FLIPPED THE CLASSROOM WITH ARTIFICIAL INTELLIGENCE: DETERMINING THE EDUCATIONAL EFFECTIVENESS OF COMBINING VOICE-OVER PRESENTATIONS REVIEW GAMES, AND AI

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Background: First introduced in the late 90s, the flipped classroom educational strategy has been accentuated since, owing to its proven effectiveness in educational settings. Characterized by using allocated didactic time for active learning, the flipped classroom is ideal for focusing on developing the application of material, better understanding of concepts, and improving standardized testing scores. As online virtual teaching and, more recently, the addition of artificial intelligence (AI) has been implemented as part of the flipped classroom strategies, data are scarce on the effectiveness of these methods in medical education.

Objectives: The present project examined the effectiveness of voice-over-style lectures, review games, and AI in facilitating learning outcomes as assessed by test scores.

Methods: Participating students were divided equally into two groups of educational strategies: slide decks only or traditional way (PPT) or PPT plus artificial intelligence platform (edYOU). The edYOU group comprised the PPT with narration and real-time interaction with an AI Being. The statistical strategy for conducting quiz item analysis included item difficulty, item discrimination, and point-biserial correlation R. Student's in the two groups were asked to participate in a formative quiz (not reflective of their academic evaluations) to answer questions relevant to voice-over lectures PPT, and AI. Student's T-test was conducted to compare the two strategies effectiveness. A priori, an alfa level of 0.05 was considered significant.

Results: Data are presented as mean ± s.e.m. Students using edYOU obtained higher quiz scores, difficult questions quiz scores, and percentage of valid questions than PPT (Figure 1). There was a statistically significant (P < 0.001) decrease in time spent in lectures in the edYOU group (54.1 ± 13.7 hrs) compared to the PPT group (Figure 1B).

Significance: Despite no statistically significant difference, the test scores were higher in the edYOU group, which is of educational significance. The edYOU strategy could be the difference between a pass and a fail. The edYOU strategy is particularly efficient in improving difficult test questions scores, and students may learn the material in less time (efficiency). Research on the application of AI as part of educational strategies for improving satirized test scores, including boards, is warranted. The present study is part of the necessary early steps to better understand the impact of AI as an educational strategy for improving educational outcomes.
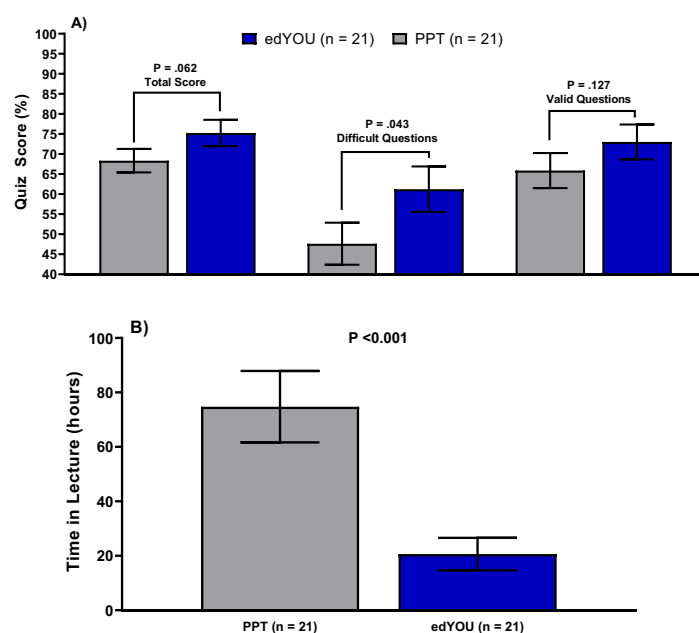

Figure 1. Quiz Results (A) and times (B) in Response to Educational Strategy. Note: Slide decks only or traditional way, PPT; artificial intelligence platform, edYOU.