**EXAMINING THE EFFECTS OF PRESENTER COACH ON STUDENTS’ ORAL PRESENTATION VERBAL DELIVERY**

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**Abstract**

 **Oral Presentation is a core communication skills competency for polytechnics in Singapore. Proficiency in delivery skills, pitch, volume, and pace, requires personalised feedback. Feedback closes the loop between students’ actual and desired performance (De Grez, Valcke & Roosen 2012; Ko, 2019). However, students may not get enough personalised feedback in their practice sessions (Van Ginkel, Gulikers, Biemans, & Mulder, 2015). Recently, Artificial Intelligence (AI) has taken centre stage to enhance presentation effectiveness. Microsoft’s Presenter Coach (2019), with an improved version, Speaker Coach (2021), leverages on AI to provide personalised oral presentation feedback. Students click “Rehearse with Coach” and get on-screen guidance on pace, volume, pitch, word stress and filler words, for better delivery (Microsoft, 2019). Personalised feedback is provided through a detailed metrics-based actionable insights report, also highlighting strengths. Research suggests that positive feedback directed at task performance enhances students’ self-efficacy (Hattie & Timberly, 2007). A pilot study was conducted in 2020, in Temasek Polytechnic (TP) with 125 part-time students, to measure the effect size of Presenter Coach on students’ oral presentation verbal delivery. A quasi-experimental design was used in two formative assessment trial presentations, with comparison. For Trial 1, students presented without exposure to Presenter Coach. Tutors rated students’ delivery using standardised rubric. After Trial 1, students were exposed to Presenter Coach via a demonstration and practised asynchronously with Presenter Coach. In Trial 2, tutors assessed students’ presentation delivery, using identical rubric. In 2021, the study was replicated with 175 part-time students. Students completed a perception survey on the usefulness of practice with Presenter Coach. In 2022, 392 full-time students completed the same survey for the subject Effective Communication. The results for the October 2020 cohort suggested a huge effect size (Cohen's d of 2.732) and for the April 2021 cohort, there was a very large effect size (Cohen's d of 1.206).**

**Keywords:** oral presentation, delivery, Speaker Coach, AI, self-directed

**Introduction**

Oral Presentation is ubiquitous in communication courses as an assessment method across the polytechnic curriculum. Well-delivered oral presentations have impact and can motivate and move audiences. They also help in students’ preparation for participation in the workplace (Morley, 2001). According to the Singapore Standard Occupational Classification (SSOC), level 4 classification occupations, those often helmed by diploma and degree holders, require a significant level of interpersonal communication skills (SkillsFuture Singapore, 2022), including oral presentation delivery.

 However, there are issues relating to oral presentation delivery from students’ perspective. One issue is the need for precision in delivery aspects to ensure corrective action by student presenters. Students are often less effective in self-directed practice, necessary for confident oral presentation delivery, because they lack specific knowledge of the verbal or vocal delivery aspects of oral presentation: pace, pitch, volume, use of filler words, and intonation (Tsang, 2020). Students also fear oral presentation because of speaking anxiety (Grieve et al, 2021) and this was intensified during the COVID pandemic when home-based learning was implemented. There was increased anxiety because students had to practise oral presentation delivery without consistent feedback from tutors in a face-to-face mode. According to Hattie (2001), feedback is of one of the most powerful tools for improvement in student performance. Feedback is defined as “information provided by an agent to a learner relating to their skills or understanding as demonstrated on a task or in the completion of a task, usually after instruction” (Hattie & Timperley, 2007).

To address the issues related to the need for specific and timely feedback, the authors decided to use AI to bridge the learning gap and provide students with consistent feedback.

Microsoft’s Presenter Coach (called Speaker Coach in 2021) was considered by the authors as a tool to provide real-time insights and metrics to guide students’ self-directed practice in oral presentation skills related to verbal delivery. The study, and the results and conclusions, will be described below.

**Pedagogy**

The pedagogy used is active learning employing AI-assisted enhancement of students’ self-directed Oral Presentation practice using Microsoft’s Presenter Coach in the classroom. The use of AI has recently been examined by researchers. Chen et al (2023) observed that AI can be leveraged to teach oral presentation skills. This is achieved through personalised feedback to aid students’ oral presentation skills. Another area where oral presentation skills can be enhanced is through practice. Hattie (2018) suggests that deliberate practice is said to have an effect size of 0.79 in student achievement. This suggests that sustained, consistent, targetted practice aimed at improving performance is crucial in student attainment. Presenter Coach is available to all TP students both full-time and part-time as part of the Office 365 suite, making practice convenient and the use, scalable. The software requirements are not too exclusive. Presenter Coach uses browsers such as Chrome and Edge. All that is needed is a serviceable microphone and a working camera. The ease of use is also a factor that was considered because students can launch PowerPoint online, go into “Slideshow” mode and click “Rehearse with Coach” to receive specific and thorough feedback.

 Presenter Coach also provides a report after each practice with detailed input on aspects of verbal delivery. This report can be saved and reviewed at the students’ convenience or shared with the tutor for additional insights. The report acts as a source of formative feedback, a critical aspect of meaningful learning. According to Shute (2008), formative feedback or information given to learners to modify thinking in relation to a task needs to be timely, specific, targetted, nonevaluative and supportive. The gentle nudges in the form of encouraging, friendly reminders and recommendations, for example, to slow down and breathe, if the pace is too fast, are motivating, while being detailed and actionable.

The personalised feedback also helps students improve as does the real-time data, useful for students to adjust their delivery aspects as they practise the presentation. The tool is also available round the clock, so the option to receive detailed feedback is available. In Visible Learning for Teachers, Hattie (2012) contends that students’ learning needs to be made visible to teachers. The provision of detailed metrics and the possibility of comparing the reports to track improvements in students’ performance with each practice also intensifies learning.

**Methodology**

To examine the effect size of practice with Presenter Coach, two cohorts of 215 part-time students doing the subject Reports & Oral Presentation over two semesters in October 2020 and April 2021 underwent a study. In October 2020, two diplomas, with a sample size of 92 students underwent the study. In 2021, an additonal diploma took the subject Reports & Oral Presentation, with a sample size of 123. The study had three research questions:

1. What is the effect size of practice with Presenter Coach?
2. What are students’ views of practice with Presenter Coach for oral presentation verbal delivery?
3. What aspects of verbal delivery do students think Presenter Coach addresses?

For the study, with two cohorts of part-time students, a quasi-experimental design was employed. Students began their oral presentation module at the start of Term 2, 12 weeks into the semester. A briefing was conducted and an opt-out system was put into effect based on institutional ethics guidelines. In Week 14, Trial 1 was conducted where students verbal delivery was assessed based on a verbal delivery rubric. There was no exposure to Presenter Coach. The formative assessment recorded on Excel sheets was conducted by tutors over MS Teams.

Before the trials, all tutors underwent training to ensure that the inter-rater reliability was consistent. Benchmarking was employed to ensure that there was consistency in marking standards across the tutors. The aspects examined were pace, intonation, volume, and the use of fillers. The concepts related to verbal delivery were also taught to students using examples. A standardised set of PowerPoint slides were used to explain the concepts to ensure consistency in learning the terms or concepts associated with verbal delivery. Presenter Coach was not referred to during this period to prevent sensitisation.

At the end of Trial 1, students were introduced to Presenter Coach in a mass briefing that was given in the form of a recorded online demonstration. The demonstration video could be reviewed by students as required. In Week 15, students practised with Presenter Coach asynchronously. They were required to submit their Presenter Coach reports as evidence of having completed the practice. No practice sessions were held with the tutor.

In Week 16, Trial 2 was held on MS Teams and students practised with Presenter Coach. They were assessed using the same set of rubrics and their assessment was recorded. Their marks were also captured in an Excel sheet.

**Results and Discussion**

 The results of the study indicated that there was a statistically significant difference in the mean test scores of the students in Trial 1, before exposure to the intervention, Presenter Coach, and at Trial 2, after exposure to Presenter Coach. This finding was consistent with both cohorts, the October 2020 cohort, and the April 2021 cohort. Overall, it is found that Presenter Coach does improve students’ oral presentation delivery.

In this study, participants' performance was measured using a pre-test and a post-test method. The pre-test scores, denoted as 'm1', were obtained prior to the intervention, while the post-test scores, denoted as 'm2', were collected after the application of the intervention. The pre-test scores (m1) served as a baseline measurement of participants' initial verbal delivery abilities , while the post-test scores (m2) reflected their performance or outcomes after the intervention.

The results of the October 2020 cohort indicated that the mean score for m2 was 9.56 (SD = 0.99), while the mean score for m1 was 12.15 (SD = 1.12). A moderate positive correlation was observed between the two variables (r = 0.60, p < 0.05), suggesting that there was a significant relationship between m1 and m2. These findings support the hypothesis that there is a meaningful association between these two variables.

The results of the April 2021cohort showed that the mean score for m2 was 10.13 (SD = 1.30), while the mean score for m1 was 11.33 (SD = 1.09). Additionally, the correlation between the two variables was found to be moderate and positive (r = 0.66, p < 0.05), suggesting that there was a significant relationship between m1 and m2. These findings provide support for the hypothesis that there is a meaningful association between these two variables.

The p-value obtained from the paired samples t-test for the Oct 2020 cohort was extremely small, approximately 3.61943E-44, indicating a highly significant difference between the pre-test and post-test results. In the Apr 2021, the p-value obtained from the paired samples t-test was found to be extremely small (p < 0.001), specifically 2.78631E-25, indicating a highly significant difference between the pre-test and post-test results.

The results of the Cohen's d, a measure of effect size, were also significant. The effect size or Cohen's d was also calculated. A Cohen’s d of 2.732 for the October 2020 study suggested a huge effect size, while a Cohen's d of 1.206 for the April 2021 study suggested a very large effect size.

In Week 17, a perception survey was also conducted using MS Forms. This was administered to all students who praticipated in the studies. The students were asked the following questions using Likert Scale binary questions and multiple-response questions:

1. My confidence level in my oral presentation delivery improved after I practised with Presenter Coach.
2. I benefitted from Presenter Coach practice.
3. Did you prefer to practise with Presenter Coach? (Answer “1” for “Yes” and “2” for “No”)
4. How did practice with Speaker Coach help you? You can choose more than one option.
* helped me reduce fillers ("umm", "er")
* helped me keep to the pace
* helped me reduce reading from slides
* helped me improve my pitch
* helped me improve in language use
* helped me check the volume of my voice

To ascertain the extent to which the part-time students, adult-learners with full-time jobs, found Presenter Coach useful for their work, an additional open-ended question was asked to ensure workplace relevance of the AI tool.

An additional question was also asked:

How does training in the use of Presenter Coach in aspects such as pitch, volume, pace, filler words, originality, and language use help in your job?

The perception survey was also extended to full-time students in 2022, with 392 students completing the survey. Students in 2020 (97.3%) and 2021 (94.9%) found Presenter Coach useful. The top three areas of benefit were pace, filler reduction and intonation in 2020 and pace, pitch, and volume in 2021. 87.2% of the 392 full-time students benefitted from Speaker Coach practice. Pace, filler reduction, and pitch were the top three benefits.

Anecdotal responses from tutors also confirmed that the assessment by Presenter Coach of students' verbal delivery is similar to tutors' assessments of students' verbal delivery when the final Oral Presentation assessment was conducted online.

**Conclusions**

The study will interest those keen on exploring AI-enabled feedback on oral presentation, with data-driven insights for effective delivery.

Practice with Speaker Coach is generally recognised and perceived as a positive source of help for students. Most students saw the benefits of AI in improving their vocal delivery. The method should not be too onerous for staff as Speaker Coach is highly accessible and relatively easy to administer. Speaker Coach also uses data based on highly successful presentations, so the insights generated help students hone their skills. Tutors can use data-driven insights to help students improve their oral presentation delivery. Based on the feedback, tutors can also plan targetted interventions to help students overcome areas on weakness. Additionally, unlike a human tutor, AI cannot be overcome by fatigue so students can practise and ask for feedback at any time.

An added advantage is that the insights are improving. The availability of a large number of YouTube videos and online tutorials on PowerPoint online is an added advantage as this helps with troubleshooting, should technical errors arise.

Additional points of help are pronunciation, although this can sometimes be confusing as Speaker Coach seems to recognise the American variety of English.

However, one of the most difficult aspects to address is intonation and this requires tutor intervention because the tendency to slip into a monotone is high.

Future research could examine the use of Speaker Coach as a new tool in MS Teams, to review and enhance oral presentation ability in meetings. Findings in this research can be extended to a larger study so that the results are more generalisable.

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