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**Abstract or Public Summary:** Immersive Virtual Reality (iVR) has emerged as a promising technology for creating authentic and motivating environments for Foreign Language Learning (FLL). Despite growing interest, the specific technological factors that directly affect pedagogical effectiveness remain poorly understood, particularly regarding interface modalities, the comparative effects of traditional non-immersive listening versus passive and interactive iVR conditions, longitudinal use, and the integration of multisensory stimuli. This thesis addresses this gap by systematically examining how key technological factors shape iVR-based FLL experiences, combining an initial evidence-mapping phase with a series of empirical studies. In the first phase, a comprehensive bibliometric analysis of 2,090 documents (1977–2024) maps the intellectual structure and growth of the field, revealing rapid expansion since 2017 and a strong emphasis on user experience and motivational outcomes. Building on this macro-level overview, a systematic review including 96 empirical studies establishes the state of the art in terms of impacts, challenges, and research trends, while exposing a notable lack of robust pedagogical validation, as most studies rely on short-term interventions and limited longitudinal assessment. Motivated by the gaps identified in this evidence-mapping phase, a second phase of empirical studies with FLL learners investigates specific technological factors in depth, including interface modalities, their comparative effectiveness against traditional methods, the impact of longitudinal exposure, and the role of multisensory cues such as olfaction. The first study evaluated the usability and effectiveness of controller-based, object interaction, and voice interfaces to identify which modalities best support usability and learning outcomes in iVR-FLL. Controller-based interaction proved to be the most efficient, object interaction was more motivating, and voice recognition was the least preferred. Building on this comparative study, a between-subjects experiment compared passive and interactive iVR with traditional audio-only listening for listening skills. Results showed no significant advantage for iVR in knowledge retention, but participants consistently reported higher motivation and preference for iVR conditions. Addressing concerns about the novelty effect and the long-term viability of iVR, a semester-long longitudinal study examined the effects of sustained use on performance and perceptions. The

study found that the initial motivational boost diminished over time and that sustained use could lead to increased cognitive load and reduced perceived utility if not carefully managed. The final study assessed the impact of olfactory cues on presence and vocabulary retention in immersive environments. Results indicated that olfactory cues enhanced presence but did not consistently improve vocabulary retention. Taken together, these findings provide empirical evidence that iVR's main contribution to FLL is motivational rather than purely cognitive, that its effectiveness depends critically on interface and exposure design, and that multisensory enhancements must be applied selectively and pedagogically rather than as novelty features when integrating iVR as a complementary tool in language education.

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