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Title: Designing a 360° Tamsui Virtual Tour Speaking Project to Reduce Public Speaking Anxiety in Sophomore Taiwanese EFL University Students

Abstract:

This study examines a student-created 360° virtual tour of Tamsui, coupled with AI-assisted prompting, and how it can function as a low-stakes rehearsal space for public speaking, as well as develop English speaking readiness of Taiwanese EFL university students at a sophomore level participating in English Medium Instruction (EMI) courses, while also attempting to tackle public speaking anxiety.

Public speaking in English, especially in the case of Taiwanese university students, is a particularly daunting and, in fact, critical activity. This is especially true for the students who have no major concentrations in English because they are required to participate in presentations in EMI courses without having the luxury of extensive rehearsal opportunities that are guided and structured. This study attempts to fill in that void by designing a speaking focused curriculum unit for students where they worked in groups to create a 360° virtual tour of Tamsui, employ the use of generative AI to develop collaborative descriptive scripts, and rehearse tour-type narration and question-answer routines within a virtual immersive environment. The aim of this project was to reflect the students' native culture. Therefore, the students were able to practice English while "showing" their city, Tamsui, to imaginary tourists. This activity shifted the context from a fictional textbook scenario to a real communicative situation.

Participants included second-year undergraduate students (non-English majors) taking an obligatory English course at a university in Northern Taiwan. Matched pre- and post-activity online surveys were used to collect data and included questions of varying types (Likert-scale and multiple-choice) regarding familiarity with AI (artificial intelligence), comfort with EMI (English as a medium of instruction), experience with project-based learning, confidence in explaining Tamsui in English, perceived anxiety regarding speaking, and reflections (open-ended) regarding the virtual tour and AI-supported prompting. Prior to the intervention, students reportedly had heterogeneous profiles digitally and linguistically: students had varying experiences, as some claimed to have "never heard" of "prompt engineering" and were "not confident at all" to describe Tamsui to foreigners, while some others used "act as a..." prompting to describe Tamsui and produced a few explaining sentences. For this project, groups were tasked with acquiring or curating 360° scenes of Tamsui, engineering prompts for AI (artificial intelligence) to generate hotspot images and English descriptive drafts, and revising the texts through multiple iterations for clarity, tone, and audience appropriateness prior to consolidating everything into a virtual tour. In the post-activity surveys, students were required to self-assess and evaluate the extent of change in their abilities to write prompts,

describe using vocabulary, experience anxiety regarding language, and preparedness regarding speaking about Tamsui to an audience perceived to be global.

Results show that while the virtual tour project improved most students' self-assessed speaking readiness, some barriers remained for others. Most students felt that they could now “write clear instructions with specific details” for AI. Many felt that the AI assist “greatly increased the level of professional English” they used in their hotspot descriptions, which they considered rehearsal materials for their future spoken tours. The confidence levels for explaining Tamsui in English increased from “not confident at all” or “I can say a few basic sentences” to “somewhat confident” or “able to show the beauty of Tamsui in English.” Some students even described themselves as “cultural ambassadors” able to represent Tamsui to international tourists. Most students expressed that the use of high-quality 360° images, along with the creation of a “real product,” helped them to reduce their anxiety and focus on impactful communication, rather than on the correct use of language. However, despite the benefits most students expressed, some students indicated having little, or even less, anxiety. These students stated that they struggled to write at all, and felt overwhelmed by the demands of VR, AI, and EMI. Ultimately, some students believed that they would be unable to guide a live English tour despite all the rehearsal opportunities provided.

The varied findings indicate that digitally adept and moderately proficient learners can gain confidence in speaking through immersive, AI-supported, project-based designs, although these methods do not necessarily remedy entrenched fears regarding public speaking. Findings from this study suggest that student-produced 360° local virtual tours can serve as effective practice tools for public speaking in English for learners from Taiwanese EMI backgrounds as long as the tours are accompanied by precise guidance on prompt engineering, design steps to ease the transition from written to spoken presentation, and/or appropriate affective scaffolding for learners who report high speaking anxiety and/or low speaking self-efficacy.

Keywords: *Public speaking anxiety, EFL university students, 360° virtual environments, AI-supported prompting, Project-based learning*