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"A.I. Presentation Training Software's Impact Upon Students' Oral Presentation Skills"

Charles J. Priolo, M.A.
Adjunct Professor of Human Resource Management
Touro University Graduate School of Business, NYC
USA

Mary L. Lo Re, PhD.
Dean
Touro University Graduate School of Business, NYC
USA

Abstract

One of the leading soft skills that are vital in today's multi-cultural world, is the ability to communicate effectively. PitchVantage is a recently developed "artificial intelligence" (AI) software, which is utilized to help students practice, improve, and enhance their oral presentation and verbal communications skills. The software provides students the opportunity to obtain feedback and critical commentary by having them address and record their presentations in front of an "AI generated audience". Students have the ability to hone these critically important business skills in a private setting and in confidentiality, avoiding the potential pitfall many individuals have traditionally encountered when working on this skills' development area, i.e., feeling intimidated or embarrassed by having to practice in a live real-time situation such as the classroom, in front of peers and their professor, and others. When required in a graduate class, from a quantitative and qualitative basis, the use of this AI software proved successful in advancing students' oral and verbal communications skills.

Literature Review

Numerous studies and field research, including interviews with business executives, have clearly shown the vital importance of effective oral presentation and communication skills in the workplace. The following studies validate its importance.

A study by De Grez, Valcke & Roozen (August 2009), showed the critical importance of developing methodologies to help students enhance their oral presentation skills by utilizing a substantive instructional approach to help guide them. As they state: *"the theoretical base builds on the social cognitive perspective, and self-regulated learning"* (p. 112). The aim of their study was to examine whether the design of a multimedia-based instructional format would enhance students' oral presentation skills. Results of their research reveal that oral presentation skills significantly improved in students who participated in formal training in this area.

Adding on to the viewpoint expressed above by De Grez, Valcke & Roozen (August 2009), Haber & Lingard (May 2001) studied the development of oral presentation skills in medical students, with a specific focus on communications between doctors. They indicate in this innovative study that up until the date of publication, there had never been an article that specifically focused on this type of discourse. Their research showed that students learn oral presentation by trial and error rather than through teaching of an explicit rhetorical model and express the concern that this approach may "*delay development of effective communication skills and result in acquisition of unintended professional values. Teaching and learning of oral presentation skills may be improved by emphasizing that context determines content and by making explicit the tacit rules of presentation*" (p.308).

A different viewpoint is expressed by Grazia Busà (2010), where she discusses how multimodal resources can be used to teach oral communication strategies, as exemplified in a course taught at the University of Padua, Italy. The course focused on lexicon and language structures in use, pronunciation and intonation, body language, and cultural awareness. As she states: "*Students were filmed while speaking and received feedback on their oral and communicative skills. Overall, the course appeared to be highly effective in raising students' awareness of facts about English communication and its workings"* (p. 51).

In contrast, another study by De Grez, Valcke & Roozen (2012), focused on the agreement between professional assessment and self- and peer assessment of oral presentation skills and explored student perceptions about peer assessment. Comparison of the teacher-peer assessment rubric scores is indicative of a positive relationship, for the most part, but also that peers and teachers still interpret the criteria and indicators of the rubric in different ways. Self-assessment scores were shown as being higher than the grades given by teachers. The results also reflect a very positive attitude of students towards peer assessment as a relevant source of external feedback. (p.129).

Similarly, in an article by Magin & Helmore (August 2010), the authors report findings on the reliabilities of peer and teacher summative assessments of engineering students' oral presentation skills in a fourth-year communications subject. The context of the study is unusual, in that each oral presentation was subject to multiple ratings by teams of students and teams of academic staff. Based on their research and analysis of various data collection methodologies, the authors conclude that *"the reliability of summative assessments of oral presentations can be improved by combining teacher marks with the averaged marks obtained from multiple peer ratings"* (p.287).

Ochoa & Dominguez (July 2020), also support the thesis expressed above by Magin & Helmore (August 2010) and indicate in their study that the effective development of strong oral presentation skills requires both practice and expert feedback. They briefly review several systems that have been developed during the last 20 years to provide ample practice opportunities and automated feedback for novice presenters. However, a comprehensive literature review discovered that none of those systems have been adequately evaluated in real learning settings. Their study found that: *"(1) the development of different dimensions of the oral presentations are not affected equally by the automated feedback and (2) there is a small but statistically significant effect of the use of the tool when a subsequent presentation is evaluated by a human expert"* (p.1615).

Research supports the thesis that formal instructional methodology is an important factor in students acquiring well-developed oral communication skills. Furthermore, multimodal resources can play a significant role. In addition, the research has shown that professional assessment and training in oral presentation skills development is far more effective than self and peer assessment. Lastly, research indicates that the effective development of strong oral presentation skills requires consistent practice and expert feedback, all of which are provided by the utilization of the PitchVantage AI software used in this research study.

Overview of A.I. Software PitchVantage

PitchVantage is a presentation training software used by many universities (and companies) which helps students develop communication and presentation skills for the real world. By utilizing PitchVantage, students receive automated "artificial intelligence" (AI) feedback on 30 presentation skills anytime, anywhere. PitchVantage then provides personalized coaching to help students address and improve upon certain areas in which it identifies developmental deficiencies. This AI "*provides instant feedback on 10 elements of presentation delivery with personalized tips that help you improve: Pitch Variability, Pace Variability, Volume Variability, Verbal Distractors, Pauses, Pace, Long Pauses, Engagement, Volume & Eye Contact*" (PitchVantage Universities, 2023). Professors can track student progress and performance, review and comment on students' videos, and run peer reviews from the software.

By giving students a structured way to practice and receive feedback on presentations, the level of communication skills, professionalism, and presentation skills is elevated. This results in more confident students that are prepared for the job marketplace, improving both reputation and employment outcomes for the academic institutions in which it is utilized.

The software is currently utilized by over 450 universities throughout the US, including Yale, Cornell, Notre Dame, and many others.

Our Methodology

Our initial pilot program, which was launched in the Summer 2022 semester, was sponsored by a "Faculty Innovation Grant" which was awarded to Professor Priolo, in the Graduate School of Business, by Touro University, New York City.

The primary purpose at that point was simply to test the software and see if students (and professor) found it viable as well as easy to use. After this initial launch in the Summer, in the course *MSBN 605-Ethics in the Global Marketplace*, we then used PitchVantage again in the Fall 2022 semester. This time we used it exclusively in one graduate-level class, *MSHN620–Business Foundations for HR Professionals* (i.e., the experiment class), whereby students practiced their presentation using the AI software and then uploaded their final video to the LMS system for faculty evaluation. Also, during the Fall 2022 semester, in another graduate-level course, *MSBN604–Managing in the New Millennium* (i.e., the control class), students presented their assignment live and in-person, without using PitchVantage. The same instructor taught both classes and the AAC&U's Oral Presentation Value Rubric (Value Rubrics - Oral Communication, 2023) was used in both classes to score students' presentations and as a point of comparison and contrast.

Our Goals

One of our principal goals in this study was to find out if through using an AI software, students would show improvements in their oral presentation skills, a heightened level of self-confidence when speaking to groups, colleagues, etc. as well as better articulation of the presentation topic, and related areas.

We also hoped that through PitchVantage, we would be able to improve students' oral presentation skills more efficiently and more quickly than by using the traditional "live" in-classroom methodology with feedback.

Findings

In the exploratory summer's *MSBN 605-Ethics in the Global Marketplace* course, students expressed the opinion that they felt very comfortable using the AI methodology because it allowed them the opportunity to improve and enhance their oral presentation skills without feeling intimidated or embarrassed by doing that in a live classroom setting in front of their peers. All students echoed the same sentiments and said that PitchVantage was "a great tool"!

In the fall's semester, students were again assigned an oral presentation assignment in their classes whereby AAC&U's Oral Presentation Value Rubric was used to gauge their oral presentation skills. This rubric list nine evaluative skills to be scored on a scale of 1 to 5, with 1 being the lowest score and 5 being the highest score. Evaluated were: knowledge of subject, correct use of language, avoidance of repetitive "Hums/okays…", voice/diction speed, voice/diction loudness, eye contact, personalization engagement, interaction among presenters, and fielding of questions.

To ascertain whether the oral presentation scores for the class using PitchVantage showed a statistical difference with the class that did not use PitchVantage, ten t-tests of unequal variances were performed—one for each of the 9 evaluative skills plus one utilizing all 9 scores.

In comparing their respective overall scores, the results show that there is a statistical difference between the two classes at the 0% probability level of error. The *Business Foundations for HR Professionals* class using the AI software had an overall mean score of 4.73 (out of 5) while the "control" class had an overall mean score of 4.14. Their overall average mean difference in scores was 0.5875 (t-stat = -25.6426).

In comparing each of the 9 evaluative skills, once again, the results show that there is a statistical difference between the two classes for each of the 9 evaluative skills at the 0% probability level of error. The largest average difference found amongst the evaluative skills is "Voice/Diction Loudness". The class using PitchVantage had an overall mean score of 4.71 (out of 5) while the "control" class had an overall mean score of 4.06—an average mean difference of 0.65625 (t-stat = -11.3685). The lowest average difference found amongst the evaluative skills is "Fielding of Questions". The class using PitchVantage had an overall mean score of 4.69 (out of 5) while the "control" class had an overall mean score of 4.23—an average mean difference in scores between the class using Pitch Vantage and the class that did not use Pitch Vantage was 0.4625 (t-stat = -6.7222).

In addition to the statistical data above, qualitatively, our study also found that in many instances students more quickly developed greater self-confidence and presence in speaking to groups of people; better articulation and explanation of the comments they were presenting; the ability to engage in multiple practice sessions, each one providing feedback and analysis, thereby allowing students to sharpen their oral presentation skills at their own pace and on their own schedules.

Interestingly, when students were surveyed and asked whether they preferred to use PitchVantage exclusively in the future (in other words, to no longer use the live in-classroom traditional methodology at all) nearly 85% of students said that they actually preferred a "combination" approach whereby they could still do a live presentation in the classroom, while simultaneously using PitchVantage as a very effective practice and self-improvement methodology (one student actually referred to it as an "AI tutor") before actually being called upon to do a live presentation. The students felt that this would allow them to hone and improve their oral presentation skills in the privacy of their own homes or offices before being called upon to practice in front of their peers (some students voiced concern about possibly feeling a little intimidated and/or embarrassed at that prospect).

Conclusion & Next Steps

Based on our findings, it is clear that the utilization of the AI presentation software PitchVantage has many important benefits to our students, and can result in significant improvements in a student's oral presentation skills. We have therefore determined that our next steps will include: expanding the use of PitchVantage to all graduate-level classes that require students to do an oral presentation assignment. However, this time, we will test and ensure that students in each class use both the AI software as well as the regular live in-classroom presentation methodology, our goal being to then conduct a comparison/contrast of the two to see if there is an improvement and/or difference in using PitchVantage software vs. a live, in-classroom oral presentation without using this AI software.

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