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Cultivating Global Scholars – Lessons from a Virtual Research Symposium

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Abstract

Access to International Research Collaboration (IRC) is limited for part-time and racially minoritized doctoral students. This study evaluates a virtual research symposium hosted by a U.S. institution and German partner university to examine its influence on participants' perceived intercultural competence (IC) and research skills. Participants included 31 doctoral student presenters preparing to become future teacher educators from programs differing in structure and demographics: a highly structured U.S. program and a German apprenticeship model. Using a convergent mixed methods design, data were collected via surveys and semi-structured interviews. Findings indicated a differential impact: participation resulted in non-significant changes in perceived IC, which qualitative data linked to insufficient asynchronous interaction. In contrast, the symposium significantly enhanced research skills, particularly familiarity with research poster presentation characteristics. The study concludes that while virtual IRCs support accessible skill development, designs should include structured, synchronous components to foster cross-cultural competence.

Introduction

International research collaboration (IRC) has become increasingly valued as a means of expanding knowledge (Fu et al., 2022; Leak et al., 2018), enhancing intercultural competence among research teams (Leak et al., 2018), and increasing the number of citations a publication receives (Alamah et al., 2023). Gaining IRC experience offers graduate students valuable exposure to diverse methods and perspectives, preparing them for global engagement (Leak et al., 2018). However, access to IRC remains limited, especially for racially minoritized students facing systemic barriers (Brunsma et al., 2017; Gonzales et al., 2024) and part-time students, who are often overlooked and labeled "invisible" in research (Neumann & Rodwell, 2009, p. 63).

To address these limitations in offering IRC opportunities for graduate students, researchers have explored accessible, flexible formats, leveraging virtual communication and asynchronous learning to foster engagement. Online intercultural exchange (O'Dowd, 2007), utilizing tools like videoconferencing and discussion forums, is a strategy often employed in graduate programs to develop student language skills and intercultural competence. Aristizábal and Welch (2017) reported that interactions within flexible, student-driven virtual learning communities can contribute to students' cultural competence and understanding. Further, there is growing attention to alternative spaces that involve the use of informal learning communities that allow student researchers to reflect and collaborate with peers in the development of research-related skills (Ahmad et al., 2023; Leijon et al., 2022; Meschitti, 2018). These opportunities are particularly

beneficial for racially minoritized students facing systemic barriers (Brunsma et al., 2017; Gonzales et al., 2024) and the growing population of part-time doctoral students (Zhou & Gao, 2021), who often report feeling isolated (Turner, 2023) and having fewer opportunities to engage in research and connect with peers (Gonzales et al., 2024; O'Regan, 2020).

To provide enhanced IRC opportunities to doctoral students enrolled in programs for future teacher educators, researchers at a college of education at a large institution of higher education in the Southeastern United States with many part-time and racially minoritized doctoral students hosted a virtual research symposium in collaboration with a partner institution in Germany. The event sought to provide students with the opportunity to share research, receive feedback from faculty and peers, and forge international partnerships that may lead to enhanced cultural awareness, research skills, and future IRC opportunities.

This partnership between the U.S. and German institutions provides valuable context for exploring the study's focus because they contrast sharply in structure and student demographics. The U.S. institution's doctoral programs are highly structured, featuring required coursework focusing on research methodologies and specialization areas (e.g., special education), and primarily serve part-time students and students from racially-marginalized groups, underscoring the need for accessible, virtual opportunities. In contrast, the German doctoral program reflects an apprenticeship model, offering students a high degree of autonomy focused on producing an original dissertation. While most German students are White, they also constitute a large majority of part-time students. By examining the symposium's influence on these two distinct groups, the study can provide nuanced insights into how alternative research spaces benefit doctoral students with vastly different training backgrounds and access needs.

Once the virtual research symposium was implemented, the researchers sought to better understand its influence, specifically addressing the following questions:

1. To what extent did the virtual symposium influence participants' intercultural competence? How does the influence differ between German and U.S. students?
2. To what extent did it influence their perceived research skills? How does the influence differ between German and U.S. students?
3. What lessons could be learned from the pilot implementation to guide and inform future virtual IRC opportunities?

The findings of this study offer a significant contribution to scholarship by evaluating an accessible IRC platform for under-represented graduate students (e.g., part-time and racially minoritized doctoral candidates). Furthermore, the study provides actionable insights for program development and teaching practice: demonstrating the potential of virtual formats to enhance research presentational skills through practice and refinement, while underscoring the critical need for structured, synchronous interaction to successfully foster cross-cultural engagement and enhance intercultural competence in future IRC opportunities.

Conceptual Framework

The planning of the virtual research symposium and the subsequent investigation were guided by three key conceptual bases: Virtual Community, Intercultural Competence, and Research Skills. These concepts collectively define the study's outcomes, frame the underlying assumptions, and dictate the methods chosen for data collection and analysis.

The Virtual Community: Communities of Practice

This study is rooted in Lave and Wenger's (1991) theory of Communities of Practice (CoP). A CoP is defined as a group of people who share a common interest (e.g., educational research), interact to share ideas and experiences, and as a result, improve their professional practice. The theory assumes that by interacting with people they admire (i.e., faculty and peers), participants will be motivated to join the community and develop the requisite skills. The symposium was intentionally designed to create a virtual space where doctoral students from the two countries could interact with others who shared a passion for educational research. The intent was to foster the development of both research skills and intercultural competence through meaningful interactions within this academic community. This conceptual foundation directly informs Research Question 3: "What lessons could be learned from the pilot implementation to guide and inform future virtual IRC opportunities?"

Intercultural Competence

According to Byram (1997), intercultural competence (IC) means understanding others and yourself, being able to interpret and connect different cultural perspectives, learning how to engage effectively with unfamiliar cultures, appreciating others' values and behaviors, and recognizing your own assumptions. Developing IC is a critical skill for all graduate students (Deardorff, 2006; Dimitrov et al., 2014), especially those preparing to be teacher educators. The study's approach is consistent with research on Online Intercultural Exchanges, which use virtual platforms to help students develop language proficiency and intercultural competence (O'Dowd, 2007; Aristizábal & Welch, 2017).

The symposium sought to provide students with the opportunity to forge partnerships with colleagues from another country that may lead to enhanced cultural awareness. This concept is directly tied to Research Question 1: "To what extent did the virtual symposium influence participants' intercultural competence? How does the influence differ between German and U.S. students?" The study assumes that providing opportunities for international collaboration will lead to enhanced cultural awareness. Based on established IC dimensions (Marx & Moss, 2011), the virtual experience is expected to influence participants' perceptions in specific areas like "Learning about Different Cultures," "Knowing Ourselves as Cultural," and "Communicating Across Cultural Differences."

To measure these dimensions (RQ1), the study utilized items from the My Cultural Awareness Profile (MyCAP), a reliable instrument designed for educators (Marx & Moss, 2011). The analysis employed Mixed Analysis of Variance (MANOVA) to quantify changes over time and differences based on participant location. Qualitative data collection further investigated how the experience influenced their understanding of their own and other cultures.

Research Skills

Enhancing research skills is a central focus of higher education (Ahmad et al., 2023; Nguyen et al., 2024). The study is conceptually grounded in literature advocating for alternative spaces and informal learning communities, such as research boot camps (Fong, 2019) and peer learning groups (Meschitti, 2018) to foster reflection and collaboration among student researchers (Ahmad et al., 2023; Leijon et al., 2022). The symposium was conceived as an informal, alternative space to provide students the opportunity to share research, get feedback, and enhance research skills. This model is particularly relevant for supporting part-time and racially minoritized students who often report feeling isolated and having limited opportunities for research engagement (Gonzales

et al., 2024; Turner, 2023). This concept links directly to Research Question 2: "To what extent did it influence their perceived research skills? How does the influence differ between German and U.S. students?" The study assumes that the process of preparing and presenting a research poster in this virtual, collaborative setting serves as a meaningful intervention that can boost participants' perceived competence. This model also serves to address the concern that part-time students are "less satisfied with the research infrastructure support" provided by their institutions (Neumann & Rodwell, 2009, p. 63).

This framework guided the inclusion of five exploratory survey items specifically measuring changes in perceived research-related skills (Research Question 2). Qualitative data collection focused on how the event influenced skills and knowledge, with analysis prioritizing themes such as enhanced presentational skills and the shaping and refinement of research ideas.

Empirical Literature Review

The following review of existing literature establishes the study's foundation by highlighting the findings and limitations of prior research on the enhancement of intercultural competence, the development of research skills in alternative settings, and challenges in providing accessible International Research Collaboration (IRC) opportunities. Relevant studies were identified through a comprehensive research review focusing on keywords related to the study's key outcomes, populations, and format, including, but not limited to, "intercultural competence," "research skills," "Communities of Practice," and "online intercultural exchange," as well as populations such as "part-time doctoral students," and "minoritized students." Studies were selected if they detailed specific interventions aimed at influencing one of the dependent variables (IC or research skills) or if they empirically explored the satisfaction and needs of the specific doctoral populations targeted by this virtual symposium.

Influence on Intercultural Competence (Research Question 1). Research has shown that intercultural competence (IC) can be fostered through course integration, where content aimed at enhancing IC is most effective when coupled with opportunities to apply related knowledge and skills in authentic settings (Ramos et al., 2021; Rao, 2005; Xu et al., 2016). Similarly, teaching development programs utilizing teaching workshops and professional development opportunities enhanced with intercultural communication components can foster intercultural skills. Studies on these programs indicate that students who had the chance to reflect on their intercultural skills, receive feedback on those skills, and develop intercultural knowledge were better prepared to lead diverse groups (Dimitrov et al., 2014). Furthermore, online intercultural exchanges, which use platforms like videoconferencing and discussion forums (O'Dowd, 2007), are frequently employed in graduate programs, with studies demonstrating that interactions within student-driven virtual learning communities contribute positively to students' cultural competence (Aristizábal & Welch, 2017). Finally, strategies like study abroad have been shown to increase global competencies, intercultural awareness, and cultural responsiveness among aspiring teachers (Byker & Putman, 2019; Kissock & Richardson, 2010).

This existing body of work confirms that IC can be enhanced by providing opportunities for interaction and application across various formats. However, the strategies detailed typically involve lengthy in-person travel (Study Abroad) or sustained, formal enrollment (Course Integration). Few empirical studies investigate the impact of a short, research-focused virtual IRC event on IC development, especially when targeting the needs of doctoral students from diverse backgrounds, such as racially minoritized and part-time students. This study addresses this limitation by empirically testing a more accessible and time-efficient virtual model for IC

development, using a reliable instrument (MyCAP; Marx & Moss, 2011) to investigate the extent the virtual symposium influenced participants' intercultural competence and how the influence differed between German and U.S. students.

Influence on Research Skills (Research Question 2). The development of research skills in doctoral programs is increasingly seen as benefiting from alternative, informal learning communities that exist outside of required coursework (Ahmad et al., 2023; Nguyen et al., 2024). Literature emphasizes the value of informal learning communities such as research boot camps (Fong, 2019) and peer learning groups (Meschitti, 2018), which serve to develop student knowledge and research expertise and allow students to collaborate and reflect with peers (Ahmad et al., 2023; Leijon et al., 2022; Meschitti, 2018). These alternative spaces, like a voluntary, student-initiated "research café," have been found to promote a culture of knowledge exchange, enhance access to resources, and support student wellness by preventing isolation (Ahmad et al., 2023; Ryan et al., 2022). These informal spaces are particularly beneficial for under-represented populations, including part-time doctoral students who often feel isolated and are less satisfied with the research infrastructure support provided by their institutions (Neumann & Rodwell, 2009; Turner, 2023).

The extant literature validates the benefit of informal, alternative learning spaces for skill development and combating isolation among graduate students, supporting the study's design to offer such a space. However, the existing research primarily focuses on domestic (within-institution) informal communities. There remains a gap in understanding how an international, short-term virtual research symposium functions as an alternative research space and whether its flexible format benefits these under-represented students. This study addresses this gap by measuring participants' perceived research skills among U.S. and German doctoral students using five exploratory survey items after engaging in an international virtual symposium.

Lessons Learned (Research Question 3). International Research Collaboration (IRC) opportunities are highly valued for expanding knowledge, enhancing intercultural competence among research teams (Leak et al., 2018), and increasing publication citations (Alamah et al., 2023; Fu et al., 2022). However, access to IRC remains significantly limited for specific doctoral student populations, including racially minoritized students who face systemic barriers (Brunsma et al., 2017; Gonzales et al., 2024) and part-time students who are often overlooked (Neumann & Rodwell, 2009). Although literature on online intercultural exchanges demonstrates the feasibility of using tools like videoconferencing and discussion forums to overcome distance and develop skills (O'Dowd, 2007), implementation challenges in academic research settings persist.

While the literature confirms the high value of IRC and the existence of systemic access barriers, few studies empirically evaluate the implementation challenges, participant satisfaction, and programmatic lessons learned from a short-term, virtual research symposium specifically designed to serve as an accessible venue for part-time and minoritized students. This study contributes evidence by using qualitative data from open-ended survey items and individual interviews to collect specific feedback and recommendations from participants.

Methodology

To examine the research questions, a convergent mixed methods design was employed. According to Creswell et al. (2018), a convergent mixed methods design is appropriate when a researcher aims to collect both quantitative and qualitative data simultaneously to gain a comprehensive understanding of a research problem, with both types of data considered equally

important. Quantitative and qualitative data were collected and analyzed and merged during the interpretation of the results. Prior to the collection of any data, the researchers obtained Internal Review Board approval from their respective institutions.

Research Context

This study was conducted through a collaboration between a college of education at a large institution of higher education in the Southeastern United States and a partner university of education in the state of Baden-Württemberg, Germany. The institutions share a long-standing research partnership and both offer Ph.D. programs for future teacher educators. This specific research setting was chosen to provide enhanced International Research Collaboration (IRC) opportunities to doctoral students, particularly those who face systemic barriers to traditional IRC access, such as racially minoritized students and part-time students.

The U.S. institution offers two Ph.D. programs for teacher educators (Curriculum and Instruction, and Special Education). A majority of the 116 enrolled students in these programs in Spring 2025 were part-time (72%) and from racially marginalized groups (62%). These programs are situated in the state's largest city and aim to equip teacher leaders for urban environments. The U.S. programs are highly structured, requiring coursework focusing on urban foundations, research methodologies, specialization areas, and dissertation preparation, often following a cohort-based model.

The German institution offered one doctoral program for teacher educators, enrolling approximately 70 students in Spring 2025. Most German students were White and part-time. The German program reflects an apprenticeship model; candidates work closely with a supervisor but are responsible for designing and carrying out their own research independently. The focus is on producing an original dissertation over several years with a high degree of autonomy and self-organization, resulting in little cohort structure. See Table 1 for a more detailed comparison of the doctoral programs in each country.

Table 1

Doctoral Programs

Characteristics	U.S. Doctoral Programs	German Doctoral Program
Admission requirement	Master's degree and statement of purpose	Master's degree
Credit hours	60+	No credit hours
Structure	Highly structured: coursework, qualifying exams, dissertation	Independent study: focus on dissertation and expanding research
Community	Cohort-based	Individual path; little cohort structure
Advisor	Chosen after coursework/qualifying exams	Identified upon admission
Focus	Broad training + dissertation	Dissertation; emphasis on independent research

The inclusion of these two distinct contexts was crucial for addressing the study's needs and research questions. The U.S. programs provided a necessary sample of racially minoritized and part-time students, who literature suggests are often overlooked and face systemic barriers in accessing IRC opportunities. The virtual symposium was created specifically as an accessible alternative space for this population. Furthermore, the comparison between the highly structured

U.S. programs (with required research courses) and the independent German apprenticeship model was essential for investigating Research Question 2 (perceived research skills) and Research Question 3 (lessons learned).

Participants

The study utilized a convenience sample of students from the participating teacher education programs who chose to present at the virtual research symposium. All presenters were invited to participate in the study, which involved completing an online pre-survey and post-survey.

U.S. Sample. Of the 116 U.S. doctoral students enrolled, 18 participated in the symposium. Ten students completed both the pre- and post-surveys (4 males, 14 females completed the pre-survey).

German Sample. Of the 70 German doctoral students, 13 participated in the symposium, and eight completed both surveys (1 male and 12 females completed the pre-survey).

Following the symposium, a sample of six students (three from the U.S. and three from Germany) who completed both surveys were strategically selected for individual interviews. Strategic random sampling was utilized to ensure balanced representation across both countries and diverse perspectives (e.g., part-time/full-time students and those representing racially minoritized groups). The qualitative data from these participants was crucial for better understanding how the event influenced their perceived cultural competence and research skills, and for gathering feedback for future enhancements (Research Question 3). More information about the interview participants is provided in Table 2.

Table 2

Interview Participants

Pseudonym	Country of Origin	Gender	Enrollment Status	Program Year	Race	Field of Research
Tanisha	United States	Female	Part-time	3	Black	Ph.D – Curriculum and Instruction
Tina	United States	Female	Full-time	4	White	Ph.D – Special Education
Bruce	United States	Male	Part-time	3	Black	Ph.D – Curriculum and Instruction
Anabel	Germany	Female	Part-time	1	White	Teaching English as a Foreign Language
Johanna	Germany	Female	Part-time	2	White	Primary Education
Petrisse	Germany	Female	Part-time	3	White	Special Education

Virtual Symposium Implementation

The symposium was designed as an entirely asynchronous event, running from Monday, April 28 to Thursday, May 1 (2025), allowing participants and attendees to engage at their convenience.

Initial Submission. To participate, students first completed an online form providing their name, the name(s) of any co-presenters, the title of their intended poster presentation, and a brief abstract (no more than 50 words) to create the online program.

Poster Preparation and Format. Once accepted, students were invited via email to create and submit a virtual research poster. Specifically, they were asked to upload a brief (2–3 minute) video embedded in a research poster (a PowerPoint slide) that summarized their research project to a shared Google Drive folder.

Support Materials. The acceptance email included a link to a shared Google Drive folder containing support resources, including instructions on how to create a narrated research poster, two blank poster templates, a sample narrated poster presentation, and sub-folders aligned with research topics (e.g., Digital Transformation, Language & Literacy) where students submitted their final work. Additionally, a pre-submission workshop on preparing and delivering an effective research poster was offered via Zoom, and the recording was shared electronically.

Submission and Display. Once submitted, the completed posters were uploaded to six different virtual bulletin boards (using padlet.com) that aligned with the six research topic categories (e.g., Digital Transformation, School Environments). These bulletin boards were then showcased on the German-American Doctoral Research Symposium website.

Engagement Activities. On the launch date, an email was sent to all doctoral students and faculty with a link to the symposium website, encouraging participation. To access a poster and hear the 2–3-minute video summary, attendees were required to click on the poster image. Presenters and guests who wished to post a comment about a poster or ask a related question could do so by typing in the "add comment" box.

Follow-up for Partnership. To further promote the development of international research partnerships, two weeks after the event, student participants were invited to identify fellow symposium presenters with whom they shared a research connection or with whom they would like to collaborate in the future. Faculty organizers from both institutions facilitated follow-up meetings with identified students.

Data Sources and Collection

Data were obtained from quantitative and qualitative measures including pre- and post-surveys and individual interviews. All presenters were sent an email before and after the event with a link to an online survey (pre- and post-surveys) to examine potential differences in their perceived cultural competence and research-related knowledge and skills prior to and after participating in the event. Following the symposium, qualitative data were collected in the form of open-ended items included in the post-survey and individual interviews with a sample of participants to better understand how the event influenced their perceived cultural competence and research skills and to seek feedback on how the event could be enhanced in the future.

Survey. Quantitative data were collected via an online survey administered to participants before (pre-survey) and after (post-survey) the virtual symposium to examine potential differences in their perceived cultural competence and research-related knowledge and skills prior to and after participating in the event. The survey (see Appendix) was structured around the key outcomes

derived from the study's Conceptual Framework (Communities of Practice), which posits that meaningful interaction fosters skill development (Lave & Wenger, 1991), and was designed to address the three research questions.

To measure perceived intercultural competence (Research Question 1), the survey utilized 17 items drawn from three dimensions of the My Cultural Awareness Profile (MyCAP), a reliable instrument (α=.835) designed specifically for educators by Marx and Moss (2011). The dimensions measured included "Learning about Different Cultures," "Knowing Ourselves as Cultural," and "Communicating Across Cultural Differences." The MyCAP is intended to be administered before and after specific courses or experiences dedicated to cultural growth and enhanced global (Marx & Moss, 2011), and its use here helps investigate the influence of the virtual symposium. Items across these dimensions were assessed on a four-point Likert scale: 1 = Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, and 4 = Agree. Negatively worded items were reversely coded so that higher scores indicate higher intercultural competence. Sample items included, "Helping students recognize their own cultural identity is essential for good teaching," and "I am comfortable talking with people from other cultural groups."

Complementing the MyCAP items were five exploratory items intended to investigate how participation influenced participants' perceived research-related skills and knowledge (Research Question 2). Participants also responded to these items using the same 4-point Likert scale. Sample research skill items included, "I have a strong understanding of the components of a research project (e.g., literature review, methodology, etc.)," and "I feel confident presenting my research to others."

The post-survey also contained two open-ended questions designed to collect qualitative data that would guide future virtual IRC opportunities (Research Question 3). Specifically, participants were asked to describe what they found beneficial about the symposium and to offer recommendations for future enhancements.

Interviews. Following the symposium, qualitative data were collected through individual semi-structured interviews conducted with a sample of participants to gain a deeper, comprehensive understanding of the event's influence. These interviews were conducted via Zoom, lasted approximately 30 minutes, and were audio-recorded.

A sample of six students (three from the U.S. and three from Germany) was selected for interviews from the pool of participants who completed both the pre- and post-surveys. Strategic random sampling was used to recruit interview participants to ensure an equal number of students from both countries and to include a variety of perspectives, such as part-time and full-time students, and students representing racially minoritized groups.

The interviews were framed by the Communities of Practice Conceptual Framework by focusing on the quality of interaction and how this community experience fostered skill development. The interviews were designed to generate detailed qualitative information to address all three research questions. More specifically, to address the first research question related to intercultural competence, participants were asked to describe their communication with international peers and explain how the experience influenced their understanding of their own and other cultures. Pertaining to the second research question (Research Skills), participants were asked how the event influenced their research-related knowledge and skills. With respect to lessons learned (Research Question 3), interviewees were asked to offer recommendations for how the event could be modified in the future to further enhance intercultural competence and research skills. This feedback provided essential guidance for informing future virtual International Research Collaboration opportunities.

Data Analysis

To address the study's questions, a convergent mixed methods design was employed, requiring separate analyses for quantitative (survey) and qualitative (interview/open-ended) data, which were then merged during interpretation.

Quantitative Data Analysis. Statistical analysis was employed to address Research Questions 1 and 2, which investigated the influence of the symposium on participants' perceived intercultural competence and perceived research-related skills, respectively, and specifically how these influences might differ between U.S. and German students.

To compare the influence of the symposium on participants' perceptions of intercultural competence and research skills across countries and time (Research Questions 1 & 2), descriptive statistics were used to present participants' perceptions of intercultural competence before and after the symposium. A Mixed Design Analysis of Variance (also known as split-plot ANOVA) was also employed to examine the change in participants' perceptions of intercultural competence after participating in the symposium (pre- to post-test) and across the two locations (United States and Germany). This method allowed researchers to test for an interaction effect, indicating if the change over time was different for U.S. students compared to German students, thereby directly addressing the cross-country comparison component of Research Questions 1 and 2.

To determine the specific influence of the symposium on participants' perceptions of intercultural competence and research skills (Research Questions 1 and 2), two types of *t*-tests were used for a detailed item-by-item analysis. First, repeated measures *t*-tests compared the scores of the entire group of participants (U.S. and German combined) on each survey item from the beginning (pre-measure) to the end (post-measure) of the study, revealing any specific gains or changes for the overall group. Second, independent samples *t*-tests were performed to directly compare how U.S. students' perceptions differed from those of German students on each specific survey item, allowing researchers to see differences in perception levels between the two groups both before and after the virtual event.

Qualitative Data Analysis. Qualitative data, collected via interviews and open-ended post-survey questions, were analyzed to provide context for the quantitative findings (Research Questions 1 and 2) and to specifically address lessons learned to guide future virtual IRC opportunities (Research Question 3). The researchers transcribed the interviews and uploaded the transcripts into NVivo qualitative data analysis software.

The researchers utilized a deductive approach guided by an *a priori* set of parent codes that related to each of the research questions (i.e., cultural competence, research knowledge, and recommendations). After the qualitative data were coded using these initial parent codes, the excerpts were reread and further coded inductively using child codes based on emerging sub-themes, such as enhanced presentational skills. Once the data were coded, the next steps focused on structuring the qualitative findings to answer each research question and compare the experiences of the U.S. and German participants. All coded excerpts for each individual participant were first grouped by the three parent codes—Cultural Competence (Research Question 1), Research Knowledge (Research Question 2), and Recommendations (Research Question 3) to synthesize the information generated for each question and ensure that all interview and open-ended survey data relevant to a specific question were analyzed collectively.

Within each parent code, the individual participant data were then combined and analyzed as two distinct groups: the U.S. student group and the German student group. For Research Question 1 (Intercultural Competence) and Research Question 2 (Perceived Research Skills), the constant

comparative method (Corbin & Strauss, 2015) was systematically applied to identify patterns of similarity and difference both across all participants and specifically between the U.S. and German groups, allowing for a direct cross-country comparison of qualitative themes. For example, concerning Research Skills (Research Question 2), the data showed that both groups shared the emerging sub-theme of enhanced presentational skills, but the benefit of refining and shaping ideas was particularly evident among German students. This grouped and compared qualitative data was used to provide rich context for the quantitative survey findings for Research Question 1 and Research Question 2 and to independently address Research Question 3 (Lessons Learned) by categorizing recommendations into specific sub-themes (e.g., strategies to enhance interaction) based on participant consensus, regardless of country affiliation. The comparison of results across U.S. and German students served to enhance the credibility of the findings (Merriam, 2009).

To finalize the analysis, the quantitative survey results and the qualitative interview findings were merged during the interpretation phase, consistent with the convergent mixed methods design employed in the study. This process allowed for a comprehensive understanding of the research problem by having the two data types speak to each other. For Research Questions 1 and 2, the qualitative data either supported the numerical findings or complemented them by providing rich context and explanation for the observed changes. Research Question 3 (lessons learned), was primarily answered through the detailed sub-themes categorized from the qualitative data.

Results

The study investigated the influence of participation in the research symposium on participants' perceived intercultural competence (Research Question 1) and research skills (Research Question 2), while also seeking participant feedback to guide and inform future virtual research symposia (Research Question 3). Both quantitative and qualitative findings are reported below.

Influence on Intercultural Competence (Research Question 1)

Participation in the virtual symposium resulted in no statistically significant change in perceived intercultural competence for the U.S. or German student groups across all three measured dimensions (Learning about Different Cultures, Knowing Ourselves as Cultural, and Communicating Across Cultural Differences). Furthermore, quantitative analysis suggested that this limited change was the same for both the U.S. and German participants (no interaction effect). Table 3 presents the means and standard deviations of the participants' intercultural competence before and after the symposium.

Table 3

Intercultural Competence

	USA		Germany	
	Pre	**Post**	**Pre**	**Post**
Learning about Different Cultures	2.94 (0.26)	2.82 (0.41)	2.56 (0.34)	2.58 (0.45)
Knowing Ourselves as Cultural	3.36 (0.42)	3.33 (0.39)	3.15 (0.40)	3.15 (0.54)
Communicating Across Cultural Differences	2.87 (0.37)	2.98 (0.30)	2.80 (0.34)	2.88 (0.26)
Research-Related Skills	3.56 (0.33)	3.65 (0.34)	3.15 (0.26)	3.10 (0.40)

Note. Numbers in parentheses are standard deviations.

The lack of influence was demonstrated quantitatively by the non-significant main effect of time across all dimensions (e.g., Learning about Different Cultures, $F(1, 17) = 0.36$, $p = .56$). Students in neither country reported significant gains in perceived intercultural competence after the short symposium. The Mixed Design ANOVA also showed that the change in participants' perceptions was similar for both U.S. and German students, as indicated by non-significant interaction effects between location and time for all measured outcomes (e.g., Communicating Across Cultural Differences, $F(1, 17) = 0.04$, $p = .85$).

Despite the overall stability of scores, some item-level differences were observed across the groups. German students reported significantly stronger agreement than U.S. students with the statement, "Talking about common cultural characteristics is different from stereotyping," both before and after the symposium. Conversely, post-symposium, U.S. students agreed more emphatically than the German students on three items, including one suggesting that the best way to know other cultural groups is through international travel.

The qualitative data supported the quantitative findings, underscoring that the limited influence on intercultural competence for both countries was primarily due to a lack of substantial, meaningful interaction between the two groups. Due to this lack of in-depth exchange, cultural comments often focused on superficial differences. For instance, U.S. participant Tanisha noted a difference in presentation format: "The way they present their posters was different than us. So, it was cool to see that." Qualitative data also suggested cross-country differences in willingness to engage: U.S. participant Tina noted that most of the people commenting on her poster seemed to share her identity. Supporting this observation, German participant Johanna suggested that Germans might be less accustomed to the peer feedback culture seen among the Americans, remarking, "I think we don't really have such a culture to do this in Germany."

Overall, the virtual symposium had a limited influence on the participants' perceived intercultural competence, with no statistically significant changes observed for either U.S. or German students across the three MyCAP dimensions (Learning about Different Cultures, Knowing Ourselves as Cultural, and Communicating Across Cultural Differences) and the lack of effect was similar for both groups. Qualitative data reinforced this quantitative finding, suggesting that the development of meaningful cultural insights was impeded primarily by a lack of substantial, in-depth interaction between the American and German participants.

Influence on Research-Related Skills (Research Question 2)

Both U.S. and German participants reported a statistically significant and similar gain in one specific research skill: their familiarity with the characteristics of an effective research poster presentation. Furthermore, qualitative data from both countries confirmed that the symposium enhanced presentational skills and helped refine research ideas. However, the quantitative results indicated that U.S. students reported significantly higher overall perceived research-related skills than their German counterparts.

As illustrated in Table 4, paired samples t-tests indicated that when all participants were aggregated, they reported a statistically significant gain in familiarity with the characteristics of an effective research poster presentation ($t(18) = 2.19$, $p = .02$, Cohen's $d = .50$). Although there was a statistically significant main effect of location, meaning U.S. participants reported significantly higher Research-Related Skills overall ($F(1, 17) = 11.65$, $p = .003$), the influence of the symposium on overall skills was similar for both countries (non-significant time and location interaction effect, $F(1, 17) = 1.21$, $p = .29$).

Table 4

Item Level Differences between the German and U.S. Participants

Items (Before Symposium)	**t**	***p***	**d**
I have a strong understanding of the components of a research project (e.g., literature review, methodology, etc.).	2.43	.021	0.91
I am familiar with the characteristics of an effective research poster presentation.	2.70	.011	1.01
I feel confident answering questions asked about my research.	2.63	.014	0.99
I feel confident reading, commenting upon, and asking questions about the research of other.	2.35	.026	0.88
Items (After Symposium)	**t**	***p***	**d**
I have a strong understanding of the components of a research project (e.g., literature review, methodology, etc.).	2.17	.043	0.94
I am familiar with the characteristics of an effective research poster presentation.	2.87	.009	1.25
I feel confident reading, commenting upon, and asking questions about the research of others.	2.09	.049	0.91

The qualitative data highlighted how participation contributed to perceived research skills in two key areas for students from both countries: enhanced presentational skills and the shaping and refinement of research ideas. The opportunity to pre-record the presentations was cited as beneficial by both groups. U.S. participant Tanisha noted that the time limit "kind of forced me to be very clear and concise" and German participant Johanna reflected, "I actually went back and watched my recording, looked at my body language... So, I was able to pay attention to some of those things." This process notably boosted confidence across groups, as U.S. participant Bruce shared that after doing many "takes," he felt, "I got this" and German participant Anabel noted, "I now have an idea of what it's like to present at a conference. It's not super foreign anymore."

Regarding refining ideas, this benefit was particularly evident among the German students due to their less structured doctoral programs. German participant Anabel stated the symposium "helped me to get more of a clear idea of where I want to go." For U.S. students, the documented feedback was valued; Tanisha appreciated that she could "read it, you can copy and paste it, and you can save it."

Overall, participation in the symposium positively influenced perceived research skills, particularly for both U.S. and German participants who reported a statistically significant and similar gain in their familiarity with the characteristics of an effective research poster presentation. The overall perceived research-related skills of U.S. students remained significantly higher than those of German students, potentially due to the differences in their doctoral program structures. Qualitative findings affirmed that the virtual format enhanced presentational skills and helped participants shape and refine their research ideas by receiving documented feedback.

Lessons Learned (Research Question 3)

Qualitative data from both the U.S. and German participants identified three key lessons and corresponding recommendations for enhancing future virtual international research collaboration opportunities: continuing beneficial support strategies, implementing synchronous interaction to foster deeper connections, and employing strategic promotion to increase participation. These

findings were derived primarily from the qualitative data, which included open-ended survey items and interviews.

The qualitative analysis revealed that students from both countries identified the support strategies and resources provided as highly beneficial, contributing to a smooth virtual presentation process. Specifically, both American and German participants praised the workshop on effective poster creation, detailed instructions provided in the Google folder, and the ready-to-use poster templates. U.S. participant Tanisha noted the instructions made the process "smooth from recording, developing the poster, and also uploading" materials, while German participant Anabel found the template "really helpful" with "step by step [instructions] that were very detailed."

Regarding strategies to enhance interaction and research connections, participants from both countries expressed a need for more structured, synchronous opportunities to facilitate deeper engagement, a finding that arose due to the lack of meaningful interaction observed in Research Question 1. A German participant (Anabel) noted it was "quite hard to engage in actual discourse" and wished for questions, suggesting the introduction of live sessions. German participant Petrisse proposed using "breakout rooms to talk more or less in person and to get a little bit deeper" into projects, while U.S. participant Bruce recommended "virtual networking events for presenters." To overcome potential cultural differences (such as the German students' suggested unfamiliarity with peer feedback culture), German participant Johanna suggested greater "advertisement for this padlet way of giving feedback." Both U.S. and German participants also recommended a live "meet and greet" session prior to the symposium to promote greater interaction.

Finally, participants offered strategies to increase participation in future symposia, primarily focusing on strategic scheduling and enhanced promotion. Several participants mentioned the original event date (April) was hectic and suggested a more strategically chosen date. Participants from both countries emphasized the need for earlier and enhanced advertisement. U.S. participant Bruce suggested promoting the event as a "great opportunity to network and get some feedback," while German participants Johanna and Petrisse recommended emphasizing the value of building one's resumé and the opportunity to "participate in an international context." Two American participants also suggested including the possibility of future face-to-face symposia to further encourage participation.

Qualitative data revealed three critical lessons and corresponding recommendations for future virtual International Research Collaboration opportunities, drawn from both U.S. and German participants. First, the support strategies and resources (like the workshop, detailed instructions, and poster templates) were deemed highly beneficial for a smooth virtual presentation process. Second, participants strongly recommended implementing structured, synchronous interaction opportunities (such as live breakout rooms and a "meet and greet") to foster deeper engagement and overcome the documented lack of meaningful cross-cultural exchange. Third, participants suggested strategic scheduling and enhanced promotion of the event's benefits (e.g., CV building, international networking) to increase participation.

In summary, the virtual research symposium had a differential impact on the participants' perceived outcomes. Consistent across both U.S. and German student groups, the symposium showed a limited effect on perceived intercultural competence, with quantitative analysis indicating no significant change in the three measured dimensions and qualitative findings attributing this to a lack of meaningful interaction between the two international groups. Conversely, the symposium successfully influenced perceived research skills, specifically leading to a statistically significant increase in the participants' reported familiarity with effective research poster presentation characteristics. Qualitative data corroborated this by detailing how the virtual format enhanced presentational skills and helped refine research ideas for students from both countries. Finally, participants provided actionable recommendations emphasizing the

continuation of beneficial support resources, the need for increased synchronous interaction to foster deeper engagement, and strategies for strategic promotion and scheduling to enhance future virtual International Research Collaboration opportunities.

Discussion

Before examining the findings in detail, the potential limitations of this study must be acknowledged, as these factors may have influenced both the study process and the reported results. These limitations will guide the subsequent discussion of future research directions, built upon the specific analysis of each research question.

Limitations and Their Impact

First, the study utilized a small, convenience sample of only 18 U.S. and 13 German participants in the symposium, with only ten U.S. and eight German students completing both the pre- and post-surveys. This small sample size, particularly the N=23 for the paired quantitative analysis, raised concerns regarding low statistical power, model instability (especially when using Mixed ANOVA), and the generalizability of the findings to broader populations of doctoral students from various institutions and countries. Therefore, the quantitative results regarding the lack of statistically significant change in intercultural competence and the reported gain in poster presentation familiarity should be interpreted cautiously.

Second, the study reported on perceived research skills and intercultural competence using self-report surveys. Because the data relies on self-perception, it may not reflect tangible behavioral changes or actual skills acquisition. For example, students may feel more confident in their skills without achieving objective mastery.

Third, differences between the two doctoral programs may impact the results, particularly the reported comparison of research skills between U.S. and German participants. The U.S. programs are highly structured with required coursework focusing on research methodologies, which contrasts with the German apprenticeship model where candidates have greater autonomy in designing and carrying out their own research. This structural difference may explain why U.S. students reported significantly higher overall perceived research-related skills than their German counterparts.

Lastly, the methodological decision to attempt to measure the influence on perceived intercultural competence (Research Question 1) in a primarily asynchronous virtual activity must be considered a limitation. The virtual symposium did not mandate substantive, meaningful interaction between participants. This absence of required, in-depth cultural exchange likely contributed to the limited and non-significant change observed in intercultural competence scores for both groups, underscoring the challenge of measuring intercultural growth when the intervention lacked the intense, synchronous exchange often necessary for such development.

Influence on Intercultural Competence (Research Question 1)

The first research question investigated the influence of the virtual symposium on participants' perceived intercultural competence and whether this influence differed between the two countries. The quantitative results indicated that participation had a limited effect on perceived intercultural competence for both U.S. and German participants, with no statistically significant changes observed in any of the three measured MyCAP dimensions. The qualitative data supported this finding, providing a clear rationale: meaningful cultural insights were impeded by a lack of substantial, in-depth interaction between the U.S. and German participants.

This outcome conflicts with the foundational principles of Lave and Wenger's Communities of Practice (CoP), which served as the conceptual framework, by demonstrating that simply offering an opportunity for interaction is insufficient; meaningful engagement must occur to enhance competence. While the symposium offered a space for those sharing a common interest to interact, the asynchronous nature prevented the development of deep engagement, which is essential for fostering cultural skills. The result modifies the understanding derived from literature on online intercultural exchanges, which suggests virtual communication can develop intercultural competence. This study indicates that asynchronous online intercultural exchanges, without structured, synchronous, and required exchange, may fail to provide the active, applied learning opportunities that other successful strategies, such as course integration coupled with opportunities for application, have shown to be effective for intercultural growth.

Influence on Research-Related Skills (Research Question 2)

The second research question explored the extent to which the virtual symposium influenced participants' perceived research skills and how the influence differed by country. Quantitative results suggested that participation had a similar positive influence on participants from both countries, demonstrated by a statistically significant increase in both U.S. and German participants' familiarity with the characteristics of an effective research poster presentation. The qualitative data, derived from interviews and surveys, complemented this finding by detailing how the virtual format enhanced presentational skills and helped participants shape and refine their research ideas via documented feedback from peers and faculty.

These findings resonate strongly with existing literature emphasizing the value of alternative spaces, such as informal learning communities, seminars, or research cafés, in developing graduate research skills outside of formal coursework. The symposium served as such an alternative space, promoting knowledge exchange and reflection among peers with diverse research backgrounds. Collectively, the interview and survey data support previous research suggesting the value of alternative spaces in the development of research skills (Ahmad et al., 2023; Leijon et al., 2022; Meschitti, 2018). The results refine the empirical understanding by showing that specific features of the virtual environment, such as the ability to pre-record and revise presentations, played a key role in building participants' confidence and skills. Furthermore, the symposium provided a highly accessible venue for part-time and racially minoritized doctoral students, aligning with research that calls for informal opportunities to address the isolation and systemic barriers these groups often face.

Lessons Learned and Recommendations (Research Question 3)

The final research question sought to identify lessons learned to inform future virtual IRC opportunities. The qualitative data collected via open-ended survey items and interviews highlighted that participants found the support strategies and resources provided highly beneficial (e.g., workshops, detailed instructions, and poster templates). Most critically, participants offered recommendations that address the lack of interaction identified in Research Question 1, strongly urging the implementation of structured, synchronous opportunities, such as live breakout rooms to foster deeper engagement and overcome the documented lack of meaningful cross-cultural exchange.

These findings directly contribute to the existing body of knowledge by providing practical, participant-driven strategies for strengthening virtual IRC design. Furthermore, the study's results resonate with literature on equity in doctoral programs by illustrating the potential of the accessible virtual format to benefit part-time and racially minoritized doctoral students (Gonzales et al., 2024;

O'Regan, 2020; Turner, 2023). By recommending increased synchronous interaction, the results confirm that for a virtual community of practice to function and enhance cultural engagement, the event design must mandate and facilitate the meaningful discourse that was missing in the asynchronous pilot implementation. These recommendations help researchers and administrators design future interventions that effectively realize the intercultural competence benefits highlighted in the existing literature.

Directions for Future Research

Building upon the analysis of the results for each research question and acknowledging the study's inherent limitations, several directions are suggested to guide future investigations into virtual International Research Collaboration (IRC) opportunities.

First, the primary limitation concerning the small, convenience sample and resultant low statistical power necessitates that further research utilize larger, more diverse samples from various institutions and countries to enhance the generalizability of findings regarding virtual IRC opportunities.

Second, the findings of limited influence on intercultural competence (Research Question 1) and the participant recommendations for structured interaction (Research Question 3) suggest a clear pathway for methodological research. Future studies should actively investigate the outcomes of virtual research symposia that implement the recommendations offered in this study. Specifically, researchers should test whether virtual IRC opportunities that include live breakout sessions using Zoom or other synchronous formats result in more meaningful interaction among participants, potentially leading to enhanced intercultural competence and stronger international partnerships.

Third, based on the statistical difference found in initial perceived research skills (Research Question 2) between U.S. and German participants, future research should continue to explore how differences among the two groups of student participants impact skill development. The structural contrast between the highly structured U.S. doctoral program and the independent German apprenticeship model requires deeper investigation to determine how program design moderates the gains received from participation in informal alternative research spaces like this symposium.

Finally, given that this study relied on perceived research skills and intercultural competence, future research should look at more tangible outcomes of IRC opportunities. For instance, researchers could investigate the longitudinal influence participation in IRC opportunities might have on quantifiable institutional outcomes, such as student time-to-degree completion or retention rates.

Conclusions and Implications

The study found that participation in the virtual research symposium had a limited effect on participants' perceived development of intercultural competence (Research Question 1), evidenced by the lack of statistically significant changes and corroborated by qualitative data indicating that the lack of substantial, in-depth interaction impeded cultural insights. Conversely, the symposium positively influenced perceived research skills (Research Question 2), with participants reporting a statistically significant increase in familiarity with the characteristics of an effective research poster presentation, and qualitative findings confirming enhanced presentational skills and refined research ideas. Finally, the study confirmed that the virtual format offers an accessible venue for diverse students and provided the critical lesson (Research Question 3) that future IRCs require structured, synchronous opportunities to foster the necessary deep engagement. While the

symposium demonstrated potential for developing research skills, its findings underscore the critical need for more structured, live, and guided interactive components to enhance cross-cultural engagement in future virtual IRCs.

Based on these conclusions, specific implications are offered for academic stakeholders in the field. For faculty and staff, the primary lesson is the need to move beyond asynchronous design by incorporating mandatory, structured synchronous activities, such as live breakout rooms and virtual "meet and greet" sessions, to achieve the cross-cultural exchange necessary for developing intercultural competence. Faculty should also continue to provide comprehensive support resources (e.g., workshops and templates) and leverage the virtual format's capabilities, such as pre-recorded presentation opportunities, which effectively build presenter confidence and presentation quality. For administrators and institutions, the findings stress the necessity of supporting virtual formats that provide convenient and accessible research engagement for part-time and racially minoritized doctoral students, thereby addressing their reported isolation and systemic barriers. Institutions must strategically promote these informal, "alternative" learning spaces by clearly articulating tangible benefits, such as enhancing CVs and building international networks, to encourage greater student participation.

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Appendix

Survey

DIMENSION 2: ***Learning about Different Cultures***

Talking about common cultural characteristics is different from stereotyping.	*Disagree Somewhat Disagree Somewhat Agree Agree*
Culture is more about traditions, celebrations, and history than about core values.	*Disagree Somewhat Disagree Somewhat Agree Agree*
The best way to come to know other cultural groups is through international travel.	*Disagree Somewhat Disagree Somewhat Agree Agree*
I find it hard to see both similarities and differences when I consider various cultures.	*Disagree Somewhat Disagree Somewhat Agree Agree*
I am not very familiar with a culture group other than my own.	*Disagree Somewhat Disagree Somewhat Agree Agree*
Curriculum should be culturally neutral so it appeals to all children.	*Disagree Somewhat Disagree Somewhat Agree Agree*

DIMENSION 3: ***Knowing Ourselves as Cultural***

I consider myself as being part of a particular culture.	*Disagree Somewhat Disagree Somewhat Agree Agree*
My cultural identity does not really influence how I perceive the world and how I behave.	*Disagree Somewhat Disagree Somewhat Agree Agree*
I view others as more cultural than myself.	*Disagree Somewhat Disagree Somewhat Agree Agree*
I hardly ever talk about cultural beliefs, values, and traditions.	*Disagree Somewhat Disagree Somewhat Agree Agree*
Deep down, most people have similar ideas about what is good and right.	*Disagree Somewhat Disagree Somewhat Agree Agree*
Helping students recognize their own cultural identity is essential for good teaching.	*Disagree Somewhat Disagree Somewhat Agree Agree*

DIMENSION 4: ***Communicating across Cultural Differences***

I am comfortable talking with people from other cultural groups.	*Disagree Somewhat Disagree Somewhat Agree Agree*
The best way to avoid cultural misunderstandings is to treat other people as you would want to be treated.	*Disagree Somewhat Disagree Somewhat Agree Agree*
To be an effective teacher, it is essential to learn about the cultural background of my students.	*Disagree Somewhat Disagree Somewhat Agree Agree*
My cultural identity does not really impact how I communicate with most other people.	*Disagree Somewhat Disagree Somewhat Agree Agree*
Only certain subjects that are taught in school require teachers to think about issues of culture.	*Disagree Somewhat Disagree Somewhat Agree Agree*

Research-related Skills and Knowledge

I have a strong understanding of the components of a research project (e.g., literature review, methodology, etc.)	*Disagree Somewhat Disagree Somewhat Agree Agree*
I am familiar with the characteristics of an effective research poster presentation.	*Disagree Somewhat Disagree Somewhat Agree Agree*
I feel confident presenting my research to others.	*Disagree Somewhat Disagree Somewhat Agree Agree*
I feel confident answering questions asked about my research.	*Disagree Somewhat Disagree Somewhat Agree Agree*
I feel confident reading, commenting upon, and asking questions about the research of others.	*Disagree Somewhat Disagree Somewhat Agree Agree*