

ABSTRACT

This study aims to analyze the effect of implementing a Community of Inquiry (CoI)-based Pedagogical Agent (PA) on student engagement in English subjects, measured through cognitive presence, social presence, teaching presence, Learning Management System (LMS) activity, and Course Learning Outcomes (CLOs). The results of the study show that the PA enhanced students' cognitive engagement, supporting exploration, conceptual understanding, and problem-solving. However, the control group (without PA) showed stronger social engagement and more active in discussion forums. while the experimental group was more effective access to learning materials, The PA demonstrated strong teaching presence through instructional clarity, content delivery, and a supportive learning environment. In terms of CLOs, the control group outperformed the experimental group in CLO 1 (86.88 vs. 83.77) and CLO 2 (84.29 vs. 80.49), largely due to stronger social interactions that supported early learning performance. However, in CLO 3 (84.32 vs. 83.21) and CLO 4 (84.17 vs. 83.80), the experimental group began to close the gap, with differences decreasing from -3.11 and -3.80 in CLO 1–2 to only -1.11 and -0.37 in CLO 3–4. Overall, the results suggest that the CoI-based PA is effective in enhancing cognitive engagement and higher-order learning, though its social interaction functions require further development.

Keywords: Pedagogical Agent, Community of Inquiry, Cognitive Presence, Student Engagement, LMS Activity, Online Learning