

Learning Trajectories Across Sequential Virtual Exchange Pathways in Higher Education

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Abstract

In an increasingly interconnected higher education landscape, Virtual Exchange (VE) has emerged as a key mechanism for fostering international collaboration and preparing students for global professional environments. While most VE initiatives are implemented as standalone, single-term experiences, limited research has examined the cumulative effects of repeated participation. This paper analyses learning outcomes from back-to-back, transcontinental VE projects implemented in 2025 across consecutive collaborations. Drawing on student reflections, project artifacts, and peer feedback, the study compares outcomes from initial single-exchange participation with those observed when the same cohort has completed two sequential exchanges. Findings indicate that consecutive participation generates amplified gains in intercultural competence, distributed teamwork, communication self-efficacy, and professional identity formation. The paper concludes by proposing a practical, scalable framework for multi-phase VE pathways that progressively scaffold complexity, autonomy, and sustained international collaboration.

Keywords: *Virtual Exchange; Internationalization at Home; Intercultural Competence; Collaborative Learning; Sequential Learning Design; Higher Education*

1. Introduction

International collaboration has become a core competency in higher education, driven by the demands of an interconnected global economy and the need to prepare graduates for culturally diverse and distributed professional environments. Virtual Exchange (VE) has emerged as a scalable approach to internationalization at home, supporting intercultural and collaborative learning without physical mobility (Rubin & Guth, 2015). While research has shown that single-term VE fosters intercultural awareness and global skills (Dooly & O'Dowd, 2018; Helm,

2015), its implementation remains largely episodic. The cumulative effects of repeated participation remain underexplored.

This study addresses this gap by examining the learning trajectories of undergraduate students participating in back-to-back, transcontinental Virtual Exchange (VE) projects. A defining feature is cohort continuity across collaborations: Polish students engaged in a two-semester sequence with partners from South Africa, Mexico, and Ukraine, while Mexican students followed a parallel pathway involving the United States and the later tri-national exchange. This overlapping participation enabled students to transfer collaborative strategies and intercultural insights across exchanges, offering a lens for examining how learning accumulates and deepens over time.

By comparing learning patterns from initial and sequential participation, this paper explores how repeated exposure influences the development of intercultural competence, distributed teamwork practices, problem framing, communication self-efficacy, and professional identity (Barron, 2006; Bennett, 1993; Byram, 1997; Deardorff, 2006). The findings contribute to current debates on internationalization and digital pedagogy by suggesting that sustained consecutive VE participation may yield deeper and more transferable learning gains than isolated experiences.

2. Context and Pedagogical Design

The VE pathway analyzed in this study was designed as a sequential, multi-national model that emphasizes participant continuity and progressively increasing collaborative complexity (Salmon, 2013). Rather than treating exchanges as isolated experiences, the design enabled students to build on prior interactions across successive projects. This structure foregrounds accumulation and transfer of intercultural and collaborative competencies across phases.

The first project focused on the Sustainable Development Goals (United Nations, 2015) and culminated in a capstone videoconference involving students from Poland and South Africa during the first semester of 2025. The second project, implemented at the beginning of the second semester of 2025, centered on collaborative discussions of ethics, leadership, migration, and social justice between Mexico and the United States. The third project emphasized video storytelling (Robin, 2016), requiring students to translate technical or analytical solutions into accessible, audience-oriented narratives in tri-national teams (Mexico–Poland–Ukraine; see Table 1). By the third and final phase, Polish and Mexican students had participated in their second VE experience within the same academic year, reinforcing the role of repeated international engagement in shaping collaborative dispositions and global learning outcomes (O’Dowd, 2021). The third phase of the pathway was explicitly tri-national. Ukrainian students’ participation introduced distinct contextual conditions, such as time-zone asymmetries, infrastructure instability, and lived experiences of geopolitical conflict, that significantly shaped

the collaborative process. Rather than treating these conditions as limitations, the design intentionally allowed them to surface as learning catalysts (O'Dowd, 2021; Deardorff & Jones, 2012).

Table 1. Virtual Exchange Phases, Partner Institutions, and Cohort Continuity

VE Phase	Countries Involved	Partner Institutions	Cohort Continuity	Primary Focus
Phase 1 2025-1	Poland – South Africa	Adam Mickiewicz University (PL); Durban University of Technology (SA)	Polish cohort	SDGs, global challenges, analytical problem framing.
Phase 2 2025-2	Mexico – United States	CETYS University (MX); City Univeristy of New York (US)	Mexican cohort	Ethics, leadership, migration, social justice.
Phase 3 2025-2	Poland – Mexico – Ukraine	Adam Mickiewicz University (PL); CETYS University (MX); Petro Mohyla Black Sea National University (UKR)	Continuing Polish and Mexican cohorts	Video storytelling, teamwork, knowledge translation.

Across all phases, VE activities combined synchronous videoconferencing, breakout-room collaboration, shared digital workspaces, and structured reflection. Projects progressed from analytical problem framing (SDGs, ethics) to applied communication tasks (video storytelling), allowing students to translate complex ideas into audience-oriented outputs.

3. Methodology

3.1. Research Design

This study adopts a qualitative, comparative, and longitudinal research design to examine learning trajectories across sequential VE participation, with particular attention to skill transfer, accumulation, and stabilization across collaboration stages.

3.2. Data Sources

Data were drawn from four primary sources:

- Twenty-nine student e-portfolios (project diaries) and twenty-six reflective essays, submitted at the conclusion of the exchange in each pathway.
- Program-level reports documenting learning objectives, institutional partnerships, and session structures.
- Project artifacts, including collaborative videos, planning documents, and peer feedback.

The dataset captures student perspectives across collaborations involving Mexico, Poland, South Africa, the United States, and Ukraine. While reflective data were collected systematically after the completion of Phases 2 and 3 for all participating cohorts, post-Phase 1 reflective data were available from both Polish and South African students' e-portfolios and are therefore used as indicative early-stage reference points rather than as a full comparative dataset. In addition, reflective data from Ukrainian students, for whom the tri-national collaboration represented a first VE experience, provide supplementary contextual insight into initial-stage learning patterns.

3.3. Data Analysis

An inductive thematic analysis was conducted following a structured coding process. First, open coding was applied to all reflections to identify recurring concepts related to intercultural learning, teamwork, and communication. Second, axial coding was used to group codes into broader analytical categories. To strengthen analytical rigor, frequency patterns and recurrence of themes were tracked across datasets, allowing comparison between:

- Single-exchange vs. sequential participation
- Bilateral vs. tri-national collaboration
- Early-stage vs. later-stage reflections within the same cohort

Additionally, representative excerpts were systematically selected to illustrate dominant patterns, and cross-document validation was conducted to ensure consistency across cohorts and institutional contexts.

3.4. Ethical Considerations

All reflections were anonymized. Participation occurred within regular course activities, and analysis focused on learning processes rather than individual performance evaluation.

4. Findings

To provide a more explicit analytical comparison, Table 2 summarizes the frequency and intensity of key learning themes across single and sequential VE participation.

Table 2. Frequency of Learning Themes Across Participation Types

Learning Theme	Single VE (Phase 1&2)	Sequential VE (Phases 3)
Intercultural awareness	High	High
Empathy / perspective-taking	Low	Low
Team coordination challenges	High	Medium
Stable collaboration norms	Low	High
Communication confidence	Medium	High
Professional identity formation	Emerging	Strong

4.1. Intercultural Competence: From Awareness to Empathy

During the initial exchange phase (Phase 1), students primarily described gains in cultural awareness and exposure to difference. However, those engaged in sequential exchanges demonstrated a qualitative shift from awareness to empathy, particularly during the tri-national Mexico–Poland–Ukraine collaboration. Interactions with Ukrainian students, who shared experiences related to war, infrastructure disruptions, and daily uncertainty, prompted students to reframe global issues as lived realities rather than abstract topics. Reflections frequently emphasized perspective-taking, emotional attunement, and ethical sensitivity, indicating a deeper internalization of intercultural competence.

4.2. Distributed Teamwork and Project Management

Sequential participation revealed marked improvements in students' ability to manage distributed teamwork. While early exchanges were characterized by frustration related to scheduling, uneven participation, and communication breakdowns, later reflections highlighted increased adaptability, clearer role negotiation, and more realistic expectations. The tri-national context amplified these dynamics. Students learned to coordinate across time zones, accommodate unstable connectivity, and reinterpret perceived "disorganization" as contextual constraint (see Table 3). These experiences fostered patience, flexibility, and more sophisticated approaches to project management.

Table 3. Selected Student Reflections Illustrating Key Learning Themes

Learning Theme	Country Context	Illustrative Excerpt	VE Phase
Sustainable Development Goals	Poland – South Africa	Students reflected on how global challenges required locally grounded and context-sensitive solutions.	Phase 1
Institutional trust	Mexico – United States	Students reflected on how corruption and policing shape daily decision-making differently across contexts.	Phase 2
Communication adaptation	Mexico – United States	Students noted the need to adjust directness, pacing, and tone in intercultural dialogue.	Phase 2
Teamwork under constraint	Poland – Mexico – Ukraine	Connectivity and time-zone challenges prompted adaptive collaboration strategies.	Phase 3
Professional identity	Multi-national	Repeated collaboration increased confidence in working across cultures and uncertainty.	Phases 1–3

4.3. Strategic Learning and Problem Framing

Across reflections, students consistently referenced the application of strategic thinking skills, such as problem framing and contextual analysis, but these skills became more integrated and transferable in the second exchange. Discussions on institutional trust, corruption, governance, and social justice during the Mexico–United States sessions laid a foundation that students later drew upon when engaging with Polish and Ukrainian peers. Sequential participation enabled students to compare institutional systems across multiple contexts and recognize how history, infrastructure, and political conditions shape decision-making.

4.4. Communication Self-Efficacy and Professional Identity

Repeated VE participation contributed to noticeable gains in communication confidence. Students reported becoming more comfortable expressing ideas in English, moderating speech pace, adjusting tone, and using multimodal communication tools. Importantly, many reflections linked these gains to emerging professional identity, with students increasingly framing themselves as future global professionals capable of navigating ambiguity, cultural difference, and ethically sensitive situations.

4.5. Learning Accumulation Across Sequential VEs

The most significant finding is that several learning outcomes only emerged after the second exchange (see Table 4). These results indicate that sequential participation did not simply reinforce earlier learning, it transformed it into more durable and generalized competence.

Table 4. Competency Development Across Virtual Exchange Participation

Competency	Single Virtual Exchange	Sequential Virtual Exchange
Intercultural competence	Cultural awareness and comparison	Empathy, perspective-taking, ethical sensitivity
Distributed teamwork	Initial coordination challenges	Stable collaborative norms and role negotiation
Strategic learning	Context-specific analysis	Transferable problem framing across contexts
Communication self-efficacy	Increased confidence in interaction	Adaptation of tone, pace, and modality
Professional identity	Emerging global awareness	Consolidated identity as global professional

5. Discussion

The main contribution of this study lies in demonstrating that sequential VE participation produces qualitatively different learning outcomes compared to isolated experiences, enabling students to move beyond surface-level intercultural awareness toward more durable gains in empathy, transferable teamwork strategies, and professional identity formation. While the findings highlight the pedagogical value of sequential VE participation, the specific contribution of introducing a tri-national configuration that included Ukrainian students should be interpreted with caution. Although student reflections indicate that interactions with Ukrainian peers prompted heightened empathy, ethical awareness, and greater sensitivity to contextual constraints such as infrastructure instability and geopolitical uncertainty, the present study does not allow for isolating the causal impact of this partner context. Rather than treating Ukraine's inclusion as a discrete explanatory variable, it is more appropriate to conceptualize it as a contextual intensifier embedded within the broader sequential design. From this perspective, the tri-national exchange created conditions that amplified existing learning processes associated with repeated international collaboration, including adaptability, perspective-taking, and distributed teamwork. Future research employing comparative designs with multiple partner configurations would be required to more precisely examine how different geopolitical and socio-economic contexts shape learning outcomes within VE pathways. Sequential VE functioned as a preparation space for sustained international engagement, bridging the gap between classroom-based internationalization and future physical mobility or professional collaboration. Institutions seeking scalable internationalization models should consider moving beyond isolated exchanges toward repeatable, longitudinal VE designs embedded within the curriculum rather than appended to it. These patterns should be interpreted as longitudinal learning trends within a sequential design rather than as experimental comparisons between independent groups.

6. Conclusion

Sequential Virtual Exchange functions as a longitudinal learning pathway that supports cumulative and transferable development across intercultural competence, distributed teamwork, and professional identity. For institutions, this suggests a shift from isolated exchanges toward structured, repeatable VE sequences embedded within the curriculum. A scalable VE pathway should include cohort continuity, progressively increasing complexity, a transition from analytical to production-oriented tasks, structured reflection, and intentional exposure to diverse global contexts. Such designs move beyond episodic internationalization toward sustained, high-impact global learning.

References

- Barron, B. (2006). Interest and self-sustained learning as catalysts of development: A learning ecology perspective. *Human Development*, 49(4), 193–224. <https://doi.org/10.1159/000094368>
- Bennett, M. J. (1993). Towards ethnorelativism: A developmental model of intercultural sensitivity. In R. M. Paige (Ed.), *Education for the intercultural experience* (pp. 21–71). Intercultural Press.
- Byram, M. (1997). Teaching and assessing intercultural communicative competence. *Multilingual Matters*.
- 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. <https://doi.org/10.1177/1028315306287002>
- Deardorff, D. K., & Jones, E. (2012). Intercultural competence: An emerging focus in international higher education. In D. K. Deardorff, H. de Wit, J. D. Heyl, & T. Adams (Eds.), *Intercultural competence: An emerging focus in international higher education* (pp. 283–304). SAGE Publications. <https://doi.org/10.4135/9781452218397.n16>
- de Wit, H. (2020). Internationalization of higher education: The need for a more ethical and qualitative approach. *Journal of International Students*, 10(1), i–iv. <https://doi.org/10.32674/jis.v10i1.1893>
- Dooly, M., & O'Dowd, R. (2018). In this together: Teachers' experiences with transnational telecollaboration. Peter Lang. <https://www.peterlang.com/document/1068669>
- Helm, F. (2015). The practices and challenges of telecollaboration in higher education in Europe. *Language Learning & Technology*, 19(2), 197–217. <https://doi.org/10.64152/10125/44424>
- O'Dowd, R. (2021). Virtual exchange: Moving forward into the next decade. *Computer Assisted Language Learning*, 34(3), 209–224. <https://doi.org/10.1080/09588221.2021.1902201>
- Robin, B. (2016). The power of digital storytelling to support teaching and learning. *Digital Education Review*, 30, 17–29. <https://revistes.ub.edu/index.php/der/article/view/16104>

- Rubin, J., & Guth, S. (2015). Collaborative online international learning: An emerging format for internationalizing curricula. In A. S. Moore & S. Simon (Eds.), *Globally networked teaching in the humanities: Theories and practices* (pp. 15–27). Routledge. <https://doi.org/10.4324/9781315754925>
- Salmon, G. (2013). *E-tivities: The key to active online learning*. Routledge. <https://doi.org/10.4324/9780203074640>
- United Nations. (2015). *Transforming our world: The 2030 agenda for sustainable development*. <https://sdgs.un.org/2030agenda>

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