Research Article

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Enhancing Intercultural Learning in Study Abroad Through an Online Curriculum in Group-Mentored Intervention

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Abstract

Scholars suggest that study abroad programs must intentionally design and implement intercultural intervention for students' growth. This study used a mixed-method approach to examine the effectiveness of an online curriculum designed to facilitate the intercultural competence development of semester abroad students. Three theories informed the curricular design and study: the Intercultural Development Continuum, the Intercultural Praxis Model, and the Intercultural Knowledge and Competence VALUE rubric. Using the Intercultural Development Inventory (IDI) distributed before and after the study abroad experience, the study analyzed data sets for a treatment group with 110 students and a control group with 88 students. The results demonstrated that students in the treatment group achieved a statistically significant higher level of meaningful gains in their IDI scores from pre- to post-test compared to the control group. In addition, students described their growth in specific competencies. These findings contribute to study abroad literature by assessing a theoretically-grounded online curriculum rooted in intercultural theories so as to suggest best practices in group mentoring, stage-based pedagogy, and critical reflection for intercultural competence development during a study abroad program.

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Abstract in French

Selon les spécialistes, si l'on veut favoriser le développement interculturel des étudiants, il est essentiel que les programmes permettant d'étudier à l'étranger dessinent et mettent en œuvre une logique d'intervention explicite. Dans cette étude fondée sur les méthodes de recherches mixtes, on examinera l'efficacité d'un cours en ligne qui a été conçu pour faciliter le développement de la compétence interculturelle des étudiants qui suivent un semestre d'études à l'étranger. La conception à la fois du cours et de l'étude est basée sur trois théories : le Continuum du développement interculturel, le Modèle de praxis interculturel, et la Rubrique des connaissances et compétences interculturelles. L'étude comprend une analyse de séries de données provenant du questionnaire Intercultural Development Inventory (IDI), complété avant et après l'expérience à l'étranger par un groupe de traitement de 110 étudiants et par un groupe témoin de 88 étudiants. Les scores sur le questionnaire IDI avant-après du groupe de traitement font preuve d'un gain important sur le plan statistique par rapport aux scores du groupe témoin. De plus, ces premiers arrivent à décrire leur développement dans certains domaines. Il en résulte que cette analyse d'un cours en ligne basé sur la théorie a des implications importantes pour le développement interculturel pendant un programme d'études à l'étranger, notamment en ce qui concerne les pratiques exemplaires de mentorat en groupe, de pédagogie en fonction d'étape, et de réflexion critique.

Abstract in German

Wissenschaftler weisen darauf hin, dass Auslandsstudienprogramme vorsätzliche interkulturelle Interventionen für die Entwicklung der Studierenden entwerfen und umsetzen müssen. In dieser Studie wurde gemischte Forschungsmethoden verwendet, um die Wirksamkeit eines Online-Curriculums zu untersuchen, das die Entwicklung interkultureller Kompetenzen von Auslandssemesterstudierenden erleichtern soll. Drei Theorien liegten in die Gestaltung und das Studium des Lehrplans zugrunde: das interkulturelle Entwicklungskontinuum, »the Intercultural Praxis Model« und »the Intercultural Knowledge and Competence VALUE Rubric.« Mithilfe des interkulturellen Entwicklungsindikator (IDI), das vor und nach dem Auslandsstudium verteilt wurde, wurden Daten für eine Behandlungsgruppe mit 110 Studierenden und eine Kontrollgruppe mit 88 Studierenden analysiert. Die Ergebnisse zeigten, dass die Studierenden in der Behandlungsgruppe im Vergleich zur Kontrollgruppe ein statistisch signifikant höheres Maß an aussagekräftigen Zuwächsen bei ihren IDI-Werten von Pre- zu Posttest erzielten. Darüber hinaus beschrieben die Studierenden ihre Entwicklung in bestimmten Bereichen. Diese Ergebnisse tragen zur Literatur des Auslandsstudiums bei, indem sie einen theoretisch fundierten Online-Curriculum bewerten, der auf bewährten Methoden des

Gruppen-Mentorings, der stufenbasierten Pädagogik und der kritischen Reflexion zur Entwicklung interkultureller Kompetenz während eines Auslandsstudienprogramms basiert und diese vorschlägt.

Abstract in Chinese

为了促进学生的个人成长，学者们建议留学项目必须有意识地设计和实施跨文化干预。本研究采用混合方法以检验一门在线课程的有效性。该课程旨在促进留学生在学期内的跨文化能力发展。三个理论构成了此课程设计和研究的基础：跨文化发展连续体（IDC），跨文化实践模型（Intercultural Praxis Model），以及跨文化知识与能力评估表（IKC VALUE Rubric）。利用留学前后分发的跨文化发展量表（IDI），本文作者们对 110 名干预组学生和 88 名对照组学生的数据集进行了分析。结果表明，与对照组相比，干预组学生在 IDI 分数从前测到后测的有意义增长方面取得了统计学上显著性的更高进步。此外，学生们描述了他们在特定领域的成长。这些发现通过评估一个基于理论的在线课程为留学文献做出了贡献。该课程根植于并提出了在学生参加留学项目期间开展跨文化能力发展的最佳实践，如团体辅导、阶段性教学法和批判性反思。

Keywords:

1. Introduction

Intercultural competence has been defined as the ability to interact effectively and appropriately with people from culturally diverse backgrounds (Hammer, 2009). It contains multiple key components, which include a combination of cognitive elements (e.g., knowledge of cultural worldview frameworks, cultural self-awareness), affective elements (e.g., respect, openness, curiosity), and behavioral elements (e.g., empathy, verbal and nonverbal communication skills, skills of interpreting and relating, discovery) (AAC&U, 2009; Byram, 1997; Deardorff, 2006; Fantini, 2009). Prior research has considered intercultural competence development as a lifelong learning process and viewed it as developmental along a continuum (Bennett, 2004; Hammer 2015). It is a teachable and learnable competence that can be acquired and improved through education, practice, and reflection (Jackson, 2018).

With increased contact across cultural boundaries in the global context, the need for education to improve intercultural competence is more critical than ever before. In recent decades, study abroad programs have been the primary vehicles for delivering intercultural competence interventions in higher education (Krishnan et al., 2017; Krishnan et al., 2021; Vande Berg et al., 2012). Theoretical models, such as those used in designing the curriculum

examined in this study, aid in framing and defining what is considered intercultural competence. According to Darla Deardorff (2011), intercultural competence development is an ongoing process in which individuals continuously strive to enhance attitudes, knowledge, and skills in order to work effectively with diverse people. This understanding borrows directly from the framework she helped to create, the AAC&U Intercultural Knowledge and Competence VALUE Rubric, which is also a central theoretical framework used in this study. Increasingly, study abroad programs are designed to reinforce professional and personal development alongside academic skills (e.g., discipline-themed programs and language study programs), with a central goal being the development of intercultural competence (Tarchi & Surian, 2022).

However, setting this goal and simply sending students abroad to study in a foreign context is not necessarily sufficient for intercultural competence development (Giovanangeli & Allatson, 2022; Lantz-Deaton, 2017; Tarchi & Surian, 2022). Numerous studies have found that study abroad students demonstrate higher gains in intercultural competence when engaged in intentionally structured activities, e.g., designed, planned programmatic and curricular approaches (Vande Berg et al., 2012; Krishnan et al., 2017; Pedersen, 2010). Paige et al. (2004) suggest that scholars should additionally identify which structures and components, such as mentoring, coaching, culture-general knowledge, and facilitated reflection, promote intercultural competence development in mobility experiences and how to foster intercultural learning through curriculum design (Pedersen, 2009). Further studies are needed to evaluate how pedagogy utilized in study abroad is associated with student outcomes such as intercultural competence development (Pedersen, 2010; Pekerti et al., 2021; Rust, 2015).

In contrast to many existing programs that provide intercultural interventions only prior to and upon return from long-term study abroad programs (Bittinger et al., 2022), the curriculum examined in this study provides intercultural interventions and mentorship during the study abroad experience. Subjects for this study were selected from semester and year-long programs. This study aims to assess the impact of a theoretically-grounded curriculum[1] on

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[1] The curriculum is expected to become available for licensing in 2024. Anyone interested in learning more is invited to contact cilmar@purdue.edu.

intercultural competence development by comparing treatment groups that use the curriculum to a control group that does not. Furthermore, we hope to better understand which areas of competence the students feel they have improved through this curriculum and to what extent. Through this study we aim to contribute to a more complete picture of intercultural competence development among long-term study abroad students who receive an explicitly-designed intervention. Likewise, through description and discussion of our curriculum design we hope to offer a model for similar interventions.

2. Literature Review

2.1. Intentionally Designed and Facilitated Intervention in Study Abroad

Various studies have suggested that intentionally designed and skillfully facilitated interventions are critical to help students develop intercultural competence while studying abroad (Antonakopoulou, 2013; Bittinger et al., 2022; Jones et al., 2019; Krishnan et al., 2017). Recommended practices of intercultural interventions include activities and assignments with well-defined and explicit learning outcomes, cross-cultural interactions with local people, and the application of practical knowledge and skills in real situations (Bittinger et al., 2022; Nguyen, 2017). For example, a comparative study by Antonakopoulou (2013) indicated that American students studying abroad in Greece achieved beneficial sociocultural adaptation while utilizing intentional, experiential pedagogies such as service-learning activities, critical reflections, and pre-departure training. Additionally, Lutterman-Aguilar (2006) points to the importance of having interculturally trained mentors or instructors facilitating activities for students during study abroad as a best practice. This pedagogy of offering support and multiple perspectives has been emphasized in many study abroad programs (Paige & Vande Berg, 2012; Pedersen, 2009). A growing body of research has demonstrated that study abroad programs can create effective culturally-immersive environments through intentional and facilitated program structure and pedagogy (Jackson, 2018; Jones et al., 2019).

2.2. Critical Reflection During Study Abroad

Bennett (2004) points out that the progression of intercultural sensitivity, referring to the ability to experience and respond effectively to cultural differences, can happen through education, experience, and self-reflection and

that it is not necessarily limited to mobility experiences. Prior studies have argued that critical reflection is a key feature of the pedagogy of study abroad programs for students to learn from experiences (Kolb, 1984; Pedersen, 2009). Critical or intentional reflection refers to purposeful activities in which students critically analyze an experience, question prior assumptions, and articulate how to apply learning moving forward (Cunningham, 2010). Recognizing its importance, Savicki and Price (2017) highlighted the developmental nature of reflective skills over time, emphasizing the need for learning and practice in cultivating effective reflection. Therefore, study abroad programs should actively support students' reflective practice through intentional planning and alignment with program objectives to enhance the overall learning experiences for students (Covert, 2014; Perry et al., 2012; Savicki & Price, 2017). For example, daily reflective journaling has been widely utilized as an effective tool for reflection during study abroad programs (Northfell & Edgar, 2014; Paige & Vande Berg, 2012; Roberts et al., 2019). Lamm et al. (2011) also suggest that providing students with multiple reflection methods promotes critical thinking. Researchers have found that well-designed study abroad programs that integrate critical reflection practices help to improve intercultural competence (Stebleton et al., 2013) and increase awareness of self-identities and lived experiences (Quan & Menard, 2021). Given the centrality of critical reflection and intentionally designed and facilitated learning activities, these components strongly informed the pedagogy behind the curriculum examined in this paper.

3. Pedagogical Framework of the Curriculum

We selected three theoretical frameworks to design and define learning outcomes for the curriculum studied here, namely, the Intercultural Development Continuum (IDC), the AAC&U Intercultural Knowledge and Competence VALUE Rubric (IKC rubric), and the Intercultural Praxis Model (IC Praxis Model). These frameworks were integrated into the instruction and implementation (i.e., mentoring and facilitation) of the course that used the curriculum. The IDC provides a perspective of intercultural competence development as a whole, while the domains defined in the IKC rubric delineate specific knowledge areas, skills, and attitudes that contribute to that broad perspective. Finally, the IC Praxis Model structures practice, experimentation, and testing processes related to intercultural interactions into a cyclical framework to indicate multiple points of entry for continued, scaffolded development.

3.1. Concepts of the Three Theoretical Frameworks

First, the **IDC** describes orientations toward cultural difference and similarity as measured by the Intercultural Development Inventory (IDI). These orientations range from the more monocultural mindsets of Denial and Polarization through the transitional orientation of Minimization to the intercultural mindsets of Acceptance and Adaptation (Hammer, 2012; see Figure 1 and Appendix A). While the IDI serves as an assessment tool for identifying the overall development of intercultural mindsets among students (i.e., evaluating program effectiveness), it also serves as an instructional tool, introducing students to foundations of intercultural competence development and to where they fit as a group on the IDC. This awareness of where the students fit collectively provides them with a starting point for planning out and working through their own individual development. Second, the **IKC Rubric** was developed to evaluate and discuss student learning in intercultural knowledge and competence, which is defined as "a set of cognitive, affective, and behavioral skills and characteristics" needed to interact with diverse people effectively and appropriately (Bennett, 2008, p95; see Appendix B). This rubric, which has been determined to have construct validity and reliability (Gray et al., 2019), identifies six key components of intercultural competence: Cultural Self-awareness, Knowledge of Cultural Worldview Frameworks, Empathy, Verbal and Nonverbal Communication, Curiosity, and Openness. It has been used for formative assessment and qualitative outcome assessment to directly measure student learning (Cartwright et al., 2021) and as a guide for aligning learning outcomes with intervention objectives (Guberman, 2020; Krishnan et al., 2022). Third, the **IC Praxis Model** is a practical tool for understanding intercultural difference and engagement (Finkelshteyn, 2020). Intercultural praxis comprises six components: Inquiry, Framing, Positioning, Dialogue, Reflection, and Action (see Appendix C). Each component may serve as a point of entry for engagement in any intercultural interaction and demonstrates specific mindsets and behaviors of individuals as they engage in intercultural praxis in a cyclical process. The IC Praxis Model was designed to provide a blueprint for intercultural competence development (Sorrells, 2013).
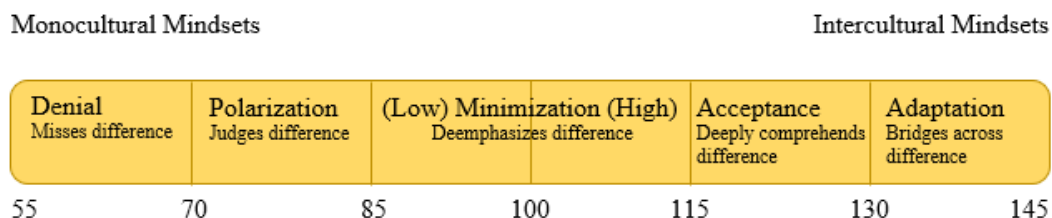
Monocultural Mindsets   Intercultural Mindsets

Denial	Polarization	(Low) Minimization (High)	Acceptance	Adaptation
Misses difference	Judges difference	Deemphasizes difference	Deeply comprehends difference	Bridges across difference

55   70   85   100   115   130   145

FIGURE (1): STAGES OF THE INTERCULTURAL DEVELOPMENT CONTINUUM WITH CORRESPONDING IDI SCORE RANGES (ADAPTED FROM HAMMER, 2009)

3.2. Integration and Application of the Pedagogical Framework

These three theories are integrated into the curriculum design, learning outcomes, intercultural activities, mentor training, and program operation for the course discussed here taken during study abroad (see Figure 2). Each theory fulfills a specific function in fostering intercultural growth. The IDC provides the overarching framework for intercultural competence development for the course. Introduced explicitly to students through the use of the IDI, it points them to a desired direction for growth as evidenced by the shift in scores from pre- to post- study abroad (a summative assessment) and helps curriculum designers take developmental questions into account in their choice of learning activities. The IDC also serves as a formative assessment tool to help students understand how they may be more oriented toward commonalities or differences, how their orientations may change as events and experiences continue to shape them, and how they can use awareness of factors that may affect their orientation to continue working toward growth (Acheson & Schneider-Bean, 2019). Beyond indicating general orientations toward commonalities and differences, the IDC does not speak to specific skills, knowledge, and attitudes that make up intercultural competence. This is where the IKC rubric comes in. It specifies six competencies that are used as learning objectives and guide the choice of assignments (activities, reflections, etc.) with the intent of facilitating growth along the IDC through growth in these individual components.

For both the IKC rubric and the IDC, the Development Model of Intercultural Sensitivity (DMIS) serves as foundation (Bennett, 1993). The DMIS is a framework that explains how people experience and engage cultural difference. It assumes that as individuals' understanding of cultural difference becomes more complex, their experience of culture becomes more sophisticated, and their sensitivity increases. The levels of the IKC rubric are grounded in the DMIS framework (Bennett, 1993), whereas the orientations of the IDC are

directly based upon the DMIS (Hammer, 2015). These connections to the DMIS support the argument that the IKC rubric and the IDC can be reasonably integrated (Wickenhauser, 2021). Given this integration, the IKC rubric was used as a means of analysis for qualitative data samples in our study.

Rather than a framework for analysis, the Intercultural Praxis Model provides an approach for students to process intercultural experiences and deepen their understanding of how intercultural competence plays out in terms of skills and behaviors. The Intercultural Praxis Model was adopted as an organizing principle of the study abroad curriculum: learning activities and reflections were designed to foster knowledge and skills associated with each component and provide opportunities to practice each (inquiry, reflection, frameshifting, etc.). It also served as a formative tool to describe the skills, knowledge and practices required for leveraging interactions across difference to "create a more socially just, equitable and peaceful world" (Sorrells, 2013) – a teleological goal that explicitly links individual intercultural competence to systems and institutions, thereby filling a gap in the frameworks provided by the IDC and IKC rubric. In this sense, the IC Praxis Model binds each of the three frameworks together, as shown in Figure (2) on the next page. The Figure also displays how key learning outcomes (developed from the IKC rubric) and activities of the curriculum examined in this study align with the six components of IC Praxis. The domains of the IKC rubric and the activities in the curriculum added specificity to the components of the Intercultural Praxis Model. For example, the component Inquiry from IC Praxis directly aligns with Curiosity from the IKC rubric, referring to a desire and willingness to explore how culture shapes norms and practices, ask complex questions, and learn about new things (Sorrells & Nakagawa, 2008). This alignment works as a learning tool that assists students in developing intercultural competence, moving from a more monocultural mindset (e.g., Denial, Polarization) to a more intercultural mindset (e.g., Acceptance, Adaptation) along the IDC. Regardless of where students' Developmental Orientation is on the IDC at the start of the course, the curriculum (as input) is designed to move them in one direction—toward Adaptation.
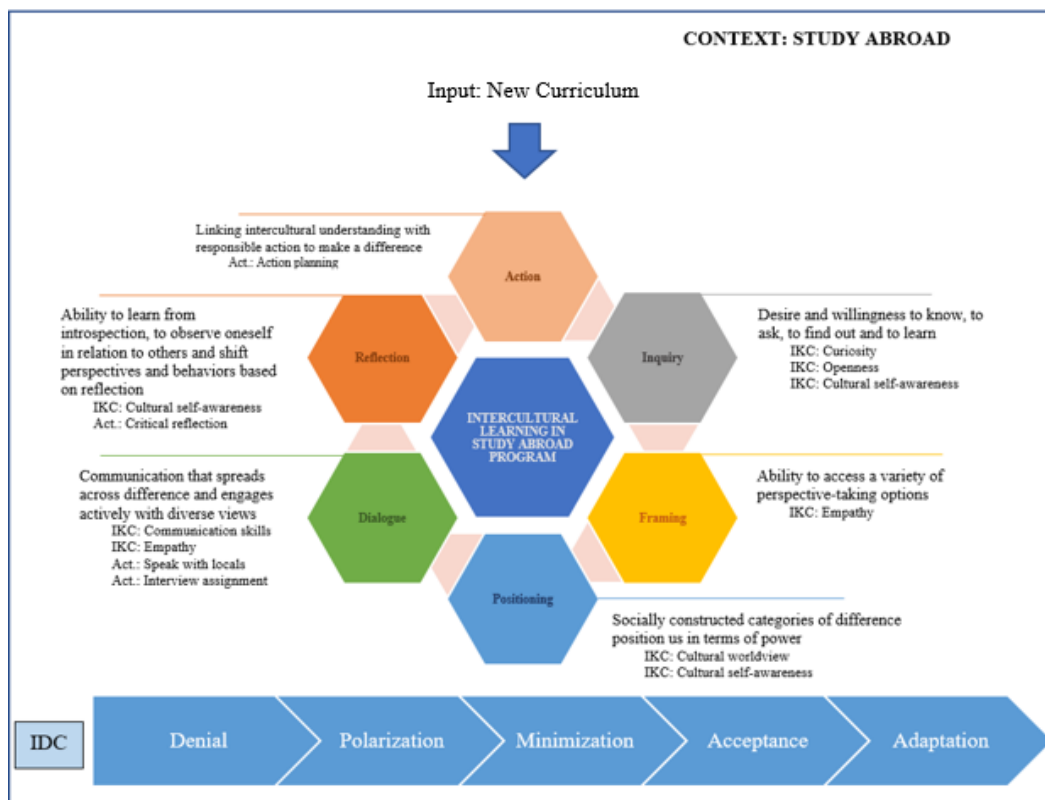
FIGURE (2): INTEGRATION OF THREE THEORIES

Note. IKC represents the AAC&U Intercultural Knowledge and Competence VALUE rubric; Act. represents activities or assignments; IDC represents the Intercultural Development Continuum

4. Method Context

4.1. Research Questions

This study aims to address the following research questions: 1) To what extent does the online curriculum impact the development of intercultural competence within the treatment group who study abroad compared to a control group that receives no intercultural intervention? 2) Which intercultural competencies do the subjects in the treatment group feel they have developed or not developed? 3) How do subjects within the treatment group feel these competencies have developed?

4.2. Context and Participants

This study's objective is to understand the effectiveness of an online curriculum in helping students develop intercultural competence. To achieve this objective, this study compares a treatment group of 110 undergraduate students from a large midwestern university who participated in a semester or

year-long study abroad program during 2022 (see Table for demographics). The study was reviewed and approved by the university Institutional Review Board (IRB). The specific students selected for the treatment group were chosen based on parameters set for the data. The treatment group participants are enrolled in the Semester Abroad in Intercultural Learning (SAIL) Scholarship program. This program incentivizes students to engage in intercultural competence development while studying abroad. The treatment group received a pre-departure orientation, a group debriefing of IDI results, individual mentoring during the study abroad experience via assignment feedback, and group mentoring through four synchronous class sessions. These participants were compared to a control group comprised of 88 undergraduate students representing all colleges at the university who likewise participated in a semester or year-long study abroad between 2017 to 2019 but did not receive any intercultural intervention, training, or debriefing before or during their time abroad. The data used in this study was collected as part of annual program evaluation for curriculum revision. The treatment intervention - the online curriculum - was facilitated by trained, mentor-instructors from the university's Center for Intercultural Learning, Mentorship, Assessment and Research (CILMAR), the College of Engineering, and the university's Office of Study Abroad. To avoid biases in the research, the first, second, fourth and fifth authors did not have interactions with participants and only engaged in data analysis and manuscript writing. The third and sixth authors were part of the design and development team that created the curriculum; both authors additionally served as mentor-instructors for the course, and the third author was the program course coordinator. These two authors only engaged in manuscript writing.

4.3. Description of Program

4.3.1. Overview

The Semester Abroad in Intercultural Learning (SAIL) Scholarship program focused on in this study assist students participating in approved study abroad programs in explicit intercultural learning during their time abroad. Eligibility for the program requires undergraduate status, acceptance to an approved semester or year-long study abroad program, and a minimum of one additional semester of study to follow the term of the study abroad program. Once a student has indicated interest in the program, the student then selects from a short list of courses to fulfill the scholarship requirement. This study

focuses exclusively on the course option provided through the university's global programs office. This course option is also the most frequently selected for the scholarship program.

4.3.2. Curriculum

The curriculum was created by a team comprised of intercultural professional and graduate staff within CILMAR and specially recruited instructional design experts and intercultural partners from across the university's campus. Structured around the theoretical frameworks of the IDC, the IKC rubric, and the IC Praxis Model, the curriculum is comprised of eight units of asynchronous instruction provided through the learning management system, D2L Brightspace. Following every two units, students meet as a cohort with their mentor in a 90-minute, synchronous class session hosted on Zoom. Rather than reviewing asynchronous content, the lessons for each of the four Live Sessions expand upon the learning outcomes by focusing on higher, more complex levels of engagement according to Bloom's Taxonomy of Educational Objectives. These activities and discussions aim to help students move from the knowledge, comprehension, and application of intercultural competence concepts to analysis, synthesis, and evaluation. In addition to helping students draw connections between their experiences while abroad and their own intercultural development, the aim of the curriculum, both in synchronous and asynchronous components, is to help students explore the relevance and application of these competencies in their study abroad communities to their field of study and future careers.

4.3.3. Before Departure

Prior to their departure, students take part in an hour-long program orientation meeting during which they are given an overview of the course structure and procedures for engagement while abroad, and a chance to meet with mentors. Just prior to the start of their study abroad program, students are placed in cohorts capped at 16 students based on program start dates and time zones. Once cohorts are assigned mentors, students receive access to and instructions for completing the IDI. Shortly before the formal start of their individual study abroad programs, students are granted access to the Brightspace course and instructed to begin working through the first two units of asynchronous course content and assignments.

4.3.4. During Program

Early in the curriculum, students view a pre-recorded group debrief video which includes de-identified results of all students taking part in the course that semester. As students complete asynchronous work, they are given periodic feedback as needed. The asynchronous component of the course is provided entirely via Brightspace and facilitated additionally through email announcements and communications. Mentors for each cohort are required to be Qualified Administrators of the IDI so that they may correctly interpret the results of students' pre-IDI scores and provide stage-appropriate feedback to each student throughout the course. In addition, mentors take part in mentor training and orientation to the curriculum prior to the semester start. Throughout the semester, mentors meet prior to each Live Session to discuss pedagogical approaches and strategies for facilitating the intercultural conversations in each session's lesson plan. Ongoing oversight of mentor textual feedback provided in Brightspace allows for additional training in feedback strategies and approaches between the mentors and the course coordinator, who is a Senior Intercultural Learning Specialist in CILMAR.

4.4. Instruments

In this study, two instruments were chosen to evaluate intercultural learning outcomes for the participating students quantitatively and qualitatively: the IDI and the IKC rubric. These assessments allowed the researchers to address the research questions outlined in data analysis below.

The IDI was utilized to assess students' intercultural mindsets and developmental change. The IDI is a validated and reliable instrument for assessing participants' intercultural competence and sensitivity (Wiley, 2016). It is a 50-question survey that determines the orientation of an individual by placing the individual on a continuum of monocultural to intercultural orientations (see IDC in theoretical frameworks). The assessment provides a Developmental Orientation (DO) score. This score indicates the location of the individual's development along the IDC. Students' DO scores were considered as the objective measurement of students' intercultural competence and thus were used as the primary source for data analysis. The IKC rubric was used to do a deductive thematic analysis by coding and rating specific student reflections.

4.5. Data Collection

The study used a mixed-method design to collect and analyze the data. Both the treatment and control groups took the IDI assessment before departure and again as the study abroad experience ended. In addition, two written reflections in the treatment group were collected. These assignments were selected as pre- and post-reflections based on the length of students' responses and when they took place (at the beginning and near the end of the course). In the intercultural analysis of the pre-reflection, student artifacts generated by the assignment "*Professions in the Public Eye*" provide a glimpse early in the course into how students perceived their own discipline and/or future profession and how they began to understand professions from a culturally different perspective. Analysis of this assignment provides relevant insight into students' competency levels at the beginning of the course. For analyzing the data from the post-reflection, student artifacts from the assignment '*The Interview*" (undertaken in English) provide a view of how students' perspectives on their discipline and/or future profession toward the end of the course developed relative to their understanding of the influence of culture on these fields. As such, this activity provided relevant insight into student competency levels at the end of the course.

4.6. Data Analysis

4.6.1. Quantitative Data

To address research question 1, "To what extent does the online curriculum impact the development of intercultural competence within the treatment group who study abroad compared to a control group that receives no intercultural intervention?", pre and post-test IDI data sets were analyzed using descriptive statistics followed by a paired sample *t*-test and independent *t*-test. The descriptive statistics were used to compute the treatment and control groups' overall mean and standard deviation based on their DO scores. The paired sample t-test was conducted to compare the pre and post-test DO scores of students for treatment and control groups, respectively. An Independent *t*-test was used to compare the difference in DO scores between treatment and control groups for pre- and post-tests. The study also used descriptive statistics to represent the percentage of students who demonstrated meaningful regression and meaningful growth on the IDC, defined as ±7 points on the scale.

4.6.2. Qualitative Data

To further understand which competencies were developed and how, student pre- and post-reflections were analyzed. The IKC rubric guided the researchers in making sense of students' written reflections through two approaches to address research questions 2 and 3 respectively: (1) scoring as to which level (from 1 to 4) was demonstrated for each component of intercultural competence (e.g., Self-awareness, Empathy, Worldview, etc.) and; (2) deductive thematic analysis to understand how specific competencies were developed. For students who demonstrated a meaningful growth of 14.00 points on their DO score, their pre- and post-reflections were qualitatively scored using the IKC rubrics, and the post-reflection of the students was analyzed using thematic analysis (Clarke et al., 2015).

The qualitative analysis process was divided into the following steps. In the first step, two raters independently read the student reflections (both pre and post) and scored them on the basis of the IKC rubric. The raters met and discussed their scores. Based on the discussion, the raters re-scored the reflections and discussed the final scores. In the next step, the post-reflection of the students was qualitatively analyzed using thematic analysis. The intent of analyzing the post-reflection using thematic analysis was to find emerging themes. For the post-reflection, *Activity 8.3 The Interview*, written at the end of the program, was analyzed. Students were asked to reflect on their experience of interviewing a person from a different cultural background who worked in an industry relevant to their field of study and to describe what intercultural skills they learned were important for working in this field. They were then asked to discuss what they had learned through the course curriculum and study abroad experience and how they would apply that learning after returning.

To conduct the thematic analysis, the two raters read 20% of all the student's reflections and coded them independently. After completing the independent coding cycle, raters met and discussed their codes. A codebook was then created based on these. In the next steps, raters re-coded the data based on the created codebook. After completing the second cycle of coding, they met and discussed the results and discrepancies. The inter-rater reliability was calculated with a 78% overlap. Later the balance of 80% of the document was divided between the two raters; they coded the reflections independently (Jaiswal et al., 2021; Syed & Nelson, 2015).

5. Results

5.1. Quantitative Results

The intent of the quantitative results is to answer the research question 1, "To what extent does the online curriculum impact the development of intercultural competence within the treatment group who study abroad compared to a control group that receives no intercultural intervention?" In the next paragraphs we describe: a) pre- and post-test comparisons of DO scores of the control and treatment groups; b) progression and regression of students for control and treatment groups upon completion of the study abroad program; and c) meaningful increase and meaningful regression experienced by students in the control and treatment groups.

5.1.1. Pre- and Post-DO Scores of Control and Treatment Groups

From Table (1) on the next page, we can infer that students in the treatment group started at the lower end of Minimization (M = 92.71, SD = 15.00), but upon completion of the program, they had moved to the center of the Minimization (M = 101.98, SD = 17.48). The scores also reveal a meaningful increase (an increase of more than seven points on DO) of 9.27 points on the IDI continuum (Hammer, 2009). Further, a paired sample t-test was conducted to analyze the pre- and post-DO scores for the treatment group, and the results of the t-test revealed that students demonstrated a statistically significant increase in their DO score from their pre-test (M = 92.71, SD = 15.00) to post-test (M = 101.98, SD = 17.48, t = 7.36, p < 0.001).

Next, IDI scores of the students from the control group were analyzed. From Table (1) we can infer that students in the control group were at the cusp of Polarization and Minimization and showed a marginal increase in their DO score of 2.06 points. Moreover, the results of the paired t-test revealed that students in the control group had a non-significant (p-value > 0.05) gain in their IDI score (Developmental Orientation) from their pre-test (M = 85.58.71, SD = 13.84) to post-test (M = 87.64, SD = 13.55, t = 1.83, p = 0.071).

Independent t-tests were then conducted to compare the post-DO scores of students in the control and treatment. Students in the treatment group (M = 101.98, SD = 17.48, t (195) = 6.50, p < 0.0001) demonstrated a statistically significant higher DO score in their post-test than control group students (M = 87.64, SD = 13.55). It was also observed that students in the treatment group showed a meaningful increase in the DO scores over the control group students.

	Pre-IDI		Post-IDI		Gain in DO Scores	*t*	*p*-value
	Mean	*SD*	Mean	*SD*			
Treatment	92.71	15.00	101.98	17.48	9.27	7.36	< 0.001
Control	85.58	13.84	87.64	13.55	2.06	1.83	0.071

TABLE (1): MEAN AND STANDARD DEVIATION OF THE DO SCORES

5.1.2. Progression and Regression of IDC Stages After Studying Abroad

Before discussing the progression and regression of students on the IDC it is important to note the percentage of students who remained in "stasis" (no meaningful change). From Figure (3), we can interpret that the majority of students in the control group remained in Polarization (32%) and Minimization (31%), and a small percentage of students remained in Denial (2%), and in Acceptance (1%). Whereas for the treatment group, it is observed that after the study abroad program, 39% of the students remained in Minimization, 8% in Polarization, 5% in Acceptance, and 0% in Adaptation.
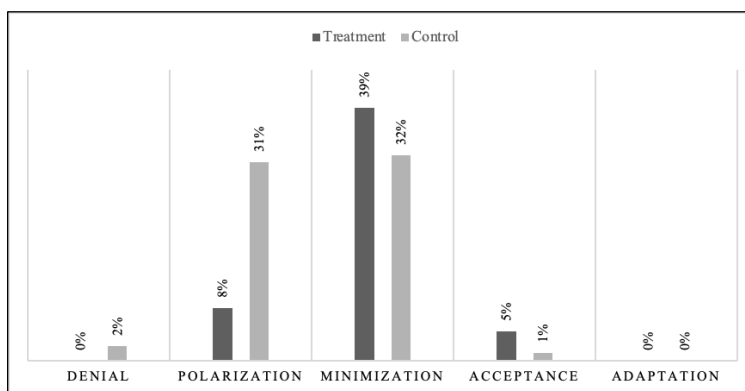

FIGURE (3): PERCENTAGE OF STUDENTS IN STASIS FOR EACH STAGE OF IDC FOR TREATMENT AND CONTROL GROUPS

5.1.2.1. Progression and Regression on IDC for Control Group

As far as progression and regression on the IDC for the control group is concerned, it can be observed that after the study abroad there was a decrease in the percentage of students in Denial (-6%) and Polarization (-1%). In addition, there was an increase in the percentage of students in Minimization (6%) and Acceptance (1%) (see Figure 4). It is also important to note that there were no students who reached Adaptation after the study abroad program for the control group.
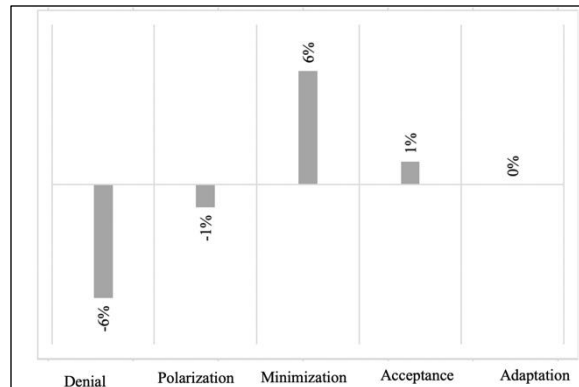
FIGURE (4): PROGRESSION AND REGRESSION OF STUDENTS FOR EACH STAGE ON IDC FOR THE CONTROL GROUP

5.1.2.2. Progression and regression on IDC for Treatment Group

Similarly, for the treatment group, there was a decrease in the number of students in Denial (-6%) and Polarization (-11%) and an increase in the percentages of students in Minimization (3%), Acceptance (5%), and Adaptation (5%) (see Figure 5). This indicates that students in the treatment group were moving towards a more intercultural mindset.
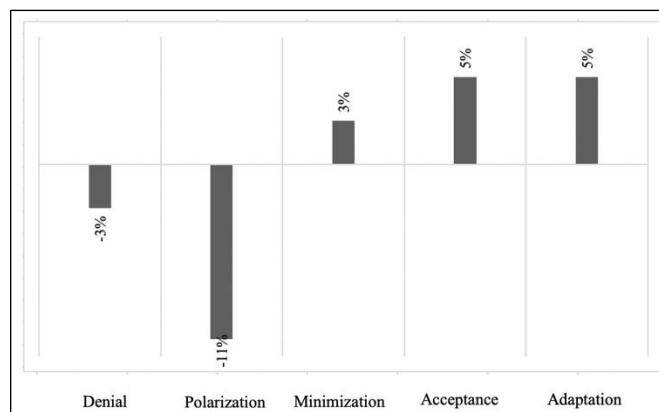

FIGURE (5): PROGRESSION AND REGRESSION OF STUDENTS FOR EACH STAGE OF IDC FOR THE TREATMENT GROUP

5.1.3. Meaningful Growth and Regression on the IDC

We also identified the percentage of individual students who demonstrated meaningful growth (increase in DO scores by seven or more points on IDC) or a meaningful regression (decrease in DO scores by seven or more points on IDC). Figure (6) illustrates that 58.18% of students in the treatment group demonstrated meaningful growth, and 9% demonstrated a meaningful regression. In the control group, 27.27% of students demonstrated meaningful growth, and 14.80% demonstrated meaningful regression. More than half of the students in the treatment group demonstrated meaningful

growth, and the meaningful regression was experienced by only 9% of the students (see Figure 6).
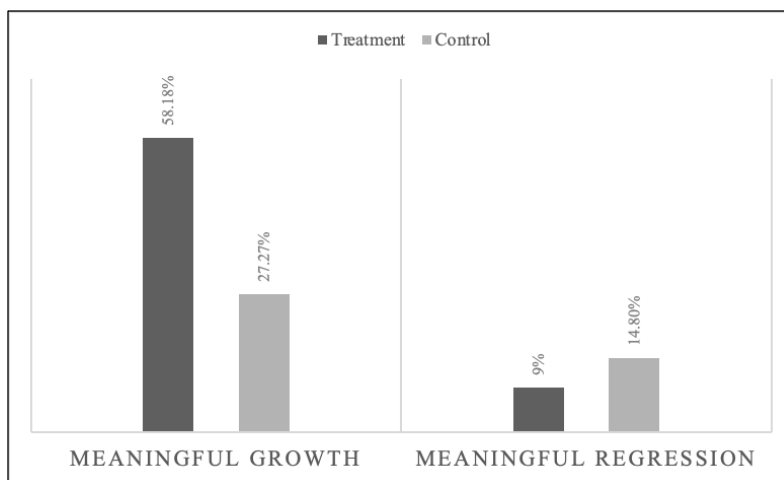

FIGURE (6): MEANINGFUL GROWTH AND REGRESSION PERCENTAGES FOR EACH GROUP

5.2. Qualitative Results

5.2.1. Scoring of Pre- and Post-Reflections

The results of scoring the pre and post student reflections based on the AAC&U IKC rubrics were determined in response to research question 2: "Which intercultural competencies do the subjects in the treatment group feel they have developed or not developed?" Comparing the level of each competency from the IKC rubric between pre- and post-reflections, results show that students in the treatment group obtained growth (> 1 point) in the competencies of Cultural Self-awareness, Cultural Worldview Frameworks, Empathy, and Openness (see Figure 7). The Verbal and Nonverbal Communication level increased slightly (< 0.5 point); Curiosity decreased (> 1.5 point) from pre- to post-reflection.
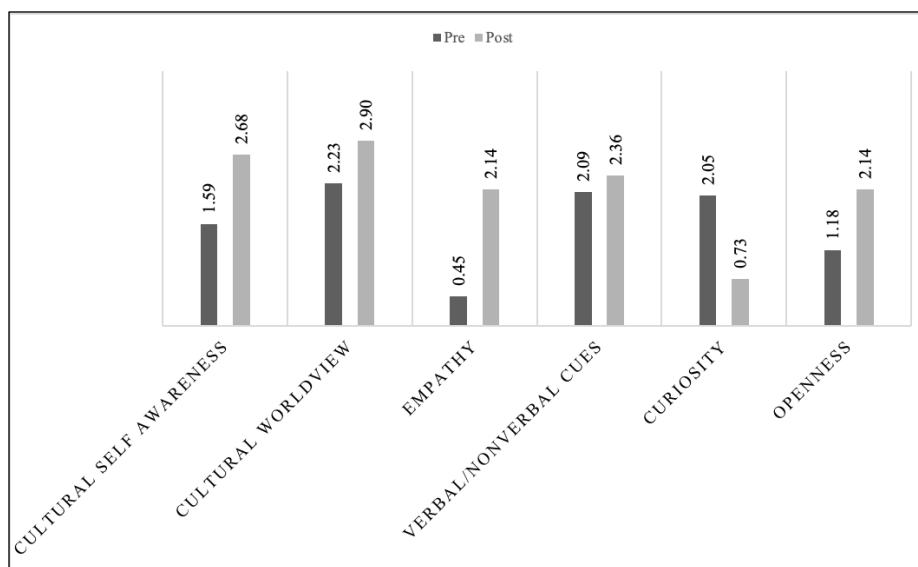
FIGURE (7): COMPARISON OF IKC RUBRIC COMPETENCIES BETWEEN PRE- AND POST-REFLECTIONS

5.2.2. Emerging Themes

The themes that emerged out of the post-reflection analysis for the treatment group were explored with the intent to answer research question 3: "How do subjects within the treatment group feel these competencies have developed?" The final themes that emerged generally followed the IKC rubric, which contributed to an understanding of how specific components of intercultural competence developed from the perspective of students (research question 3).

5.2.2.1. Improved Cultural Self-Awareness

Many students indicated that their Cultural Self-awareness improved as they became more mindful of their own cultural norms and how these impact intercultural interactions. For example, students explained how the assignments in the curriculum encouraged interacting with people from different cultures, which made them more aware of their own cultural values and biases, and how as a result they were able to respond to those biases. One student stated, "In this course, I have developed important skills for having positive interactions with people from other cultures, through which I can identify internal biases and create personal connections with foreign suppliers and customers." Another shared:

> Working with a diverse group of people makes me better at studying
> different cultures, by making me more sensitive to my potential bias

and quicker to adapt when working with either people or academic material from a culture other than mine.

5.2.2.2. Increased Knowledge of Cultural Worldview

Students also showed an increased understanding of cultural worldviews when they wrote that they learned that people from different cultural backgrounds have different ways of interacting, communicating, and working. They improved their knowledge of customs, values, communication styles, and practices of other cultures, and realized the importance of adjusting in order to have more effective interactions. For example, one student stated, "[U]nderstanding the influence different cultures might have on these perspectives is key… It's always advantageous to be able to incorporate texts or ideas from a wider range of cultures or language traditions." In addition, some students illustrated how their interviewee (a professional in their targeted field) gained understanding of cultural differences and adapted to them intentionally. One student noted:

> Different time zones and appropriate response times force her [the interviewee] to be flexible with scheduling meetings and corresponding with her coworkers… She actively keeps up with the news in her coworkers' respective countries so she can make small talk with her coworkers.

Another student observed:

> While [the interviewee] was teaching in China, he mentioned that it was common for students to take a nap after their lunch. Coincidentally this was also when he scheduled his office hours. As a result, there were hardly any students who came in during his office hours, which he initially perceived as rude; however, upon learning that students in China often have classes until 8 or 9 pm, he realized that it was just a part of their culture that would take some adjusting.

5.2.2.3. Empathy

Students illustrated many instances of Empathy by interpreting intercultural experiences gained through the curriculum from different perspectives, perceiving the problems and relating to the feelings experienced by people from other cultures, and acting in a supportive manner. For example, one student wrote, "When working abroad and with international companies, you really need to be able to put yourself into the shoes of other people from different backgrounds in order to understand exactly what they want." Another

student described how intercultural experiences made people empathetic and more able to effectively bridge across cultures:

> Intercultural experiences in the program breed [sic] me skills due to being constantly thrust into uncomfortable settings in which I have to communicate my thoughts and emotions across cultures. After experiencing this, I am more empathetic... I gain the ability to make people at ease, despite their background. This is vastly important and marketable in the field of health care, since the primary step in treating a patient is recognizing their feelings and emotions, gaining their trust and connecting with them.

5.2.2.4. Openness to Embracing Diversity

Students also emphasized Openness by reflecting on how they were willing to interact with people from diverse cultures, suspend judgment, and even embrace others' cultural practices. For example, one student commented, "The skills I gained through experience, classes like the one my professor teaches, and this [study abroad] course have equipped me to be able to approach different scenarios more comfortably and with an open mind." Similarly, another student stated:

> My intercultural competence enables me to be considerate and think on a deeper level, to be observant of those around me and able to adapt to each unique situation, and to collaborate efficiently within a diverse team with an open mind.

Likewise, another wrote:

> One of the most valued intercultural skills is respect... [R]especting the differences ... gives you a starting point to learn more about them. [The interviewee's] example was the time he lived in France with a Muslim family. He first respected the family's worship and traditions as something new, and eventually came to join them in some practices to embrace them.

6. Discussion

6.1. The Impact of the Online Curriculum

To respond to research question 1, using a mixed-method approach, this study examines the online curriculum's impact on improving students' intercultural competence in study abroad programs. The results on *Pre- and Post-DO Scores of Control and Treatment Groups* (5.1.1.) reveal that students in

the treatment group achieved a statistically significant higher level and also meaningful gain of 9.27 in their DO scores from their pre- to post-test. In contrast, students in the control group had a nonsignificant gain of 2.06 points on their DO score from pre- to post-test. The results of this study are consistent with a study by Jones et al. (2019) that assessed the effectiveness of structured curricular intervention and mentoring in enhancing intercultural competence. Analysis of the assessment data reveals that students in the treatment group demonstrated significantly higher gains in their DO score than in the control group. Similar results were also observed in the study by Krishnan et al. (2022), which examined the impact of virtual learning on intercultural competence development.

This current study also investigated the percentage of students who experienced *meaningful growth and regression on the IDC* (5.1.3.). 58.18% of treatment group students obtained meaningful growth, and 9% of treatment group students demonstrated a meaningful regression. In contrast, the control group showed meaningful growth among only 27.27% of students and meaningful regression among 14% of students. The findings of prior studies support the results of the current study. For example, in Jones et al. (2019), 52.6% of students in the group-mentored treatment group achieved meaningful growth and 13.6% had meaningful regression on the IDI. Similarly, a study by Paras et al. (2019) evaluated the effectiveness of structured short-term study abroad initiatives and guided reflection on students and found that 47% of the students showed meaningful gains in their DO scores, while 8% manifested a meaningful regression. These prior studies and the current study all showcase the beneficial effect of guided reflections, mentoring, and a structured curriculum for fostering significant development and meaningful gains in intercultural competence for students.

6.2. Themes of Intercultural Development Competencies

Furthermore, to address research question 2 and 3, a qualitative analysis on *scoring of the pre- and pos- reflection* (5.2.1.) showed that students described their growth in themes of Cultural Self-Awareness, Knowledge of Cultural Worldview Frameworks, Empathy and Openness. The results are consistent with the quantitative results on *Pre- and Post-DO Scores of Control and Treatment Groups* (5.1.1) as students showed a meaningful increase in their post DO scores. It is also important to note that a pre-IDI was conducted pre-sojourn, and pre-reflection was conducted in the first week of the study abroad program.

The results of the thematic analysis align with the results of the scored analysis that show that Curiosity was reduced and that a change in Verbal and Nonverbal Communication skills was not prominent. These results indicate that, at the end of the program, students had developed from the lower order attitude of Curiosity to the more sophisticated competence of Empathy as they progressed through the course (Deardorff, 2006).

Additionally, the results from *Scoring of Pre- and Post-reflections* (5.2.1.) and thematic analysis (5.2.2) using the IKC rubric align with students' DO score growth along the IDC (5.1.1), highlighting the relationship between the IKC and the IDC. The findings suggest that throughout the study abroad experience, the students built higher orders of competencies such as Empathy (Deardorff, 2006), causing them to move forward along the IDC. These results are supported by prior studies (Render et al., 2018; Starr et al., 2022), which suggest that development of the cognitive (e.g., Cultural Self-awareness), affective (e.g., Openness), and behavioral (e.g., Empathy) dimensions of intercultural competence equip students with tools that allow them to proceed to the next stage on the IDC.

6.3. Implications for Theoretical Frameworks

As outlined above, one strength of the online curriculum is that it integrates three intercultural frameworks. They serve as the foundation for mentor training, inform the intercultural pedagogy of the interventions, and provide tools for assessment of student learning. This study suggests that engaging in intercultural praxis is beneficial to raise intercultural competence, especially in the components of Cultural Self-awareness, Cultural Worldview Frameworks, Empathy and Openness. This finding is consistent with a study by Finkelshteyn (2020), which used the IC Praxis Model as a framework to guide intercultural education design and recommended including the concept of Empathy in intercultural education. Incorporating the three frameworks provides a blueprint for combining students' intercultural attitudes, knowledge, and skills with their ability to act during the program to achieve learning objectives. By being embedded in curriculum design, the six points of entry in the Intercultural Praxis Model direct students toward ways of thinking, reflecting, and acting to optimize their intercultural experiences while abroad and to assist them in attending to the relational and interconnected nature of the study abroad experience. Connecting multiple theoretical perspectives allows the course instructors and curriculum designers to generate a deeper

understanding of effective pedagogy and a more thorough application in curriculum design and program implementation. The current study advances knowledge of combining the insights of several intercultural models whose components support each other.

7. Limitations

A key limitation of this study is that the prompts for student reflections were on general student learning experiences but were not intentionally designed to align with the research questions. Future scholars and researchers may choose to frame more tailored assignment prompts to meet the research goals, e.g., by designing pre- and post-program prompts to examine the change over the course of the program. Another limitation is that the current study does not explore factors that influence the intercultural development of students who had meaningful regression. This is due to the study's focus on understanding the success and effective practices of the curriculum by concentrating on students with meaningful growth. Future studies could identify complex difficulties students may encounter that negatively impact their intercultural learning while studying abroad. Finally, as the study included a control group of students who had studied abroad, it is worthwhile for future scholars to investigate whether a similar impact takes place for a different control group of students (e.g., who used the curriculum non-study abroad settings).

8. Conclusion

Responding to the research questions, the current study suggests the online curriculum to be effective in developing intercultural competence, particularly in terms of Cultural Self-Awareness, Knowledge of Cultural Worldview Frameworks, Empathy and Openness to embracing diversity, when compared to studying abroad with no intervention. Guided by three pedagogical frameworks, namely the IDC, IKC rubric, and IC Praxis Model, this theoretically-grounded, evidence-based curriculum has great potential for application in study abroad programs to deepen the intercultural learning and engagement of student sojourners. For study abroad program leaders and professionals who seek to enhance intercultural development and global learning through innovative intercultural programming, this study contributes to intercultural education by providing directions for future developments in intercultural pedagogy. Given the demonstrated positive impact of the new curriculum, key

elements of the curriculum such as group-mentoring, stage-based pedagogy, critical reflection based on experiential learning activities, and alignment of engaging activities with theoretical frameworks (with specific learning outcomes), point to effective practices for intercultural competence development during a study abroad program.

Moving forward, future research should consider exploring the long-term impact of the structured intervention on intercultural competence development by measuring whether gains are maintained after a period of time following participation in the study abroad experience. Moreover, scholars could use different research methods such as case studies to investigate what programmatic structures work best for intercultural growth. Another consideration for educational leaders includes incorporating evidence-based effective practices in an internationalized curriculum after study abroad programs to support larger institutional changes and maximize the benefit to students. As higher education institutions have increasingly committed to campus internationalization, there is great potential to explore the impacts of study abroad programs on institutional programs and how best to implement and extend these programs among undergraduate students to strengthen students' intercultural learning.

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Author Biography

Lan Jin, PhD, previously worked as an Intercultural Research Specialist at the Center for Intercultural Learning, Mentorship, Assessment and Research (CILMAR). Currently she is a Project Manager at Novartis. Her major research interests lie in the area of intercultural competence development in the classroom, study abroad programs, virtual exchange programs, and co-curricular programs, as well as diversity, equity, and inclusion. She is particularly interested in developing intercultural interventions for teaching and learning using innovative approaches to improve intercultural competence.

Aparajita Jaiswal, PhD, is an Intercultural Research Specialist with CILMAR, Purdue University. Her research endeavors revolve around exploring strategies for seamlessly integrating intercultural learning into both regular curriculum and study abroad programs. Aparajita actively engages in offering guidance in developing research studies, curriculum enhancements, and assessment methods pertaining to integration and cultivation of intercultural competence.

Her expertise extends to facilitating workshops and training sessions, catering to the needs of both staff and students within Purdue University.

Daniel C. Jones, PhD, is Senior Intercultural Learning Specialist at the Center for Intercultural Learning, Mentorship, Assessment and Research at Purdue. Dan's background is in German linguistics and literature, having taught in secondary and post-secondary education since 2000. His Intercultural career began as a founding member of CILMAR. Dan oversees a semester abroad course (SAIL) and an intercultural training for study abroad leaders (IPG). Additionally, Dan also contributes to faculty mentoring, curriculum and ICL resource design.

Muna Sapkota is a third-year doctoral student in Curriculum studies in the Department of Curriculum and Instruction at Purdue University. Before coming to Purdue, she taught secondary and undergraduate English courses in Nepal and is now a graduate course instructor for EDCI 20500: Exploring Teaching as a Career. Her research interests include social justice in education, intercultural competency in instructional contexts, and culturally relevant teaching practices.

Shauna N. McClure is from West Lafayette, Indiana and is pursuing a Ph.D. in Higher Education at Purdue University. Her research interests lie at the intersection of Quantitative Critical Race Theory and data analytics, where she seeks to unpack the complexities of racial dynamics embedded within data practices and policies within academia.

Aletha Stahl, PhD, is a Lead Intercultural Learning Specialist at the Center for Intercultural Learning, Mentorship, Assessment, and Research at Purdue University. After two decades as a faculty member at a liberal arts college where in addition to teaching she advised and designed and led programs in places like Haiti and Martinique, Aletha now writes curriculum, partners with instructors to bring intercultural learning to students, designs and facilitates workshops and classes, and manages a mentoring program.

Appendix A: Intercultural Development Continuum

The Intercultural Development Continuum ranges from the more monocultural mindsets of Denial and Polarization through the transitional orientation of Minimization to the intercultural mindsets of Acceptance and Adaptation (Hammer, 2012). In the Denial stage (55-69), the individual fails to recognize the significance of cultural differences. At the Polarization stage (70-84), an individual conceives of cultures as being in competition with one another and as a result each culture is judged as being right or wrong, better or worse. In the Minimization (85-114), the individual is able to move beyond subjective judgements and instead ignores differences in favor of a focus on similarity. At the Acceptance stage (115-129) an individual has acquired enough knowledge about the other culture to begin to understand its difference on its own terms. At the last stage of IDC, Adaptation (130-145), an individual is able to appropriately apply the knowledge they have acquired to change their behavior in ways that meet the expectations of the other culture.

Appendix B: AAC&U Intercultural Knowledge and Competence (IKC) VALUE Rubric

The AAC&U Intercultural Knowledge and Competence (IKC) VALUE Rubric identifies six key components of intercultural knowledge and competence (AAC&U, 2009): Cultural Self-awareness (insights into own cultural rules and biases), Knowledge of Cultural Worldview Frameworks (sophisticated understanding of the complexity of elements important to members of another culture in relation to its history, values, politics, communication styles, economy, or beliefs and practices), Empathy (perspective-taking), Verbal and Nonverbal Communication (being able to skillfully negotiate a shared understanding based on differences in verbal and nonverbal communication), Curiosity (asking complex questions and seeking out answers), and Openness (initiating and developing interactions with culturally different others). The IKC rubric articulates criteria on four performance levels for each component, from Benchmark 1 to Capstone 4.

Appendix C: Six Components of Intercultural Praxis Model (Sorrells, 2013)

Inquiry

Inquiry refers to a desire and willingness to explore, ask, and learn about new things (Sorrells & Nakagawa, 2008). Individuals engaging in Inquiry have great interest in knowing and exploring how culture shapes themselves and in asking about the culture of another person. Inquiry manifests among students as curiosity about cultural practices. Students engaging in Inquiry are willing to suspend judgment and ask complex questions to locals and actively seek out answers with a genuine desire to understand multiple cultural perspectives.

Framing

Framing is the ability to access various perspective-taking options (Sorrells & Nakagawa, 2008). Frames are the lenses individuals use to make sense of themselves, others, and the world around them (Devine, 2014). People use frames to categorize new information and determine what is relevant or not. Students who see a cultural difference in a host country may interpret it through a personal frame of communication styles, a social frame of community norms, or a structural frame of policy regulation, and would be able to shift consciously among their perspectives.

Positioning

Socially constructed hierarchical categories, such as race, class, gender, and age, position individuals in terms of power and have great impact on intercultural interactions. Positioning is relational and thus depends on context. How students position themselves may vary across the cultural context and the dynamics of power between individuals plays a crucial role in communication with locals. For example, in a host culture that values elders with the utmost respect, reflecting on positioning may help students to interact with people differently.

Dialogue

Dialogue is communication that flows across differences and actively engages with diverse perspectives. By engaging in dialogic interactions, a new understanding is achieved. In Dialogue, individuals actively listen to others, process the information, and adapt points of view based on the interactions.

When the students engage in constructive Dialogue, they develop "connection, empathy, and respect" (Sorrells, 2013).

Reflection

Reflection is the ability to learn from introspection, to identify one's own positions, and to adjust one's perspectives and behaviors based on Reflection (Sorrells & Nakagawa, 2008). In study abroad programs, students are often asked to write guided reflections about their experiences in their new setting. Students improve intercultural competence by thinking critically about practice and seeing themselves as agents of change through these actions.

Action

Action links understanding of cultural differences with responsible behaviors to challenge stereotypes and create solutions. Intercultural praxis is a continual process of thought, reflection, and action. Responsible action is determined through reflection. In some study abroad programs, students are required to engage in action-planning about how they will apply what they have learned in life and work and how they will make a difference.