

## Comparative Effects of Virtual Reality Immersion versus Traditional Role Play on Intercultural Communicative Competence

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**Abstract:** In English Teaching, the building of Intercultural Communicative Competence (ICC) is a priority, especially in today's globalized education. Role play and other traditional methodologies can fall short in the areas of authenticity and genuineness in issues of real intercultural encounters. This research investigates the significance of ICC through a comparison of the effect of traditional role play and Virtual Reality (VR) immersion on English as a second language (ESL) students. Quasi-experimental research was used in a sample of undergraduates in two groups, where one group did VR Intercultural immersion, and the other group did classroom role play (as was structured). The united framework of ICC from before and after the period of the intervention was used for both, and was conducted a set number of instructional hours. This particular research on ICC was conceptualized from intercultural attitudes, knowledge, interpretative skills, and critical cultural awareness. The results showed that, although both methods of teaching demonstrated positive improvements in ICC, VC gained the edge. Particularly, because VR deepened students' cultural comprehension, communicative flexibility, and ability to deal with change. The realistic and contextual scenarios VR brought to the classroom, made it easier for students to experience other cultures than traditional methods of role play. In conclusion, immersive VR classrooms have shown enormous potential to bring the direction of the language IC pilot project to new levels. Implementing and practicing immersive methods in the classroom alongside traditional methods is a positive recommendation, although, for the sake of practicality, this would have to be moderated to real ICT in education alongside the predicted roadblocks.

**Key Words:** intercultural communicative competence (icc), virtual reality in education, role play method, esl learning, immersive learning environments, language pedagogy, intercultural communication

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### Introduction

In contemporary English language education, the ability to communicate across cultures has moved from a desirable skill to a core learning outcome. Intercultural Communicative Competence (ICC) enables learners to interpret cultural differences, negotiate meaning, and interact appropriately in diverse contexts, making it essential in globalized academic and professional settings. ICC extends beyond linguistic accuracy to include attitudes of openness, cultural knowledge, interpretative skills, and critical awareness, which together shape meaningful communication (Shadiey et al., 2025; Fathi et al., 2025). As classrooms become increasingly multicultural and digitally connected, the demand for pedagogies that effectively cultivate ICC continues to grow. Traditional role play has long been used to simulate intercultural situations in language classrooms. While it promotes interaction and perspective-taking, its effectiveness is often constrained by limited realism and predictable classroom dynamics. Learners frequently rely on scripted dialogues, which restrict spontaneity and reduce exposure to authentic cultural variability (Lan et al., 2025). Moreover, the absence of immersive context can limit emotional engagement and hinder the development

of deeper intercultural understanding. In response to these limitations, Virtual Reality (VR) has emerged as a transformative tool in language learning. VR immersion offers learners the opportunity to engage in realistic, interactive environments where cultural contexts are dynamically represented. Studies have shown that VR enhances experiential learning by creating a sense of presence, allowing learners to practice communication in culturally rich scenarios that mirror real-life interactions (Li et al., 2024; DeWitt et al., 2022). This immersive exposure has been linked to improvements in both communicative competence and intercultural sensitivity (Niu, 2025; Lou, 2025).

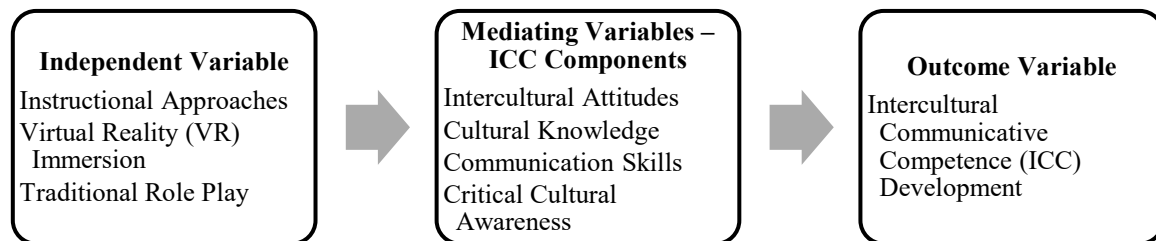


Figure 1: Conceptual Framework Linking Instructional Approaches to Intercultural Communicative Competence Development

Figure 1 shows the conceptual model of the study identifying independent variables of instructional method and its impact on the construction of Intercultural Communicative Competence (ICC). Constructing Intercultural Communicative Competence (ICC) through developing intercultural attitudes, knowledge, skills, and critical awareness, the model depicts the instructional method relationship in developing ICC. The framework shows how instructional method affects the development of intercultural skills.

Despite growing interest in VR-based learning, there remains a lack of direct comparative research examining its effectiveness against traditional role play in developing ICC. Existing studies tend to focus on VR as a standalone intervention, leaving a gap in understanding its relative pedagogical value (Shadie et al., 2020; Nevoenna et al., 2025). Addressing this gap is necessary to inform evidence-based instructional design in language education. Accordingly, this study aims to compare the effectiveness of VR immersion and traditional role play in enhancing ICC among ESL learners. It further evaluates how each approach influences key ICC components, including attitudes, knowledge, skills, and cultural awareness.

This study addresses the pressing need for effective instructional strategies that can develop intercultural competence in modern language education, where traditional methods may no longer suffice in preparing learners for real-world communication. The paper provides a direct comparative analysis of immersive and conventional pedagogies, offering practical insights into how emerging technologies can be integrated with established teaching approaches to enhance intercultural learning outcomes.

The rest of this paper is organized as follows. In Section II, an overview of the literature is provided on the topic of intercultural communicative competence, traditional role play, and the integration of virtual reality in language education, as well as gaps in existing literature. An overview of the research design, participants, tools, and tools of data analysis is provided in Section III, which also includes a description of the research process. In Section IV, the study's findings are presented along with a comprehension of the study in the context of the two approaches under comparison. Section V contextualizes the study, examines the findings, and explores and describes the pedagogical impact of the study. Section VI, the

final section of the study, summarizes the main contribution of the study, the shortcomings of the study, and recommendations for future studies.

## Literature Review

Intercultural Communicative Competence (ICC) can be defined as the ability to understand and communicate with people who are from different cultures. The most applicable model to the definition of ICC is Byram's model which describes the elements of ICC as having a mixture of mentality (openness and curiosity), cognition (knowledge of social groups and cultural practices), talent (interpretative and interactive), and critical consciousness. If students are given the opportunity to enter communities with practices, they are unfamiliar with, this model describes ICC as the hallmark of a communicatively competent individual. It is imperative for ICC to develop with more than passive learning to provide students with the opportunity to challenge the way they think and reflective learning which will require them to think about the way they conceive culture (Tafazoli, 2024; Akdere et al., 2023). Because of this, many teaching practices have emerged that provide students with what they call the 'real thing' in the teaching and learning process. Role play is a method that has been used as a fundamental principle of teaching a language through interaction and fostering communicative competence. The core of role play is the ability to understand multiple perspectives, most especially through dialogue that has been framed in a particular context with the aim of achieving a particular goal. This method has been instrumental in enabling students to express themselves as it is closely related to the development of their ability and readiness to communicate (Li et al., 2022). The current literature has proved that this method of teaching has its limitations. Role play as a method of teaching is more useful in a controlled teaching environment. This method is used in particular scenarios that are devoid of culture. Students always draw support from scripts that have been previously prepared and this hinders their spontaneity and therefore, communicative competence. Hence, the ability of role plays as a method to enhance the development of a student's ability to understand and appreciate culture is limited.

Virtual Reality (VR) helps with the shortcomings of conventional methods by creating an immersive and interactive learning experience (Liu et al., 2023). VR creates a high sense of presence which lets learners interact with the simulated world of culture, much like a real-world experience. The experiential aspect of VR grasps the learner's attention and helps to improve retention because the learners actively attend to communication tasks in a rich context. (Makransky & Petersen, 2019; Gruber et al., 2023). VR can especially improve learners' oral skills, improve their willingness to speak, and enhance their intercultural sensitivity by creating different modes of communication (Ebadi & Ebadijalal, 2022; Shi et al., 2024). VR also offers a way to practice communication skills repetitively in a safe and realistic environment as it helps experiential learning (Chan, 2023). Though VR in language education is a growing field, little comparative research focuses on its effect when compared to its traditional language teaching methods. The majority finds VR to be compared with other forms of digital learning and focuses on isolated outcomes of learning such as speaking or listening skills. (Peterson, 2016; Peixoto et al., 2023). The researches in this area don't clearly show how VR immersion out compares the traditional methods such as role-playing vis a vis the ICC as a comprehensive construct. The extent of this gap calls for a more systematic approach to determining the measurable benefits of immersive technologies over traditional learning methods.

It has been noted that the VR-based language learning has grown in interest, however little systematic approaches have been compared, especially in assessing the role of VR to traditional role-playing methods in enhancing the same dimension of intercultural communicative competence.

## Methodology

### Research Design

A quasi-experimental pre-test post-test design was used to investigate the differential impact of Virtual Reality (VR) immersion and Traditional Role Play (RP) on students' development of Intercultural Communicative Competence (ICC). Two intact classroom sections were assigned to the experimental and control conditions. The participants in the experimental group were involved in VR-based learning activities, while the control group participated in traditional role play. With this design, the authors balanced the need to include ecological validity that is inherent in classroom conditions with the need to provide a structured comparison of the teaching methods.

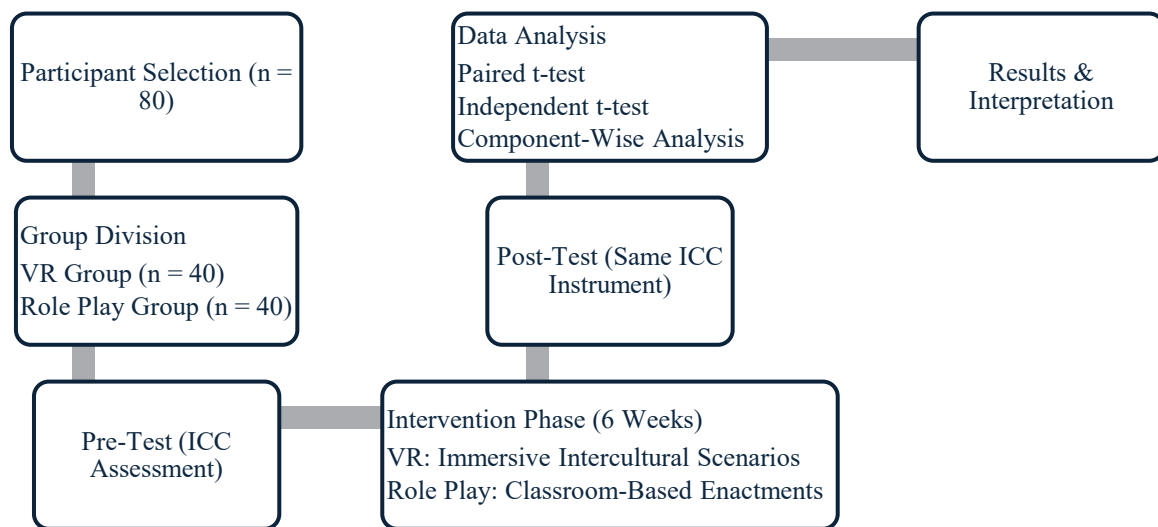


Figure 2: Methodological Workflow for Comparative Analysis of VR and Role Play in ICC Development

Figure 2 layout the detailed research plan of the study, starting with the selection of participants and the separation of participants into the Virtual Reality (VR) and role play groups. Following this, it shows the order of the initial tests, the six-week immersive and classroom-based activities, the concluding tests that used the ICC assessment instrument, and the flow of data analysis, through various statistical methods, and the explanation of the results. This provides a clear description of the research plan.

### Participants

The participants of the study were 80 first-year students of a higher education institution enrolled in an English as a Second Language (ESL) course. The participating students had a similar academic background with a similar language proficiency, which was of an intermediate level. Due to constraints within the institution, a convenience sampling method was adopted. Apart from the other considerations, this method allowed the authors to divide the participants into an equal number of 40 students, to the VR immersion and the traditional role play group, respectively.

### Instruments

An initial ICC (Intercultural Competence) scale adapted to the framework of Byram, from the perspectives of intercultural attitudes, knowledge, interpretative and critical skills, and cultural awareness, was used to collect data. This scale functioned as a pre-test as well as a post-test, so the researchers were

able to examine participants' changes in competence over the course of the actual learning activities. In addition to the ICC scale there were behavioral dimension indicators of engagement, interaction, and culturally relevant behavioral response measured with the help of a dialogue (or communication) observation scale. Furthermore, the authors placed great importance on the participants' reflective written feedback as a source of qualitative data to describe their personal insight and learning.

### Procedure

Initially, both groups were administered the ICC pre-test for baseline equivalent measurement. The intervention took place over a six-week period with two sessions weekly. The VR group participated in immersive virtual scenarios that engaged learners in simulated travel, dialogue, and problem solving in different cultures. The role play group participated in pre-planned structured classroom activities where some students were assigned scripts and/or spontaneous improvised roles to act in relation to the classroom to create an intercultural experience. Once the intervention was completed, each participant was given the post-test to evaluate overall changes in ICC.

### Data Analysis

To assess the success of each technique used, the quantitative data were analyzed using various statistical techniques. A paired sample t-test was used to assess the improvement of the members of a particular group before and after the intervention, while an independent t-test was used to assess the variance that occurs between the two groups. Depending on the number of variables in the ICC, a one-way ANOVA was used to assess the changes in the ICC variables. Learner's engagement, the level of authenticity, and awareness of the learners were assessed using a thematic analysis based on the qualitative data drawn from the reflections.

### Results

The following provides analysis on how each treatment group performed before and after the implementation of the Virtual Reality (VR) scenarios alongside traditional role-play methods to determine how each treatment impacted Intercultural Communicative Competence (ICC) and how Virtual Reality (VR) immersion enhances development compared to traditional role-play methods.

#### Pre-Test and Post-Test Comparison

Before the intervention, the two groups demonstrated similar degrees of ICC, with neither the VR group ( $M = 52.6$ ,  $SD = 6.8$ ) nor the role-play group ( $M = 51.9$ ,  $SD = 7.1$ ) demonstrating considerable difference, ( $p > 0.05$ ). After the 6-week intervention, the groups had increased overall ICC. However, the difference in the two conditions stands out.

The mean ICC scores in the VR group increased from 52.6 ( $SD = 6.8$ ) to 78.4 ( $SD = 5.9$ ). Meanwhile, the mean ICC scores of the role-play group increased from 51.9 ( $SD = 7.1$ ) to 65.2 ( $SD = 6.5$ ). Both groups showed statistically significant positive ICC development (i.e.,  $p < 0.001$ ).

#### Improvement in ICC Components

There were measurable positive outcomes in the attitudes, knowledge, skills, and critical cultural component, whereas the VR group demonstrated the greatest improvement in the same areas, notably, greater intercultural skills and critical awareness, which are aligned with greater real-time engagement

and/or contextual flexibility. The role-play group, however, showed the least overall improvement in all of the component areas, and the least in the area of critical awareness of cultural interpretation.

### Comparative Performance (VR vs Role Play)

A statistically significant difference ( $t = 8.27$ ,  $p < 0.001$ ) was revealed from the results of the independent samples t-test performed on the post-test scores. The results sharpen the comparison of the conditions. It can be concluded that the VR immersion group was preferred over the traditional role play group, suggesting the effectiveness of role distribution by VR immersion in the context of the enhancement of participants' ICC.

### Summary Table of Overall Performance

Table 1: Pre-test and Post-test Comparison of ICC Scores Across Instructional Groups

| Group              | Pre-test Mean (SD) | Post-test Mean (SD) | Mean Gain |
|--------------------|--------------------|---------------------|-----------|
| VR Immersion Group | 52.6 (6.8)         | 78.4 (5.9)          | 25.8      |
| Role Play Group    | 51.9 (7.1)         | 65.2 (6.5)          | 13.3      |

Table 1 emphasizes the averages and the standard values of Intercultural Communicative Competence (ICC) of the participants from the Virtual Reality (VR) immersion group, and the participants from the traditional role play group between the two times of measurement, that is, before the intervention and after the intervention. The table represents the improvement trend in ICC of each group, while the increase in the mean value of the VR group in comparison to the traditional role play group stands for the effectiveness of VR in contribution to participants' intercultural discovery and development.

### Component-wise Improvement in ICC

Table 2: Component-wise Improvement in Intercultural Communicative Competence (ICC)

| ICC Component               | VR Group Mean Gain | Role Play Group Mean Gain |
|-----------------------------|--------------------|---------------------------|
| Attitudes                   | 6.8                | 3.9                       |
| Knowledge                   | 6.2                | 3.5                       |
| Skills                      | 7.5                | 3.6                       |
| Critical Cultural Awareness | 5.3                | 2.3                       |

Table 2 depicts the spread of mean improvement scores among the four major components of ICC, that is, attitudes, knowledge, skills, and critical cultural awareness, in both instructional groups. Though the comparison between both instructional groups shows that both groups have progressed in each of the components distinctly, the VR group shows higher gains in comparison to the other group, especially with regard to intercultural skills and critical awareness. It is possible to conclusively state that the immersion learning environments have resulted in significant improvements in ICC.

There are notable differences in performance when the groups are compared along all dimensions of the ICC that the participants demonstrated. In all areas of ICC, the VR group demonstrated higher performance when compared to the role play group. The greatest differences were in the dimensions of skills and awareness of others and the performance of the groups in the VR environments suggests that awareness of cultural differences and flexible communication are enhanced by engaging in the VR role play scenarios.

## Discussion

The study shows better outcomes for developing Intercultural Communicative Competence (ICC) using Virtual Reality (VR) as compared to conventional role playing as a pedagogic technique. Being immersive and experiential, VR replaces predictable and repetitive role performances with a realistic simulation that permits learners to emotionally and cognitively integrate with realistic intercultural communications, responses, and behaviors, reinforcing spontaneity and adaptability. VR experiences also optimize active participation and learner engagement and challenge. Reality, as opposed to conventional role plays, which are primarily resource constrained, as they do not require advanced technological resources, involves collaboration to a greater extent and permits learners to apply their pedagogic experiences to developing specialized communicative competencies. However, role plays also construct and scaffold communicative competencies, albeit their outcomes are also constrained by the limited context and emotional engagement of the participants. Prior research corroborates the findings and shows that immersive technologies, VR in particular, expand the breadth of coverage and context beyond that of conventional role-playing techniques for diverse and multi-layered communicative competencies, skills, and/or Intercultural Communicative Competence (ICC). In heterogeneous cultures, communications of the participants and/or VR-supported role-plays, reinforced and mutually scaffolded techniques for developing communicative competences to construct culturally adapted behaviors and reinforced and scaffolded role-plays, integrating rationally motivated approach and emotionally integrated role-playing, contribute to the construction of scaffolded communicative competencies, skills, and/or ICC. From an educational standpoint, the findings indicate that the use of VR within language classrooms can foster the improvement of intercultural learning outcomes. More specifically, the findings suggest that a blended approach that incorporates VR immersion and role play, rather than completely substituting conventional methods, may provide a more practical and effective solution. The proposed incorporation of both methods enables teachers to use the advantages of both methods while overcoming cost, accessibility, and technological readiness barriers.

## Conclusion

This research attempted to prove whether there was an actual benefit of using Virtual Reality (VR) as an immersion tool, compared to role play, in teaching Intercultural Communicative Competence (ICC) to ESL learners, and the results say that there clearly is. Although both approaches helped increase ICC, VR consistently led to a stronger increase across all the ICC criteria. Interestingly, VR led to a noticeable and dramatic all of ICC increases, going from an average of 52.6 in the pre-tests to an average of 78.4 in the post-tests, while role-play led to an increase from 51.9 to 65.2. Most importantly, the post-test results of the VR group compared to the role play was statistically significant, having a p-value of less than 0.001. These results imply that learners that are in an immersive learning environment are better, and that it also increases learner engagement, to a point where learners are able to cope with culturally distinctive situations more fully and with more appropriate adaptability. The main benefit to teachers is that integrating VR into their language teaching is of practical use to teaching situations where real world communicative competence is needed to critique their work. Although the use of role-play still is practical in this context, especially in learning situations where VR is not available. The use of this research is also to point. The sample was small, the interventions were short, and access to VR was limited. Subsequently, this research is to critique.

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