decision I think is wrong. Do you want to win or lose?*” I hate to lose.

This conversation not only made me a better debater where I started to win close rounds, rounds I would have lost before, and focus on my judge’s communicative needs, but it also changed my academic path. Instead of focusing on me, my interest was how my message would be received. I changed my major from political science (heavy in political philosophy) to communication and even today my research agenda focuses on improving stakeholder engagement. It is safe to say that this was one of those “eureka moments” that Crawford (1996) discussed.

A second moment that would shape the way that I view classroom teaching came in my first semester of my PhD program where one of our professors—who had won countless student-nominated outstanding instructor of the year awards—offered us his single piece of advice on teaching. He told us that we had to “entertain our students” and if we were good enough at it, that we would end up “fooling them into learning.” Of course, he was not talking about deception; rather, about the importance of setting the tone and the mood in our classes to ensure that the students were receptive to the information, hard work, and feedback. This is something that I have tried to apply across classes, departments, and platforms for teaching delivery and countries for the last 20 years.

Finally, in 2010 my university was beginning to offer more classes online, our master’s program was completely online, and the university offered a \$5,000 stipend for any staff member planning to teach online who was willing to enroll in an intensive week-long course to redesign their class using a *Quality Matters* framework. If I am honest, they had me at the \$5,000 stipend. I was not expecting that short course would fundamentally change my view of what was necessary to deliver a student-centered experience, no matter the platform for delivery (i.e., online, blended, or face-to-face), but it did. The framework focused on the principle of an aligned classroom experience producing a better student experience. What the aligned class meant was that, as instructors, we needed to map our overall class objectives against every activity, lecture, and assignment that we wrote. My university experience had been that we went to classes to learn about topics that we were interested in and then figured out how to

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apply them in our own lives. I am old enough to remember when education was not yet a commodity or viewed as a service. It is today, whether we like it or not, so it is incumbent upon instructors to adapt to the expectations so that our lifelong learning objectives can meet today's commodified student expectations. This means presenting information in a way that is aligned and demonstrates value to today's student experience. Whereas before I did not think about building these connections into a more purposeful design until the online education training. Now that is a meaningful part of every class that I design and deliver.

In many of the classes I teach, I assign small reflective papers to encourage students to think about those connections between what we learned in class and professional outcomes and development. What I see emerging in those student narratives is the way that I have framed the class activities for the students. Cynically, we could say that the students are writing for their instructor and that could be a fair interpretation. Less cynically, what I see in those comments are students internalizing the class activities into their own goals and aspirations and reflecting on them—not in a way that parrots my objective, but in an applied way.

## **Designing Classes for Higher Education in an Open World Environment**

Over the last 20 years, I have had the good fortune of teaching in two different countries, with very diverse student bodies. When I consider the key elements of transferrable knowledge based on my own research and experience, universal design framework, and knowledge of persuasion and education theory, I have identified two best practices in communication instructional design that apply across platforms of delivery and resonate no matter the classes we teach.

### **Building Student Efficacy: Social Cognitive Theory's Contribution**

Targeting positive efficacy has long been established as central to improving educational outcomes (Bandura, 1982, 1986, 1997, 2006). Bandura argued that the process of learning is based on three determinants—personal belief in the ability to perform the act (self-efficacy), the outcomes of correctly performing the act (response efficacy), and environmental factors that might influence an individual's ability to successfully perform the act and thus argued that the process of learning is grounded by how people model their behaviors (Bandura, 1986, 1997, 2006). Efficacy has a number of influences on human behavior including governing choices about behaviors to enact, influences motivations to act, and ultimately efficacy itself becomes a self-fulfilling prophecy—that is when people believe they will be successful in the end, they are much more likely to be successful and when people believe they will perform poorly, they are much more likely to avoid those actions or behaviors (Bandura, 1997; Fouad, 2012; Frisby et al., 2013; Peterson, 2010; Verroen et al., 2013; Witte, 1996).

Research suggests that self-efficacy can be developed or improved in four ways. First, self-efficacy can be improved via mastery experiences which is a process that helps individuals learn new behaviors or skills by focusing on small simple tasks that lead to more complex objectives—by building on positive small experiences, people are more likely to improve their willingness to try new related behaviors and be more successful in doing so (e.g., Bandura, 1986; Palmer, 2014). Second, self-efficacy can be improved through social modeling—that is providing an identifiable model that demonstrates the process to accomplish a behavior (e.g., Bandura, 1986, 1997). Third, self-efficacy is enhanced if people's physical and emotional states are positive. The more relaxed and rested the more likely people will be successful; however, the more impatient or uncertain, the less likely people will be in achieving the goal behavior (Bandura,

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1986; Hemmings, 2012; Witte, 1996). Finally, Bandura argues that because learning is best improved in a social setting, it is also a persuasive activity where if people are in a learning environment where they feel encouraged, regardless of outcome, they are more likely to risk initial “failure” at performing actions (1986).

**Applied lessons in building efficacy.** Communication is an applied field. Yet, as the introduction to this piece pointed out, there are significant knowledge and practical gaps in new graduates’ abilities to demonstrate the critical skills—both soft and hard skills—required of today’s communications professionals (see e.g., Macnamara et al., 2015). Many universities and my own colleagues’ answer to this gap is to push students to more and more work experiences, internships, and placements. Certainly, this is a useful avenue for developing efficacy by doing in “the real world.” The push for placements and internships does ignore the reality that such placements are often not options for students from disadvantaged backgrounds. However, when students do go on long-term placements, one of the points of feedback we routinely receive from employers is that the students have knowledge and skills but do not fully engage. This is a problem of efficacy (Palmer, 2014; van Ingen et al., 2015), so we cannot rely on work experience to build efficacy; in fact, we cannot proscribe doing more of what is not working to solve the problem, this must be done in the classroom and requires design re-consideration.

There are many ways to build efficacy if we follow Bandura’s guidance; however, in my experience of teaching classes like crisis communication, digital public relations, and research methods—all classes that apply theory to practice and expect demonstrable expertise—I have found several class design tools that build efficacy. First, routine (i.e., weekly) low-risk (but graded) in-class assignments where students can take risks, try new tools, and are pushed to make tangible recommendations based on their own knowledge and skills meet Bandura’s recommendations for building mastery experiences and learning in a social setting where they feel encouraged. Along with this, I often use portfolio-based assessments with reflection in skills-oriented classes like digital media and research methods so that students are encouraged to critically reflect on their strengths and weaknesses while earning high grades for the reflection and not the quality of the execution, which provides support for Bandura’s argument for mindfulness of learners’ positive physical and mental states.

Second, mastery experiences in some subjects, like crisis communication, can be difficult (if not impossible) to achieve in work placements because students and new graduates often are not perceived as competent to be a part of these types of teams. In fact, students are unlikely to learn directly about crisis management in work experiences because crises, by their nature, are unpredictable events that require the expertise of the organization’s top leadership. Therefore, I actively incorporate simulation and collaborative research exercises to build mastery experiences and social modeling. For example, in crisis communication students in my class will go through an 8-hour simulation of a crisis outbreak and be expected to work through the initial stages of the crisis response to a moving, complex, and unstable situation. In their reflections, students often cite this as one of the most enriching experiences they have and note the transferrable skills they gain from the simulation, which is aligned from the research on the value that simulations provide in building efficacy (Morgan et al., 2006). The simulations are low-risk, so students can make mistakes and we can discuss their errors and better ways of responding, so they are not only building mastery, but provide good models for responding, and are done in an environment to support a positive experience where they feel encouraged.

But simulations are not the only way to achieve vicarious experience—in research methods, I often build collaborative research opportunities with students where we tackle a research project that is likely

to be ultimately presented at conference and published. Students can experience the research process firsthand but be guided in their work in a coaching or mentoring context. When it comes to introducing quantitative methods to communication students this approach provides the encouragement, social modeling, mastery experiences, and positive conditions where students feel they can be successful.

## **Educators Must Be Persuasive: Overcoming Resistance, Providing Entertainment**

Building efficacy is my first principle, as I learned as a debater nearly 3 decades ago, being right does not matter if we are not persuasive. Yet, most educators (probably rightly) do not think of themselves as entertainers—especially in higher education; however, if educators fail to make the educational process entertaining, they will probably not be as successful in overcoming modern student suspicion about higher education or reactions to negative feedback. Moyer-Gusé's (2008) model of entertainment education for overcoming resistance as well as Slater and Rouner's (2002) extended elaboration likelihood model provide important insights into why and how learning can be improved if it is enjoyable.

Entertainment education is not focused on traditional learning environments; rather it refers to embedding pro-social messages into popular entertainment media content (Moyer-Gusé, 2008). Moyer-Gusé explains that entertainment education influences behaviors for two main reasons—people become involved with the narrative and characters. Entertainment (e.g., video games, movies, books, television programs, etc.) uses a narrative structure that creates a sense of involvement with the action because viewers or participants can watch events unfold becoming engrossed in the storyline instead of their immediate environment making them more susceptible to persuasive messages. Moyer-Gusé directly links efficacy and social cognitive theory to entertainment education and argues that Slater and Rouner's (2002) extended elaboration likelihood model (E-ELM) has demonstrated a strong connection with changing attitudes and behaviors. E-ELM is an extension of Petty and Cacioppo's (1986) elaboration likelihood model. Slater and Rouner argue that instead of focusing on the degree of engagement with the narrative, the narrative itself is the driving persuasive route when effectively developed. In short, efficacy is easier to build if people can identify with the narrative or people involved.

These factors suggest that content, design, and identification can provide for different pathways to the acceptance of a message and has important potential implications for education suggesting that well-designed and well-delivered curriculum should help to improve student acceptance of not only the content of the material but also feedback and rigor. Moyer-Gusé's (2008) model uses entertainment to overcome resistance and provides a path to overcoming the potential conflict between student reactions to negative feedback and the need to provide a challenging curriculum with extensive critical feedback. In short, entertainment helps to overcome resistance by putting people in a receptive frame of mind by encouraging vicarious modeling, identification with the characters and narrative, and removing perceived barriers between the persuasive message and the learner's own goals or beliefs (Moyer-Gusé, 2008; Slater & Rouner, 2002). Both persuasion theories target improved efficacy as a core objective at improving an audience's likelihood that a persuasive message will be accepted. Yet, both lack a direct connection between entertainment to higher education.

**Showmanship and polish matters . . . along with knowing our audience.** To put this as simply as possible, good instructors are not only good public speakers, but we should also be good storytellers. Certainly, we all must work with our own styles and what we are comfortable doing. For example, I have a very dry sense of humor and like a good groaner joke, so my PowerPoint and chat in class incorporates

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those in because that is who I am. But I consciously incorporate stories (both humorous and serious) and present cases in a narrative way to engage with the students. This lets students get to know me and we build trust. This trust capital that I build enables me to offer very straightforward feedback to my students—both positive and negative—without provoking the negative reaction that Palmer (2014) and van Ingen et al. (2015) discuss. But I also work to choose examples that will appeal to students, ask them for examples, and we talk through things that are of interest to them in class. The single skill that I recommend any good instructor develop is impromptu speaking—being able to work with any topic that students can throw out and work that back to the key learning objectives in a class session.

Of course, approaches to in-class engagement that work for me will not work for everyone and other people's approaches would not work for me, so there are two transferrable practices that I enact to create an entertaining and persuasive environment to support learning that I want to focus on. First, I create thoughtful, engaging, and well-polished class materials (ranging from PowerPoints to even the class look and feel) and think about the role that narrative plays in ensuring that information is both engaging and memorable. Specifically, each of my classes is “branded,” meaning that each has a distinctive and consistent visual look for all the materials from the syllabus to the PowerPoint slides. I have found that this helps to build the group's identity and to create the environment and mindset when they engage with the materials. Research already highlights the importance of brand identity within institutions of higher education (Wæraas & Solbakk, 2009; Williams & Omar, 2014), I just apply that to the classes themselves.

Second, I try to make each class session an experience. In his analysis of why people attend rock concerts (stay with me here, I know that we are a long way from being rock stars), Hopper (2014) found there were two main processes that created value for people attending a rock concert—co-creation of the experience and self-authentication. In the co-creation experience, ensuring that each class session has something memorable, interesting, and engaging not only improves attendance rates, but it also sets the tone for student openness. Frankly, it also makes teaching a lot more fun as well—so in focusing on a co-created and positive experience in each class session I create the conditions where students are more open to the concepts, the workload (and that is always high), and taking risks. This is reinforced by the self-authentication process where I create opportunities for students to consider how the day's lesson can be applied to their own interests and aspirations which lets them authenticate or take ownership of their own experience. In practical terms, I invite students to share their own examples and reflections and create exercises where they can bring their own creativity to the session. My task is then to tie it all together and back into the learning objectives.

## Applying These Lessons Broadly

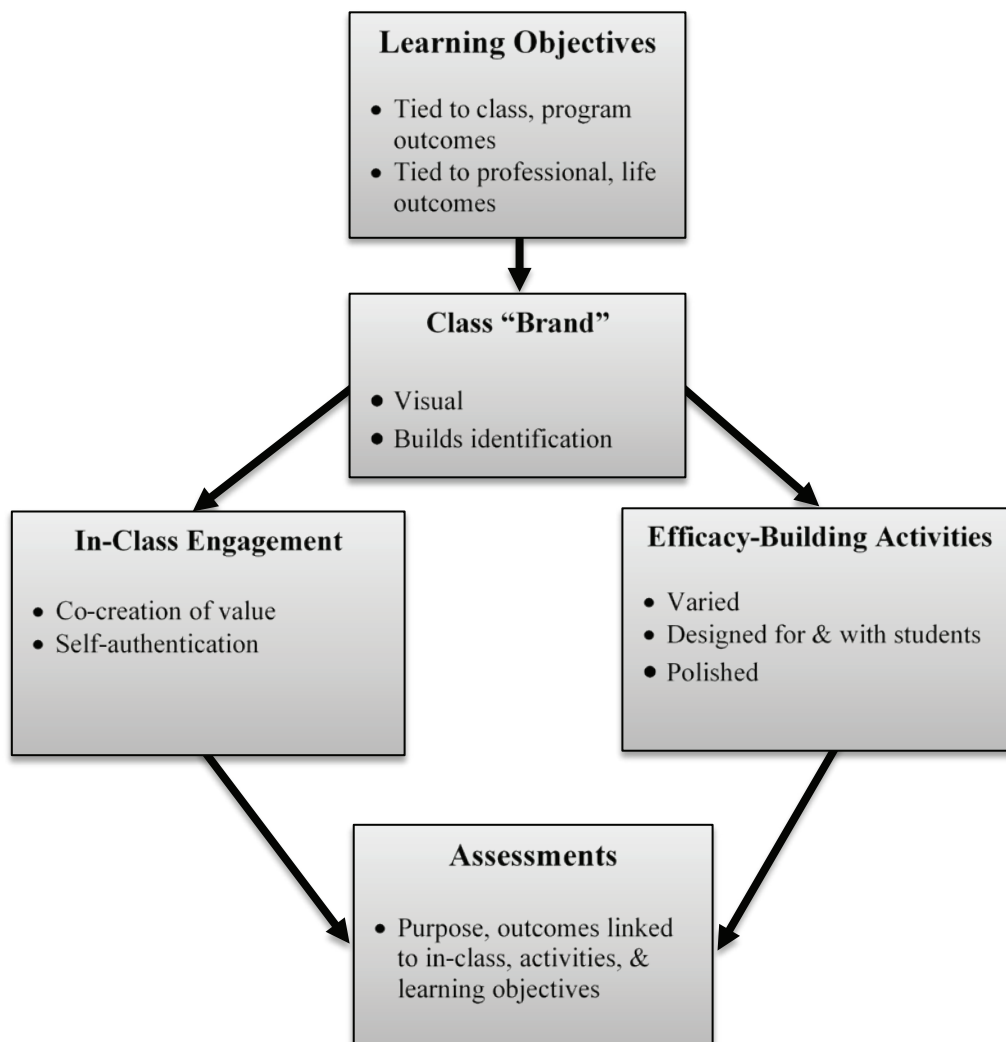
All the professional reports and reflections on the state of higher education and communication education suggest that collectively we are not creating the environments for this generation of students to thrive in a hypermodern world. In this paper, I identify efficacy as not only a key part of the problem for Generations Y and Z, but also a critical component to improving learning outcomes. I also suggest that if the field is to address both the needs of the industry and the students, it must reconsider the approach to higher education to incorporate elements that meet a universal design framework.

From this analysis, a structure for creating a student-centered learning experience emerges that is transferrable across different classes and platforms (see Figure 1). Before 2020, there had been a decade-long global expansion of online and blended learning opportunities, classes, and programs, but many academics could avoid engaging with these if they wanted. In a post-COVID-19 context, however,

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instructors now must develop delivery for multi-platform environments, which means learning new tools and innovative approaches. My recommendation—after 20 years of traditional classroom experience and more than 10 years of online learning experience—is not to re-invent the wheel but to be more strategically mindful in our creation of an aligned student experience.

I conclude with this thought. Like many instructors, I include weekly quizzes in my crisis communication class because I need to know the students have the foundational competence before engaging in simulations (Avramenko, 2012). Critical to my success, however, is offering my rationale for giving quizzes at the outset of the semester. That is, to ensure they have the base knowledge required to engage competently with the material and one another, as well as become competent practitioners. At the end of the semester, every semester, final reflections from students acknowledge the usefulness of the quizzes and some go so far as to thank me for making them accountable. Ultimately, we can modify our pedagogies to be student-centered in ways that foster efficacy by incorporating elements of entertainment, engagement, and an “open-world” approach at the core of each class and overall course design.



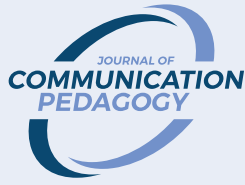
**FIGURE 1 Building an Aligned Classroom**



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# A New Era of Education: Incorporating Machine Teachers Into Education

Jihyun Kim

While browsing news on the internet a few years ago, I came across an article about Jill Watson, an AI (artificial intelligence) teaching assistant, which was developed for an online course at a university in the U.S. This AI teaching assistant was tasked to answer student questions in an online forum alongside human teaching assistants. As a communication technology scholar, I was intrigued by this new phenomenon. What fascinated me in particular was that very few students realized Jill was AI until the professor revealed it at the end of the semester.

The debut of an AI teaching assistant signaled to me that the realm of education has already begun to enter a new era. Educators could now consider incorporating nonhuman agents into a field which has been traditionally operated only by humans. From a broad perspective, I approach these nonhuman agents as *machine teachers*, “a technology that plays a meaningful role during an interaction with humans in helping them engage in affective, cognitive, and behavioral learning through various ways” (Kim et al., 2020, p. 1904). As an umbrella term, machine teachers can appear in a variety of forms (e.g., robots, chatbots, AI) and serve a wide range of roles (e.g., tutors, assistants, instructors).

Because of the unique features and characteristics of human teachers, it is highly unlikely that they will be completely replaced by machines. Clearly, however, machine teachers have a great potential to serve diverse roles in education. As Edwards and Edwards (2017) note, “social machines increasingly are being designed to teach and to learn through interaction and to be responsive to natural teaching and learning methods employed by their human partners” (p. 487). If education evolves in this direction, it is important to find ways to maximize potential for machine teachers to contribute to teaching and learning in positive and meaningful ways.

Machine teachers can assist or supplement human teachers’ roles in facilitating student learning experiences at various levels. Therefore, many questions came to my mind. Wouldn’t it be helpful if

an AI teaching assistant helps complete some of the repetitive tasks such as answering syllabus-related questions and explaining the course policies and logistics, so that human teachers can use their time advising and mentoring students? Wouldn't it be helpful if an AI teaching assistant serves a role as a virtual audience when students practice their upcoming speech? If we want to incorporate machine teachers into our education system, then how can we help our students perceive positive aspects of these machine teachers in their learning? Fundamentally, how can we create effective and communicative machine teachers?

## The Special Issue Section

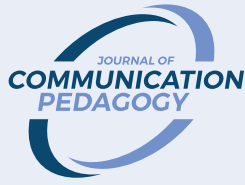
Behn (1995) states that “scientists do not start with data or methods. Scientists start with questions” (p. 315). Based on the big questions I shared above, I began to design a series of research studies which I call “the machine teacher project” (e.g., Kim et al., 2020, 2021). At the same time, I wanted to create a space where scholars can share their views and approaches toward the idea of machine teachers, which can be demonstrated in a variety of ways. This is the story of how this special section was proposed.

This special section features three fascinating articles: two empirical research studies and one research-based instructional activity. One study examines how students would perceive human-robot teaming configuration in the classroom (Abendschein, C. Edwards, A. Edwards, Rijhwani, & Stahl). Specifically, the study examines how students perceive a co-teaching team that includes a human and a robot at different status (e.g., lead instructor, teaching assistant). Another study focuses on VR (Virtual Reality) for public speaking training (Kryston, Eden, & Goble). Through Study 1 and Study 2, the VR study provides meaningful implications for the potential adoption of VR, which could simulate a virtual audience and speaking environment for public speaking practices. The final study in this special section showcases a research-based instructional activity that highlights the importance of learning about metadata and machines (Iliadis, Liao, Pedersen, & Han). Through the novel instructional activity, the study provides meaningful implications for the emerging field of human-machine communication.

The articles in this special section represent different types and approaches of machine teachers from scholars with diverse backgrounds. Together, these articles help us better understand the role of “machines” in education and facilitate scholarly dialogues. My hope is that this special issue section serves as a meaningful starting point to continue our endeavor to better understand the utility of machine teachers in education.

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# Human-Robot Teaming Configurations: A Study of Interpersonal Communication Perceptions and Affective Learning in Higher Education

Bryan Abendschein , Chad Edwards , Autumn Edwards , Varun Rijhwani ,  
Jasmine Stahl 

**Keywords:** human-machine communication, instructional communication, social presence, human-robot team, co-teaching teams, learning

**Abstract:** Technology encourages collaboration in creative ways in the classroom. Specifically, social robots may offer new opportunities for greater innovation in teaching. In this study, we combined the established literature on co-teaching teams with the developing field of machine actors used in education to investigate the impressions students had of different team configurations that included both a human and a robot. Participants ( $N = 215$ , age:  $M = 24$ ,  $SD = 8.67$ , range 18–69) saw one of three teams composed of a human and a social robot with different responsibilities present a short, pre-recorded lecture (i.e., human as lead teacher-robot as teaching assistant, robot as lead teacher-human as teaching assistant, human and robot as co-teachers). Overall, students rated the human-led team as more appealing and having more credibility than the robot-led team. The data suggest that participants would be more likely to take a course led by a human instructor than a social robot. Previous studies have investigated machine actors in the classroom, but the current findings are unique in that they compare the individual roles and power structures of human-robot teams leading a course.

Teaching is inherently collaborative. The input teachers receive from colleagues, students, and administrators can influence curriculum choices and alter classroom dynamics. A teaching team is a group of professionals who choose to actively collaborate for a common instructional purpose (Cook & Friend, 1995). The model of shared teaching responsibilities, or co-teaching, has been widely applied



in the K-12 setting, particularly related to special education (Scruggs et al., 2007). Austin (2001) found that educators appreciated the availability of “another teacher’s expertise and viewpoint” (p. 251) in a co-teaching situation. Within higher education specifically, research argues collaboration, or co-teaching, is difficult as questions surrounding power dynamics, shared responsibility, and individual expertise often emerge (Ferguson & Wilson, 2011; Morelock et al., 2017). Co-teaching essentially doubles resources available to students and allows instructors to give more attention to classroom dynamics, but the paradigm is still largely centered on individual teachers. In this study, we investigate an alternative to the traditional way of thinking about expertise in the classroom. Specifically, when one member of a teaching team is a social robot there may be additional interpersonal affordances and opportunities that enhance the learning experience.

## Robots in the Classroom

Robots offer access to information and assistance in the classroom. A *social robot* mimics human interaction to communicate autonomously or semi-autonomously with others (Bartneck & Forlizzi, 2004). The field of robotics has grown rapidly, resulting in the emergence of robots designed for specific purposes, including teaching (Belpaeme et al., 2018). As team members, robots offer promising developments related to eldercare (Chang & Šabanović, 2015), industrial labor (Saupé & Mutlu, 2015), and the military (Carpenter, 2016). Although the skill sets of humans and robots are often complementary, studies that compare the two groups in specific settings such as the classroom are limited (Belpaeme et al., 2018). However, robots have been used in supportive roles including tutors for language training (Alemi et al., 2014; Kennedy et al., 2016), supplementing math instruction (Kennedy et al., 2015), and working with autistic children (Kim et al., 2015; Szafr & Mutlu, 2012).

Social robots can also lead instruction. Compared to other technologies (e.g., web-based applications), researchers found that a social robot increased concentration levels and academic performance of users learning English (Han et al., 2008). Additionally, A. Edwards et al. (2016) found that different types of robots leading a course generated different perceptions of credibility and assessments of learning potential among students. While there have been calls for instructional communication researchers to examine social robots in the college classroom (A. Edwards & Edwards, 2017; C. Edwards et al., 2018; J. Kim et al., 2020), there have not been studies examining the role of co-teaching with human and machine actors. The human-to-human interaction script research involving human-robot interaction argues that initial encounters with robots will produce decreased levels of attraction/liking and social presence, and greater uncertainty (C. Edwards et al., 2016; A. Edwards et al., 2019; Spence et al., 2014). As such, it is vital to understand how the presence of a person teaching with a social robot will impact interpersonal impressions and attitudes toward course content, particularly if the teaching teams involve humans and robots with different levels of positional authority.

## Interpersonal Impressions

Typically, human and robot instructors are examined individually. Those isolated performances often contribute to generalized impressions about that type of instructor.

However, teaching is not always a solo endeavor. Instructors may rely on teaching assistants or form teaching teams where multiple instructors present material. In this study, we focus on teaching teams that involve a social robot as one of the members. Across three scenarios (i.e., human as lead teacher-robot as teaching assistant, robot as lead teacher-human as teaching assistant, human and robot as

co-teachers), we investigated perceptions of interpersonal impressions (i.e., credibility, interpersonal attraction, and social presence) and learning outcomes (i.e., affective learning).

**Credibility.** Perceptions of an instructor's credibility involve far-reaching implications. *Credibility* is the appraisal of a specific message or speaker (McCroskey & Young, 1981) and consists of competence, trustworthiness, and goodwill (McCroskey & Teven, 1999). Appraisals of an instructor's credibility are linked to their communication with students (Myers, 2001), impact engagement, and retention of course material (Teven & McCroskey, 1997). When the instructor is a social robot, A. Edwards et al. (2016) found that participants rated a telepresence teacher presented as a robot (i.e., human face on a telepresence robot) as more credible than a robot that was presented as a teacher (i.e., animated face on a telepresence robot). Sometimes referred to as "trust" in human-robot interaction literature, credibility can impact a person's desire to work with the robot (You & Robert, 2018), and by extension, may influence appraisals of the whole team. What remains to be seen is how the combination of a human and robot in different roles on the same instructional team (i.e., lead instructor, teaching assistant, co-instructor) will influence appraisals of credibility from students.

**Interpersonal Attraction.** *Interpersonal attraction* involves individual, positive assessments related to three specific dimensions that people form when they interact with others (i.e., social, task, and physical—not used for the current study; McCroskey & McCain, 1974). Specifically, *social attraction* is the degree to which one envisions a potential, future relationship with another person. *Task attraction* refers to the anticipated ability, or success, associated with working alongside another person. Previous research on interpersonal attraction in the classroom suggests that social and task attraction are particularly salient when working with peers or interacting with instructors (Rocca & McCroskey, 1999; Tatum et al., 2017).

Students view social robots as acceptable interactants in a classroom setting (Park et al., 2011), yet that relationship seems to be unique compared to human instructors. For example, Park et al. found that students rated their robot instructors higher on interpersonal attraction when the robot offered a favorable assessment of their work, but their ratings of the human instructor did not change regardless of their feedback. Coupling these assessments to be reflective of a mixed instructional team (i.e., human and robot) is increasingly important as human-robot collaborations increase outside the classroom (Hinds et al., 2004). However, there are few studies that examine attraction when a person and social robot are working together within the classroom.

**Social presence.** In this study, we define *social presence* as the perceived connection to a particular person in a mediated interaction (Short et al., 1976). Social presence has received a great deal of attention in the literature specifically related to online instruction (e.g., Dunlap & Lowenthal, 2014; Garrison et al., 1999). For example, Richardson et al. (2017) conducted a meta-analysis and found that across 3 decades of studies there was a positive correlation between social presence, or sense of connection, and how students rated the quality of the course. Research involving social presence related to technology suggests that people consider both the interaction they have with the machine (Goble & Edwards, 2018; Lee et al., 2006), as well as the medium, or the machine itself (Lombard & Ditton, 1997; Xu & Lombard, 2017), when forming impressions. As people develop relationships with machine actors, understanding social presence will help address the potential unpleasantness and uncertainty related to increased interaction (A. Edwards et al., 2017; C. Edwards et al., 2016; Spence et al., 2014).

Inviting social robots into the classroom may include notable challenges as well as creative affordances. For example, Gleason and Greenhow (2017) found that robot-mediated communication (RMC) actually

enhanced social presence for students by linking those in the online section and those in the face-to-face section of the same course by providing a conduit for interaction. In a co-teaching situation, however, the literature is not clear on how students will rate their interpersonal impressions of a teaching team that involves a human as well as a social robot occupying different positions.

**RQ1:** Does the configuration of roles in a human-robot instructional team influence interpersonal perceptions including credibility, interpersonal attraction, and social presence?

## Affective Learning

In addition to interpersonal impressions of the instructor(s), student assessments of the subject and content are relevant to understanding effective teaching strategies. *Affective learning* refers to the “positive attitudes toward the content or subject matter” that students form about a given course or experience (Kearney, 1994, p. 81). More broadly, affective learning has been linked with cognitive learning (Rodriguez et al., 1996), motivation to learn (Frymier & Houser, 2000), higher teaching evaluations (Teven & McCroskey, 1997), and instructor impressions (Myers, 2002). In relation to robotics, A. Edwards et al. (2016) found that when social robots were used in the classroom as instructors, they influenced assessments of affective learning. In that study, however, the researchers focused on a single instructor model and not a co-teaching setup. So, it remains unclear how the configuration of roles will impact student appraisals of affective learning.

**RQ2:** Does the configuration of roles in a human-robot instructional team influence perceptions of affective learning?

## Method

### Participants

The sample was composed of 215 undergraduates (age:  $M = 24$ ,  $SD = 8.67$ , range 18–69) at a large Midwestern research university. Participants included 134 women (62.32%), 77 men (35.81%), one listed as non-binary (0.4%), and two who did not indicate gender (.9%). Most participants self-identified as White/Caucasian (76.7%,  $n = 165$ ).

### Procedures

Following IRB approval and informed consent, participants were randomly assigned to view one of the three conditions: (1) human-led class ( $n = 71$ ) with social robot TA, (2) robot-led class ( $n = 73$ ) with human TA, and (3) co-teachers ( $n = 69$ ) between human and social robot. Participants were instructed to watch a small video lecture on the definition of communication. Each video was about 3 minutes long. The lecture slides appeared on the screen with a picture of each member of the instructional team (larger pictures for instructors and smaller pictures for teaching assistants) and their position (i.e., instructor, teaching assistant, co-instructor) at the beginning of the lecture. During the human-led and the robot-led conditions, the lead instructor spoke for over 90% of the video. For the co-instructor teaching condition, the human and the social robot were introduced on the screen together and spoke for equal time. After participants watched the video lecture, they completed the measures regarding their impressions of the teaching team, received research credit, were debriefed, and thanked.

## Instruments

Participants responded to four measures, a demographic section, an open-ended question, and a series of quantitative measures not analyzed for the current study. Across measures, participants were asked to rate the instructional team as a whole. We used an 18-item measure of Source Credibility (McCroskey & Teven, 1999) to evaluate perceptions of credibility across three dimensions: competence (six items; e.g., “intelligent/unintelligent”), trustworthiness (six items; e.g., “trustworthy/untrustworthy”), and goodwill (six items; e.g., “cares about me/doesn’t care about me”) on a series of 7-point semantic differential scales. Westerman et al. (2014) argued that the measure can be treated as a second-order unidimensional scale for overall credibility. Our own analysis found the same second-order unidimensional scale to be reliable and appropriate (overall credibility = .93, *Scale Item M* = 5.13, *Scale Item SD* = .96).

To measure task and social attraction, we modified McCroskey and McCain’s (1974) scale. Participants reported their answers across eight (four: social and four: task) Likert-type scale items ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). The measure for social attraction had a reliability coefficient of .81 (*Item M* = 2.91, *Item SD* = .87), and the measure for task attraction had a reliability coefficient of .72 (*Item M* = 3.91, *Item SD* = .62).

Social presence was measured with five items adapted from an established instrument (Walther & Bazarova, 2008). Each social presence item (e.g., close/distant) was assessed on a 7-point semantic differential. This measure had a reliability of .91 (*Item M* = 3.72, *Item SD* = 1.54).

Affective learning was assessed using an 8-item instrument measuring a person’s affect for a subject and content (McCroskey, 1994) along a series of 7-point semantic differential scales (e.g., “I feel that the content in this lesson is: valuable/worthless”). For the current study, we obtained a reliability coefficient of .91 (*Item M* = 5.06; *Item SD* = 1.24).

## Results

To address the research questions, a one-way K-group multivariate analysis of variance (MANOVA) was conducted to determine the effects of the type of instructor configuration (human-led, social robot-led, and co-teachers) on the dependent variables of the credibility (i.e., competence, trustworthiness, and goodwill), social attraction, task attraction, social presence, and affective learning. Correlations among the dependent variables ranged from .35 to .77 ( $p < .001$ ). Results of the omnibus MANOVA show a significant main effect of team configuration, Wilk’s Lambda = .83,  $F(10, 412) = 4.14$ ,  $p < .001$ ,  $\eta^2 = .09$ . As a follow-up to the MANOVA, we used a series of univariate analysis of variance (ANOVAs) to test the influence of team configuration on each dependent variable. To help control for Type 1 error, we utilized the Bonferroni method (.05/5) and each of these ANOVAs was tested at the .01 level. ANOVAs were statistically significant for the dependent variables of: credibility [ $F(2, 210) = 14.64$ ,  $p < .001$ ,  $\eta^2 = .12$ ], social attraction [ $F(2, 210) = 13.92$ ,  $p < .001$ ,  $\eta^2 = .12$ ], social presence [ $F(2, 210) = 5.09$ ,  $p = .007$ ,  $\eta^2 = .05$ ], and affective learning [ $F(2, 210) = 8.37$ ,  $p < .001$ ,  $\eta^2 = .07$ ]. An ANOVA was marginally significant for task attraction [ $F(2, 210) = 3.95$ ,  $p = .02$ ,  $\eta^2 = .04$ ]. Post hoc tests showed there was a significant difference between the human-led and robot-led teacher conditions for all dependent variables; the human-led teacher was perceived as higher in credibility, social and task attraction, social presence, and affective learning. See Table 1 for means, standard deviations, and other significant post hoc differences.

**TABLE 1**  
**Item Means and Item Standard Deviations for the Four Conditions on the Dependent Variables**

	Human-Led		Robot-Led		Co-Instructors	
Variable	<i>M</i>	( <i>SD</i> )	<i>M</i>	( <i>SD</i> )	<i>M</i>	( <i>SD</i> )
Competence	5.95 <sub>a</sub>	(.94)	5.47 <sub>bc</sub>	(.91)	5.75 <sub>ac</sub>	(.90)
Trustworthiness	5.49 <sub>a</sub>	(1.01)	4.76 <sub>bc</sub>	(1.05)	5.12 <sub>ac</sub>	(1.01)
Goodwill	5.08 <sub>a</sub>	(1.05)	3.86 <sub>b</sub>	(1.29)	4.70 <sub>a</sub>	(1.11)
Social Attraction	3.30 <sub>a</sub>	(.72)	2.58 <sub>b</sub>	(.95)	2.87 <sub>b</sub>	(.77)
Task Attraction	4.00 <sub>a</sub>	(.54)	3.75 <sub>bc</sub>	(.65)	3.99 <sub>ac</sub>	(.64)
Social Presence	4.08 <sub>a</sub>	(1.51)	3.29 <sub>bc</sub>	(1.51)	3.79 <sub>ac</sub>	(1.50)
Affective Learning	5.40 <sub>a</sub>	(1.18)	4.60 <sub>b</sub>	(1.15)	5.15 <sub>a</sub>	(1.28)

Note. Means in a row with differing subscripts are significantly different at  $p < .05$  in the Tukey HSD.

## Discussion

In this study, we investigated the difference in interpersonal impressions (credibility, social/task attraction, social presence) and affective learning between a class led by a human teacher, a class led by a robot teacher, and a class that was co-taught by a human and robot. The experiment demonstrated a significant difference between the human- and the robot-led scenarios across most of the variables with the human-led teacher being perceived as higher in credibility, social and task attraction, social presence, and affective learning. Overall, our findings suggest that participants found the human-led team to be more credible and more appealing than the robot-led instructional team.

The results from this study support and extend research on social robots in education. Technology remains a staple in the modern classroom, but our findings suggest that the type and use of that technology is still important to students. While not a complete test of the human-to-human interaction script research (A. Edwards et al., 2019), the current study demonstrated a preference for the person over the social robot, similar to other studies (A. Edwards et al., 2016; C. Edwards et al., 2016; Spence et al., 2014). Furthermore, the current study shows that students may feel more comfortable with a person leading a class in which there is a social robot serving in the TA role. A key takeaway from the current study is that the status of the social robot in the classroom influences assessments of interpersonal impressions. In other words, it is not the involvement of a social robot in the classroom, but the absence of a human teacher at the helm.

The current study suggests that interpersonal impressions may also look different in an environment that prioritizes interaction and connection, such as a classroom. Although learning can occur across modalities, the process of teaching often involves a relationship, and the data seem to suggest this is a priority for students when judging the potential effectiveness of an instructional team. By altering the robot's standing in the team (i.e., lead teacher, teaching assistant, co-teacher), we were able to test the difference in credibility appraisals based on the role the robot enacted. Participants rated the robot-led team as the least credible, the least liked, and the least likely to teach a class they would choose to take. It could be that hearing information from a social robot in an environment that prioritizes an interpersonal connection may introduce what Sundar (2008) calls, "a confusing multiplicity of sources" that can contribute to perceptions of the message (p. 73), as well as the learning environment itself.



Our three-group study design was ideal for this exploratory study on perceptions of co-teaching teams involving social robots. Due to COVID-19 and the lack of ability to have in-person studies, we asked participants to view a short PowerPoint presentation with human and robot voice-overs. Although members of the teaching team introduced themselves and noted that they were available to students, participants did not have a chance to interact with anyone on the team. By removing the element of interaction from the scenario we may have limited people's ability to accurately translate this experience to a real classroom setting. Future research in this area could invite participants to an in-person course, or hold a synchronous, online option where students could see and potentially interact with the instructional team (see A. Edwards et al., 2016). A live version of this study may also influence interpersonal perceptions and show an even greater difference between the human and robot instructors.

## Conclusion

In this study, we examined the differences in interpersonal impressions and affective learning between different teaching teams. Participants rated the robot-led team significantly lower on credibility, social/task attraction, and social presence when compared to the human-led team. Further, the students didn't feel as though they would learn as much, or be as likely to take a course from, the robot instructor. Findings suggest that it was not the practice of team-based teaching that soured students' feelings toward the class, but who was leading the course. The next steps in this line of research involve in-person testing with students as well as faculty. A study that focused on faculty participants co-teaching with social robots may reveal that the dynamic between instructors is more important than whether the lead teacher is a robot or human. Overall, the current study suggests that more research is needed to better understand the complicated dynamic within human-robot teams.

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# Incorporating Virtual Reality Training in an Introductory Public Speaking Course

Kevin Kryston , Henry Goble , and Allison Eden 

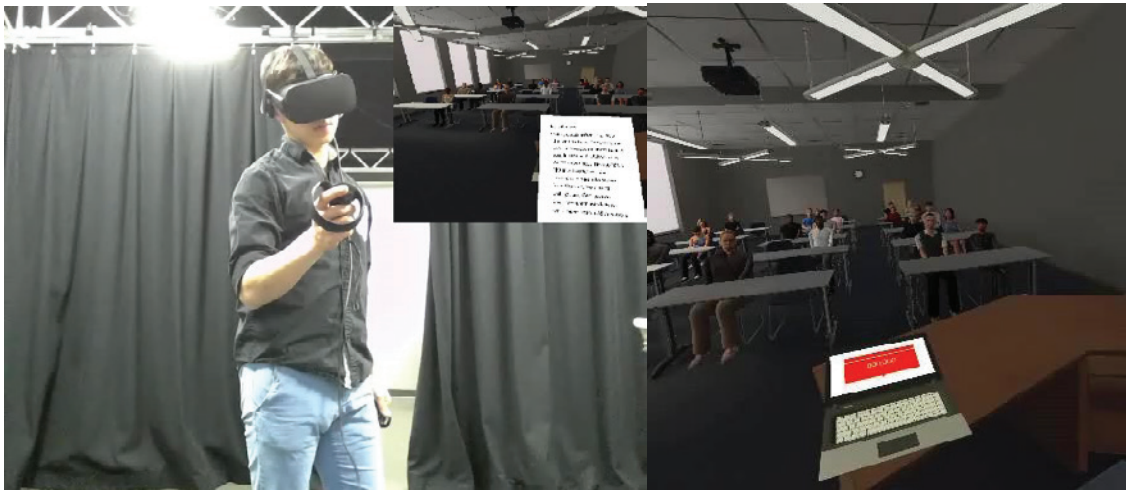
**Keywords:** instructional communication, virtual reality, public speaking, basic course, speech training, communication pedagogy

**Abstract:** This study presents the results of two studies using a virtual reality (VR) public-speaking training simulation as an instructional aid in a basic communication course. Results from the first study suggest that VR practice was associated with higher subsequent speech delivery grades in the course compared to no practice. However, VR practice did not reduce public speaking anxiety (PSA). In a follow-up study, VR practice was compared with other forms of lab-based practice including in front of a mirror and a recorded video session. All forms of lab practice (VR, mirror, or video) were associated with higher speech grades than no practice, but there were no differences between lab-practice conditions in terms of outcomes. Results are discussed in terms of adopting and using virtual public-speaking simulations in large undergraduate public-speaking courses.

Public speaking is the cornerstone of most communication departments across the country. Improving communication competence is a primary function of basic communication courses in higher education (Cohen, 1994; Morreale et al., 2016), and, in most cases, this means improving public speaking skills. Often, courses rely on techniques such as behavioral training, public speaking demonstrations and practice, and performance feedback to improve communication competence and decrease public speaking anxiety (PSA; Robinson, 1997). Yet, basic courses often cover these skills in large courses with multiple sections running at one time (Morreale et al., 2016). These structural forces shaping the basic course may lead to potential difficulties in providing meaningful practice and feedback opportunities for



students to improve their skills, due to overcrowding in classes, lack of standardized feedback between teaching instructors, or intra-section differences in class makeup and audience responses.



**FIGURE 1 Screenshot of Participant Giving Speech and the Virtual Environment.**

One way to efficiently incorporate controlled practice sessions into the basic course may be by using virtual audiences to provide life-like and synchronous feedback to presenters as they practice. Several commercial products that simulate public speaking experiences are now available on the market. These virtual systems feature audiences made up of digital avatars that can respond to eye gaze, head movement, and vocalics with positive or negative reactions (Figure 1). Communication scholars have begun to investigate the utility of these systems for training public speaking and communication skills (Davis et al., 2020; Frisby et al., 2020; LeFebvre et al., 2020; Vallade et al., 2020). However, the extent to which these systems improve student performance when incorporated into a basic public speaking course is not yet clear.

Therefore, our central research question is to what extent VR public speaking can simulate, complement, or enhance effective speech practice in a basic communication course? In the following paper, we discuss basic communication course format and public speaking skills training, move on to a review of existing literature on VR for public speaking, and finally introduce two studies incorporating VR public speaking training into a basic communication course with a public speaking component.

## Effective Training for Public Speaking

Public speaking is historically the core of the communication discipline (Cohen, 1994). Over 60% of basic courses in communication teach public speaking, and public speaking is emphasized by 100% of 2-year schools and 88.6% of 4-year schools in basic communication courses (Morreale et al., 2016). According to the National Communication Association guide to becoming a competent speaker (Morreale et al., 2007), to become an effective public speaker, one must meet or exceed standards of basic competence across the following eight areas: (1) choosing a topic appropriately, (2) communicating a thesis/specific purpose, (3) providing appropriate supporting material, (4) using an effective organizational pattern, (5) using language appropriately, (6) using vocal variety in rate, pitch, and intensity, (7) using appropriate pronunciation, grammar, and articulation, and (8) using physical (nonverbal) behaviors that support the

verbal message. These eight competencies were derived from over 100 years of public speaking training, and similar training models have been adopted in public speaking courses around the world (e.g., the English-Speaking Union, 2019; Nishikawa-Van Eester, 2009).

In general, the field of communication trains a variety of skills to enhance and improve these public speaking competencies in our core classes, such as practicing eye contact, nonverbal behavior, gestures, vocalics, delivery, speech writing, and recognizing feedback from audiences (Haynes, 1990). This type of skills-based training appears to positively influence presentation skills in both self-assessments and the assessments of skilled others (such as Toastmasters club members; Seibold et al., 1993).

Perhaps one of the best training mechanisms of the basic course is simply that it requires students to practice public speaking. In an empirical study, Pearson et al. (2006) showed that students' preparation and practice of speeches prior to delivery resulted in better assessments. Additionally, the amount (Menzel & Carrell, 1994) and type of practice prior to the presentation have been identified as important influences on public speaking competence (Farris et al., 2013; Pearson et al., 2008; Smith & Frymier, 2006). The importance of practice can be seen in the most-used textbook of public speaking courses: Stephen Lucas's *The Art of Public Speaking* (2015). This text emphasizes that practice is the most essential component in training competent speakers. Reflecting the importance of practice, in most basic courses, students are required to deliver between one to 10 speeches, with an average class requiring three per semester (Morreale et al., 2016).

Targeted feedback also plays an important role in developing solid public-speaking skills. One way that the basic course helps students to become better public speakers is through providing structured rubrics with clear expectations about rhetorical, verbal, and nonverbal components of their speeches (e.g., Schreiber et al., 2012). Book (1985) argues that immediate (that is, directly following the speech) feedback can allow for audience reactions and inform the speaker of their strong performance areas and areas of improvement. One way to incorporate immediate feedback in a public speaking course is by recording students' speeches and require that they watch the recordings. In a meta-analysis of studies examining the role of recorded feedback in public speaking courses, Bourhis and Allen (1998) report that recording feedback improves skill acquisition, speech content, better recall of the speech, and more favorable course attitudes.

Additionally, the great majority of communication pedagogy in public speaking addresses the need to overcome and combat PSA and/or communication apprehension (CA), both of which negatively impact student's confidence and ability to speak publicly (Allen & Bourhis, 1996; Allen et al., 1989; Bodie, 2010; McCroskey, 1982; Robinson, 1997). CA is a broad term referring to an individual's fear of anxiety associated with either real or anticipated communication with another person or persons (McCroskey, 1982). Notably, practice is one of the most effective techniques to reduce communication apprehension (Allen et al., 1989; Bodie, 2010). More closely related to PSA, fear of negative evaluation (FNE; Watson & Friend, 1969) is specific to apprehension about other's evaluations, distress over possible negative evaluations, and an expectation that one would be evaluated negatively. FNE and CA are closely related and may be underlying causes of people's fear of public speaking.

In sum, practice, feedback, and anxiety reduction are the three most important concerns in training effective public speaking. Additionally, idiomatic variables such as grade point average, previous public speaking experience (Pearson & Child, 2008; Rubin et al., 1990), and biological sex (Pearson et al., 2008)

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all influence student grades on public speaking assignments. Yet, given the inflexibility of these traits, in the current paper, we focus on the role of virtual reality platforms in providing (a) increased and systematic practice opportunities, (b) relevant feedback for speaker improvement, and (c) reduction in CA and FNE.

## Virtual Reality and Public Speaking

VR allows students a unique opportunity to rehearse speeches in virtual environments that emulate future public speaking situations. In these environments, audiences can be simulated with 360-degree videos (a recording of actual students in a live classroom; e.g., Vallade et al., 2020) or using software that generates a virtual audience (animated humanlike avatars in digitally created classrooms; e.g., Davis et al., 2020). Since people are urged to respond to nonhuman entities (e.g., television, computers, avatars) similarly to human entities during real-world interactions (see Computers as Social Actors paradigm; Reeves & Nass, 1996), practice in VR in front of a 360-video or virtual audience should simulate practicing in face-to-face settings.

Supporting this assertion, speaking in front of a virtual audience can induce anxiety for high speech apprehensive speakers (Kothgassner et al., 2016; Vanni et al., 2013), indicating that virtual presentations functionally emulate real-world speaking experiences. Similarly, Pertaub et al. (2002) and Slater et al. (2006) examined the subjective and psychophysiological effects on the speaker; phobic participants showed higher anxiety and elevated heart rate before a virtual audience. This effect was particularly strong for participants with high FNE. Given the ability of VR to induce a realistic sensation of speaking in front of a crowd, early research in VR focused on its efficacy as a tool to desensitize highly reactive speakers via exposure therapy (e.g., Harris et al., 2002; Pertaub et al., 2002; Vanni et al., 2013). Overall, results suggest that VR can reduce PSA when combined with exposure therapy (Vanni et al., 2013). However, the extent to which VR practice can mitigate anxiety in a classroom setting is still unknown; some research found VR practice decreased anxiety (LeFebvre et al., 2020), and other research showed VR practice increased speech anxiety (Davis et al., 2020).

Other work has examined VR as a public-speaking pedagogical aid via in-platform feedback. For example, Chollet et al. (2015) used a virtual environment to test the effect of visual, verbal, or audience nonverbal feedback on speaker performance and found that interactive and responsive nonverbal feedback conditions were the most engaging for speakers, and speakers practicing with the interactive audience were most likely to desire to repeat the experience. Many VR public-speaking programs passively collect behaviors like eye gaze, haptics, and vocalics, and provide feedback to speakers based on these metrics, which have been correlated with speaker performance (e.g., Batrinca et al., 2013). Thus, feedback provided by VR software could be a tool for assisting students in becoming more competent speakers (Morreale et al., 2007), specifically by calling attention to vocal variety (i.e., competency six), articulation (i.e., competency seven), and eye contact (i.e., competency eight).

Incorporating VR into large public speaking classes has become a topic of interest for communication scholars due to the ease of deployment and relatively decreased costs of implementing these platforms. Along with ease of implementation for scholars, VR programs as a tool for practicing speeches have led to positive emotional experiences (Vallade et al., 2020), enhanced public speaking self-efficacy perceptions

(Frisby et al. 2020), and reduced speech anxiety in imagined interactions (LeFebvre et al., 2020) for students. Yet, few studies have examined speech grades as a dependent variable, and those which have (e.g., Davis et al., 2020) found no difference in grades after practicing in VR versus a face-to-face setting.

Thus, our overall research question is: Do students who practice in front of a virtual audience demonstrate higher public speaking competence than those who do not, and what potential mechanisms might explain this competence? We examined this question using a public speaking simulation featuring an immersive virtual audience (Virtual Orator; Blom, 2018) as a speech practice aid across two semesters of the same basic communication course at a large Midwestern university. In the first study, we compared grades from students who had participated in the VR practice session with those who had not participated and examined the association of these grades with initial PSA and FNE. For participants in the VR condition, we further explored feedback from the software, task interest and enjoyment, and sense of presence in the virtual environment as potential moderators or mediators for VR practice efficacy to identify directions for future research. We also controlled for prior experience with VR technology. In the second study, we compared VR practice with a video-recorded condition (Bourhis & Allen, 1998) and a condition in which participants watched themselves speaking in a mirror, which is a traditional method of speech practice to induce self-awareness (Dermody & Sutherland, 2019). In the second study, we added task difficulty and demand perceptions as well as task anxiety measures to the lab condition along with other variables measured in Study 1.

## Study 1

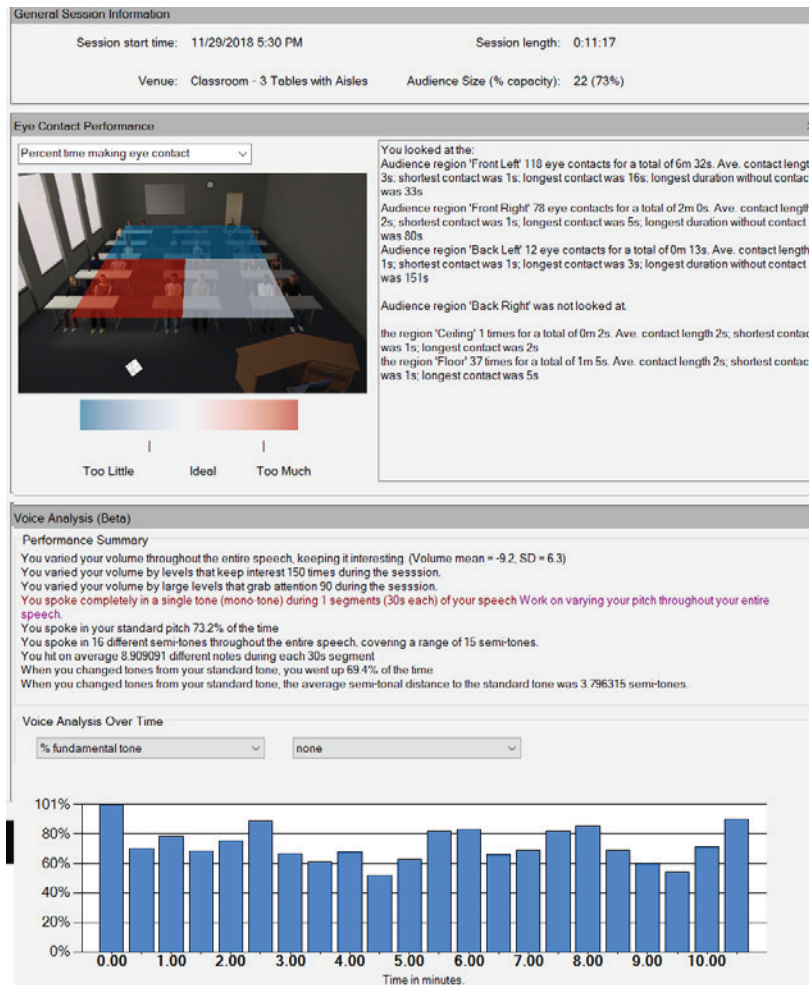
### Method

**Participants.** Students ( $n = 204$ ; 45% female;  $M_{age} = 19.52$ ,  $SD_{age} = 1.37$ ) were recruited from a large introductory communication class, but only participants ( $n = 140$ ) who agreed to all course grades being used for this research were retained for analysis. Students received course credit for their involvement in the study and could complete an alternative assignment as needed. All recruitment, data collection, and analysis procedures were approved by the university Institutional Review Board.

**Procedure.** We used a quasi-experimental method to minimally disrupt an existing class. Two weeks before the first speech of the semester, participants completed a survey that measured their PSA, interest in VR, experience with VR, and demographic information. After completing the initial survey, but before delivering their final speech, 80 participants opted to practice their speech in VR.

Upon arriving in the lab, participants were provided with a consent form detailing lab procedures and data collection. Experimenters gave a brief description of the experimental procedure. The students then practiced their speech in the VR. Afterward, participants completed measures on simulation sickness, interest in the practice session, spatial presence, PSA, and FNE. Additionally, participants received feedback from the virtual program (see Figure 2). Participants could look at the feedback for as long as they wanted. No more than 3 weeks after practicing their speech in the VR, students gave the same speech they had practiced for their recitation section, which is a smaller (10–20-person) subsection of a larger class. Grades were assessed by trained graduate teaching assistants and compiled at the end of the semester.





**FIGURE 2** Sample of Virtual Orator Feedback Screen.

**Software.** The *VirtualOrator* (Blom, 2018) software package was used for the training sessions. All participants participated in the same small classroom scenario for their presentation. The audience was set to be friendly and were equally distributed in terms of gender and race. Participants were given 12 minutes to practice. *VirtualOrator* records speaker performance in VR through the computer's internal webcam with an insert featuring the speaker's field of vision in VR and collects various data related to verbal and nonverbal performance such as the speech pitch and volume, as well as gaze distribution around the room.

**Hardware.** Lab rooms included an Alienware 15R4 laptop computer and HTC VIVE headset (with accompanying software). The virtual environment was run through SteamVR (Valve, 019). Participants used the VIVE controller to change the slides for their presentation and notes (if applicable) by clicking the directional arrow buttons (see Figure 1).



## Measures

**Personal report of public speaking anxiety.** A 34-item personal report of public speaking anxiety (PRPSA; McCroskey, 1970) was collected after recruitment (T1:  $n = 132$ ,  $\alpha = .90$ ,  $M = 3.28$ ,  $SD = 0.53$ ) and again after participants gave the speech in VR (T2:  $n = 53^1$ ,  $\alpha = .92$ ,  $M = 3.26$ ,  $SD = 0.63$ ). Higher scores indicate more public speaking anxiety.

**The fear of negative evaluation scale.** The fear of negative evaluation scale (FNES; Leary, 1983) contains 12 items ranging from a one to five scale measuring participant's anxiety when in an evaluative setting such as education and was measured both after recruitment (T1:  $n = 132$ ,  $\alpha = .90$ ,  $M = 3.21$ ,  $SD = 0.76$ ) and after giving the speech in VR (T2:  $n = 54^1$ ,  $\alpha = .92$ ,  $M = 3.23$ ,  $SD = 0.79$ ). Higher scores indicate greater fear of negative evaluation.

**VR feedback.** Feedback included the amount of time that speakers looked at various quadrants of the virtual classroom, the number of monotone segments, and percent speaking in the same pitch, range, and volume of speech. See Table 1 for descriptive information.

	<i>n</i>	Min.	Max.	<i>M</i>	<i>SD</i>
Time looking front left	67	0	551.32	78.1672	118.7878
Time looking front right	67	0.54	531.95	113.5474	106.6375
Time looking back left	67	0	11.91	13.9608	18.58946
Time looking back right	67	0	107.56	16.7944	24.35308
Number of monotone segments	47	0	5	1.0426	1.28465
Ave. % on fundamental tone	47	0.45	0.94	.666	.1113
Number of notes hit	47	9	21	13.3191	3.00801
Tonal Range	47	8	20	13.4255	3.01262
Ave. % notes per segment	47	3.33	14.03	8.0345	2.21843
% lower notes	47	.13	.92	.4193	.18526
Ave. semitonal distance $F = 0$	47	2.25	7.59	4.2084	1.12561
Decibel Mean	47	-21.13	-3.48	-8.4342	2.93311
Decibel SD	47	3.88	9.11	6.4495	1.30352

Note: Due to a recording error, vocalics were not recorded for 20 participants. Segments were recorded every 30 seconds.

1. We did not measure scores for students who did not attend the VR practice. Due to a software error, some participants did not respond to the PRPSA and FNES after their speech, leading to additional response attrition.

**Speech grades.** The speech used as the dependent variable in this study was the final speech of the semester, which was a 5-minute special occasion speech (e.g., toast, eulogy, commemoration;  $n = 140$ ,  $\text{Max} = 110$ ,  $\text{Min} = 74$ ,  $M_{\text{score}} = 100.37$ ,  $SD_{\text{score}} = 7.18$ ).<sup>2</sup> Speeches were graded by nine trained graduate instructors. Scores were based on two major elements: the quality of a written outline, which included speech content and references, and quality of performance, assessed on various traits including volume and rate of speech, eye contact, posture, and gestures. Because practice and feedback have been shown to influence both content and delivery aspects of performance (Pearson et al., 2006; Seibold et al., 1993), we included both scores in our analysis.

## Additional Measures

**VR experience.** VR Experience (Hartmann et al., 2010) measured experience with virtual environments using five items measured on a one to five scale ( $n = 132$ ,  $M = 2.90$ ,  $SD = 0.79$ ). Higher scores indicate more experience.

**Task evaluation.** We used subscales of the Intrinsic Motivation Inventory (IMI; Deci et al., 1994), including *interest/enjoyment* ( $\alpha = .82$ , five items,  $M = 6.45$ ,  $SD = 1.23$ ), *value/usefulness* ( $\alpha = .94$ , six items,  $M = 6.51$ ,  $SD = 1.42$ ) and *effort/importance* ( $\alpha = .80$ , six items,  $M = 5.50$ ,  $SD = 1.20$ ), measured on eight-point scales.

**Spatial presence.** We used the short form of the spatial presence experience scale (SPES; Hartmann et al., 2016) which features four items that assess how realistic and immersive the virtual environment is, with values ranging from one to seven ( $\alpha = .88$ ,  $M = 5.28$ ,  $SD = 1.08$ ).

## Results

First, correlations between all variables were examined (Table 2 and Table 3). There were no significant correlations between age, gender,<sup>3</sup> and speech grades. However, given past research showing gender effects on speech grades, we retained gender for analyses.

<b>TABLE 2</b>				
<b>Study 1 Correlation Between Outcomes and Potential Control Variables</b>				
	<b>Age</b>	<b>Gender</b>	<b>Anxiety</b>	<b>FNE</b>
Age	--			
Gender	-.05	--		
Anxiety	-.05	.14	--	
FNE	-.05	.15	.59**	--
Speech grades	.07	.13	-.13	.06

\*\*  $p < .05$ , \*  $p < .01$

2. The nine teaching assistants who assessed the quality of the different speakers were familiarized with the rubric and trained to normalize speech grading before procedures began.

3. Gender differences were also analyzed using a series of t-tests, which were all non-significant ( $p > .07$ ).

**TABLE 3**  
**Study 1 Correlations Between Performance Variables**

			1	2	3	4	5	6	7	8	9	10	11	12	13
	1	Sp. grades	--												
Visual ( <i>n</i> = 67)	2	Front left <sup>A</sup>	.20	--											
	3	Front right <sup>A</sup>	.00	-.09	--										
	4	Back left <sup>A</sup>	-.08	.51**	.01	--									
	5	Back right <sup>A</sup>	-.34*	-.14	.39**	.40**	--								
Verbal ( <i>n</i> = 47)	6	# mono. seg. <sup>B</sup>	.03	.17	-.27	.24	-.08	--							
	7	% fund. tone <sup>B</sup>	-.38*	-.04	-.22	.12	-.07	.55**	--						
	8	dB <i>M</i> <sup>B</sup>	.26	.18	.23	-.07	-.03	-.22	-.31*	--					
	9	dB <i>SD</i> <sup>B</sup>	.06	.12	.35*	.08	.16	-.39**	-.45**	.05	--				
Scales ( <i>n</i> = 110)	10	IMI Int/Enj <sup>C</sup>	.02	.01	.13	.00	.31*	.16	-.11	.08	-.08	--			
	11	IMI Val/Use <sup>C</sup>	.07	.01	.24	.04	.31*	.28	-.07	-.05	.08	.74**	--		
	12	IMI Eff/Imp <sup>C</sup>	.11	-.03	.12	-.03	.27*	.02	-.28	.16	.17	.59**	.66**	--	
	13	PRPSA T2 <sup>D</sup>	-.32*	.28	.12	.16	.12	-.21	-.17	-.05	.43*	-.15	.05	-.04	--
	14	FNES T2 <sup>D</sup>	-.07	.13	-.11	.05	.09	-.10	-.22	.02	.22	.09	.12	-.04	.69**

\*\*  $p < .05$ , \*  $p < .01$ .Note: Superscripts denote  $n_{\text{cors}}$  with speech grades. A:  $n = 45$ , B:  $n = 30$ , C:  $n = 81$ , D:  $n = 54$ .

Next, a series of t-tests were run to examine if participants participating in the VR experiment differed from those who did not participate in terms of initial PRPSA, FNES, or VR experience. None of these variables significantly differed between conditions (all  $t < 1.00$ ; all  $p > .05$ ). The 95% confidence intervals for all participants in both groups overlapped, and an equivalence test showed no significant differences between groups at  $\Delta = .30$  (Cohen's  $d$ ) and  $\Delta = .16$  (see Table 4).

**TABLE 4**  
**Study 1 Descriptive Statistics at Time 1 by Group and Equivalence Tests by Condition**

	VR ( <i>n</i> = 72)		No VR ( <i>n</i> = 60)		<i>t</i>	<i>df</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
PRPSA T1	3.27	.54	3.29	.53	0.19	174	.001
FNES T1	3.19	.75	3.25	.79	0.41	174	.002
VR Experience T1	2.89	.72	2.91	.87	-0.01	174	.001

Note: Statistical values are results of independent-samples equivalence tests (Weber & Popova, 2012), with p-values reported for tests at Cohen's  $d = .30$ . Significant results indicate overlapping confidence intervals.

To examine our central research question, we used a hierarchical regression with scores on the final speech of the semester entered as our outcome variable (Table 5). All regression coefficients reported are standardized. Demographics were entered at step 1, PRPSA, FNE, and previous experience in VR were entered in step 2, and condition (VR yes or no) were added at step 3. At step 1, neither age nor gender had a significant effect on final scores. At step 2, variance in scores on the third and final speech was predicted by PRPSA, such that students with higher public speaking anxiety had lower scores on

the speech,  $\beta = -.25$ ,  $t = -2.40$ ,  $p = .02$ ; however, the overall model was not significant. In the final model, PRPSA remained a significant negative predictor of performance,  $\beta = -.25$ ,  $t = -2.41$ ,  $p = .02$ , but practicing in VR was a significant positive predictor of final speech grades,  $\beta = .207$ ,  $t = 2.40$ ,  $p = .02$ . The overall model was significant,  $F(6, 130) = 2.62$ ,  $p = .02$ . Results can be found in Table 5.

**TABLE 5**  
**Study 1 Hierarchical Regression Predicting Final Speech Grades**

	$\beta$	<i>SE</i>	<i>t</i>	<i>p</i>				
Step 1					<i>F</i>	<i>df</i>	<i>p</i>	adj <i>R</i> <sup>2</sup>
Age	.08	.49	.87	.38	1.62	2, 128	.20	.01
Gender	.14	1.27	1.63	.11				
Step 2					<i>F</i>	<i>df</i>	<i>p</i>	adj <i>R</i> <sup>2</sup>
Age	.07	.48	.83	.41	1.87	5, 125	.10	.03
Gender	.16	1.31	1.79	.08				
PRPSA T1	-.25	1.47	-2.40	.02				
FNES T1	.18	1.02	1.69	.09				
VR Exp	.04	.81	.43	.67				
Step 3					<i>F</i>	<i>df</i>	<i>p</i>	adj <i>R</i> <sup>2</sup>
Age	.08	.47	.92	.36	2.62	6, 124	.02	.07
Gender	2.19	1.29	1.70	.09				
PRPSA T1	-.25	1.44	-2.40	.02				
FNES T1	.19	1.01	1.85	.07				
VR Exp	.04	.8	.46	.65				
VR Participation	.21	1.24	2.44	.02				

Note: VR Participation reflects whether a student practiced their speech in VR (practiced = 1, did not practice = 0).

To determine the effect of the VR training on public speaking anxiety, we examined correlations between speech anxiety, fear of negative evaluation, and the VR experience scales including spatial presence, intrinsic enjoyment, value, and effort. No significant relationships emerged, except for a strong positive correlation between speech anxiety and fear of negative evaluation ( $r = .65$ ,  $p < .001$ ).

Finally, to examine the role of program feedback on speech performance, hierarchical regression was run with the program's feedback variables predicting scores on the final speech. Age and gender were entered at step 1, and all feedback variables were entered at step 2. The model was not significant at step 2 ( $F(15, 26) = 2.08$ ,  $p = .11$ ), and only one VR feedback parameter, time spent looking at the back-right quadrant ( $\beta = -.95$ ,  $SE = .11$ ,  $p = .02$ ), significantly predicted speech performance.

## Discussion

Study 1 found that VR training positively predicted speech scores, controlling for participation scores. However, we did not find a significant effect of VR practice or feedback on either PSA or FNE, as past research might suggest, nor did we find significant relationships between scores on task interest, presence, or feedback on final grades. Finally, given the design of the study, we could not rule out a selection effect in our participants. For example, motivation or underlying academic ability could

predict both lab attendance and speech scores. Therefore, we attempted to replicate the findings from Study 1 in a subsequent study. To address the self-selection issue, in Study 2, we randomly assigned students to practice in VR, in a video condition, or in front of a mirror to compare practice methods. We also included self-awareness and self-efficacy as well as task difficulty and task demand, which have all been proposed—but not tested—as possible mechanisms for VR speech improvement (e.g., Davis et al., 2020; Frisby et al., 2020). We retained spatial presence and intrinsic motivation, as well as FNE and VR experience, from Study 1.

## Study 2

### Method

**Participants.** We recruited students ( $n = 371$  enrolled at T1,  $n = 234$  who provided consent to release their grade, 51.3% female,  $M_{age} = 20.23$ ,  $SD_{age} = 1.20$ ) from the same introductory communication course in a different semester. None of the students included in Study 2 were participants in Study 1. All retention and compensation procedures were identical to Study 1 and approved by the same institutional review board.

### Procedure

In Study 2, participants were randomly assigned to practice their speech in one of three conditions after arriving at the lab. They either practiced in the same VR condition as Study 1, in a video condition, or in front of a mirror. An Alienware 15R4 laptop computer was used in the video condition, which recorded the student practicing their speech. Participants saw themselves on-screen as they presented but were not required to watch the recording afterward. For the mirror condition, a 5-foot easel mirror was used (following Dermody & Sutherland, 2019). While we recorded grades from those who did not attend the speech lab, only those who came into the lab completed the self-report measures described below.

### Measures

Fear of negative evaluation (Leary, 1983;  $n = 234$ ,  $\alpha = .84$ ,  $M = 35.86$ ,  $SD = 8.39$ ) and VR experience (Hartmann et al., 2010;  $n = 234$ ,  $\alpha = .86$ ,  $M = 2.84$ ,  $SD = 0.91$ ) were retained from Study 1, as were the Intrinsic Motivation Inventory subscales for *interest/enjoyment* ( $n = 180$ ,  $\alpha = .82$ ,  $M = 6.11$ ,  $SD = 1.66$ ), *value/usefulness* ( $n = 180$ ,  $\alpha = .96$ ,  $M = 6.97$ ,  $SD = 1.84$ ) and *effort/importance* ( $n = 180$ ,  $\alpha = .81$ ,  $M = 5.76$ ,  $SD = 1.64$ ; Deci et al., 1994) which were collected after lab practice at T2, albeit on a nine-point scale in Study 2. The spatial presence experience scale (SPES, Hartmann et al., 2016;  $n = 114$ ,  $\alpha = .90$ ,  $M = 4.79$ ,  $SD = 1.23$ ) was collected for the VR group only. Speech grades were collected similarly to in Study 1 ( $n = 371$ ,  $M = 93.02$ ,  $SD = 19.91$ ). We did not examine feedback from the VR environment in Study 2. New measures for Study 2 are discussed below.

**Personal report of public speech anxiety.** In Study 2, we used an 18-item version of the PRPSA at T1 (Mörtberg et al., 2018;  $n = 242$ ,  $\alpha = .93$ ,  $M = 48.76$ ,  $SD = 14.46$ ) to combat participant fatigue.

**State-trait anxiety inventory.** A six-item version of the state-trait anxiety inventory (STAI; Spielberger et al., 1983) validated by Thuczek et al. (2009) was used at both T1 ( $n = 237$ ,  $\alpha = .87$ ,  $M = 51.36$ ,  $SD = 13.44$ ) and T2 ( $n = 253$ ,  $\alpha = .82$ ,  $M = 40.63$ ,  $SD = 12.09$ ). The scale measures the extent to which participants feel calm, content, relaxed, tense (reverse), upset (reverse), and worried (reverse) on a scale



from 1 (*not at all*) to 4 (*very much*). The scale is scored by taking the sum of all items (after reverse codes are corrected), multiplying by 20 and dividing by 6. High scores indicate less anxiety.

**Rosenberg self-esteem scale.** Participants completed the 10-item Rosenberg self-esteem (RSE) scale (Rosenberg, 1965) at T1, which measures trait self-esteem on a scale from 1 (*strongly agree*) to 4 (*strongly disagree*). The RSE is scored by taking the sum of the items (after reverse codes are corrected;  $n = 234$ ,  $\alpha = .90$ ,  $M = 35.44$ ,  $SD = 5.47$ ).

**Self-consciousness scale.** Scheier and Carver's (2013) revised self-consciousness scale (SCS-R;  $n = 236$ ,  $\alpha = .84$ ,  $M = 2.63$ ,  $SD = 0.45$ ) was administered at T1 only. The scale contains 21 items that ask participants to indicate the extent to which they feel nervous, anxious, and/or self-aware in various social and private situations. Items were measured on a scale that ranges from 1 (*not like me at all*) to 4 (*a lot like me*). The scale was the mean of all items, and high scores indicate greater self-consciousness.

**Personal Report of Confidence as a Speaker.** A modified version of the somatic scale from the Personal Report of Confidence as a Speaker (MRPCS; Pertaub et al., 2001) scale was measured for the participants in the VR condition at T2 ( $n = 259$ ,  $\alpha = .87$ ,  $M = 1.50$ ,  $SD = 0.52$ ). The scale features eight items (e.g., *I felt discomfort in my stomach*) measured on a scale from 1 (*not at all*) to 4 (*very much*). High scores indicate more fear while speaking.

**NASA task load index.** The NASA task load index (NASA-TLX; Hart & Staveland, 1988) was measured during T2 only. The scale contains 10 items that were adapted to ask how demanding various elements of an experience was and participants respond on a scale from 1 (*very low*) to 7 (*very high*). The scale was averaged across 10 items, and higher scores indicate more task load. We repeated the scale twice to assess the task load of the speech delivery experience (i.e., their experience in the lab;  $n = 180$ ,  $\alpha = .71$ ,  $M = 3.39$ ,  $SD = 1.00$ ) and then again to assess the task load of practicing the content of their speech (i.e., their level of comfort remembering their speech and the topic;  $n = 180$ ,  $\alpha = .73$ ,  $M = 3.33$ ,  $SD = 1.02$ ).

**Cognitive demand.** We adapted Bowman et al.'s (2018) cognitive demand subscale ( $n = 30$ ,  $\alpha = .85$ ,  $M = 3.92$ ,  $SD = 1.08$ ) to assess the extent to which the act of practicing the speech in the lab required mental attention and intense thought (e.g., *Practicing my speech made me draw on all my mental resources*) on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The scale is the average of seven items and high scores indicate that practicing the speech required more cognitive resources.

## Results

Correlations for all measures are reported in Table 6 and Table 7. Just as in Study 1, neither gender nor age were correlated with speech grades, however, were retained for analysis. To assess the role of lab practice conditions in speech grades, we conducted a one-way ANOVA (VR vs. video vs. mirror vs. no lab) with post-hoc Bonferroni to see if there were differences in speech grades across conditions. The ANOVA was significant,  $F(3, 367) = 2.96$ ,  $p = .03$ ,  $\eta^2 = .02$ ; those in the VR ( $n = 115$ ,  $M = 95.24$ ,  $SD = 16.91$ ), mirror ( $n = 101$ ,  $M = 95.39$ ,  $SD = 12.10$ ), and video ( $n = 45$ ,  $M = 94.80$ ,  $SD = 13.63$ ) conditions scored higher than those who did not attend the lab ( $n = 261$ ,  $M = 50.24$ ,  $SD = 6.43$ ), but pairwise differences between VR, mirror, and video practice conditions were not significant.

**TABLE 6**  
**Study 2 Correlations Between Speech Grades and Potential Controls**

	Speech Grade	Age	Gender	PRPSA	STAI
Age	-.01	--			
Gender	.01	-.04	--		
PRPSA	.02	.00	.19**	--	
STAI	.08	-.01	.23**	.82**	--
SCR	-.02	-.05	.18**	.39**	.37**

\*  $p < .05$ , \*\*  $p < .01$ **TABLE 7**  
**Study 2 Correlations Between Performance Variables**

	Speech Grades	SPRES	STAI T2	MRPCS	Sat.	NASA TLX Dem.	NASA TLX Reh.	Demand	IMI Int/Enj	IMI Val/Use
SPRES	-.08	--								
STAI6 T2	.17**	-.11	--							
MRPCS	.13*	-.04	.74**	--						
Sat.	-.01	.14	-.34**	-.23**	--					
NASA TLX Dem.	.17*	.06	.41**	.41**	-.36**	--				
NASA TLX Reh.	.07	-.01	.44**	.37**	-.33**	.74**	--			
Demand	.08	.17	.33**	.32**	-.22**	.65**	.63**	--		
IMI Int/Enj	-.06	.43**	-.17*	-.07	.28**	-.09	-.07	.11	--	
IMI Val/Use	.01	.43**	-.13	-.15*	.23**	-.06	-.06	.18*	.69**	--
IME Eff/Imp	-.08	.28*	.10	.08	.29**	.06	.05	.22**	.64**	.52**

STAI = State-Trait Anxiety Inventory; MRPCS = Personal Report of Confidence as a Speaker; IMI = Intrinsic Motivation Inventory

\*  $p < .05$ , \*\*  $p < .01$ .  $N = 180$ 

We also examined correlations between potential mediators of VR practice and speech grades. STAI-6, MRPCS, and the demand subscale of the NASA-TLX were significantly correlated with speech grades. Next, a one-way MANOVA was conducted to see if there were significant differences in post-test measures (STAI-6, MRPCS, satisfaction, NASA-TLX, IMI) by lab condition (VR vs. mirror vs. video). Significant differences between conditions were observed for NASA-TLX delivery scores,  $F(2, 177) = 7.75, p = .001, \eta^2 = .15$ , and NASA-TLX rehearsal scores,  $F(2, 78) = 4.29, p = .02, \eta^2 = .05$ . Those in the VR condition ( $n = 79, M = 3.68, SD = 0.94$ ) perceived that speech delivery was more demanding than those in the mirror ( $n = 68, M = 3.27, SD = 1.03$ ) and video conditions ( $n = 33, M = 2.94, SD = 0.88$ ). Those in the VR condition ( $M = 3.52, SD = 0.97$ ) also found rehearsal to be more difficult than those in the video condition ( $M = 2.91, SD = 1.02$ ). No other significant differences were observed.

Last, we repeated the regression predicting speech scores from Study 1 among those who attended the lab ( $n = 232$  with complete data). Age and gender were entered at step 1, and self-esteem, speech experience, PRPSA, STAI-T1, self-consciousness, FNES, and VR experience were entered at step 2. At step 1, the

model was not significant,  $F(2, 229) = .01, p = .98$ . At step 2, the model was also not significant,  $F(10, 221) = .73, p = .69$ , and there were no significant predictors of speech grades (see Table 8).

**TABLE 8**  
**Study 2 Hierarchical Regression Predicting Speech Scores of Lab Attendees**

		$\beta$	$SE$	$t$	$p$				
Step 1						$F$	$df$	$p$	Adj. $R^2$
	Age	-.01	.83	-.16	.88	.01	2, 229	.98	.00
	Gender	.00	1.94	.06	.95				
Step 2						$F$	$df$	$p$	Adj. $R^2$
	Age	.00	.84	-.06	.95	.72	10, 221	.69	.00
	Gender	-.04	2.12	-.61	.54				
	Formal exp.	.02	1.41	.32	.75				
	Informal exp.	-.04	.89	-.61	.54				
	PRPSA	-.13	.15	-1.01	.31				
	STAIT1	.20	.14	1.61	.11				
	SCS-R	-.07	2.75	-.90	.37				
	FNES	.06	.19	.74	.46				
	Self-esteem	-.02	.20	-.30	.76				
	VR Exp.	-.12	1.17	-1.70	.09				

$N = 232$ .

## Discussion

In this paper, we presented results from two studies implementing a VR public speaking simulation in a basic communication course. Results from Study 1 support a modest relationship between VR practice and final speech scores, suggesting that virtual reality public speaking experiences may be a useful addition to the basic speaking course. However, we found null effects for feedback performance and measures of the immersive experience in the VR on speech performance. Therefore, Study 2 attempted to uncover mechanisms that may explain the lab practice effect, and more rigorously compared different types of technology-assisted public speaking practice to examine the role of the virtual audience on speech grades. In Study 2, we again observed a lab-practice effect, such that students who went to the lab performed better on their speech than those who did not attend a lab practice session. However, in line with Davis et al. (2020), there was no special utility of VR in improving speech grades when compared to other methods such as watching oneself in a mirror or using a video recording. We did find that participants perceived that delivering and rehearsing their speech was more demanding in VR compared to other modes of practice, which may support CASA-based arguments about the role of digital others in simulating real-world public speaking. However, similar effects were not found for anxiety, self-awareness, FNE, or sense of presence.

In line with Vallade et al. (2020), we found that students were excited about the study and eager to participate in the experience in part due to the novelty of VR. Therefore, as a component of an existing course, virtual platforms may be an attractive way to entice students to practice, which is a key factor

in improving speech performance. The importance of practice should be no surprise to public speaking instructors (e.g., Lucas, 2015), and replicates findings from various studies (e.g., Farris et al., 2013; Pearson et al., 2006; Pearson et al. 2008; Smith & Frymier, 2006). However, as Menzel and Carrell (1994) and others mentioned above suggest, the amount and type of practice matter. It may be that the increased novelty coupled with the increased demand of VR practice could eventually, over time, improve public speaking scores more so than other interventions; however, evidence for this hypothesis is not supported by these results.

Yet, our results come with several limitations. First, similarly to Frisby et al. (2020), many students reported difficulties viewing their slides or notes in the virtual classroom for various reasons (e.g., small font size on their typed document, no eyeglasses in the VR headset, etc.), which may have hampered the effectiveness of the virtual audience practice session or increased the scores on demand that we observed. Relatedly, we encountered several technical issues while running participants. For example, some participants did not have their voices captured or did not receive scores on their performance. These types of technical issues can hamper the effectiveness of innovation in the classroom. As a final note regarding our software, although the audience in the virtual reality simulator appeared interested and enthusiastic toward speakers, we did not retain second-by-second control over the virtual audience. Future work should employ more sensitive measures of audience assessment for speakers using this type of software.

Second, we had low compliance in attending to feedback. Very few students paid attention to the virtual feedback. Based on the extensive literature on the utility of feedback in public-speaking skills training (Book, 1985; Bourhis & Allen, 1998), we would suggest future iterations of this project examine the role of tailored feedback delivered by a trained public speaking instructor. Alternately, participants may be offered an opportunity to examine their automated feedback scores with a third party capable of interpreting the feedback. In our case, we relied on the virtual audience to provide similar feedback; however, in contrast to Chollet et al. (2015), the passively presented feedback and audience were of limited use in the classroom.

Third, while the video and mirror conditions served as comparisons between the analog and digital effects of being able to see oneself while practicing a speech, the video condition did not reflect the same visual representation of the participant as the mirror condition. For example, the video only allowed participants to see themselves from the chest up, whereas the mirror reflected one's body from head to toe. Future research should ensure that the video and mirror capture the same amount of a participant's body for better control between the two conditions, and to better parse out why this type of practice versus the virtual practice all seem to have similar effects.

Finally, as we note in our discussion of Study 1, speech grades may have been influenced by student motivation or non-lab practice (e.g., prior speeches). These confounds are common among speech lab assessments for student populations (e.g., Davis et al., 2020; Frisby et al., 2020), and are difficult to avoid when operating a laboratory study in a classroom; however, we note that they may limit the generalizability of our findings.

These limitations aside, we would note that students generally enjoyed the VR sessions, found value in them, and found them potentially useful as practice tools. This is in line with the findings on the technology acceptance model of VR in the classroom by Vallade et al. (2020), suggesting that there

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could be great utility in incorporating this technology for public speaking training. However, we have not yet seen widespread adoption of VR public speaking simulators in the basic communication course, perhaps due to the equivalent results found with cheaper and more accessible hardware.

There are many reasons for the lack of VR adoption, some technological (e.g., the cost of the hardware, excessive lag, and pixilation of previous versions of VR simulations) and others related to a lack of interest or experience on the part of the instructor or students. Yet, technological improvements may make VR systems increasingly accessible for a minor investment. Meanwhile, instructor training and hiring costs are increasing, and the ability to spend hours with students giving personalized feedback may be limited. Thus, VR systems may offer a combination of realistic practice and personalized feedback that could be advantageous for the basic communication course and augmenting instructors' feedback.

The goal of this study was to illustrate the utility of including VR practice in a large introductory communication course. Overall, our research finds some limited benefits of implementing VR as a pedagogical tool to improve public speaking skills. Contrary to our expectations, we did not find a major improvement in public speaking speech scores from a single VR practice session, and instead found that practicing in front of a mirror or while recording themselves may provide equal benefits as the immersive virtual environment. Also, none of the potential mechanisms we examined based on past literature were conclusively linked to subsequent speech grades. However, our study had some drawbacks due to being quasi-experimentally situated within an existing basic speech course, which limits our ability to generalize from these results. Therefore, we urge researchers in this area to take our results as a starting point, rather than an ending point, for including VR in the public speaking classroom.

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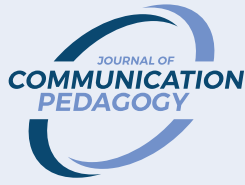
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# Learning About Metadata and Machines: Teaching Students Using a Novel Structured Database Activity

Andrew Iliadis , Tony Liao , Isabel Pedersen , and Jing Han 

**Keywords:** metadata, structured data, activity, human-machine communication, machine teachers

**Abstract:** Machines produce and operate using complex systems of metadata that need to be catalogued, sorted, and processed. Many students lack the experience with metadata and sufficient knowledge about it to understand it as part of their data literacy skills. This paper describes an educational and interactive database activity designed for teaching undergraduate communication students about the creation, value, and logic of structured data. Through a set of virtual instructional videos and interactive visualizations, the paper describes how students can gain experience with structured data and apply that knowledge to successfully find, curate, and classify a digital archive of media artifacts. The pedagogical activity, teaching materials, and archives are facilitated through and housed in an online resource called Fabric of Digital Life ([fabricofdigitallife.com](http://fabricofdigitallife.com)). We end by discussing the activity's relevance for the emerging field of human-machine communication.

This manuscript reports on a multi-sited application of a novel pedagogical activity for teaching communication students about metadata (and more broadly about the traces left by digital machines). The activity focuses on teaching students how to collect digital media artifacts about a particular topic (in our case, the topic was *augmented reality*), how to categorize and label the digital artifacts using a metadata system, and how to present the results of their work in the form of a curated digital archive. This study explores how to build student digital literacy (Tham et al., 2021) around data, metadata, and

Special thanks to Luke Heemsbergen for providing helpful feedback on this project.

Andrew Iliadis, Temple University, Philadelphia, PA

Tony Liao, University of Houston, Houston, TX

Isabel Pedersen, Ontario Tech University, Toronto, Ontario

Jing Han, Temple University, Philadelphia, PA

CONTACT: [andrew.iliadis@temple.edu](mailto:andrew.iliadis@temple.edu)



categorization, with activities designed to help students understand and reflect on their communication with and through digital machines. First, we describe why teaching metadata is an important topic for communication pedagogy, before presenting our aims and objectives for the activity. We then present a metadata activity where students actively found artifacts and categorized metadata in a real working database, and report on some of the student learning outcomes and preliminary reflections on the activity.

## Teaching Metadata

Metadata, defined broadly as a set of data that describes and gives information about other data (*data about data*), play a fundamental role in human interactions with machine processes (Zeng & Qin, 2016). Metadata are important for how they are created, what they can tell us about data, how they are utilized, and can be a useful tool for learning about how data gets used by machines. Data scholars have argued for the need to foreground data creation processes and data infrastructure literacy as a critical component for understanding data (Gray et al., 2018; Iliadis & Russo, 2016). At their core, metadata are ways to talk *about* the nature of digital objects once specific aspects of the world have been digitized. These metadata can be orchestrated and structured in such a way as to help people make sense of things through context and, thus, metadata can be powerful tools for building knowledge and increasing literacy, particularly about new and emerging media/communication phenomena. A deeper understanding of metadata is a prerequisite for understanding perceptions of human-machine communication (HMC) and the ways that human interactions with machines produce and reproduce digital traces.

While it is possible for metadata to be constructed actively, much of what gets generated is passive in that humans are often unintentionally creating metadata through their digital actions all the time (e.g., chatting with an automated customer assistant or using a messaging app). Because people tend to be less aware of the automatic data processes of passive metadata creation, we believe that assigning active metadata construction as a pedagogical activity can help increase awareness of metadata and shed light onto the power that metadata have for adding context and meaning to data. Active metadata construction can also cause students to confront metadata directly, and hopefully serve as a reflexive tool/prompt for learning about different HMC contexts and promoting digital literacy. We believe that metadata can be an effective tool in increasing students' data literacy around HMC through the examination, contribution, and curation of metadata activities.

Our proposed *metadata making* activity (building and organizing metadata about digital objects) involved archiving digital artifacts in a machine-assisted learning environment and then presenting the results there in a curated collection (material for the project in our case was centered on the topic of augmented reality; see Armfield et al., 2018; Heemsbergen et al., 2021; Liao, 2012; Pedersen, 2005). Our learning objective was to teach students about the value and logic of structured metadata and to see if the students could successfully complete an activity that required them to accurately process metadata through data entry. In preparing our metadata activity, we tried to address the following questions about teaching HMC topics, originally posed by A. Edwards and C. Edwards (2017a, p. 191): (1) "Do the affordances of the selected technology align with your learning objectives?" (2) "What factors should you consider before using machine sources in the classroom?" and (3) "What could be gained by having students try to teach machines?" In our case of metadata modeling, answering these questions forced us to separate the differences between several types and ways of teaching metadata, including using metadata modeling to identify distinctions between collections for professional use in institutions, collections for personal use by people in their everyday lives, and collections by researchers to provide

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evidence (Meghini, 2015). We decided that the use of an interactive activity facilitated using a piece of research software would be ideal, rather than through an enterprise product or personalized website.

## Teaching Metadata Using Fabric

In thinking about what affordances of technology would align with our learning objectives, we decided that using a machine-assisted teaching environment would help with teaching and promoting metadata literacy using case/context-based examples that promote reflexivity. The activity was facilitated through Fabric of Digital Life (Fabric), an online research collaborative and cultural analytics database. Fabric, first, tracks and stores metadata about the emergence of embodied computing platforms through digital media archiving (Iliadis & Pedersen, 2018; Pedersen & Iliadis, 2020). Then, it can serve as an interaction partner in educational settings through interactional videos, interfaces, and cataloguing (fabricofdigitallife.com). We thought Fabric would be a useful machine-assisted interaction partner and tool for students to learn about metadata/structured data. Fabric uses CollectiveAccess, an open-source collections management and presentation software. Fabric's metadata categories meet the Dublin Core metadata standard (Caverlee et al., 2018) with some additional customized visualizations (avatars, analytics, etc.) and metadata fields for storing and describing digital media artifacts (Figure 1). A previous project (Duin & Pedersen, 2020) used Fabric in the service of pedagogy and produced supporting resources that instructors can use across multiple disciplines to build digital literacy through metadata archiving on Fabric, and these are also located on the Fabric site (sites.google.com/umn.edu/buildingdigitalliteracy/home). The materials include (1) a metadata spreadsheet for entering the data, (2) instructional videos describing each of the metadata categories, and (3) guides on how to start a collection (Figure 2).

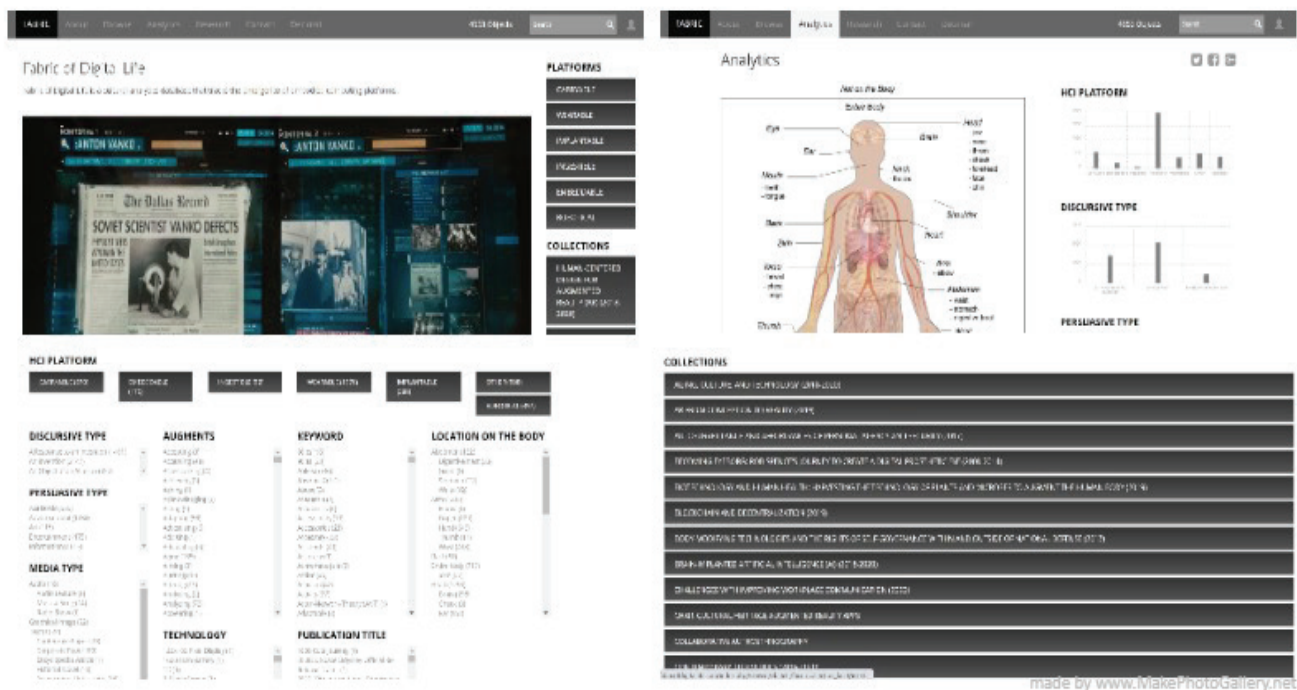


FIGURE 1 Various Fabric Interfaces (fabricofdigitallife.com).

The image shows two parts of the learning materials. The top part is a screenshot of the 'Digital Literacy - Spring 2020' website. It features a header with 'Home' and a search icon. Below the header is a large blue banner with the text 'Building Digital Literacy through Exploration and Curation'. To the left of the banner is a small image of a person using a VR headset. To the right of the banner is a table with columns: 'Group Members', 'Name of Instructor', 'Name of Collection', 'Object Type', 'Name of Artifact', 'Perspective/Information', 'Media Type', 'Publication Title', 'Alternate Title', and 'YYYY-MM-DD'. Below the table is a section titled 'We face a digital literacy crisis: understanding of immersive technologies has not kept pace with the full potential of their benefits and perils. The primary objective of this exploratory study is increased understanding of student development of digital literacy as a result of exploring, contributing, and/or curating collections of artifacts on emerging technologies. Thank you for agreeing to participate and/or collaborate with us on this research.' followed by a bullet point: 'Please begin by exploring the Fabric of DigitalLife archive (on the left). Consider how you might integrate its use in your research and teaching.'

The bottom part is a screenshot of 'FABRIC'S METADATA GUIDE'. It is prepared by Sharon Caldwell, dated July 2019 (version 2). It provides a link for more information: <https://decimal.screencasthost.com/fabric>. It defines 'ARTIFACT TYPE' as 'When creating a new submission, you must first determine your artifact's type or form:' and lists two types: 'Image (for photographs or still images without text)' and 'Moving Image (for videos) or'. It also includes a section titled '3 Different Keywords Categories' with three columns: '1 | Technology Keywords' (related to types of technologies, can be software or hardware, broad or narrow terms, make sure terms are specific for brand names), '2 | Marketing Keywords' (related to for-profit or fictional names, includes company names, product/brand names, family's show/book/video game names, fictional characters, places, tech companies, etc.), and '3 | General Keywords' (related to general subject terms, not technological, includes theme, description, purpose, audience, environment, industry, ethical implications). On the right side of the guide is a 'Decimal' logo and a 'FABRIC Keyword Tutorial' for 07/2019. It includes a 'Captions' section with two examples: '1. My name is Sharon and I'm the owner and creator of Fabric at DecimaL Lab.' and '2. I'm really excited that you'll all be contributing to the archive and helping to enrich our content with your research and knowledge.' and '3. In the set of videos I'd like to explore some specific metadata fields more in depth.'

FIGURE 2 Fabric's Metadata Learning Materials (Duin & Pedersen, 2020).

Fabric's metadata organizing allows students to map out how HMC platforms (e.g., wearables, robots, etc.) are ideationally conceptualized, physically concretized, and socially contextualized within an object-centered network (Fordyce et al., 2016). Students can enter metadata for the digital objects they want to add to Fabric, thus creating a linked map to explore shifting narratives and production trajectories through their connection to digital media artifacts such as patents, news releases, instructional videos, and policy documents. For example, students might enter the search term "smart watches" which would bring hundreds of interactive media results (e.g., videos, text, etc.) that future users could begin browsing via tagged metadata links in the objects for additional keywords (e.g., health, communication, heart rate, social media, etc.), producing complex timelines of concepts in the field. This iterative process allows students to see how metadata may be used to read certain HMC topics.

In this way, Fabric can be used to construct learning and teaching activities and facilitates the connections between learners and between learners and instructors (Duin & Pedersen, 2020). Therefore, a networked learning and teaching environment is co-created where students can add metadata information and thus serve as teachers themselves. Within this environment, students can contribute their own metadata to help future students recognize and reveal information that might be hidden due to preconceived assumptions regarding the intentionality and utility of emerging technologies and their corresponding innovation hype. Instructors can promote learning by inviting students to engage and join the discourses by identifying the language of emergence through metadata, schematizing levels of data abstractions, and competing motives into a coherent narrative, and by forming a digital humanistic framework (Pedersen & DuPont, 2017).

## Activity Description

Our activity was conducted twice over the course of a single communication class at two large public universities in the United States. There were 19 students in one class and 19 in the other for a total of 38 students. In thinking about what factors to consider before using machine sources in the classroom, we decided that metadata literacy should be built into a machine-assisted teaching environment, and that using the Fabric instructional materials such as videos, spreadsheets, texts, and interfaces would be needed for the activity. We guided students through this process as they worked with the materials on Fabric. The steps for our activity are presented below (steps 1–4 and 8 are completed in Fabric):

1. Register for a Fabric account at [fabricofdigitallife.com](http://fabricofdigitallife.com).
2. Read the information about submitting artifacts on Fabric.
3. Review the metadata guide.
4. Watch the video guides.
5. Use the provided spreadsheets for labeling metadata.
6. Gather and save digital objects related to a chosen theme.
7. Enter metadata for those objects into the spreadsheets.
8. Submit the spreadsheet metadata to Fabric for processing.

Students were first instructed to review the interactive videos and texts in Fabric concerning how to make an account and start a new form for adding digital objects, along with material explaining what each of the metadata categories stands for. Table 1 contains the description of the metadata categories and their definitions that students had to review (steps 2–4) through the Fabric materials prior to starting the activity. After reviewing and interacting with the Fabric learning materials, students then were required to collect digital artifacts, downloading their files into a folder (step 6), and label them using metadata (step 7) for processing and then enter the data into Fabric (step 8). The aim was to have students successfully understand each of these metadata categories and relationships with the goal/objective of having students then produce suitable and appropriate metadata examples that they submitted to Fabric. The metadata categories include things like publishing details, persuasive intentions, and keywords.

TABLE 1 Fabric's Metadata Categories and Their Descriptions	
Metadata Categories and Descriptions	
Object Type	When creating a new submission, you must first determine your artifact's type or form: Image (for photographs or still images without text), Moving Image (for videos), or Text (for articles, patents, blog posts, etc.).
Name of Artifact	Refers to the title of your article, video, or image (e.g., "Iron Man - Designing and Testing the Mark II Gauntlets" or "NeuroPace: How the RNS System Works").
Persuasive Intention	Refers to your artifact's intention and purpose (e.g., advertisement, information, entertainment, etc.).
Media Type	Refers to the artifact's specific media format. Each subtype is indented under the broader category. It is best to select a narrower category to describe your artifact. If none of the subtypes fit your artifact, then you can choose the broader category (e.g., corporate video, news broadcast, feature film, etc.).

Publication Title	Refers to the name of the newspaper, magazine, journal, or blog (e.g., <i>TechCrunch</i> , <i>The New York Times</i> , <i>IEEE Spectrum</i> ) OR the name of the film/TV show/video game/book (e.g., <i>Iron Man</i> , <i>Black Mirror</i> ), not the title of the article. If it's a corporate video, you can leave this category blank.
Publication Date	Refers to the date that your artifact (article, video, or image) was published (YYYY-MM-DD).
Description	A short description of your artifact that gives it context. For academic articles or patents, you can post the abstract. For journalistic articles, you can either copy and paste the introductory paragraph, or (if you're feeling ambitious), summarize the article yourself in a short paragraph or two. An ideal description would include what the product/invention/service/film is, its intention or use(s), some key technological components, and why it is important.
Technology Keywords	Refers to all the different technologies that your artifact discusses or showcases. This can include broader technology categories (e.g., Artificial Intelligence (AI), Smart-glasses, Smartphone Applications, Holographics, Facial Recognition, Spatial Computing, Fitness Trackers, etc.) as well as the more 'granular' technologies (e.g., Batteries, Light Emitting Diodes (LED), Radio Frequency Identification (RFID), 3D Printing, Temperature Sensors, Cameras, etc.). This category is only for generic technological terms (e.g., Operating System (OS), Wireless Connectivity, Heads Up Displays (HUD), etc.). Note: specific brands or trademarked names of technologies (e.g., Android KitKat, Bluetooth, Google Glass) belong in Marketing Keywords)
Marketing Keywords	Refers to anything that is marketed for profit: the names of companies (corporations, start-ups, etc.) as well as their products (Google Glass, Muse Softband). It also includes the names of films (e.g., <i>Blade Runner</i> , <i>Terminator 2</i> ) TV shows (e.g., <i>Black Mirror</i> , <i>Westworld</i> ), video games (e.g., <i>Deus Ex</i> , <i>Cyberpunk 2077</i> ), books (e.g., <i>Do Androids Dream of Electric Sheep</i> , <i>Neuromancer</i> ), fictional characters (e.g., T-1000, Tony Stark), fictional technologies (e.g., Mark II, Universal Translator), fictional places (e.g., The Oasis, The Metaverse), and fictional companies (e.g., Skynet). For products, include the name of the company along with the name of the Product (e.g., Fitbit Versa). For example, if you are archiving a video about the "Vuzix Blade Augmented Reality Smartglasses," your Marketing Keywords would be: Vuzix (name of company) and Vuzix Blade (name of product).
General Keywords	Refers to general words that help further categorize the artifact and the subject(s)/concept(s) it discusses. This can include broad terms (e.g., Fashion, Medical, Ethics) or narrower terms (e.g., Shirts, Parkinson's Disease, Privacy, etc.). It can also include descriptions of the product (e.g., Comfort, Stylish, Immersive).
Classification	<i>An Invention</i> : Select this if your artifact discusses or announces the creation of a device/product (e.g., a commercial for the Samsung Galaxy Gear). This includes company concept or launch videos, demonstrations from the creator, news releases written by the company/inventor, patents, etc. <i>A Response to an Invention</i> : Select this if your artifact features commentary about an invention (e.g., Forbes discussing the new Apple Watch Series 4). Magazine or newspaper articles, news videos, and blog posts typically belong in this category, unless it is the inventor writing about the product (e.g., someone from Apple writing a guest post on Forbes about the new Apple Watch Series 4). In this case, it would be classified as 'An Invention'. <i>An Object of an Allusion</i> : Select this if your artifact is a snippet from popular culture or fiction (e.g., film trailers, clips from movies or TV shows). These are useful to archive because inventors will sometimes allude to pop culture by saying something like, "I was inspired to create this device after watching <i>Star Wars</i> / <i>Batman</i> / <i>Minority Report</i> , etc."
Related Items	Any related items in the database.



Allusion or Response	Does your artifact refer to any other inventions, responses to inventions, or objects of allusions in the archive? For example, if you are archiving a magazine review of the Oculus GO VR headset, you would include the primary Oculus GO advertisement here. If your artifact references any similar inventions (e.g., an article about North's Focals mentions Google Glass) or alludes to pop culture (e.g., the concept video for an AR heads-up display alludes to Tony Stark's suit in <i>Iron Man</i> ), include them here.
Names of Creators, Contributors, Publishers	Refers to any individuals or organizations (companies, universities, research groups, etc.) who helped create, contribute to, or publish your artifact as well as the technology being advertised or discussed. Author(s): Refers to the name(s) of the person/people/company who wrote the article or created the video. For films, it would be the director. Contributor(s): Refers to any other person who is mentioned in the artifact, but is not the main creator. This could be editors, experts, or researchers in the field, as well as any relevant universities/research labs/institutions/organizations. Publisher(s): Refers to the name of the company or institution that published the artifact (e.g., Brown University, Vice Media, Springer Nature Publishing). This may be different than the publication title. For example, CNET is published by CBS Interactive Inc. Look for the copyright symbol at the bottom of websites. For films, include the name of the production company (e.g., Warner Brothers, Marvel Studios).
Location on Body	Refers to where on the body the device is meant to be worn, embedded, or implanted. Think about which part(s) of the body is being augmented: If it's an Ingestible, it would typically be Digestive Tract. If it's Robotical, you would classify it as the Entire Body (referring to the robot itself). If it's in the Other category (e.g. artificial intelligence algorithms that aren't associated with a specific device, or ambient technologies like smart sensors for homes), it will likely be classified as Not on the Body. If it's Carryable, it will likely be on the Hand. For Wearables, it could be the Wrist (for smartwatches), the Eyes (for AR/VR headsets or smartglasses), the Entire Body or the Torso (for smart clothing), etc.
Augment Keywords	Refers to the ways in which the product or technology helps to augment the human body. Consider things such as: how the product enhances human capacity, actions the person performs while interacting with the technology, and what the product or technology helps facilitate (e.g., Walking, Exercising, Working, Communicating, Creating, Imagining, Engaging, Expressing, Feeling, Learning, Living, etc.). Write it as a present tense action verb (ending in 'ing').
Use/HCI Platform	Refers to the way that the technology being discussed in your artifact is intended to interact with the human body. Carryable: Is it meant to be carried around (e.g., smartphones or tablets)? Wearable: Is it meant to be worn somewhere on the body (e.g., smartwatches, LED dresses, Brain-Computer Interfaces that use EEG sensor caps)? Embeddable: Is it meant to be embedded into the body (this refers primarily to prosthetics that are not explicitly implants; e.g., prosthetic legs, bionic hands)? Implantable: Is it meant to be implanted in the body, typically through surgical means (e.g., pacemakers, Brain-Computer Interfaces such as Elon Musk's Neuralink, cybernetics, sensors that transhumanists or biohackers/grinders put under their skin, etc.)? Ingestible: Is it meant to be consumed internally (e.g., a digital pill)? Robotical: Is it a standalone robot that is physically separate from the human body altogether (e.g., humanoid robots, social and companion robots, mobile manipulator robots)? Other: Does it not fit into any of the above categories (e.g., artificial intelligence algorithms or systems that are not incorporated into robots or other HCI technologies (IBM's Project Debater), smart home systems, the internet of things and connected devices, personal assistants like Apple's Siri, self-driving cars)?
Source/Web Address	Refers to the web address of the artifact. Copy and paste the link to your video, article, or image here.




Because the Fabric database focuses on embodied computing technologies, our activity asked students to label individual media artifacts related to applications in one embodied computing area. In our example, students focused on the topic of augmented reality and policing (Figure 3), while also focusing on one of three geographic locations (USA, UK, China). Students were placed into three groups, with a focus on one of the three different geographic areas to ensure that they found different assets but also to capture a wider range of artifacts. Students then searched for digital artifacts (e.g., articles, patents, videos, etc.) on the web relating to augmented reality and policing in their given geographic area. Most of the students conducted Google searches using several variations of keywords relating to their topics and saved their digital artifacts into folders on their computers. After finding their artifacts, students then began to create all the metadata for each of their found digital objects in the metadata spreadsheet provided by Fabric. For example, students had to enter the information for each of the categories listed in Table 1 for each media artifact, and these included naming the object and media types, publication dates and titles, persuasive intention, various keywords, and so forth. Students then handed in their spreadsheets after filling in all the metadata for their collected digital media artifacts, so that it could be entered into Fabric. After conducting the metadata exercise, students were asked to comment and reflect on the metadata categories as well as instances where they had difficulty categorizing certain artifacts using the predefined categories. Below is a shortened description of the activity provided to students (Table 2 and Figure 3).

**TABLE 2****Activity Description Provided to Students****Activity**

Collectively we will be working on creating a curated collection for a digital database called “Fabric.” Fabric is a cultural analytics database that tracks the emergence of embodied computing platforms. We will be contributing to a very important collective resource about embodied computing.

Outputs: 1) Class Research – Finding artifacts about our topic for Fabric – Each person is responsible for finding news articles, videos, press releases, entertainment media, and any other public artifact that talks about a particular topic related to AR. We will also post these onto a collective document to minimize redundancies. 2) Class Research – Coding the artifacts and entering the metadata for Fabric – After we compile a list of artifacts, each one of you will be responsible for coding the artifacts and entering the metadata for submission to Fabric. Our entries will then be indexed and appear in the Fabric database/website for other people to search. Write a summary of your experience and reflect on what you did.



- Break out in three groups
- Look for material related to AR/VR and Police/Policing.
  - Group 1: USA
  - Group 2: UK
  - Group 3: China
- Enter the material you find in the spreadsheet, filling out the metadata categories.
- Make sure the material is not already in FABRIC.
- fabricofdigitallife.com

**Why Research?** Augmented Reality is still in the early phases of development and public introduction. There is still a great deal we do not know about AR, ranging from how people will perceive the technology, who will adopt the technology, how people will utilize the technology, how people will interact with one another using the technology, how people will be affected by AR media, etc. The possibilities are endless because the form and content of AR are still being negotiated, which is why more research needs to be done.

**Part 1 – Class Research:** Collectively we will be working on creating a curated collection for a digital database called “FABRIC.” FABRIC is a cultural analytics database that tracks the emergence of embodied computing platforms. We will be hearing from one of the founders of FABRIC on October 8<sup>th</sup> to explain what this project will look like, but we will be contributing to a very important collective resource about AR/VR/Embodied Computing.

**Part 2 – Individual Experimental Research:** Each of you should hopefully have started developing interest in a particular area of AR – some of your application - design proposals contain within them some interesting research questions, and some of you specifically said that more research would be necessary to answer/satisfy investors. Regardless, start brainstorming research questions based on AR that could be testable through a survey or an experiment. Then, start identifying literature that would be relevant to your research question.

**Outputs:**

- 1) **Class Research – Finding artifacts about our topic for FABRIC** – Each person is responsible for finding news articles, videos, press releases, entertainment media, and any other public artifact that talks about a particular topic related to AR/VR. We will also

**FIGURE 3 Activity Slides Shown to Students.**

## Outcomes of the Fabric Activity

This activity was simultaneously an exercise in learning the metadata language of machines, finding artifacts to apply that language to, and ultimately placing those artifacts into the machine database using that language. By actually placing their artifacts and corresponding metadata into the database for future search queries, students were able to see how metadata functions as a real-world activity. We found that upon completing the activity, students were able to identify several interesting metadata examples. We reviewed the material provided in the submitted examples to see if they satisfied and matched with the criteria listed in the metadata categories and descriptions. The material showed evidence that the students were able to successfully apply their knowledge of metadata into filling the categories that were required of them. For example, the object types were described (text, video, interactive resource, etc.), the names of the artifacts that they found were produced (titles, etc.), the persuasive intentions of the artifacts were labeled (information, advertisement, entertainment, etc.), the media type was recorded (YouTube Clip, Newspaper Article, etc.), publication dates and titles, descriptions of the artifacts, and various keywords, among other metadata categories.

We can offer some preliminary reflections from this activity. First, students seemed to have adequately grasped the nature of metadata and its processing based on their experiences with the Fabric machine-assisted learning environment. Focusing on HMC, students developed their conceptualization around AR technologies, considering how AR is ontologized into specific abstract categories and taxonomies. In this stage, students imagined how AR might be conceptualized as a media technology. This stage involved creating technology keywords related to aspects of AR's ontological categorizations (things like heads-up display, visual interface, smart glasses, batteries, etc.). The conceptual design of AR as an embodied computing device was emphasized to locate the contours and abstract ideations of what AR media are supposed to include and how they are taxonomized. The students conducted systematic reviews of how AR is conceptualized in research and production from a discursive perspective, analyzing and then labeling media artifacts relating to the conceptualization of design.

Second, students focused on the concretization of their concepts by focusing on how AR concepts are embodied in industry, market, and regulatory forces (Heemsbergen et al., 2021 aided our reflections on the activity and how AR is conceptualized). This was done through the creation of marketing metadata keywords that included things like company and product names. Concretization considers how AR concepts are reified into production and market materializations. This step takes the abstract categories that students developed in the ontologizing of AR technologies and applies them into groups of existing companies, products, domains, and marketing materials. These are the materials that mediate AR conceptualizations into embedded and embodied practice, highlighting the implementation of concepts in the real world. Students observed actual companies that build AR for policing, as well as the names of those AR products. They also identified government, intelligence, policing, and security organizations that use these AR conceptualizations in concrete practices.

Beyond the tangible artifacts they found, their reflections on the exercise were also enlightening. One common theme was that students talked about how breaking down the artifact in a systematized way demystified some of the power of the database. Some talked about how they now understood how these decisions were made, and how humans were making these determinations. Having the experience of curating data helped them better understand what they see when they utilize the database and see the search results presented. Another common theme was a feeling that they were constrained by the metadata

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codes, not because they were incomplete, but they could only distill the features of the artifacts without necessarily capturing their full meaning. For example, while the system allowed them to annotate the persuasive intention and allusion, it may not have captured how positive a particular video was toward the idea of augmented policing, or how they presented it as a necessity. It also illustrated to students how certain metadata categories would be more useful as a sorting function, given that certain classification categories would place various dissimilar and incommensurate artifacts in the same category just because it was an advertisement or talked about a particular device.

Lastly, students turned from concretization to contextualization by imagining AR media and its intended public debate but also how AR media confront continued social and cultural appropriations. This was done through identifying general keywords related to concretized AR media objects. Such keywords include those related to augmenting (e.g., purchasing, surveilling, policing, etc.). Contextualization is where detailed information about HMC and policing practices was included, describing how users like police, government, military, and security companies are employing HMC in the field for specific cases and purposes (e.g., to combat illegal immigration, etc.). This stage is where the different social contexts are identified, and in the context of our class activity, students identified different cultural contexts related to AR and policing in the UK, USA, and China. Students also imagined the use of AR technologies in these contexts, hinting at potential uses and futures.

## Discussion

One important factor in data literacy is to gain a level of reflexivity about data, particularly the interrelationships between how data are found, refined, and made (Armfield et al., 2019; Duin et al., 2019; Duin & Pedersen, 2020; Duin et al., 2021). Teaching students this requires building in interactive experiences with data and encouraging them to reflect on the process of refining and producing data. Following an HMC focus on ontologizing and laying bare “communication with digital interlocutors” (Fortunati & Edwards, 2020, p. 7), we found that Fabric promotes the pedagogical experiencing of machinic content while foregrounding the human-centered design of interaction technologies like AR (Armfield et al., 2019). Specifically, the Fabric interface highlights the data ontologies and their ontological shifts (Iliadis, 2018, 2019) in HMC devices (Banks & de Graaf, 2020; A. Edwards, 2018; Guzman, 2020) by categorizing and making searchable/retrievable information about the technologies, their histories, and varieties of social utilities and functions. This type of activity offers a pedagogical opportunity where students can begin by creating their own data to input into a machine, rather than taking a top-down approach of inputting data into a machine and delivering that to the student—students thus become active participants in the teaching/learning cycle in both directions.

We think that Fabric’s affordances generally aligned with the learning objectives for our activity. Fabric contains the necessary visualizations and interaction capabilities that allow students to learn about metadata in a uniform and self-paced learning environment. As a machine-assisted teaching tool, Fabric seemed to be able to promote reflexivity and literacy about metadata through its affordances that students were able to take advantage of, such as the avatars and videos. Second, we think that Fabric contains several factors that are needed in any machine teaching scenario, including the opportunity for self-pacing and self-directedness, along with clear visualizations and instructions with both audio and visual material. Most importantly, examples are included to allow students to visualize their future work. Students were able to visualize the metadata through analytics visualizations before conducting

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their own projects. In this way, Fabric seemed to contain several of the necessary tools, processes, and activities that were required. Lastly, Fabric shows what could be gained by having students try to teach machines. Part of Fabric and the associated activity is designed around student-led contributions to Fabric's content by way of processing students' metadata projects into Fabric. Fabric is essentially learning from the students, and the student-submitted metadata will later serve as material for future learning done on and through Fabric.

## Conclusion

HMC is an emerging subfield in communication that focuses on technologies that are designed to enact the role of communicator (e.g., virtual assistants, robots, virtual avatars, etc.) and on meaning-making processes that occur in everyday encounters with technology as a communicative subject (C. Edwards et al., 2019; Guzman, 2018; Jones, 2014). Of particular interest to HMC scholars is HMC's similarity to interpersonal communication, and more specifically approaches toward computational interpersonal communication (C. Edwards et al., 2020; Gunkel, 2016; Westerman et al., 2020) and understanding the various ways in which people communicate with machines as social robots (Gehl & Bakardjieva, 2016). For example, such interpersonal scenarios might include people engaging in dialogue with Twitter bots or virtual assistants like Alexa. A second interest of HMC scholars is in HMC's similarities to mass media using algorithms, artificial intelligence, and automation for communicative meaning-making (Gunkel, 2012; Guzman & Lewis, 2020; Lewis et al., 2019).

Moving beyond similarities with interpersonal and mass media approaches, there are many opportunities to invert the common ways that scholars think about machine education. HMC research into education has focused a lot on the delivery of data → to machine → to student direction (for example, in online learning environments where students are seen as passive receivers of information, or when students interact with a robot), which is only one direction and starting point. Switching the direction to student → creating data → inputting data machines could also be important. We think that Fabric promotes this second direction, where students are the ones who begin by creating material and then eventually contributing that material to a machine-assisted learning tool. This type of perspective puts emphasis on the students and their creative capacities to produce materials, and we think that this perspective empowers students in their learning and education.

As communication and educational scholars continue to think about student engagement with machine teachers (e.g., with social robots, avatars, etc.) (Belpaeme et al., 2018; A. Edwards & C. Edwards, 2017b; C. Edwards et al., 2018), more work is necessary to understand these interactions. Although much of the literature has focused on conceptual and behavioral/experimental approaches to machine teachers/teaching, machine teachers/teaching also provides opportunities to examine iterative and reflexive ways to promote student understanding of machine-assisted pedagogy in nontraditional learning settings and through synergistic work. In addition to understanding machines as teachers, we argue that it is equally important to provide students with an understanding of how data are created and on what basis they are teaching from. This study offers a hands-on and iterative way of helping students better understand data and metadata as a concept, which could in turn affect their future interactions with machines.

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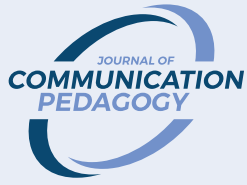
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## A Time of Firsts

Alberto González

My academic career has been one of many firsts. I was the first in my family to graduate from college and the first to earn graduate degrees. I was the first faculty member of Mexican heritage to be department chair and later vice provost at my university. So, it wasn't much of a surprise that I would be the first First Vice President of CSCA to plan a convention in 2020 that didn't happen and that I would be the first President to preside at a virtual convention in 2021. Finally, because the Executive Committee made the decision to freeze the officer rotation due to the COVID-19 pandemic, I will be the first to serve 2 consecutive years as CSCA President. My career is one of asterisks.

It has been a pleasure to work with the Executive Committee (EC) over this past year. Members of the EC are always on-call between conventions to respond to issues that require consultation or an immediate vote. The journal editors have continued their work. It has been a time of immense challenge, uncertainty, and even trauma. Creating avenues for growth and, yes, *inspiration* is special in hard times. First Vice President Dr. Deb Ford and Executive Director Dr. Tiffany Wang deserve special credit. Deb planned two conventions, the first was the anticipated face-to-face convention in Cincinnati and the second was the eventual virtual convention. After considerable research, Tiffany found a vendor who provided a trouble-free and user-friendly platform for our 2021 Annual Convention, *Inspire!* We had a record-breaking registration for the Preconvention on "Decolonizing the Discipline" that was planned by Dr. Ahmet Atay. We celebrated 2 years of Hall of Fame inductees. Videos and summaries of award recipients can be found at the CSCA Facebook page: [https://www.facebook.com/CentralStatesComm/?ref=page\\_internal](https://www.facebook.com/CentralStatesComm/?ref=page_internal). Having canceled the 2020 convention, it was vital to provide members with a 2021 convention experience that was safe and accessible.

Crisis communication scholars define a *mega-crisis* as "a complex set of interacting crises that is severe in impact, complex in nature and global in fallout, with no distinct start and end points" (Yen & Salmon, 2017, p. 7). The COVID-19 pandemic that we endured was a mega-crisis that brought with it a number

of ongoing and interrelated crises. Most immediate was the very real threat of infection. For the first time, we were mandated to stay home. The lockdown we experienced from mid-March 2020 and into 2021 disrupted our professional, social, and personal routines. The lockdown exposed the crisis of underemployment and low wages. What many hailed as record employment before the pandemic was an economy largely sustained by “essential workers” who worked long hours for low pay and no benefits. The mega-crisis also exposed a health-care system that provided uneven quality of care and affordability determined by race, ethnicity, and income. As a result, the pandemic disproportionately impacted communities of color. Additionally, the same disparities in health care were found in the continuing crisis in law enforcement and the justice system in the U.S. In May 2020, the world was horrified by the killing of George Floyd in Minneapolis, Minnesota. Tens of thousands of people in the U.S. and around the world, many for the first time, joined marches and protest actions to demand justice for those who died by police violence. Finally, the pandemic exposed the crisis of weak international alliances. Growing distrust among nations resulted in competitive grabs for medical equipment and a lack of information sharing. These crises intensified while those of us in higher education struggled to re-boot our classes for online delivery and prepared to show greater empathy toward our students and colleagues. It is my hope that our scholarship can be directed toward unpacking these crises utilizing our respective methods and perspectives.

So, 2020 was a time when we lived in fear for ourselves and for our loved ones. We tried to stay in contact as much as possible as Webex and Zoom became part of our vocabularies and daily lives. We vented, commiserated, did a lot of cleaning, and even found time to plan. After all, a friend once told me that, “A good organization gets better even in the bad times.” We have tried to make CSCA better even in these bad times.

In 2020, CSCA was emerging from its own narrow escape from dissolution. For details, see the 2020 Presidential Spotlight (McBride & Edwards, 2020). I was hoping that the Chicago convention, “Borders and Breakthroughs,” would be our breakthrough moment. It was not to be. Our leadership team resolved to move forward on a number of initiatives and ideas as we looked toward the 2021 convention. We wanted to get better even in bad times. Since last year, we have done the following:

- ▶ Updated our Constitution and Bylaws. Our Mission Statement now includes two additional goals—to advance “discourse that supports traditionally marginalized people within and beyond the conference” and to advance “policies that support traditionally marginalized people and aim to achieve inclusivity and equity.”
- ▶ Created an Ad Hoc Equity and Diversity Committee and appointed as chair, Dr. Matthew Heinz, former Dean of the Faculty of Social and Applied Sciences and founding Dean of the College of Interdisciplinary Studies at Royal Roads University. Our goal is to have this become a Standing Committee.
- ▶ Appointed Dr. Yuping Mao, California State University, Long Beach, to be Editor-In-Chief of *Communication Studies*. To read the announcement of her appointment, please see the CSCA Bulletin dated March 29, 2021.
- ▶ Charged the Finance Committee to investigate socially responsible investing as a framework for managing CSCA investments.
- ▶ Created an early-evening session at the 2022 Madison convention for the Carolyn Calloway-Thomas Speaker Series. This scheduling change prevents conflicts with any other sessions.

- ▶ Approved a *Journal of Communication Pedagogy* Article of the Year Award to create parity with the *Communication Studies* Article of the Year Award.
- ▶ Allocated funding for a Faculty & Student Learning Community to facilitate professional development for BIPOC members. A development fund has been started for this initiative. If you are interested in donating to this fund, please contact Executive Director Tiffany Wang.

Our efforts to make CSCA better for its members relies on all of us. I realize that members are at different points in their careers and that a professional association isn't always a priority. But it can be at times. I urge all members to feel free to contact anyone on the EC or me whenever you have an idea or observation that you wish to share. Make it a first!

As we anticipate the Madison, Wisconsin, convention, and with the impulse to critically understand our environment, I urge all of us to be mindful of the indigenous history of the Madison area. Through Dr. Amanda Brown, I have been in contact with a member of the Ho-Chunk Nation, Ho-Chunk meaning "People of the Big Voice" or "People of the Sacred Language" (Loew, 2013, p. 44). The Wisconsin Historical Museum has a very good relationship with the indigenous peoples of Wisconsin. Deb, Tiffany, and I toured the museum on our site visit to Madison in June. The exhibits are excellent. In addition to the book by Loew, another book recommended by my contact is *Mountain Wolf Woman: A Ho-Chunk Girlhood* (Holliday, 2007). I have read this book and it is appropriate for readers of all ages! I hope that through the convention we can have a greater understanding of and respect for the indigenous past and present of the Madison area.

We all have our own "firsts." Maybe you are the first person in your family to leave your home country to attend school or teach in the U.S. Maybe you are the first to earn a degree while raising a family. Maybe you are the first to teach classes and be a caregiver for someone. Now, we are beginning to resume our pre-COVID routines and enter a new realm of firsts. We are having our first maskless visits with family and friends, post-pandemic. We are preparing to teach our first live and in-person classes, post-pandemic. As an association, let's celebrate our firsts when we *Re-Connect* in March 2022.

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