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Abstract

Authentic and situated communication is important in English as a Foreign Language (EFL) learning, but learners often lack timely support during speaking and writing practice. This study proposes an Artificial Intelligence (AI)-Enhanced Sustainable Video Conversation system (AI-EVC), which integrates synchronous video-to-text recognition (VTR) and immediate feedback to support language learning in authentic contexts. The system allows learners to interact with real world situations through real-time video-based conversations while receiving contextualized language support. A quasi-experimental design was conducted with sixty undergraduate students from a public university. Participants were divided into an experimental group (EG) and a control group (CG). EG used the complete AI EVC system with VTR, while CG used a standard version without this feature. Both groups participated in the same learning activities based on authentic topics. Pre-tests and post-tests were used to measure speaking and writing performance. Learning behavior data and learning perceptions were also collected. The results showed that EG significantly outperformed CG in both speaking and writing. Significant improvements were found in syntactic complexity, total writing score, fluency, and correctness. Correlation results showed significant correlations between speaking practice and writing performance within the EG. Students also reported positive perceptions of system usefulness, ease of use, and learning motivation. These findings suggest that AI-EVC is an effective approach for supporting integrated speaking and writing practice in authentic EFL learning environments through real-time contextual recognition and feedback.

Keywords: AI-Enhanced Sustainable Video Conversation, Authentic Learning, Real-time Language Feedback, Situated EFL learning, Video-to-Text Recognition