mance in the VRE is highly correlated to the real world.

VREs have also been shown to have the potential to treat various affective, behavioral, and cognitive reactions. Affective reactions involve feeling and emotion. The basic human response to fear is to avoid situations that provoke a fearful response. Being in a safe environment will help the person to feel more comfortable. Exposure via desensitization and habituation is one method to treat affective reactions. The VRE can be used to aid in the process of systematic desensitization by repeatedly exposing the reticent speaker to the feared situation. Once the fear response is elicited, the speaker should stay in the VRE until the fear response habituates. The VRE provides a safe environment for this process to occur. If the speaker becomes unable to continue their speech because they are too fearful, they can simply exit the VRE, and reenter the VRE when they have calmed down (Brundage & Hancock, 2015). VREs can also be used to facilitate behavioral change. Repeated, systematic practice using VREs provides an opportunity to improve and teach many skills (Holden, 2005). For example, VREs have been used in skills training to learn complex tasks such as flying a plane (Huet et. al., 2009). Cognitively, VREs can be used to facilitate the process of cognitive restructuring. Previous research has involved using VREs to help people with eating disorders recognize false beliefs about themselves, and assisting them in reframing these negative beliefs into more positive ones (Riva, Bacchetta, Cesa, Conti & Molinari, 2004).

VRE and Apprehension Reduction

The promise of technology as an aid for speakers who are suffering from communication apprehension is clear. Using VRE's to create a simulacrum of the speaking environment, Brundage & Hancock (2015) found no significant difference in the manifestation of communication apprehension for subjects who were asked to give a speech in real-time environments and a VRE. The manifestation of communication apprehension in both real-world and VRE was positively correlated. By extension, if the virtual world is as impactful (in the elicitation of arousal during the act of public speaking) as the conventional context, than using a VRE to treat communication apprehension through systematic desensitization and skills training makes sense. It is logical to assume that practice using a VRE will significantly drop communication apprehension scores when compared with a control group that practices the delivery of a speech sans audience.

The VRE as a Teaching Opportunity

The basic premise of this activity is to allow students the opportunity to practice presentations in an environment that replicates real-world experience. Some of the applications that are identified in the paragraphs that follow are specific to forensics, while others are appli-

cable to the classroom in general. The areas of application can be grouped into two categories--apprehension reduction and programmatic expense reduction. Generally speaking, the initial cost of this activity is around $200-$300, assuming that the person using the technology already has access to a smartphone.

The Activity

This activity is designed to facilitate the reduction of moderate and high communication apprehension through practice in a virtual reality environment (VRE). The activity was initially conducted at a small, private, undergraduate college in the Midwest. During the pilot implementation, one group of moderately apprehensive speakers (MRA's) received VRE treatment during three practice sessions prior to the actual speech; another group practiced their presentations without the opportunity for VRE treatment (but they were allowed to practice in the same physical space that had been used for the simulacrum [a.k.a. VRE]). The data suggested that practice in a VRE significantly reduced apprehension when compared with conventional practice sessions.

A mixed-method approach was used to explore the relationship between communication apprehension and practice in a VRE. We relied on quantitative data in the form of survey assessment measures to ascertain pretest and posttest results for the dependent variable of communication apprehension. Additionally, a controlled two-group experiment was used to determine the impact of VRE, the independent variable, on communication apprehension. Students who were enrolled in a basic communication course were provided an opportunity to participate in this research. Both the advantages and disadvantages of participation were shared with the students. Aside from the potential disorientation from a VRE experience, the benefit of the study included learning about a new technique for overcoming communication apprehension. The steps for the pilot of this activity included identification of sample, establishment of procedures, measurement, and data analysis.

Sample: Initially, cluster sampling was used to select from all students in the basic "hybrid" communication course. At the start of the semester, all students in the introductory communication course took the PRCA-24, and therefore had an equal chance of being selected for participation in the study. After the PRCA-24 scores were gathered, purposive sampling was used because the study required only students who scored above 53 on the PRCA-24 be included in the high apprehension cluster. Further, in order to control for instructor effects, the sample was limited to two course sections of one instructor. A final sample (n = 16) consisted of eight participants in a treatment group cluster of the basic "hybrid" communication course, and eight participants in a control cluster of the course. Finally, participants were selected based on matched pairs, using PRCA-24 scores, across

the two sections. There was a 0.96 correlation for the matched pairs, indicating a high correlation between participant groups (Baxter & Babbie, 2004).

Procedures: All participants took the basic course in the same classroom and with the same professor. Participants were asked to practice their speeches in the classroom (control) or a virtual representation of the classroom (treatment). For the sake of consistency, practice sessions took place in the same classroom. During the first week of the course, all students completed McCroskey's (1977) Personal Report of Communication Apprehension (PRCA-24) survey through an online assessment as part of the introductory requirements for the course. After giving their first speech in the class (a four to six minute demonstration speech), the participants were approached by the course instructor and invited to participate in the activity. All participants were offered extra credit in the course for participation. After signing an informed consent form, students from both the treatment and control group were asked to memorize their persuasive speech introductions; these were approximately one minute in length. The weekend prior to giving their persuasive speeches, for class, students in the experimental group gave three practice speeches, rehearsing only their introductions and using the VRE. Students in the control group practiced their introductions three times without using the VRE. Throughout the three practice sessions, participants in the experimental group gave their first two practice sessions to a demographically unfamiliar audience, and gave their third practice session to a recording of their COM 100 class. If the participants in the experimental group ever lost their place in their introductions, research assistants gave them prompts to help them remember their speech. This protocol was required since students could not use notes in the VRE setting (a limitation of the technology). The week following the practice sessions, participants gave their entire persuasive speeches to their class for a grade. Finally, all participants took the PRCA-24 as a posttest to measure communication apprehension following practice with or without the VRE.

Several weeks prior to the activity, the instructor asked students to view an exemplary speech on a projector screen. While the students were watching the speech, a Samsung Gear 360 camera (set up prior to the viewing of this speech and directly in the line of sight for the students) recorded their audience behavior. The video of the audience was recorded on a smartphone. This video file was saved to internal storage on the phone. The next stage of the activity involved plugging the smartphone into the Samsung VR headset. The instructor navigated to the video before putting the headset onto the participants. Activity assistants stood on both sides of the participants in case they were disoriented as a result of the VRE activity. Once the student was comfortable with the headset, the video was played and

the student delivered the introduction of their speech to a simulacrum of their class. This was repeated three different times on three different days.

Measurement: A pretest-posttest design was used to ascertain the amount of reduction in communication apprehension for participants during the semester of study. Based on the work of McCroskey (1982), communication apprehension was assessed in four domains: group, meeting, interpersonal, and public speaking. CA can be measured on a sliding scale, with scores below 53 indicating low apprehension, and scores above 53 indicating moderate to high apprehension (McCroskey, 1977).

Results & Data Analysis: Based on results from the survey measure, the treatment group experienced a reduction of communication apprehension. The mean pretest score was 77, and the mean posttest score was 62. The control group also experienced a reduction of communication apprehension, as the mean pretest score was 76, and the mean posttest score was 65. While both groups witnessed a reduction in apprehension, verifying that practice is important, only one group evidenced a significant reduction in apprehension. Two separate two-tailed t-tests were run using pretest and posttest data to determine the significance of the change in the treatment and control groups. The treatment group had a critical t value of 2.3, and the t-value itself was 2.3. This result yielded significance at the 0.05 level. Therefore, participants in the treatment group experienced a significant decline in communication apprehension after practice in the VRE. The control group also had a critical t-value of 2.3. The control group's t value was 2.1. The control group did not show a significant difference, as p = 0.07. Statistically, the control group did not show a significant difference in their communication apprehension levels, although it cannot be disputed that their apprehension, as measured via descriptive analysis, also decreased after their practice sessions. A one-tailed t-test was used to determine if practice, regardless of type, would result in a significant difference in the reduction of communication apprehension. A one-tailed t-test was justified given our ability to predict the direction of apprehension reduction. The treatment group had a p value of 0.02, and the control group had a p value of 0.03. Both values are below 0.05, indicating that practice, in general, resulted in a significant reduction of student communication apprehension.

Programmatic Expense Reduction

In the modern era of competitive forensics, students prepare for nationals by visiting the site or location of the national tournament. This trend is an example of both visualization and systematic desensitization. Travel to the location of a national tournament can be costly. Rather than travel with an entire team, coaches are able to

bring a small group of students to a preliminary regional tournament (one that is held at the national host location). Alternately, a single coach can travel to the tournament and record short video clips in rooms across the campus. As a team prepares for competition at the highest level, students would be able to work in the classrooms of their home campus in a VRE. The result would be a simulated experience that can allow speakers the chance to practice in a more realistic environment without the added cost of travel to the physical location. This technique could save a program hundreds, even thousands, of dollars in preparation for a national tournament.

Conclusion

This paper has delineated a teaching technique that is designed to level the playing field for both academic and competitive communication programs that face fiscal adversity. While there are admittedly limitations in the use of virtual environments as a preparatory tool for individual events speakers, the advantages are noteworthy and compelling. Future research in this area is needed, particularly through qualitative methodologies, to investigate the degree of utility for both classroom and competitive speakers. We know that apprehension is reduced as a result of this technique. However, we do not yet know if this technique produces superior speeches and speakers. We are on the threshold of a new frontier in the facilitation of presentations. Time will tell if this technology is a passing fad, or a mainstay in communication pedagogy.

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BOOK REVIEW

Nichols, T. (2017). The Death of Expertise: The Campaign Against Established Knowledge and Why it Matters. New York: NY: Oxford University Press.

Reviewed by
PHILLIP VOIGT, GUSTAVUS ADOLPHUS COLLEGE

In *The Death of Expertise: The Campaign Against Established Knowledge and Why it Matters*, Tom Nichols presents the example of a famous Dartmouth professor who was engaged in a classroom debate with an undergraduate about the feasibility of a space-based missile defense system (which the professor favored). After going back and forth in front of the class, the student shrugged: "Well," he said, "your guess is as good as mine. No, no, no," the professor replied, "my guesses are much, much better than yours" (p. 82). This is a representative example of two broader trends that form the foundation of the book: the assumption that all opinions are equally valid, and the dismissal of established knowledge out of hand. These trends, he fears, threaten democracy itself. "The death of expertise is not just a rejection of existing knowledge," notes Nichols. "It is fundamentally a rejection of science and dispassionate rationality, which are the foundations of modern civilization" (p. 5)

Nichols' well-evidenced book is a polemic broadside on contemporary political culture. His frequently sarcastic tone and his use of amusing examples make the book a delight to read. He is particularly tough on the sort of shabby public discourse that gave rise to Donald Trump and that triggered the Brexit. Writing about Trump, Nichols observes:

Outright mistakes in stump speeches are an occupational hazard for political candidates -- as when then-Senator Barack Obama claimed to have visited all fifty-seven states – but Trump's ignorance during the campaign was willful and persistent. He had no idea how to answer even rudimentary questions about policy; rather than be shamed by his lack of knowledge, he exulted in it. Asked about the nuclear triad, the massive arsenal that would be at his disposal as president of the United States, Trump said, "We have to be extremely vigilant and extremely careful when it comes to nuclear (p. 211).

He is equally unforgiving on members of the British voting public. "The attack on the experts," he suggests, "was part of a strategy, meant to capitalize on the political illiteracy of a fair number of British voters" (p. 210).

For Nichols, the *Death of Expertise* is no mere accident, but rather part of a well-orchestrated campaign to exploit the ignorance of ordinary citizens. When public debates are decoupled from the expert testimony that should serve as the foundation of sound public policy, meaningful deliberation becomes impossible. Take, for example, budgetary debates. How can Americans set budgetary priorities when beliefs about current spending levels are both rigidly held and grossly incorrect. Writing about foreign aid, Nichols notes: "Americans routinely believe, on average, that more than 25% of the national budget is given away as largesse in the form of foreign aid (p. 27). In reality, that guess is not only wrong, but wildly wrong," amounting to less than one-quarter of one percent of Federal spending. When one deducts direct military assistance from the foreign aid budget, the figure becomes even smaller. How, Nichols asks, can we engage in meaningful debate in the face of such widespread ignorance?

Lack of knowledge is no impediment to voicing an opinion, of course, and *The Death of Expertise* is filled with amusing examples of publicly voiced foolishness. For example, Nichols discusses the results of a *Washington Post* poll about the Ukraine that showed that support for military intervention increased "in direct proportion" to respondent's inability to locate the country on a map (p. 2). The quality of contemporary public policy deliberation may be low, but, he admits, "watching people confidently improvise opinions about ludicrous scenarios like whether Margaret Thatcher's absence at Coachella is beneficial in terms of North Korea's decision to launch a nuclear weapon" is endlessly amusing (p.3).

The heart of the book is analyzes the causes of the decline in American reverence for experts. Many of the claims in this section will be familiar to those who have previously studied the subject. America's historical anti-intellectualism, for example, or the general complexity of modern society, were first observed by Richard Hofstadter, whom Nichols rightly cites. He also notes the role that selection bias and confirmation bias play in distorting perceptual mechanisms that would otherwise facilitate critical thinking and permit more robust application of tests of evidence.

The most novel argument presented by Nichols, however, is his treatment of meta-cognition and the so-called "Dunning-Kreuger Effect." After summarizing the well-known relationship between ignorance and confidence in a position (generally, more ignorant people display higher confidence in the correctness of their own positions than do those who are better versed on a subject), Nichols cautions against arguing with the ignorant:
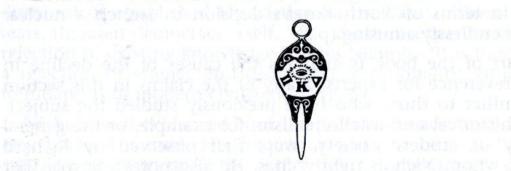
Even worse, the more well-versed respondents considered them-

selves in a general topic, the more familiarity they claimed with the meaningless terms associated with it in the survey. This makes it tough to argue with these 'incompetent individuals,' because when compared to experts, they were less able to spot competence when they saw it. In other words, the least-competent people were the least likely to know that they were (p. 46).

Nichols also suggests that the internet may be partly responsible for respondent's overconfidence in their own understandings of issues because of the way that electronic information washes over people and makes them feel as if they have "done research," when in fact they have been grazing on infotainment (p. 118).

True to his polemic form, Nichols ends on a rather dark note. Citizens, he suggests, now understand democracy as conferring equality of opinion rather than equality of political opportunity. "Feelings are more important than facts: If people think vaccines are harmful, or if they believe that half of the US budge is going to foreign aid, then it is undemocratic and elitist to contradict them" (p. 232). Perhaps so, but Nichols ignores a whole series of recent studies that suggest that gently engaging audiences in reflection about their own positions tends to reduce their confidence in their knowledge, while at the same time increasing their willingness to consider opinions that differ from their own. For scholars who study persuasion and argumentation or debate, the implications of this oversight are obvious: speech and debate teams may have great potential in re-articulating rules of evidence and policy-related decision rules for lay audiences.

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