

## **Developing Intercultural Competence through Virtual Exchange: Insights from a U.S.–Latin American Collaboration**

### **Introduction**

In a globalized world, effective, appropriate cross-cultural communication (Deardorff, 2006) is vital for leadership in agriculture and life sciences (Tucker et al., 2014). While studying abroad has traditionally developed these skills (Di Pietro, 2021), digital advances now enable Virtual Exchange (VE) (Goldstein, 2022; Lomicka & Ducate, 2019). VE promotes communication, cultural awareness, and teamwork, but faces challenges in Latin America due to poor infrastructure and faculty unfamiliarity with student-centered methods (Ramírez, 2022). Research shows VE's potential to build intercultural competence, though sustained engagement needs structured support (Swartz et al., 2020). This study examines a U.S.–Latin American VE, exploring how students from both institutions' cultural awareness and intercultural competencies develop as a result of the VE. Specifically, it aims to (1) describe changes in students' attitudes toward cultural differences following the VE, (2) explore how students reflect on communication and empathy in intercultural settings, and (3) identify key insights gained about culture, identity, and self-awareness

### **Theoretical Framework**

Guided by Transformative Learning Theory (Duffy et al., 2020; Mezirow, 1997) and Experiential Learning Theory (Kolb, 2014), these theories highlight how confronting new perspectives encourages reflection and shifts in cultural understanding (Duffy et al., 2020) and how learning occurs through concrete interaction, reflection, and adaptation (Kolb, 1984, 2014). Together, they position VE as a space where students practice communication, examine assumptions, and build openness, empathy, and self-awareness. These theories align with intercultural competence models, supporting VE's role in developing attitudes, skills, and reflective cultural awareness. Additionally, the theories were used to guide the interpretation of qualitative interview data, particularly in analyzing how students described perspective-taking, communication adjustments, and reflective meaning-making.

### **Methodology**

This study used a convergent mixed-methods design to examine changes in students' intercultural competence during a VE between a U.S university and an LA university. Guided by a social constructivist interpretative framework (Creswell & Creswell, 2017), VE integrated course-based activities, reflections, and collaborative assignments in agricultural and intercultural communication contexts.

For the quantitative phase, 63 students participated in a pre and post-assessment using the Intercultural Attitudes, Skills, and Knowledge Short Scale [ASKS 2] (Holgate et al., n.d.), and the data were compared using Wilcoxon tests. For the qualitative phase, 24 students (12 per institution) were purposively selected based on their participation in the intercultural exchange experience, completion of all program interactions and course assignments, and willingness to participate in the study. The integration of qualitative and quantitative methods was evident throughout data analysis and the interpretation of the findings.

Interviews were conducted after the VE concluded, allowing students to reflect on the full experience. Data were analyzed using open and pattern coding by two independent

researchers, with trustworthiness supported through intercoder agreement, reflexive memoing, and detailed documentation. The transcripts were independently coded by two researchers using initial open coding followed by pattern coding (Saldaña, 2021). Trustworthiness was ensured through credibility, transferability, dependability, and confirmability, using techniques such as detailed descriptions, purposive sampling, intercoder agreement, reflexive memoing, and researcher transparency (Creswell & Creswell, 2018).

## Results

**Objective 1. Cultural Differences.** Quantitative results showed modest increases in openness and minimal changes in curiosity. U.S. students increased in Openness 2 ( $Z = -2.45$ ,  $p = .01$ ), and LA students increased in Openness 1 ( $Z = -3.027$ ,  $p = .001$ ); no other measures showed significant change. Qualitative data suggest that both groups began with relatively high openness, U.S. students due to prior exposure to diversity, and LA students, despite some initial language concerns. Curiosity emerged naturally as students compared daily life, academics, and cultural practices. As one LA student noted, *“I realized how different our daily routines are, but also how similar our goals can be”*.

**Objective 2. Communication and Empathy.** LA students showed significant gains in communication skills ( $Z = -2.255$ ,  $p = .024$ ;  $Z = -2.295$ ,  $p = .020$ ) and one empathy measure ( $Z = -2.079$ ,  $p = .040$ ). U.S. students showed no significant quantitative changes. Qualitatively, both groups developed adaptive communication strategies, such as slowing speech, rephrasing, using gestures, and employing translation tools. Empathy increased as students confronted assumptions and gained awareness of diverse perspectives. A participant shared, *“I had to rethink how I explain things so others could really understand me”*.

**Objective 3. Self-awareness.** Quantitatively, U.S. students showed no changes, while LA students demonstrated significant gains in cultural difference ( $Z = -2.729$ ,  $p = .006$ ) and self-awareness ( $Z = -2.726$ ,  $p = .006$ ). Qualitative findings showed that U.S. students reflected on their cultural values, and LA students strengthened their cultural identity and pride. The VE encouraged comparative reflection, enhancing intercultural understanding.

## Conclusions

U.S. participants showed modest intercultural growth, while LA students had significant gains in openness, communication, cultural knowledge, and self-awareness. Both groups showed upward trends, indicating ongoing development beyond the VE experience. Qualitative findings revealed deeper self-reflection, recognition of cultural complexity, awareness of personal biases, and improved confidence in intercultural communication. The mixed-methods design captured measurable changes and subtle transformative learning, highlighting the importance of integrating quantitative and qualitative methods in short-term intercultural assessments. However, results are limited to a single VE context and short-term effects; long-term development requires longitudinal research.

## Recommendations and Implications

For agricultural education contexts, the findings highlight VE as a scalable and inclusive alternative to traditional study abroad, particularly where mobility or resources are limited. Educators can integrate VE to better prepare students and practitioners for culturally diverse agricultural and community settings.

## References

- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage.
- Deardorff, D. K. (2006). Identification and assessment of intercultural competence as a student outcome of internationalization. *Journal of Studies in International Education*, 10(3), 241–266.
- Di Pietro, G. (2021). Studying abroad and earnings: A meta-analysis. *Journal of Economic Surveys*, 36(4), 1096–1129. <https://doi.org/10.1111/joes.12472>
- Duffy, L. N., Stone, G. A., Townsend, J., & Cathey, J. (2022). Rethinking curriculum internationalization: Virtual exchange as a means to attaining global competencies, developing critical thinking, and experiencing transformative learning. *SCHOLE: A Journal of Leisure Studies and Recreation Education*, 37(1–2), 11–25.
- Goldstein, S. B. (2022). A systematic review of short-term study abroad research methodology and intercultural competence outcomes. *International Journal of Intercultural Relations*, 87, 26–36. <https://doi.org/10.1016/j.ijintrel.2022.01.001>
- Holgate, H. A., Calahan, C. A., & Parker, H. E. (n.d.). *Attitudes, skills & knowledge short scale plus (A.S.K.S2+)*. Purdue University. <https://www.purdue.edu/innovativelearning/download/the-intercultural-attitudes-skills-and-knowledge-short-scale-plus-pdf/?wpdmdl=3469&refresh=684eb306c45681749988102>
- Kolb, D. A. (2014). *Experiential learning: Experience as the source of learning and development* (2nd ed.). FT Press.
- Ramírez, C. K. (2022). Virtual exchange in Latin America: A profile of faculty and staff participants. *Journal of Virtual Exchange*, 5, 105–132.
- Saldaña, J. (2021). *The coding manual for qualitative researchers* (4th ed.). Sage.
- Swartz, S., Barbosa, B., & Crawford, I. (2020). Building intercultural competence through virtual team collaboration across global classrooms. *Business and Professional Communication Quarterly*, 83(1), 57–79.
- Tucker, M. F., Bonial, R., Vanhove, A., & Kedharnath, U. (2014). Leading across cultures in the human age: An empirical investigation of intercultural competency among global leaders. *SpringerPlus*, 3, 127. <https://doi.org/10.1186/2193-1801-3-127>
- Vahed, A., & Rodriguez, K. (2021). Enriching students' engaged learning experiences through the collaborative online international learning project. *Innovations in Education and Teaching International*, 58(5), 596–605.
- Zheng, L., Westerhaus-Renfrow, C., Lin, S. Z., & Yang, Y. (2022). Assessing intercultural competence in the digital world: Evidence from virtual exchange experience in a study abroad program. *Frontiers: The Interdisciplinary Journal of Study Abroad*, 34(4), 418–441.

