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Immersive Language Exchanges Via Virtual Reality Increase Intercultural Competence in Modern Languages Degrees

Zhonglin Zhao[1, *]

[1]Zhonglin Zhao, Imperial College Business School, Imperial College London, London, UK
[*]Corresponding author: Zhonglin Zhao (Email: zhonglintj@outlook.com)

Abstract: This paper evaluates the effectiveness of immersive Virtual Reality (VR) language exchanges in enhancing Intercultural Communicative Competence (ICC) within modern languages degree programs. Recognizing the limitations of traditional methods in fostering ICC, VR presents potential solutions through unique affordances like immersion, presence, authentic simulation, and perspective-taking. The analysis synthesizes current research, defines key concepts (ICC, VR, immersive exchange), examines proposed mechanisms, reviews empirical evidence, explores implementation practices, and considers stakeholder perspectives. Findings indicate VR can significantly boost learner motivation, engagement and confidence, offering contextualized practice in safe environments. However, the evidence for superior, holistic ICC development compared to methods like telecollaboration or study abroad remains inconclusive, hampered by methodological limitations and confounding variables. Practical challenges, including cost, technical issues, cybersickness, and the critical need for robust pedagogical integration and teacher training, significantly impact VR's effectiveness. VR holds promise as a valuable supplemental tool, particularly for accessibility and targeted practice, but its success hinges on careful pedagogical design and addressing implementation barriers, warranting further research.

Keywords: Virtual reality (VR); intercultural communicative competence (ICC); language learning; educational technology; immersive learning; virtual exchange.

1. Introduction

In an increasingly interconnected and globalized world, the ability to communicate and collaborate effectively across cultural boundaries is no longer a niche skill but a fundamental necessity. For graduates of modern languages degree programs, proficiency extends beyond linguistic accuracy and fluency; it encompasses the capacity to navigate the complexities of intercultural interactions with sensitivity and understanding (Lobana-Coy et al., 2025). Consequently, the development of Intercultural Competence (IC) and, more specifically, Intercultural Communicative Competence (ICC), the ability to interact effectively and appropriately in a foreign language with individuals from different cultural backgrounds has become a central objective within language education (Sheu & Manzie, 2023). This marks a significant "cultural turn" in the field, recognizing that language is deeply intertwined with culture and that true communicative competence involves understanding sociocultural norms, values, and behaviors (Cong-Lem, 2025).

Despite the acknowledged importance of ICC, traditional pedagogical approaches face inherent limitations in fostering these competencies. Classroom-based instruction, while valuable for foundational knowledge, often struggles to provide authentic, dynamic contexts for practicing intercultural communication (Chen et al., 2022). Even study abroad programs, long considered the gold standard for cultural immersion, do not automatically guarantee meaningful intercultural engagement or development (Kulke, 2025). Factors such as cost, accessibility, logistical challenges, and the variable nature of individual experiences mean that study abroad is not a universally available or consistently effective solution for all students (Lobana-Coy et al., 2025). Furthermore, a lack of authentic language environments is frequently cited as a primary obstacle in language acquisition itself (Chen et al., 2022), and face-to-face intercultural encounters are not always feasible (Lobana-Coy et al., 2025). Without careful pedagogical guidance, even direct exposure can sometimes lead to the reinforcement rather than the deconstruction of cultural stereotypes.

Emerging technologies offer potential avenues to address these limitations. Virtual Reality (VR), in particular, has garnered significant attention for its capacity to create immersive, interactive, and seemingly authentic environments for learning (Chen et al., 2022). VR technology allows users to feel present within a computer-generated three-dimensional space, interacting with the environment and potentially other users in ways that mimic real-world experiences (Chen et al., 2022). Within language education, VR is being explored for its potential to simulate real-life scenarios, enhance learner motivation, reduce anxiety, and provide contextualized practice (Hua & Wang, 2023). This paper focuses specifically on the application of immersive language exchanges facilitated by VR as a tool for enhancing ICC within modern languages degree programs. The central aim is to critically evaluate the evidence supporting the claim that these VR-mediated exchanges effectively increase intercultural competence by synthesizing current academic research and analyzing the underlying mechanisms, practical implementations, and stakeholder perspectives.

This paper will proceed by first establishing clear definitions for the core concepts: immersive language exchanges, virtual reality in the educational context, and intercultural (communicative) competence. It will then analyze the proposed mechanisms through which VR environments might foster ICC, comparing these potentially

to traditional methods. Subsequently, the paper will review and evaluate the existing empirical evidence regarding the effectiveness of VR language exchanges for ICC development, noting both strengths and limitations. Examples of current implementation practices in higher education will be explored, followed by an examination of the reported benefits and challenges associated with this technology. The perspectives of key stakeholders including students and educators will be considered. Finally, the findings will be synthesized to assess the overall impact and potential future role of VR immersive exchanges within modern languages curricula, concluding with recommendations for practice and future research.

2. Conceptual Foundations

To rigorously evaluate the role of VR immersive language exchanges in developing intercultural competence, it is essential to establish clear, context-specific definitions for the key terms involved.

2.1. Immersive Language Exchanges

The concept of a "language exchange" typically refers to a reciprocal learning arrangement where individuals, often native speakers of different languages, interact to practice their respective target languages and gain cultural insights from one another (Bissessar, 2024). These exchanges often occur in informal yet structured settings outside the traditional classroom, emphasizing conversational practice (Bissessar, 2024). The goals commonly include enhancing linguistic fluency and confidence, acquiring first-hand cultural knowledge, and building connections with people from different backgrounds (Bissessar, 2024). Programs like the University of Maryland's Language Partner Program exemplify this structure, pairing international students with language majors for regular conversation practice, supplemented by cultural learning sessions, as such exchanges aim to foster not only language skills but also cultural awareness and intercultural competence (Bissessar, 2024).

The term "immersive" adds a crucial dimension, particularly when linked with VR. In language learning, "immersion" traditionally refers to being deeply involved in the target language and culture, often through physical presence in a relevant environment (Hein et al., 2021). Technologically mediated immersion, however, seeks to replicate this feeling through tools that create a strong sense of presence, engagement, and interaction within a simulated environment (Hua & Wang, 2023). VR, especially high-immersion VR using head-mounted displays, is designed specifically to generate this feeling of "being there" (Hua & Wang, 2023). This distinguishes VR-based exchanges from other forms of virtual exchange or telecollaboration, which rely on tools like email, chat, forums, or standard video conferencing (Belkahla & Azmi, 2025). While telecollaboration facilitates communication across distances, VR adds the element of a shared, simulated 3D space where users can interact with the environment and each other through avatars, aiming for a greater sense of co-presence and situated interaction (Hua & Wang, 2023).

Therefore, within the context of this paper, "immersive language exchanges via VR" are defined as structured, technologically mediated interactions between language learners from different linguistic and cultural backgrounds, utilizing virtual reality platforms to create a sense of shared presence within a simulated 3D environment. These exchanges are designed to facilitate reciprocal language practice and promote the development of intercultural communicative competence through simulated authentic communication scenarios.

2.2. Virtual Reality (VR) in Education

Virtual Reality (VR) is fundamentally a technology that generates a three-dimensional (3D), computer-based environment, allowing users not only to view but also to interact with elements within that environment (Chen et al., 2022). A key characteristic often associated with VR is its ability to induce a psychological state of "presence", the feeling of actually being located within the virtual space. This is achieved through stimulating the user's senses, primarily sight and sound, although haptic feedback is also possible in some systems (Chen et al., 2022).

It is useful to distinguish between different types of VR based on the level of immersion they offer (Hua & Wang, 2023). Low-immersion VR (LiVR) typically involves experiencing a 3D virtual space through standard equipment like a desktop computer monitor and keyboard/mouse interaction. High-immersion VR (HiVR), conversely, utilizes specialized hardware, most notably head-mounted displays (HMDs), to create a 360-degree, encompassing virtual space that feels spatially realistic and blocks out the physical world (Hua & Wang, 2023). The level of immersion experienced depends significantly on both the quality of the VR content and the sophistication of the hardware used (Hua & Wang, 2023). A common format used in educational VR, particularly for cultural exploration, involves 360-degree videos viewed through HMDs, offering a panoramic but often less interactive experience than fully modelled 3D environments (Shadiev et al., 2020). While related technologies like Augmented Reality (AR), which overlays digital information onto the real world and the umbrella term Extended Reality (XR) (Hein et al., 2021) exist, this paperfocuses specifically on VR's capacity to create self-contained, simulated environments.

In education, VR is recognized for several key affordances. It can provide access to simulated real-life experiences and environments that are otherwise difficult or impossible to access in traditional classroom settings, such as historical sites, distant locations, or complex social scenarios (Chen et al., 2022). This potential for providing authentic contexts is particularly relevant for language learning, where lack of real-world practice opportunities is a common challenge. Furthermore, VR is frequently associated with increased learner motivation, engagement, and participation (Chen et al., 2022), potentially due to its novelty, interactivity, and immersive qualities. Studies also suggest VR can help reduce learning anxiety, particularly communication apprehension, by providing a perceived safe space for practice (Hua & Wang, 2023). Consequently, VR is being explored for its potential to facilitate the acquisition of various language skills, including vocabulary, speaking, listening, and writing, as well as cultural competence (Hua & Wang, 2023). It enables the creation of virtual classrooms or "third spaces" where learners from diverse backgrounds can interact (Tafazoli, 2024).

2.3. Intercultural Competence (IC) and Intercultural Communicative Competence (ICC)

Underpinning the discussion of intercultural competence is

the concept of culture itself. Culture can be understood as the complex combination of learned and shared beliefs, values, attitudes, communication styles, and behavior patterns that characterize a particular group of people and are transmitted across generations, often through language and social interaction (Harper, 2020). It shapes how individuals perceive and make sense of the world, influencing their interactions and interpretations (Harper, 2020).

Intercultural Competence (IC) refers broadly to the ability to interact effectively and appropriately with people who are perceived to have different cultural affiliations (Lobana-Coy et al., 2025). It involves possessing relevant knowledge about different cultural practices and perspectives, holding attitudes of openness and respect, and possessing the skills to manage interactions successfully across cultural differences (Lobana-Coy et al., 2025). IC is increasingly recognized as a vital transversal skill, applicable across various domains in our diverse and globalized world (Belkahla & Azmi, 2025).

Building upon IC, Intercultural Communicative Competence (ICC) specifically addresses the ability to communicate effectively and appropriately in a foreign language with people from different cultural backgrounds (Sheu & Manzie, 2024). ICC integrates linguistic proficiency with intercultural understanding, emphasizing that successful communication involves not only grammatical accuracy and fluency but also the ability to navigate cultural dynamics, manage relationships, and achieve shared understanding across potential cultural divides (Sheu & Manzie, 2024). While some literature uses IC and ICC interchangeably, the distinction drawn by scholars like Byram (1997; 2020) is particularly pertinent here (Sheu & Manzie, 2024). Byram (2020) defines IC as interacting in one's own language with people from another culture, whereas ICC involves interaction in another language (Sheu & Manzie, 2024). Given that this paper focuses on modern languages degrees, where the explicit goal is proficiency in a foreign language, ICC is the more precise and relevant target competence. This implies that VR language exchanges, to be effective in this context, must foster not just general cultural awareness but the ability to operationalize that awareness through appropriate linguistic choices and interactional strategies in the target language within the simulated environment. Byram's (2020) model of ICC is highly influential in language education and provides a useful framework for understanding its components (Belkahla & Azmi, 2025). This model comprises five interrelated 'savoirs':

Attitudes (savoir être): This involves curiosity and openness towards other cultures, coupled with a willingness to question one's own cultural assumptions and values. It includes readiness to suspend disbelief about other cultures and belief about one's own (Sheu & Manzie, 2024).

Knowledge (savoirs): This encompasses knowledge of social groups, their products, practices, and perspectives in both one's own culture and the interlocutor's culture, as well as knowledge about general processes of social and intercultural interaction (Sheu & Manzie, 2024). This goes beyond simply learning facts about a culture ('culture learning') to understanding the underlying systems and processes (Harper, 2020). Reflection on one's own culture is a critical aspect (Harper, 2020).

Skills of interpreting and relating (savoir comprendre): This is the ability to interpret documents, events, or interactions from another culture, explain them, and relate them to phenomena in one's own culture (Sheu & Manzie, 2024).

Skills of discovery and interaction (savoir apprendre/faire): This refers to the ability to acquire new knowledge about a culture and cultural practices autonomously, and to operate one's existing knowledge, attitudes, and skills effectively under the real-time constraints of communication and interaction (Sheu & Manzie, 2024).

Critical cultural awareness / political education (savoir s'engager): This is the ability to evaluate, critically and based on explicit criteria, the perspectives, practices, and products of one's own culture and other cultures (Sheu & Manzie, 2024).

While Byram's (2020) model is central, other related concepts exist, such as Cultural Intelligence (CQ), which also emphasizes cognitive, metacognitive, motivational, and behavioral capabilities for navigating diverse cultural contexts (Anglani et al., 2023). A recurring theme across frameworks is the emphasis on developing skills and habits for navigating cultural difference, rather than solely accumulating factual knowledge (Harper, 2020). The development of ICC is thus a complex process involving cognitive, affective, and behavioral dimensions.

3. Mechanisms: How VR Environments May Foster Intercultural Competence

Virtual Reality environments possess several unique characteristics, or affordances, that are hypothesized to facilitate the development of Intercultural Communicative Competence (ICC) in ways that may differ from or enhance traditional pedagogical methods. Understanding these potential mechanisms is crucial for evaluating VR's effectiveness.

3.1. Immersion and Presence

Perhaps the most frequently cited affordance of VR is its ability to generate a strong psychological sense of *presence*, the feeling of "being there" within the virtual environment through *immersion,* the objective technological capacity to envelop the user's senses (Hua & Wang, 2023). High-immersion VR (HiVR), employing head-mounted displays (HMDs), is particularly effective at creating this sensation by providing a 360-degree, spatially realistic view and blocking out external stimuli (Hua & Wang, 2023). This heightened sense of presence is theorized to make simulated intercultural encounters feel more tangible and psychologically real compared to passive methods like reading texts or watching 2D videos (Chen et al., 2022). By providing a context that feels closer to real-world interaction (Chen et al., 2022), VR may evoke more authentic cognitive and emotional responses from learners during simulated intercultural exchanges (Taguchi, 2023). This perceived realism can help bridge the psychological distance often associated with abstract cultural learning, potentially fostering deeper engagement and making the learning experience more memorable and impactful (Lan, 2020). The feeling of shared presence with interaction partners in social VR platforms might also enhance the quality and perceived authenticity of the language exchange itself.

3.2. Authentic Simulation and Contextualized Practice

VR technology enables the creation and exploration of

detailed, interactive simulations of diverse cultural contexts and social scenarios (Chen et al., 2022). Learners can virtually visit foreign cities, participate in simulated cultural rituals, navigate everyday situations like ordering food in a restaurant or attending a meeting, or even engage in complex scenarios like intercultural conflict mediation (American University School of Education, 2019). These simulations can provide access to experiences that might be logistically difficult, expensive, or impossible to arrange in reality (Kulke, 2025). This capability allows for *contextualized practice*, where learners apply their linguistic and intercultural skills within a simulated "authentic" setting (Chen et al., 2022). This aligns strongly with principles of communicative language teaching and theories emphasizing the importance of learning in context (Chen et al., 2022). Interacting within these simulated environments provides opportunities to observe and practice navigating specific cultural norms, non-verbal cues (as expressed through avatars), communication styles, and potential points of misunderstanding (Lan, 2020). This situated practice can help learners understand the subtle interplay between language use and cultural context, which is crucial for developing ICC (Lan, 2020). Furthermore, VR can offer a relatively safe and controlled space for this practice, allowing learners to experiment, make mistakes, and receive feedback (either from peers, instructors, or potentially AI) without the high stakes or potential embarrassment of real-world errors (Lan, 2020). This "safe space" aspect may be particularly beneficial for tackling challenging intercultural scenarios and building confidence.

3.3. Embodiment and Perspective-Taking

In most VR applications, users interact with the virtual world through an *avatar*, a digital representation of themselves. This creates a sense of *embodiment*, the feeling of possessing and controlling a body within the virtual space (Chen & Sevilla-Pavón, 2023). This embodied presence can enhance the feeling of active participation and agency within the simulated environment, making interactions feel more direct and personal compared to disembodied communication methods (Chen & Sevilla-Pavón, 2023). Beyond representing oneself, VR offers powerful possibilities for *perspective-taking*. Technologies can be designed to allow users to virtually "step into someone else's shoes," experiencing a situation or environment from the viewpoint of another individual, potentially someone with a different cultural background or facing specific social circumstances (American University School of Education, 2019). This capability is strongly linked to the development of *empathy*, a key component of the 'Attitudes' (*savoir être*) dimension of Byram's ICC model (Sheu & Manzie, 2024). Through facilitating embodied experiences from diverse perspectives, VR may help learners develop a deeper, more visceral understanding of different worldviews and challenges, moving beyond purely intellectual comprehension (American University School of Education, 2019).

3.4. Enhanced Interaction and Collaboration

VR environments, especially social VR platforms, are inherently designed for multi-user *interaction* and *collaboration* (Lan, 2020). They allow learners located in different geographical places to meet, communicate, and work together in a shared virtual space in real-time. This aligns well with interactionist and sociocultural theories of learning, which emphasize the importance of social interaction and collaborative meaning-making in language acquisition and competence development (Hein et al., 2021). Within a VR language exchange, this facilitates direct, synchronous intercultural communication (Blyth, 2018). Learners can engage in conversation, negotiate meaning when misunderstandings arise, and practice their interactional skills (Byram's '*savoir apprendre/faire*' (Sheu & Manzie, 2024)) with peers from different cultural backgrounds (Hein et al., 2021). The interaction in VR is often multimodal; communication occurs not only through speech but also through non-verbal cues mediated by avatars, such as gestures, head movements, proximity (proxemics), and manipulation of virtual objects (Chen & Sevilla-Pavón, 2023). This potentially offers richer communication channels than text-only or audio-only exchanges, allowing for the practice and interpretation of non-verbal aspects of communication, which are often culturally specific (Chen & Sevilla-Pavón, 2023). However, it is important to acknowledge that current avatar technology may still have limitations in conveying the full subtlety of human facial expressions and body language (Chen & Sevilla-Pavón, 2023).

3.5. Affective Factors: Motivation, Engagement, Reduced Anxiety

A frequently reported benefit of using VR in education is its positive impact on learners' *affective states*. Studies consistently suggest that VR experiences can significantly boost *motivation, engagement, and enjoyment* in learning activities (Chen et al., 2022). The novelty, interactivity, and immersive nature of the technology often capture learners' interest and encourage active participation (Chen et al., 2022). Furthermore, VR environments are often perceived as less threatening or judgmental than face-to-face interactions, potentially *reducing communication anxiety* (often referred to as the 'affective filter') (Hua & Wang, 2023). Practicing language skills or navigating intercultural scenarios through an avatar might feel less exposing than doing so in person, encouraging learners to take more communicative risks, experiment with language, and participate more freely (Hua & Wang, 2023). This reduction in anxiety can lead to increased *confidence* in using the target language and engaging in intercultural dialogue (Bissessar, 2024). These affective benefits are crucial mechanisms because they can indirectly support ICC development. Increased motivation leads to more time on task and deeper engagement with cultural content (Lan, 2020). Reduced anxiety and increased confidence can foster the positive 'Attitudes' (*savoir être*) necessary for successful intercultural communication, making learners more willing to initiate and sustain interaction across cultural differences (Sheu & Manzie, 2024).

It is crucial to recognize that these mechanisms are interconnected and their effectiveness is not automatic. Immersion likely fuels engagement and perceived authenticity (Hua & Wang, 2023). Authentic simulations provide the necessary context for meaningful interaction and practice (Chen et al., 2022). Embodiment enhances participation and enables perspective-taking, fostering empathy (American University School of Education, 2019). Positive affective states lower barriers to applying interactional skills (Sheu & Manzie, 2024). The real potential of VR for ICC development seems to lie in its capacity to simulate situated intercultural encounters, allowing learners to experience the dynamic interplay of language, culture, and context in a way that is difficult to achieve through

decontextualized methods (Lan, 2020). This situated practice can potentially activate multiple components of Byram's ICC model simultaneously. However, translating these potential mechanisms into actual learning gains requires careful pedagogical design. Simply placing learners in a VR environment is insufficient; structured tasks, opportunities for reflection, guided debriefing, and clear learning objectives are essential to ensure that the VR experience leads to meaningful development of intercultural communicative competence (Bissessar, 2024). The pedagogy must actively leverage VR's affordances to guide learners in interpreting cultural cues, relating experiences to their own cultural frameworks, and reflecting critically on the interactions (Sheu & Manzie, 2024).

4. Evidence Review: Assessing the Impact of VR Language Exchanges on Intercultural Competence

Evaluating the claim that immersive VR language exchanges increase intercultural competence requires a careful examination of the existing empirical research. While the field is relatively new and rapidly evolving, a growing body of literature provides insights into the potential impacts, limitations, and complexities involved.

4.1. Overview of Research Landscape

Research interest in VR-Assisted Language Learning (VRALL) has expanded significantly, particularly in the post-COVID-19 era, which accelerated the need for effective remote and technologically enhanced learning solutions (Hua & Wang, 2023). Systematic reviews and bibliometric analyses confirm this trend, identifying key areas of focus such as the use of specific technologies (including VR and telecollaboration tools), the development of various language skills, and the fostering of intercultural competence (Belkahla & Azmi, 2025). Common theoretical frameworks underpinning this research include sociocultural theory, social constructivism, and models of intercultural communicative competence, particularly Byram's model (Belkahla & Azmi, 2025). However, research specifically investigating the triad of immersive VR, structured language exchange, and ICC development remains relatively nascent compared to broader studies on VRALL or non-VR telecollaboration for intercultural learning (Belkahla & Azmi, 2025). Much of the relevant evidence comes from studies focusing on VR for general cultural awareness, specific language skills practice in VR, or telecollaborative projects that may or may not utilize immersive VR (Hein et al., 2021). Nonetheless, these related studies offer valuable pointers regarding VR's potential impact on ICC components.

4.2. Evidence Supporting Positive Impacts

Several studies suggest that VR interventions can positively influence various dimensions of IC and ICC:

Cultural Knowledge and Awareness (*Savoirs*): Research indicates that VR experiences, such as exploring 360-degree videos of cultural scenes or engaging in simulations, can lead to gains in participants' cultural knowledge and awareness (Hua & Wang, 2023). For instance, studies involving virtual tours or exposure to simulated cultural practices reported increased understanding of the target culture (Taguchi, 2023).

Attitudes (*Savoir être*): VR environments have shown potential in fostering positive intercultural attitudes, such as openness, curiosity, respect, and empathy (Lobana-Coy et al., 2025). The ability of VR to facilitate perspective-taking is often highlighted as a mechanism for enhancing empathy (American University School of Education, 2019). Some studies observed increased interaction engagement and confidence among participants after VR experiences (Taguchi, 2023). Collaborative projects within VR have also been found for fostering positive attitudes and cultural recognition among peers (Lobana-Coy et al., 2025).

Skills (*Savoir comprendre, Savoir apprendre/faire*): VR provides a platform for practicing intercultural communication skills in simulated contexts (Sheu & Manzie, 2024). Participants in some studies demonstrated the application of intercultural competence within VR settings, such as during collaborative tasks or conflict mediation scenarios (Taguchi, 2023). The safe environment afforded by VR may encourage learners to practice interaction skills more readily (Blyth, 2018).

Communicative Abilities: As ICC requires linguistic proficiency, evidence showing VR's positive impact on language skills is relevant. Studies have linked VR use to improvements in speaking fluency and confidence, vocabulary acquisition (especially contextualized vocabulary) listening comprehension and even writing skills (Hua & Wang, 2023). VR is seen as potentially enhancing overall communicative competence by providing immersive practice opportunities (Blyth, 2018).

Affective Benefits: The consistently reported positive effects of VR on learner motivation, engagement, enjoyment, and confidence, alongside reduced anxiety, create favorable conditions for intercultural learning (Chen et al., 2022). VR tasks can evoke realistic emotions, potentially making the learning more impactful (Taguchi, 2023). Participants often express satisfaction and intention to continue using VR for learning (Shadiev et al., 2020).

Specific examples illustrate these points: Song (2019) used 360-degree videos effectively in a Korean language class to promote cultural awareness and curiosity (Taguchi, 2023). Shadiev and colleagues designed intercultural learning activities using student-created 360-degree videos, finding positive participant perceptions and indications of IC development (Shadiev et al., 2020). A study integrating VR into a virtual exchange project on sustainability found participants appreciated the VR setting for relationship-building and applying intercultural competence (Gruber & Wagner, 2024). Another study investigating a production-based VR strategy for Mandarin learning reported improved motivation and confidence, concluding that VR combined with appropriate pedagogy could enhance ICC (Shadiev et al., 2024).

4.3. Limitations, Contradictions, and Challenges in Evidence

Despite promising findings, the evidence base is subject to several limitations and challenges:

Methodological Weaknesses: A significant portion of the research consists of small-scale exploratory studies, case studies, or pilot projects (Hein et al., 2021). There is a scarcity of longitudinal research tracking ICC development over extended periods (Shadiev et al., 2024). Many studies struggle to isolate the specific contribution of the VR technology itself, distinct from the pedagogical design, the novelty effect, or the collaborative activity involved. Furthermore, the assessment of IC/ICC often relies heavily on

self-report surveys or questionnaires (Taguchi, 2023). While useful for gauging perceptions and attitudes, self-reports may not accurately reflect actual behavioral competence in real intercultural interactions. There is a recognized need for more robust, performance-based assessment methods for ICC in VR contexts (Taguchi, 2023).

Inconclusive or Mixed Findings: Systematic reviews sometimes conclude that while user perceptions of VR learning are generally positive, the evidence for its effectiveness in improving language or intercultural skills, especially when compared rigorously to other methods, remains inconclusive or mixed (Shadiev et al., 2024). For example, Taguchi (2023) found VR improved engagement and confidence but not interactional enjoyment or respect for cultural differences. A comparative study by Chan et al. (2025) found no statistically significant difference in measured ICC scores between a cohort using a VR-based strategy and a previous cohort (potentially using different methods), despite the VR cohort reporting higher motivation and confidence (Shadiev et al., 2024). This highlights a potential disconnect between affective responses and measurable competence gains.

Focus and Scope: Research often targets specific, discrete language skills (e.g., vocabulary acquisition (Shadiev et al., 2024)) or general cultural awareness rather than the holistic and integrated nature of ICC, which involves applying knowledge, skills, and attitudes simultaneously during communication (Sheu & Manzie, 2024).

Confounding Variables: Positive outcomes might sometimes be attributed more to the quality of the pedagogical design, the collaborative nature of the task (as seen in successful non-VR telecollaboration projects (Lobana-Coy et al., 2025)), or simply the Hawthorne effect (participants modifying behavior due to awareness of being observed) rather than the unique affordances of VR itself. Conversely, poorly designed or technically flawed VR experiences are unlikely to yield benefits and may even be detrimental (Tafazoli, 2024).

Reported Drawbacks: Studies also acknowledge potential negative aspects of VR use, including cognitive overload, cybersickness (nausea, disorientation, eye strain), the distracting nature of the technology itself (especially initially), technical glitches, and issues related to cost and equitable access, all of which can impede learning (American University School of Education, 2019).

The interpretation of evidence is further complicated by potential publication bias, where studies showing statistically significant positive results may be more likely to be published than those with null or negative findings. This could lead to an overestimation of VR's effectiveness in the available literature. Additionally, VR technology is evolving rapidly (Hua & Wang, 2023). Findings from studies using older, less immersive, or more cumbersome VR systems may not fully reflect the potential (or challenges) of current-generation technology. This rapid evolution necessitates ongoing research using contemporary platforms. Another significant challenge lies in the inherent complexity of defining and measuring IC and ICC (Sheu & Manzie, 2024). Different studies may employ varying theoretical frameworks (e.g., Byram's model (Belkahla & Azmi, 2025), CQ (Anglani et al., 2023)) and utilize diverse assessment tools, ranging from surveys and interviews to observations of behavior or task performance analysis (Taguchi, 2023). This heterogeneity makes direct comparison and synthesis of findings across studies difficult. An improvement reported on a self-assessment scale for 'Attitudes' (Taguchi, 2023), for instance, does not necessarily equate to enhanced effectiveness in managing a real-time intercultural misunderstanding, a core aspect of ICC (Sheu & Manzie, 2024). This lack of standardized, validated measurement protocols for ICC within VR environments remains a significant hurdle for the field.

5. Implementation in Practice: Case Studies and Examples

Despite the developing evidence base, various universities and language programs are already experimenting with and implementing VR technologies for immersive language and cultural exchange, showcasing diverse approaches and integrations.

University Initiatives and Platforms Several institutions are pioneering the use of VR in language and intercultural education:

Northwestern University: Faculty in the Department of Spanish and Portuguese are utilizing VR technology to create cultural immersion experiences for their students directly within the classroom setting (Kulke, 2025). Their approach explicitly aims to develop Intercultural Communicative Competence (ICC) and is positioned as a way to provide valuable intercultural experiences, particularly for students who may not have the opportunity to study abroad (Kulke, 2025). Crucially, their model emphasizes not just the VR experience itself but integrates it with structured classroom discussions, cultural comparisons, and self-reflection activities to deepen learning and foster cultural competence (Kulke, 2025).

University of Maryland: While the Language Partner Program (LPP) described primarily involves face-to-face or traditional online interaction (Bissessar, 2024), its structure provides a relevant model for VR adaptation. The LPP facilitates structured, informal language practice between international students and language majors, focusing on cultural and linguistic insights, and includes mandatory cultural learning sessions (Bissessar, 2024). This blend of informal exchange and structured cultural reflection could be effectively translated into a VR environment.

Metaverse Environments & Social VR: There is growing interest in leveraging broader Metaverse platforms or dedicated social VR applications for educational purposes, including language learning and intercultural communication (Blyth, 2018). Platforms like Second Life have a history of use in language education for task-based learning and creating spaces for interaction between learners from different backgrounds (Sadler et al., 2013). Newer social VR platforms allow multiple users, represented by avatars, to interact within shared 3D spaces using HMDs, offering potential for synchronous, immersive language exchanges (Hein et al., 2021).

Specific Project Examples: Research studies often detail specific implementations. These include projects pairing students from different countries (e.g., US-Peru for a COIL project (Lobana-Coy et al., 2025), Spain-Poland for language/intercultural skills (Shadiev et al., 2020), Taiwan-Spain for ELF communication in VR (Chen & Sevilla-Pavón, 2023)) or focusing on particular languages (e.g., Mandarin (Shadiev et al., 2024), Irish using Cipher VR (Lan, 2020)). Platforms mentioned range from commercial simulation tools

like Mursion (used for teacher training simulations (American University School of Education, 2019)) to custom-built environments or those relying heavily on 360-degree video technology (Shadiev et al., 2020).

COIL Integration: VR is being explored as a component within Collaborative Online International Learning (COIL) frameworks. COIL projects connect students and faculty from different countries for collaborative projects and intercultural learning. VR can enhance these collaborations by providing a shared immersive space, offering a form of "virtual study abroad" particularly valuable when physical travel is restricted by budget or other limitations (Lobana-Coy et al., 2025).

Pedagogical Approaches in VR Language Exchanges
The way VR is used pedagogically varies considerably across implementations:

Simulated Scenarios and Role-Playing: A common approach involves placing learners in specific, simulated situations where they need to use the target language and navigate cultural norms. Examples include role-playing ordering food in a restaurant (Taguchi, 2023), making requests appropriately (Taguchi, 2021), or even mediating an intercultural conflict scenario (Taguchi, 2023). These tasks allow for targeted practice of communicative functions and intercultural skills in context.

Virtual Field Trips and Cultural Exploration: VR, especially using 360-degree video or detailed 3D models, allows learners to virtually visit and explore locations relevant to the target culture, such as historical sites, museums, cities, or natural landscapes (American University School of Education, 2019). While potentially less interactive, these experiences can provide rich contextual background, spark curiosity, and serve as prompts for discussion and reflection on cultural products and practices.

Collaborative Tasks and Project-Based Learning: VR environments can serve as platforms for students from different cultural backgrounds to collaborate on shared tasks or projects (Benini & Thomas, 2020). This requires learners to communicate, negotiate, and coordinate their actions within the virtual space, providing authentic opportunities for developing both language and intercultural teamwork skills. This aligns with pedagogical approaches like Project-Based Learning (PBL) (Benini & Thomas, 2020).

Student Content Creation: Some innovative approaches involve learners actively creating VR content themselves. For instance, students might record 360-degree videos showcasing aspects of their own daily life or local culture, which are then shared with their language exchange partners for viewing and discussion (Shadiev et al., 2020). This production-based strategy encourages learners to reflect on their own culture while engaging actively with the technology.

A key observation across these examples is the variability in the level of immersion and interactivity, ranging from relatively passive viewing of 360-degree videos to highly interactive, collaborative tasks within fully realized 3D social VR environments. Regardless of the specific approach, successful implementations consistently appear to embed the VR experience within a broader pedagogical framework. Structured pre-tasks, clear objectives during the VR interaction, and, crucially, post-experience reflection, debriefing, and discussion seem essential for translating the immersive experience into tangible learning outcomes, particularly for the complex goal of developing ICC (Kulke, 2025). The technology serves as a powerful tool, but its effectiveness hinges on how it is wielded pedagogically to guide learners through active processing and meaning-making. Furthermore, the positioning of VR as a supplement or alternative to study abroad (Lobana-Coy et al., 2025) suggests a potentially significant strategic role for the technology within institutional internationalization efforts. By offering accessible, scalable opportunities for immersive intercultural engagement, VR could help universities broaden participation in global learning experiences beyond traditional mobility programs. This has implications for curriculum design, resource allocation, and how institutions conceptualize and support internationalization at home.

6. Benefits and Challenges of Using VR for Intercultural Competence

The integration of VR into language and intercultural education presents a landscape marked by both significant potential benefits and considerable practical challenges. A balanced understanding of both is necessary for informed decision-making regarding its adoption.

6.1. Reported Benefits

Research and practice highlight several key advantages associated with using VR for developing ICC:

Enhanced Learning Outcomes: VR holds the potential to improve specific components of ICC, including cultural awareness, knowledge, positive attitudes (like empathy), and interactional skills, by providing contextualized practice environments (Lobana-Coy et al., 2025). It can also support the development of foundational language skills necessary for ICC (Hua & Wang, 2023). The situated nature of learning in VR aligns well with modern pedagogical principles (Hua & Wang, 2023).

Increased Motivation, Engagement, and Enjoyment: One of the most consistently reported benefits is VR's ability to significantly boost learner motivation and engagement (Chen et al., 2022). The novelty, interactivity, and immersive qualities often make learning feel more like play, sparking curiosity and encouraging active participation (Chen et al., 2022).

Reduced Anxiety and Increased Confidence: By providing a perceived safe space for practice, often mediated through avatars, VR can help lower communication apprehension and the fear of making mistakes (Hua & Wang, 2023). This can lead to increased learner confidence in using the target language and engaging in intercultural interactions (Bissessar, 2024).

Authenticity and Presence: VR excels at creating a strong sense of presence and simulating realistic environments and interactions (Chen et al., 2022). This perceived authenticity can make the learning experience more meaningful and memorable than traditional methods.

Accessibility to Diverse Experiences: VR can virtually transport learners to different cultural contexts and allow them to interact with diverse individuals (peers or simulated characters) that might otherwise be inaccessible due to geographical distance, cost, or logistical constraints (Lobana-Coy et al., 2025). This capability underpins the concept of "virtual study abroad" or virtual exchange, broadening access to international experiences (Lobana-Coy et al., 2025).

Enhanced Collaboration and Interaction: VR platforms facilitate real-time, synchronous interaction and collaboration between learners from different locations, fostering direct

intercultural communication practice (Bissessar, 2024).

Potential for Personalization: While less explored specifically for ICC in the reviewed materials, VR environments integrated with AI hold potential for personalized learning paths, adaptive scenarios, and tailored feedback (Chen & Wei, 2024).

6.2. Reported Challenges

Despite the benefits, the implementation of VR for ICC development faces numerous hurdles:

Technical Issues: Reliability remains a concern. Hardware malfunctions, software bugs, connectivity problems, and platform incompatibilities can disrupt learning activities and cause frustration for both students and educators (Huang & Li, 2024). Effective use also requires a certain level of technical proficiency (Hein et al., 2021).

Cost and Accessibility: High-immersion VR requires significant investment in headsets and powerful computing hardware, raising issues of cost and equitable access for all students within an institution (Lobana-Coy et al., 2025). Dedicated physical space is also often needed for safe use of HMDs (American University School of Education, 2019).

Health, Safety, and Comfort: Cybersickness including symptoms like nausea, dizziness, eye strain, and disorientation is a common issue that can limit usage time and affect a subset of users significantly (Hua & Wang, 2023). Physical safety while immersed (e.g., colliding with real-world objects) requires careful space management and supervision (American University School of Education, 2019).

Pedagogical Challenges: Designing effective, pedagogically sound VR tasks that genuinely foster ICC, rather than just serving as novel entertainment, is complex (Belkahla & Azmi, 2025). There's a risk of the technology overshadowing the learning goals or becoming a source of distraction (American University School of Education, 2019). Integrating VR meaningfully into existing curricula requires careful planning and alignment with learning outcomes. Existing research provides limited guidance on best practices for pedagogical integration (Belkahla & Azmi, 2025).

Teacher Training and Support: A major barrier is the lack of adequate training and ongoing support for educators (Belkahla & Azmi, 2025). Teachers need proficiency not only in operating the VR technology but, more importantly, in designing effective VR-based learning activities and facilitating intercultural learning within these immersive environments (Hein et al., 2021). Teacher skepticism or apprehension towards the technology can also hinder adoption (Tafazoli, 2024).

Content Availability and Quality: Finding or creating high-quality, culturally accurate, and appropriate VR content, especially for diverse cultural contexts and less commonly taught languages, remains a challenge (Tafazoli, 2024). Developing bespoke VR scenarios can be time-consuming and expensive.

Learner Factors: Students come with varying levels of digital literacy and comfort with VR technology. The immersive nature can sometimes lead to cognitive overload if not managed carefully (Hua & Wang, 2023). Privacy concerns related to data collection in virtual environments may also arise (Huang & Li, 2024).

A significant tension exists between the compelling potential benefits of VR including immersion, engagement, authenticity and the substantial practical obstacles related to cost, technology reliability, health concerns, and, perhaps most critically, pedagogical integration and teacher preparedness. The successful and sustainable implementation of VR for ICC development appears to depend heavily on institutions addressing these challenges systemically. Simply acquiring VR hardware is insufficient; a comprehensive strategy encompassing equitable access, robust technical support, dedicated faculty development, and thoughtful curriculum integration is necessary to bridge the gap between potential and practice.

The challenge of teacher training is particularly acute when the goal is ICC development. Facilitating meaningful intercultural learning requires more than technical skill; it demands pedagogical expertise in guiding reflection, managing potentially sensitive discussions about cultural differences or misunderstandings, and assessing complex competencies like ICC (Sheu & Manzie, 2024). Adding the layer of VR technology requires educators to manage the virtual environment and support learners technically while simultaneously applying these sophisticated intercultural pedagogical skills (Hein et al., 2021). If educators lack confidence with the technology (Hein et al., 2021), are skeptical about its value (Tafazoli, 2024), or lack training in facilitating intercultural dialogue within immersive contexts, VR initiatives are unlikely to achieve their intended outcomes. Therefore, effective professional development must holistically integrate technical VR training, pedagogical strategies tailored for immersive environments, and core principles of intercultural education facilitation.

7. Stakeholder Perspectives: Views of Students and Educators

Understanding the perspectives of the primary users including students and educators is crucial for assessing the feasibility and potential impact of VR immersive language exchanges. Their experiences, attitudes, and concerns shape the adoption and effectiveness of this technology.

7.1. Student Perspectives

Research generally indicates that students respond positively to the use of VR in language and intercultural learning:

Positive Experiences and Satisfaction: Students frequently report high levels of satisfaction, enjoyment, and positive attitudes towards learning activities conducted in VR environments (Hua & Wang, 2023). The immersive, interactive, and often game-like nature of VR is appealing (Lan, 2020). Many express an intention or eagerness to continue using VR for learning (Shadiev et al., 2020).

Increased Motivation and Engagement: Learners often feel more motivated and engaged when using VR compared to traditional methods (Chen et al., 2022). The novelty and interactivity capture their interest and encourage participation.

Perceived Learning Benefits: Students often perceive VR as beneficial for their learning. They value the opportunity for authentic practice in realistic contexts (Shadiev et al., 2020) and report feeling more confident in their communication skills after using VR (Bissessar, 2024). They may feel it helps them understand cultural contexts better (Kulke, 2025).

Affective Impact: VR experiences can evoke realistic emotional responses, potentially making the learning more impactful and memorable (Taguchi, 2023).

Social Connection: In the context of virtual exchanges,

students have reported appreciating VR settings for their ability to help build relationships and rapport with their interaction partners from different cultures (Gruber & Wagner, 2024).

Reported Drawbacks: While generally positive, student perspectives also reflect some challenges. These include potential distractions arising from the novelty of the technology or complex interfaces (American University School of Education, 2019), frustration with technical glitches or usability issues (Huang & Li, 2024), experiences of cybersickness or physical discomfort (Hua & Wang, 2023), and potential privacy concerns regarding data tracking in virtual environments (Huang & Li, 2024).

7.2. Educator Perspectives

Educators' perspectives on using VR for language and intercultural learning appear more mixed and often highlight practical concerns:

Recognition of Potential: Many educators acknowledge the potential benefits of VR, particularly its capacity for creating immersive experiences, increasing student engagement, and offering unique learning opportunities not possible through other means (Kulke, 2025). They may see its value for simulating real-world scenarios or providing access to virtual cultural immersion (Kulke, 2025).

Concerns and Skepticism: Despite recognizing the potential, educators frequently express significant concerns regarding the practicality of implementation (Tafazoli, 2024). Worries about the cost of equipment, the reliability of the technology, the time investment required for planning and setup, and the lack of sufficient technical support are common (Hein et al., 2021). Some educators remain skeptical about the actual pedagogical effectiveness of VR compared to established methods, questioning whether the benefits justify the investment and effort (Tafazoli, 2024). Limited awareness of specific VR applications suitable for their teaching context can also be a barrier (Tafazoli, 2024). Furthermore, ingrained traditional teaching paradigms may make some educators hesitant to adopt such novel technologies (Tafazoli, 2024).

Critical Need for Training and Support: A dominant theme in educator perspectives is the urgent need for comprehensive professional development and ongoing support (Belkahla & Azmi, 2025). Educators feel unprepared to use VR effectively, lacking both the technical skills to operate the systems and, crucially, the pedagogical knowledge to design meaningful learning activities and integrate VR effectively into their curriculum (Hein et al., 2021). This training gap is identified as a major obstacle to wider adoption (Hein et al., 2021).

Adapting the Teacher Role: Some educators recognize that teaching in VR environments may require a shift in their role, moving away from being the primary source of information towards becoming facilitators of learning, guides within the virtual space, and designers of engaging experiences (Sadler et al., 2013). This role transformation can itself be challenging.

Analysis of these perspectives reveals a potential disconnect: while students often exhibit considerable enthusiasm for using VR, educator concerns about practicality, effectiveness, and their own preparedness represent significant implementation barriers. Student interest alone is unlikely to drive successful, sustainable adoption of VR in language programs. Addressing the practical concerns and building educator confidence through robust training, readily available technical and pedagogical support, and clear evidence of learning benefits are crucial steps needed to bridge this gap. Furthermore, both student and educator viewpoints underscore the critical importance of *usability and user experience*. Regardless of the pedagogical potential, if the VR technology is difficult to use, prone to technical failures, causes significant discomfort (cybersickness), or has a poorly designed interface, the learning experience will be compromised. The quality of the VR hardware, software, and overall user interface directly impacts stakeholder acceptance and the potential for achieving learning objectives. Therefore, careful platform selection, adequate technical infrastructure, and effective user onboarding and support are essential prerequisites for successful implementation.

8. Future Directions

Synthesizing the findings from the conceptual analysis, evidence review, implementation examples, and stakeholder perspectives allows for an overall assessment of the impact and future potential of immersive VR language exchanges within modern languages degree programs. Immersive VR language exchanges represent a technologically advanced and engaging approach to fostering language skills and intercultural competence. The core strengths of VR, its ability to create a sense of presence, simulate authentic contexts, facilitate interaction, and enhance motivation align well theoretically with the goals of developing ICC. Research provides preliminary evidence suggesting that VR can positively impact specific components of ICC, such as cultural awareness, attitudes (including empathy), and interactional confidence, alongside foundational language skills. Students generally respond positively to VR experiences, appreciating the immersion and interactivity.

However, the current evidence base is not yet robust enough to definitively claim that VR immersive exchanges are consistently more effective in developing holistic ICC than other well-established and potentially more accessible methods, such as thoughtfully designed non-VR telecollaboration (virtual exchange) or well-supported study abroad programs. The field is hampered by methodological limitations in existing research, particularly the lack of large-scale, longitudinal, comparative studies using validated, multi-modal assessments of ICC. Crucially, the effectiveness of VR is not inherent in the technology itself but is deeply contingent upon pedagogical design and implementation quality. Success depends on overcoming significant practical challenges, including the high cost of hardware, ensuring equitable access, mitigating technical issues and cybersickness, developing high-quality and culturally appropriate content, and perhaps most importantly, providing comprehensive training and ongoing support for educators. Without addressing these factors systemically, VR initiatives risk remaining isolated experiments rather than becoming integrated, sustainable components of language curricula.

8.1. Potential Future Role in Modern Languages Curricula

Given the current state of evidence and technology, the future role of VR immersive exchanges in modern languages degrees is likely to be multifaceted rather than replacing existing methods entirely. Potential roles include:

Supplement and Enhancement: VR can serve as a powerful supplement to traditional classroom instruction, textbook materials, and other forms of online learning, offering experiences that are difficult to replicate otherwise.

Preparation and Follow-up for Mobility: VR can be used to provide pre-departure orientation for study abroad students, familiarizing them with the target environment and culture, or as a tool for post-return reflection and continued engagement (Kulke, 2025).

Accessible Alternative to Physical Mobility: For students unable to participate in study abroad due to financial, personal, or logistical constraints, VR-based exchanges and immersive experiences can offer a valuable, albeit different, form of international and intercultural engagement ("virtual study abroad") (Lobana-Coy et al., 2025).

Targeted Skills Practice: VR environments are well-suited for focused practice of specific communicative functions (e.g., apologies, requests (Taguchi, 2021)), navigating potentially challenging intercultural scenarios (e.g., conflict mediation (Taguchi, 2023)), or developing specific skills like observation and interpretation in a controlled setting (Blyth, 2018).

Fostering Empathy and Perspective-Taking: Purpose-designed VR experiences hold unique potential for cultivating empathy by allowing learners to experience situations from different viewpoints (American University School of Education, 2019).

Integration with Broader Frameworks: VR exchanges can be effectively integrated into larger pedagogical structures like Collaborative Online International Learning (COIL) projects or Project-Based Language Learning (PBLL), providing an immersive platform for collaboration and communication (Lobana-Coy et al., 2025).

8.2. Recommendations for Implementation

For institutions considering or expanding the use of VR for ICC development, the following recommendations emerge:

Prioritize Pedagogy: Start with clear ICC learning objectives and pedagogical goals. Select VR technologies and design activities specifically to serve these goals, rather than adopting technology for its own sake.

Invest in Teacher Training: Implement comprehensive, ongoing professional development programs that cover not only technical VR skills but also pedagogical design for immersive environments and strategies for facilitating intercultural learning and debriefing (Belkahla & Azmi, 2025).

Address Equity and Access: Develop strategies to ensure equitable access to VR hardware and experiences for all students. Provide alternatives for students who experience cybersickness or cannot use HMDs for other reasons.

Adopt an Iterative Approach: Begin with pilot projects to test feasibility, gather data on effectiveness and usability within the specific institutional context, and refine approaches based on feedback.

Foster Collaboration: Encourage collaboration between language faculty, instructional technology specialists, IT support staff, and potentially researchers to ensure effective integration and support.

Emphasize Reflection: Design learning sequences that explicitly integrate reflection and debriefing activities before, during, and after VR experiences to help students process their interactions and connect them to ICC frameworks (Kulke, 2025).

8.3. Future Research Directions

To build a more robust understanding of VR's role in ICC development, future research should address current gaps:

Longitudinal and Comparative Studies: Conduct more studies tracking ICC development over longer periods and rigorously comparing the effectiveness of VR exchanges against control groups or alternative interventions (e.g., non-VR telecollaboration, traditional instruction) (Shadiev et al., 2024).

Robust Assessment Methods: Develop and validate multi-modal assessment tools for ICC that go beyond self-report surveys, potentially incorporating behavioral observation within VR, performance analysis on specific tasks, and qualitative analysis of interactions and reflections (Taguchi, 2023).

Pedagogical Effectiveness: Investigate the specific pedagogical strategies, task designs, and facilitation techniques that are most effective for leveraging VR's affordances to foster different components of ICC.

Teacher Training Research: Examine the effectiveness of different models for training educators to use VR for intercultural education (Hein et al., 2021).

Transfer to Real World: Explore the extent to which skills and competencies developed in VR environments transfer to real-world intercultural interactions.

AI Integration: Investigate the potential and challenges of integrating Artificial Intelligence (AI) within VR language exchanges for providing personalized feedback, adaptive scenarios, intelligent virtual interlocutors, or interaction analysis (Lobana-Coy et al., 2025). This integration represents a significant frontier, potentially offering ways to enhance scaffolding and feedback within immersive environments, but also raising new questions about pedagogical design, algorithmic bias, and the nature of human-AI interaction in intercultural contexts.

Diversity of Learners and Contexts: Conduct research with more diverse learner populations and in the context of less commonly taught languages and cultures to broaden the applicability of findings (Tafazoli, 2024).

Impact of Embodiment: Further explore how avatar design, customization, and the sense of embodiment influence communication dynamics, identity representation, and intercultural perceptions within VR exchanges (Chen & Sevilla-Pavón, 2023).

Ultimately, the focus of inquiry needs to shift from a simple question of *if* VR works towards a more in-depth understanding of *how, when, for whom,* and *under what specific conditions* it can be most effectively employed to achieve the complex goal of fostering intercultural communicative competence. This requires investigating the intricate interplay between specific VR features (e.g., level of immersion, interactivity, avatar representation), pedagogical designs (e.g., task types, scaffolding, reflection prompts), learner characteristics (e.g., prior experience, motivation, anxiety levels), and targeted ICC outcomes. Determining these optimal conditions will be key to unlocking VR's full potential in modern languages education.

9. Conclusion

The exploration of immersive virtual reality language exchanges as a means to enhance intercultural communicative competence in modern languages degrees reveals a field rich with potential yet navigating significant complexities. VR technology offers unique affordances including unparalleled immersion, the capacity to simulate authentic contexts and interactions, features enabling embodiment and perspective-taking, and a documented ability to increase learner

motivation and engagement that theoretically align well with the multifaceted demands of developing ICC. Preliminary research and pilot implementations provide encouraging signs, suggesting positive impacts on learner attitudes, cultural awareness, interactional confidence, and specific language skills. However, a balanced perspective necessitates acknowledging the substantial challenges that currently temper this potential. The evidence base supporting VR's superior effectiveness for developing holistic ICC compared to other methods remains underdeveloped, constrained by methodological limitations and a lack of large-scale, longitudinal, comparative research using robust assessment measures. Furthermore, practical hurdles related to cost, technological reliability, equitable access, cybersickness, content creation, and, most critically, the need for comprehensive pedagogical design and teacher training, pose significant barriers to widespread, effective implementation.

Ultimately, VR is a tool, and like any educational tool, its value lies not in its novelty but in its purposeful and skillful application. The success of VR immersive exchanges hinges less on the technology itself and more on the pedagogical framework within which it is embedded. Thoughtful task design, integration with broader curricular goals, explicit opportunities for reflection and debriefing, and knowledgeable facilitation by trained educators are paramount. Looking ahead, the future role of VR immersive exchanges in modern languages curricula is likely to be that of a valuable, strategically deployed component within a blended learning ecosystem, rather than a wholesale replacement for existing methods. It holds particular promise for providing accessible forms of virtual immersion and intercultural practice, preparing students for physical mobility, offering safe spaces for navigating challenging scenarios, and fostering empathy. Continued research, particularly focusing on pedagogical best practices, robust assessment, and the integration of emerging technologies like AI, is essential. Realizing the potential of VR requires a concerted effort involving educators, researchers, instructional designers, and institutional leaders, grounded in a commitment to pedagogical goals and equitable student learning experiences. While the path forward involves navigating complexities, VR immersive exchanges represent an exciting frontier with the potential to significantly enrich the landscape of intercultural language learning.

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