

A Virtual Exchange Educational Intervention to Enhance Cultural Competence, Leadership, and Global Citizenship in Nursing Education

Abstract

Background: Effective healthcare delivery relies on nurses' ability to communicate effectively with patients, families, and colleagues from diverse cultural and social backgrounds. Virtual exchange can overcome geographic barriers and create opportunities for collaborative learning. Graduate nursing students from Japan, South Africa, Spain, Sweden, the United Kingdom, and the United States participated in an innovative virtual exchange educational intervention focused on cultural competence, leadership, and global citizenship.

Aim: This pilot study aimed to evaluate the effects of a virtual exchange educational intervention on transcultural self-efficacy and perceptions of cultural competence while enhancing opportunities for global citizenship.

Methods: A pretest-posttest design was used to recruit 23 graduate nursing students from six universities worldwide. Two structured questionnaires, including measures of Transcultural Self-Efficacy and Cultural Competence, were administered. Qualitative data were collected through participants' written reflections. Both quantitative and qualitative data were collected using secure Qualtrics surveys.

Results: Among the 14 participants who completed both the pretest and posttest Transcultural Self-Efficacy survey, perceived transcultural self-efficacy increased significantly following the workshop ($t(13) = -3.02$, $p = 0.010$). Similarly, among the 16 participants who completed both the pretest and posttest Cultural Competence survey, perceived cultural competence increased significantly ($t(15) = -2.31$, $p = 0.035$). Thematic analysis identified three key themes: cultivating leadership skills, increasing awareness of cultural competence, and fostering global citizenship in nursing.

Conclusion: Virtual exchange expands opportunities for nurses to enhance transcultural self-efficacy and cultural competence while developing leadership skills for global citizenship. This educational intervention, which focused on cultural competence, leadership, global citizenship, and transcultural self-efficacy, proved effective.

Keywords: Cultural competence, educational intervention, global citizenship, graduate nursing education, virtual exchange

 Christine Argenbright,¹  Portia Jordan,²
 Helena DeRezende,³  Michiko Moriyama,⁴
 Mayumi Kako,⁴  Elisabeth Mangrio,⁵
 Maria F. Jiménez-Herrera⁶

¹James Madison University, School of Nursing, Virginia, United States

²Department of Nursing and Midwifery, Stellenbosch University, Faculty of Medicine and Health Sciences, Western Cape, South Africa

³School of Nursing and Midwifery, University of Limerick, Ireland

⁴Hiroshima University, School of Medicine Nursing Program, Hiroshima, Japan

⁵Department of Care Science, Malmö University, Faculty of Health and Society, Malmö, Sweden

⁶Department of Nursing, Universitat Rovira i Virgili, Catalunya, Spain

Introduction

The increasing global mobility of nurses underscores the need to prepare practitioners who can collaborate effectively across national and cultural boundaries. Developing nurses who are capable of leading in culturally diverse settings is therefore imperative.¹ Many nurses enter practice with limited awareness of social injustice, cultural differences, and educational inequalities,^{2,3} highlighting the need for curricula and educational interventions that promote cultural awareness, global citizenship, and patient safety.⁴ Educational strategies that include multicultural experiences, such as study abroad programs, broaden students' perspectives beyond their own communities and increase appreciation of other cultures.⁵ However, social and economic factors often limit students' ability to participate in international mobility programs.⁶ Furthermore, international travel has been constrained in recent years because of the coronavirus disease 2019 [COVID-19] pandemic and growing concerns regarding the environmental sustainability of higher education.^{5,6} Therefore, virtual exchange among students and educators offers an excellent opportunity to promote global citizenship.

Global citizenship encompasses the social, political, environmental, and economic responsibilities of globally minded individuals and communities.⁷ It promotes respect for diverse identities based on humanitarian principles⁸ that transcend national and cultural boundaries. Developing global citizenship requires an understanding of multicultural dynamics and encourages healthcare professionals to promote cultural competence and diversity.⁹ Nursing leaders with diverse cultural experiences are better equipped to lead within healthcare organizations and exemplify the principles of global citizenship.¹⁰ Cultural competence has been defined as "a multidimensional learning process that integrates transcultural skills in all three dimensions [cognitive, practical, and affective], involves transcultural self-efficacy as a major influencing factor, and aims to achieve culturally congruent care."¹¹ Education for global citizenship supports the development of the knowledge, skills, and values necessary to promote a sustainable future.¹² It also fosters an understanding of the importance of leadership skills for working in diverse healthcare environments and addressing healthcare inequalities and emerging global health challenges.¹³⁻¹⁵ Effective cross-cultural communication and collaboration further contribute to improved patient health literacy and health outcomes.¹⁶ Consequently, educational interventions designed to strengthen global citizenship and cultural competence should be grounded in a clear conceptual framework.

Cite this article as: Argenbright C, Jordan P, DeRezende H, Moriyama M, Kako M, Mangrio E, Jiménez-Herrera MF. A Virtual Exchange Educational Intervention to Enhance Cultural Competence, Leadership, and Global Citizenship in Nursing Education. J Educ Res Nurs. 2026;23(4):1-6.

Corresponding author: Christine Argenbright
E-mail: argenbca@jmu.edu

Received: September 01, 2025
Accepted: July 17, 2026
Publication Date: December 01, 2026



Copyright@Author(s) - Available online at www.jer-nursing.org
Content of this journal is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

The literature identifies a need for innovative teaching and learning strategies that are developed within a robust conceptual framework to improve the cultural competence of diverse student groups preparing to care for patients from varied cultural backgrounds.²¹ Jeffreys's Cultural Competence and Confidence (CCC) Model provides a comprehensive framework grounded in Bloom's taxonomy of learning,¹⁷ psychological theory,¹⁸ and transcultural nursing.¹¹ The CCC Model integrates the cognitive, practical, and affective domains of learning, with Transcultural Self-Efficacy (TSE) serving as a central determinant of culturally competent care. According to the model, TSE is influenced by development of transcultural skills across these three learning domains, as well as by formal cultural competence education and other relevant learning experiences.¹¹ The model is based on the premise that increased TSE promotes the development of cultural competence and ultimately leads to culturally congruent patient care. Guided by the CCC model and supporting literature,^{11,19,20} a virtual exchange educational intervention was developed to cultivate cultural competence and leadership for global citizenship in nursing.

Based on this framework and the recognized need for nursing programs to foster global citizenship among students, a team of seven nursing educators representing six universities in Japan, Spain, South Africa, Sweden, the United Kingdom, and the United States of America developed a four-week virtual exchange educational intervention. All educators were members of the International Network of Universities (INU) Nursing Collaborative. The intervention aimed to (a) evaluate the effects of the synchronous virtual exchange on graduate nursing students' transcultural self-efficacy and perceptions of cultural competence and (b) expand opportunities for global citizenship.

Research Questions

1. How does participation in a virtual exchange educational intervention affect graduate nursing students' perceptions of transcultural self-efficacy and cultural competence?
2. What are students' perceptions of global citizenship in relation to their current and future nursing practice?
3. How do students perceive their experience within the virtual learning environment?

Materials and Methods



Study Design

The pilot study employed a pretest-posttest design. Quantitative data on cultural competence (CC) and transcultural self-efficacy were collected using two structured questionnaires, while qualitative data were collected through open-ended reflection questions. Both quantitative and qualitative data were collected before and after the virtual exchange educational intervention using a pretest-posttest design.

The educational intervention was developed using the ADDIE instructional design model (Analysis, Design, Development, Implementation, and Evaluation).²¹ The intervention focused on leadership, cultural competence, transcultural self-efficacy, and global citizenship in nursing.

Study Sample

Purposive sampling was used to recruit graduate nursing students from six participating universities. Eligible participants were nurses enrolled in a master's or doctoral nursing program at one of the participating institutions, able to read and speak English, and who had completed at least 50% of their current program. Individuals who were not registered nurses or were not enrolled in a graduate nursing program at one of the participating universities were excluded. Participants were recruited with assistance from graduate program directors or coordinators at each institution.

Invitations were distributed to all eligible graduate nursing students across the six universities, and 23 students voluntarily consented to participate. The educational intervention was developed by a team of seven nurse educators representing the six participating nursing schools. The educators voluntarily designed and facilitated the four-week virtual exchange.

Data Collection

Quantitative data were collected using Marianne R. Jeffreys' licensed Cultural Competence Assessment instruments, which included the Demographic Data Sheet–Nurses (DDS–N), the Transcultural Self-Efficacy Tool (TSET), and the Cultural Competence

Clinical Evaluation Tool–Student Version (CC CET–SV).¹⁹ Permission to use these instruments was obtained before study implementation. The CCC Model and TSET have demonstrated excellent reliability and validity across multiple studies, with Cronbach's alpha coefficients ranging from 0.92 to 0.97 in studies conducted in the United States and internationally, including China, Greece, Türkiye, Australia, Canada, Norway, and the Philippines.¹¹ The principal investigator (PI) distributed Qualtrics survey links through the Microsoft Teams™ channel one week before the virtual exchange and again one week following completion of the intervention. Participants created personalized usernames to enable anonymous matching of pretest and posttest responses.

Qualitative data were collected through Qualtrics using open-ended reflection questions posted in the Microsoft Teams™ channel. Data collection was conducted from October to November 2022. Quantitative data were collected during the week before and immediately after the educational intervention, whereas qualitative data were collected after each of the four virtual exchange sessions. Following each virtual exchange session, participants were asked to spend approximately 20 minutes reflecting on their experiences by responding to the following questions:

1. Reflect on your virtual exchange experience and how it contributed to the development of your leadership skills.
2. Reflect on your virtual exchange experience and how it contributed to the development of your cultural competence.
3. Why is learning about global citizenship important for nurses, and how does it apply to your current and future nursing practice?

Participants also responded to two Padlet™ questions during the virtual exchange. These responses were included in the data analysis:

1. What were the key messages you learned from this session?
2. How will increased self-awareness influence your nursing practice?

Educational Intervention

The educational intervention was designed to enhance participants' cultural competence, transcultural self-efficacy, leadership skills, and understanding of global citizenship through a synchronous virtual exchange that connected participants in real time. The intervention was conducted synchronously via the Microsoft Teams™ platform. Four virtual exchange sessions were held over a four-week period, with educators and students meeting for two hours each week.

The intervention was developed using the ADDIE instructional design model.²¹ During the analysis phase (phase one), the nurse educators identified the knowledge, skills, and attitudes necessary to achieve the desired learning outcomes. A literature review was conducted, and the educators met online every three weeks over a five-month period to identify students' learning needs. Curriculum content, teaching experiences, and professional observations were shared to inform the educational design.

During the design phase (phase two), the educators developed an instructional blueprint that outlined how the intervention would be delivered. This phase included selecting instructional methods and developing learning objectives to guide the educational intervention. PowerPoint presentations were created for each session, incorporating breakout rooms, Padlet™, Mentimeter™, and videos. Group discussions conducted in Microsoft Teams™ breakout rooms promoted active participation and collaboration among participants. The team agreed that all sessions would be conducted synchronously in English using Microsoft Teams™, which served as the central platform for content sharing, communication, and virtual meetings.

Four learning objectives guided the intervention:

1. Discuss and apply leadership concepts and leadership styles to promote global citizenship.
2. Identify and promote cultural diversity among nurses from different higher education institutions.
3. Demonstrate cultural competence in professional nursing practice.
4. Reflect on leadership and global citizenship within contemporary nursing.

Learning objectives were developed using Bloom's taxonomy.¹⁷

To support participant learning, a virtual course guide was created containing faculty biographies, course objectives, preparatory and supplementary readings, instruc-

Table 1. Learning outcomes, session content, and teaching and learning methods used in the virtual exchange educational intervention

Learning outcome	Session and content	Teaching and learning methods
Apply leadership concepts and leadership styles to promote global citizenship in nursing.	Session 1: Introduction to leadership and the DiSC® assessment	Power Point presentation and introductory video on DiSC® leadership Breakout room discussions: Participants were grouped by their identified leadership style to discuss the characteristics, strengths, and challenges of each style. Group discussion: Each group shared and described its assigned leadership style with the larger group. Reflective notes
Develop cultural competence, cultural awareness, and transcultural self-efficacy in global nursing practice.	Session 2: Introduction to cultural competence and transcultural self-efficacy	PowerPoint presentation on cultural competence, cultural diversity, and transcultural self-efficacy Breakout rooms discussions: Participants worked in small groups using guided questions to explore the characteristics and competencies of a culturally competent nurse. Group discussion: One representative from each group presented the group's key discussion points to the larger group. Reflective notes
Examine the role of virtual exchange in fostering leadership and global citizenship among nurse leaders.	Session 3: Leadership in the context for global citizenship	PowerPoint presentation on the influence of culture on leadership and global citizenship in nursing. Breakout rooms discussions exploring leadership, culture, and global citizenship in nursing. Padlet™ activity: Each group posted a summary of the key concepts discussed during the breakout session. Reflective notes
Examine the influence of culture on professional nursing values, workplace practice, and leadership.	Session 4: Closing session – integration and summary of previous topics	Guest lecture: Culturally Competent Engagement: A Mindful Approach. ^[23] Breakout room discussions on key learning outcomes and the application of cultural competence and self-awareness in nursing practice. Word cloud: Participants described their learning journey using three words. Reflective notes

tions for accessing the virtual learning environment, informed consent documentation, and links to study questionnaires.

Following the design phase, the development phase (phase three) focused on creating and organizing the educational materials used during the virtual exchange. The intervention consisted of four two-hour sessions. The instructional content and teaching strategies for each session are summarized in Table 1. Before the first session, participants completed the Everything DiSC®²² assessment to identify their individual leadership style. The results were discussed during the first session to increase participants' understanding of leadership styles and the importance of promoting personal and collective well-being, shared values, and effective teamwork.²³

Following the analysis, design, and development phases, the intervention was implemented (Phase Four). Prior to implementation, the nurse educators pilot-tested the platform, communication channels, hyperlinks, and learning resources. Participants received access to all course materials before the first session and joined each session through Microsoft Teams™. Given the short duration of the virtual exchange and the small team of nurse educators, the intervention was implemented in its entirety without modification.

During the evaluation phase (phase five), participants provided feedback through an open-ended question evaluating their experiences with the virtual exchange and offering suggestions for improving the course content and structure. Participant learning was assessed using Mentimeter™ activities, Padlet™ discussions, quizzes, short-answer questions, and reflective questions based on the learning materials and supporting literature.

Data Analysis

Quantitative data were analyzed using Intellectus 360.^{24,25} Descriptive statistics, including frequencies and percentages, were calculated for all study variables. Statistical significance was established at 0.05 (two-tailed). The lower and upper limits for Cronbach's alpha were calculated using a 95% confidence interval. The TSET and CCET-SV each contain 83 Likert-scale items. The CCET-SV is adapted from the TSET and includes three subscales (cognitive, practical, and affective) that measure distinct dimensions of cultural competence. Only participants who completed both

the pretest and posttest questionnaires were included in the quantitative analyses. One questionnaire item with missing data was excluded from the analysis, and outliers were removed as appropriate. Participants' reflections and responses to the open-ended questions were analyzed using a six-step thematic analysis approach.²⁶ Each researcher independently analyzed the data before meeting to discuss the emerging themes and reach consensus on the final thematic interpretation. This collaborative process enhanced the trustworthiness of the study findings.²⁷

Ethical Considerations

The study was approved by Ethics Committee of James Madison University (Approval Number: 22-3468, Date: 29.08.2022). The participating universities recognized the primary university as the IRB of record for the study. Informed electronic consent was obtained from all participants through a Qualtrics survey link distributed via the Microsoft Teams™ platform by the principal investigator. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki.

Results

Participant Characteristics

Fourteen participants completed both the pretest and posttest TSET, and 16 participants completed the CCET-SV questionnaire. Most participants were female (85%), with males comprising 15% of the sample. Participants were predominantly 25–34 years of age [49%], followed by 35–44 years [30%], 45–54 years [19%], and 55–64 years [2%]. Participants identified as White [35%], Asian [32%], Black [18%], or another ethnicity [15%]. Most participants were employed full-time (68%), had completed a master's degree [67%], and had not previously completed a course in transcultural nursing or cultural competence [81%].

Quantitative Results

Reliability of the TSET and the CCCET-SV was high for both the pretest and posttest administrations, as indicated by Cronbach's alpha coefficients. A two-tailed paired-samples t test was conducted to compare pretest and posttest transcultural self-efficacy scores. The analysis demonstrated a statistically significant increase in

Table 2. Reliability of the self-efficacy and cultural competence measures

Measure	Items (n)	α	Lower limit	Upper limit
Self-efficacy				
Pretest	58	0.98	0.97	0.99
Posttest	58	0.98	0.96	0.99
Cultural competence				
Pretest	30	0.96	0.94	0.98
Posttest	30	0.97	0.95	0.99

The lower and upper limits for Cronbach's alpha were calculated using a 95% confidence interval.

Table 3. Changes in self-efficacy and cultural competence following the educational intervention

Measure	n	Mean	SD	t	p
Self-efficacy				-3.02	0.010
Pretest	14	8.02	1.34		
Posttest	14	8.94	0.71		
Cultural competence				-2.31	0.035
Pretest	16	8.65	1.1		
Posttest	16	9.15	0.71		

Paired-samples t tests (two-tailed) were used. SD: Standard deviation.

Table 4. Themes and subthemes identified from participants' reflections on the virtual exchange educational intervention

Main Theme	Subthemes
Cultivating Leadership Skills	Fostering Connections For Professional Growth Developing Leadership Skills Increasing Self-Awareness and Understanding of Leadership Styles
Increasing Awareness of Cultural Competence	Understanding Cultural Competence and Cultural Diversity Gaining New Cultural Perspectives
Global Citizenship in Nursing	Understanding Global Citizenship Importance of Global Citizenship in Healthcare for Patient Safety and Quality of Care Global Citizenship and Cultural Diversity

transcultural self-efficacy following the educational intervention. Mean self-efficacy scores increased significantly from 8.02 before the intervention to 8.94 after the intervention, representing a large effect ($t(13)=-3.02$, $p=0.010$). Owing to the small sample size, analyses of the TSET subscales were not conducted (Table 2).

Similarly, mean cultural competence scores increased significantly following the intervention, rising from 8.65 to 9.15. Although statistically significant, the magnitude of the effect was moderate ($t(15)=-2.31$, $p=0.035$). Overall, the quantitative findings demonstrated improvements in both transcultural self-efficacy and cultural competence following participation in the virtual exchange educational intervention (Table 3).

Qualitative Results

Thematic analysis of participants' reflections from the four virtual exchange sessions identified three overarching themes and eight subthemes (Table 4). Participants submitted a total of 86 anonymous reflections, which contained no identifying information.

Theme 1: Cultivating Leadership Skills

Participants reported that the virtual exchange enhanced their leadership skills. Three subthemes emerged: [1] fostering connections for professional growth, [2] developing leadership skills, and [3] increasing self-awareness and understanding of leadership styles.

Subtheme 1.1: Fostering Connections for Professional Growth

Participants reported that the virtual exchange enabled them to connect with nurses from different countries, fostering opportunities for shared learning and professional growth. They described the virtual exchange as a safe and supportive environment in which to share experiences and learn about different leadership styles.

"Interaction with international colleagues was beneficial... and the leadership session was a great experience that allowed us to share our thoughts."

Subtheme 1.2: Developing Leadership Skills

According to the participants, virtual exchanges provided opportunities to develop essential leadership skills. They highlighted enhanced communication skills, intercultural competence, and digital literacy as important outcomes of the virtual exchange.

"Virtual learning helps cultivate leadership by enabling leaders to become more knowledgeable and proficient in using digital platforms that support meaningful and interactive learning."

"Technology-enabled interaction, supported by educators, helps students develop digital literacy, effective communication skills, intercultural competence, and global awareness, preparing them for future leadership roles."

Subtheme 1.3: Increasing Self-Awareness and Understanding of Leadership Styles

Participants reported that the virtual exchange enhanced their self-awareness and appreciation of different leadership styles.

"The virtual experience gave me the opportunity to develop greater self-awareness and a better understanding of different leadership styles without judgment."

Furthermore, participants recognized that different leadership styles influence workplace interactions and the ability to provide culturally competent care.

"...Reflecting on my leadership style helped me understand how it influences my workplace experience and my understanding of other people's cultures. I also realized how different leadership styles can be integrated to address a sentinel event in the workplace."

"Reflecting on leadership styles and cultural sensitivity made me realize that some leaders are not coping well in leadership positions because they lack the ability to lead with cultural competence."

Theme 2: Increasing Awareness of Cultural Competence

Participants reported an increased understanding of cultural competence and cultural diversity, along with new insights into diverse cultural perspectives.

Subtheme 2.1: Understanding Cultural Competence and Cultural Diversity

Participants viewed cultural competence as an awareness of and respect for the values, beliefs, and preferences of individuals from diverse cultural backgrounds.

"I believe that being culturally competent...includes understanding language barriers at both the local and international levels and working to overcome them."

"The healthcare setting is a dynamic environment that serves people from all walks of life. Being aware of the values, beliefs, and preferences of individuals and groups is essential for nurses to provide culturally congruent care."

Subtheme 2.2: Gaining New Cultural Perspectives

Through the virtual exchange, participants gained new insights into shared experiences, diverse cultural perspectives, and commonalities across cultures.

"After listening to everyone's thoughts and perspectives about the cultural barriers they had overcome, I realized that we all experience many of the same challenges."

Theme 3: Global Citizenship in Nursing

Participants emphasized the importance of understanding global citizenship, recognizing its relevance to healthcare, patient safety, and applying its principles in nursing practice.

Subtheme 3.1: Understanding Global Citizenship

Participants described global citizenship as recognizing one's place within a global community while fostering greater cultural awareness and appreciation of diverse perspectives.

"Global citizenship means being part of a global community, recognizing and respecting different cultures, and understanding that race, religion, nationality, language, gender, and age all shape our understanding of culture."

Subtheme 3.2: Importance of Global Citizenship in Healthcare for Patient Safety and Quality of Care

The participants expressed that nurses should be aware of the principles of global citizenship in health care. Furthermore, they indicated that by being aware of cultural differences and respecting one another in health care, nurses can contribute to patient safety and the quality of care.

"As a nurse, it is very important to understand global citizenship because we provide care to people from diverse communities around the world, with different educational backgrounds, social challenges, understandings, and perspectives on health. Most importantly, we are global citizens ourselves."

Subtheme 3.3: Global Citizenship and Cultural Diversity

The participants indicated that practicing global citizenship enhances their awareness of cultural diversity and encourages them to reflect on the broader world. They believed that this awareness helps develop their social and cultural competencies.

"I will incorporate the principles of global citizenship into my workplace by reflecting more on the world around me, learning more about global citizenship, and teaching others."

Discussion

This study demonstrated that providing a synchronous virtual exchange as an educational intervention with participants from multicultural backgrounds produced positive outcomes. The virtual exchange was an effective method for enhancing participants' cultural competence and transcultural self-efficacy. The nursing students indicated that they gained new insights into cultural perspectives and differences, reflecting a deepening of their cultural awareness. These findings align with previous studies suggesting that online approaches are effective for teaching graduate and postgraduate nursing students about cultural diversity.^{28,29} The students' recognition of a shared human experience, despite cultural differences, underscores the potential of virtual exchanges to bridge cultural gaps and foster empathy and understanding among healthcare professionals.³⁰

Through peer connections, the nursing students in this study reported experiencing personal growth and gaining a better understanding of themselves. They also noted that virtual exchanges helped them develop the skills and leadership styles necessary for effective leadership. These findings are consistent with existing research demonstrating the benefits of cross-cultural interactions for leadership development.^{31,32} Exposure to diverse perspectives and opportunities to adapt to different

leadership styles may enhance leadership capabilities and ultimately improve the quality of care.³³ The nursing students further emphasized the importance of effective communication skills and intercultural competencies, highlighting the value of virtual exchanges in preparing future nursing leaders for the global healthcare landscape.³⁴

The concept of global citizenship encompasses creating space for diverse identities, promoting tolerance, and fostering the belief that individuals can cooperate and collaborate based on humanitarian principles.^{7,8} The virtual exchange enabled participants to develop a deeper understanding of global citizenship by emphasizing the importance of recognizing their role in a globalized world, appreciating cultural diversity, and contributing to patient safety and quality of care. Furthermore, it helped participants recognize that, as healthcare providers, they are global citizens who serve diverse communities with varying cultural, educational, and social backgrounds. This understanding was strengthened by the opportunity for students from different countries to interact and engage in meaningful discussions during the virtual exchange. Universities have a responsibility to promote global citizenship by helping students recognize that they are members of a global community and can use their knowledge, skills, and education to contribute to society.³⁵ This virtual exchange provided such an opportunity. Similar studies involving students from other disciplines have also suggested that virtual exchange can support the development of global citizenship.³⁶

These findings provide valuable insights into the transformative impact of virtual exchanges and support a forward-looking approach to nursing education. The results highlight the important role of educational interventions in developing leadership skills and fostering awareness of global citizenship in nursing practice. By fostering these competencies and mindsets, virtual exchanges equip nursing students and professionals with the knowledge and skills needed to navigate culturally diverse healthcare environments. Overall, the educational intervention enhanced participants' knowledge and understanding of leadership, cultural competence, transcultural self-efficacy, and global citizenship in nursing.

Limitations

This study has several limitations. The small sample size and participant characteristics limit the generalizability of the findings. The absence of a control group is another limitation of this study. Due to the small sample size, the subscales of the Transcultural Self-Efficacy Tool could not be analyzed separately. Furthermore, the exclusion of participants who did not complete both the pre- and post-intervention surveys may have influenced the study findings. Student participation may also have been influenced by the nurse educators teaching within their respective programs. Additionally, time zone differences across participating countries posed challenges for recruiting students and facilitating engagement. To minimize the impact of these differences, the research team collaborated to identify mutually suitable times for virtual sessions and learning activities. Despite these limitations, the study generated meaningful findings that may inform the development of nursing curricula, education, and practice.

Conclusion

Virtual exchange programs can provide significant benefits for nursing students by fostering global citizenship and cultural awareness. Through these programs, students can bridge geographical and cultural divides, broaden their perspectives, and develop a deeper understanding of cultural diversity. The benefits of virtual exchanges include increased cultural sensitivity, improved communication skills, enhanced adaptability, and a broader worldview—essential attributes for future healthcare professionals and leaders. Additionally, virtual exchange platforms facilitate collaboration with peers from diverse backgrounds, promoting teamwork and strengthening intercultural communication skills. These competencies are essential in today's increasingly globalized healthcare environment, where healthcare professionals must work effectively with colleagues and patients from diverse cultural backgrounds.

Virtual exchange programs also offer a cost-effective and accessible means of gaining international exposure without the need for extensive travel. This democratization of global learning opportunities enables more nursing students to benefit from international experiences regardless of financial or logistical constraints. As students develop into culturally competent and globally aware nurses, they are better equipped to contribute to more inclusive, equitable, and culturally responsive healthcare. Nevertheless, further research is needed to examine the long-term effects of virtual exchange programs on nursing education and practice. Overall, these findings provide valuable insights into the transformative potential of virtual exchanges and demonstrate their value as an innovative strategy for overcoming barriers to global learning in nursing education.

Ethics Committee Approval: The study was approved by the James Madison University Ethics Committee [Approval Number: 22-3468, Date: 29.08.2022].

Informed Consent: Electronic informed consent was obtained from the participants.

Conflict of Interest: The authors have no conflicts of interest to declare.

Funding: The authors report financial support was provided by the International Network of Universities (INU) for 10K USD. They declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Author Contributions: Concept – C.A., P.J., H.D., M.M., M.K., E.M., M.F.J.H.; Design – C.A., P.J., H.D., M.M., M.K., E.M., M.F.J.H.; Supervision – C.A., P.J., H.D., M.M., M.K., E.M., M.F.J.H.; Materials – C.A., P.J., H.D., M.M., M.K., E.M., M.F.J.H.; Data Collection and/or Processing – C.A., P.J., H.D., M.M., M.K., E.M., M.F.J.H.; Analysis and/or Interpretation – C.A., P.J., H.D., M.M., M.K., E.M., M.F.J.H.; Literature Review – C.A., P.J., H.D., M.M., M.K., E.M., M.F.J.H.; Writing – C.A., P.J., H.D., M.M., M.K., E.M., M.F.J.H.; Critical Review – C.A., P.J., H.D., M.M., M.K., E.M., M.F.J.H.

Peer-review: Externally peer-reviewed.

References

- Markey K, O'Brien B, Kouta C, Okantey C, O'Donnell C. Embracing classroom cultural diversity: innovations for nurturing inclusive intercultural learning and culturally responsive teaching. *Teach Learn Nurs*. 2021;16(3):258–262. [\[CrossRef\]](#)
- McFarland A, MacDonald E. Role of the nurse in identifying and addressing health inequalities. *Nurs Stand*. 2019;34(4):37–42. [\[CrossRef\]](#)
- National Academies of Sciences, Engineering, and Medicine; National Academy of Medicine; Committee on the Future of Nursing 2020–2030. *The Future of Nursing 2020–2030: Charting a Path to Achieve Health Equity*. Flaubert JL, Le Menestrel S, Williams DR, Wakefield MK, editors. Washington (DC): National Academies Press (US); 2021. [\[CrossRef\]](#)
- Kaihanen AM, Hietapakka L, Heponiemi T. Increasing cultural awareness: qualitative study of nurses' perceptions about cultural competence training. *BMC Nurs*. 2019;18:38. [\[CrossRef\]](#)
- Onosu G. The Impact of Cultural Immersion Experience on Identity Transformation Process. *Int J Environ Res Public Health*. 2021;18(5):2680. [\[CrossRef\]](#)
- Schnepf SV, Bastianelli E, Blasko Z. What can explain the socio-economic gap in international student mobility uptake? Similarities between Germany, Hungary, Italy, and the UK. *Eur Educ Res J*. 2022;23(4):479–502. [\[CrossRef\]](#)
- United Nations. Global Citizenship. Accessed July 23, 2026. <https://www.un.org/en/academic-impact/global-citizenship>
- Tawil S. Education for 'global citizenship': a framework for discussion. Accessed July 23, 2026. <https://unesdoc.unesco.org/ark:/48223/pf0000223784>
- Lee Y, Sung S, Fan X. Cultural competency education for healthcare professionals: an umbrella review. *BMC Med Educ*. 2025;25(1):1445. [\[CrossRef\]](#)
- Department of Health and Social Care. Leadership for a collaborative and inclusive future. Accessed July 23, 2026. <https://www.gov.uk/government/publications/health-and-social-care-review-leadership-for-a-collaborative-and-inclusive-future/leadership-for-a-collaborative-and-inclusive-future>
- Jeffreys MR. Teaching cultural competence in nursing and health care: inquiry, action, and innovation. 3rd ed. New York: Springer Publishing Company; 2016:73. [\[CrossRef\]](#)
- Uzun A, Akhan O, Turan S, Özkaya A. Determining the global citizenship tendencies of international university students for a sustainable world. *PLoS One*. 2025;20(10):e0335817. [\[CrossRef\]](#)
- Anåker A, Elf M. Sustainability in nursing: a concept analysis. *Scand J Caring Sci*. 2014;28(2):381–389. [\[CrossRef\]](#)
- Goodman B. The need for a 'sustainability curriculum' in nurse education. *Nurse Educ Today*. 2011;31(8):733–737. [\[CrossRef\]](#)
- Richardson J, Grose J, O'Connor A, Bradbury M, Kelsey J, Doman M. Nursing students' attitudes towards sustainability and health care. *Nurs Stand*. 2015;29(42):36–41. [\[CrossRef\]](#)
- Mortimer F, Isherwood J, Wilkinson A, Vaux E. Sustainability in quality improvement: redefining value. *Future Healthc J*. 2018;5(2):88–93. [\[CrossRef\]](#)
- Krathwohl DR. A revision of Bloom's taxonomy: an overview. *Theory Pract*. 2002;41(4):212–218. [\[CrossRef\]](#)
- Bandura A. Self-efficacy: toward a unifying theory of behavioral change. *Psychol Rev*. 1977;84(2):191–215. [\[CrossRef\]](#)
- Jeffreys MR. *The Cultural Competence Education Resource Toolkit*. 3rd ed. Springer; 2016.
- United Nations Educational, Scientific and Cultural Organization. *Global Citizenship Education: Topics and Learning Objectives*. UNESCO; 2015. [\[CrossRef\]](#)
- Cheung L. Using the ADDIE Model of Instructional Design to Teach Chest Radiograph Interpretation. *J Biomed Educ*. 2016;1:502572. [\[CrossRef\]](#)
- Wiley. *Everything Disc: Research Report for Adaptive Test Assessment*. Accessed July 23, 2026. <https://www.discprofile.com/CMS/media/doc/ed/research/research-report.pdf>
- Brantmeier EJ, Brantmeier NK. *Culturally Competent Engagement: A Mindful Approach*. Information Age Publishing, Inc.; 2020. [\[CrossRef\]](#)
- George D, Mallery P. *IBM SPSS Statistics 25 Step by Step*. 15th ed. New York: Routledge; 2018. [\[CrossRef\]](#)
- Intellectus360. *Intellectus Statistics [Online Computer Software]*. Accessed July 23, 2026. <https://analyze.intellectusstatistics.com/>
- Braun V, Clarke V. One Size Fits all? What Counts as Quality Practice in (reflexive) Thematic analysis? *Qual Res Psychol*. 2021;18(3):328–352. [\[CrossRef\]](#)
- Ahmed SK, Mohammed RA, Nashwan AJ. Using thematic analysis in qualitative research. *J Med Surg Public Health*. 2025;6:100198. [\[CrossRef\]](#)
- Levey JA. Teaching Online Graduate Nursing Students Cultural Diversity From an Ethnic and Nonethnic Perspective. *J Transcult Nurs*. 2019;31(2):202–208. [\[CrossRef\]](#)
- Mokel MJ, Cauty L. Educational outcomes of an online educational intervention teaching cultural competency to graduate nursing students. *Nurse Educ Pract*. 2020;46:102832. [\[CrossRef\]](#)
- Fadaeinia MM, Miri S, Azzadeh Forouzi M, Roy C, Farokhzadian J. Improving Cultural Competence and Self-Efficacy Among Postgraduate Nursing Students: Results of an Online Cultural Care Training Program. *J Transcult Nurs*. 2022;33(5):642–651. [\[CrossRef\]](#)
- Gallagher RW, Polanin JR. A meta-analysis of educational interventions designed to enhance cultural competence in professional nurses and nursing students. *Nurse Educ Today*. 2015;35(2):333–340. [\[CrossRef\]](#)
- Dauvrin M, Lorant V. Leadership and cultural competence of healthcare professionals: a social network analysis. *Nurs Res*. 2015;64(3):200–210. [\[CrossRef\]](#)
- Gulati S, Weir C. Cultural Competence in Healthcare Leadership Education and Development. *Societies*. 2022;12(2):39. [\[CrossRef\]](#)
- Sfantou DF, Laliotis A, Patelarou AE, Sifaki-Pistolla D, Matalliotakis M, Patelarou E. Importance of Leadership Style towards Quality of Care Measures in Healthcare Settings: A Systematic Review. *Healthcare (Basel)*. 2017;5(4):73. [\[CrossRef\]](#)
- MacPhee M, Chang L, Lee D, Spiri W. Global Health Care Leadership development: Trends to Consider. *J Healthc Leadersh*. 2013;5:21–29. [\[CrossRef\]](#)
- Lenkaitis CA, Loranc-Paszyk B. The role of intercultural virtual exchanges in global citizenship development. *J Int Intercult Commun*. 2021;15(2):222–234. [\[CrossRef\]](#)