

IMPACT OF A MULTI-LAYERED AUTOBIOGRAPHY PROJECT FOR TRANSFORMING INTERCULTURAL COMPETENCE AMONG PRE-SERVICE TEACHERS

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ABSTRACT

This study investigated how a Multi-Layered Autobiography Project impacts the intercultural competence for undergraduate students, many of whom were aspiring teacher candidates in the United States. For purposes of this project, the concept of “culture” was adapted from West and Turner’s (2018) definition: the norms, behaviors, standards, values, etc. shared by a group of people, and passed along to later generations. Investigators deemed that “culture” was composed of numerous microcultures among a smaller group of human beings (with their own language, communication strategies, behavior rules, and expectations), who are bonded together by similar experiences, values, characteristics, organization membership, location, or histories. Based on prior research findings, the results were expected to support the position that cultural self-knowledge is a necessary step to increasing intercultural competence. The Multi-Layered Autobiography Project was implemented in an undergraduate general education course, Human Relations in a Multicultural Society, at a medium-sized public university in the Midwest region of the United States. The project fostered development of: (1) knowledge, (2) experience, (3) coaching or mentoring, and (4) self-reflection. The assignments in the Multi-Layered Autobiography Project included: an interview with a family elder, a personal diversity story, a cultural partnership interview, a service learning experience at a culturally diverse organization, and an autobiography paper. Investigators used the Intercultural Development Inventory (IDI) Version 3, as a tool for quantitative data analysis because of its reliability and validity. The analysis of pre- and post-instruction data gathered from undergraduate students enrolled in the semester-long course indicated a statistically significant improvement in participants’ intercultural competence, according to scores for their Developmental Orientation and Cultural Disengagement.

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Introduction

Based on currently available data, the National Center for Education Statistics (NCES) (2020) reports the proportion of school-age pupils represented by racial, ethnic, language, and social minority groups in the United States has increased since 2009. Factors such as immigration, birth rates, and economic mobility contribute to great cultural diversity in schools. For this investigation, the definition of “culture” was adapted from West and Turner (2018). The authors consider “culture” to be the norms, behaviors, standards, values, etc. shared by a group of people and passed along to later generations. The elements of culture could be related to ethnicity, language, religion, gender identity, and sexual orientation, geographic region, education, race, socio-economic status, or family structure. Data indicate that cultural diversity among primary and secondary pupils continued to increase, until in 2020, the ‘minority’ pupils outnumbered the ‘majority’ pupils in American public schools (NCES, 2021).

The core values of the U.S. have become polarized: Intolerance versus respect and inclusion; oppression versus democracy; hate versus intercultural understanding. As the U.S. population becomes even more diverse, marginalization of Black and Brown communities has fostered socio-cultural and racial unrest, manifested in increasing numbers of racist and xenophobic incidents (U.S. Department of Justice, 2022). Schools, as social institutions, reflect that unrest (Miller & Rivas, 2022).

Meanwhile, 80% of school teachers are of European American descent and middle-class (NCES, 2021). Limited life experiences with cultural diversity often result in teachers treating children of equivalent academic abilities differently based on the students’ native language, citizenship, ethnic, and racial backgrounds. McKown and Weinstein (2002) described how teacher bias accounted for nearly a third of a standard deviation of the ethnic and racial differences in educational achievement over the course of one academic year. Teachers need to be able to adapt to the increasing cultural variations of their local communities. This goal is complicated by the very diversity found among pupils and their families: education level, religious affiliation, first language, economic status, and other factors. Faculty in American universities find it challenging to prepare teachers for every possible element of their future pupils’ cultural backgrounds. Eventually, such attitudes and skills may be applied in any community culture in which teachers are teaching.

The research reported herein investigated the impact of a Multi-Layered Autobiography Project assignment on the intercultural competence of a sample of undergraduate students, predominantly pre-service teachers. The study asked:

Research Question 1: What is the level of intercultural competence for undergraduate students prior to the beginning of the course, before the students engaged with a Multi-Layered Autobiography Project?

Research Question 2: What is the level of intercultural competence for undergraduate students after engaging with a Multi-Layered Autobiography Project?

Research Question 3: What is the difference in undergraduate students' intercultural competence before instruction and after instruction that included a Multi-Layered Autobiography Project?

Literature Review

Cultural Competence and Teachers in the United States

In 2017 - 2018 (the most recent year for which data was available), approximately 79% of all public school teachers in the U.S. were non-Hispanic White; and approximately 76% of all public school teachers in the U.S. were female. For U.S. school-age children, that same year, only 51% were non-Hispanic White, 49% were female, and 23% spoke a language other than English at home (National Center for Education Statistics, 2020).

Scholarly research in recent decades has consistently and extensively documented the need for teachers to be culturally competent (Arsal, 2019; Barakat et al., 2019; Bersh, 2018; Brooks, 2015; Darling-Hammond & Bransford, 2005; Denith & Maurer, 2011; Flory & Wylie, 2019; Kosleski & Waitoller, 2010; Lewis Chiu et al., 2017; Smith Kondo & Bracho, 2019; Villegas et al., 2012). A useful definition of cultural competence is related to teachers' ability to successfully teach students from cultures different than their own after "mastering complex awareness and sensitivities, various bodies of knowledge, and a set of skills that underlie effective cross-cultural teaching" (Diller & Moule, 2005, p. 5). However, researchers have documented the impact of American teachers' limited experience with and understanding of persons from cultures different than their own (Cochran-Smith, 2004; Howard, 2003; Ladson-Billings, 2006; Nieto, 2013). American teachers, especially middle-class, White females, are unprepared to address the cultural diversity of their students (Gay, 2002, 2010; Fletcher, 2016; Walker, 2011; Young, 2010).

Greenwalt (2014) reported how teachers' childhood experiences and relationships with their own parents result in their maintaining conscious and unconscious biases and reproducing their parents' behaviors. Teachers' cultural biases are an important factor that creates a cultural gap that is detrimental to some children's academic achievement (Lewis Chiu et al., 2017). Villegas et al. (2012) highlighted the cultural gap between students of color and their teachers. This gap is unlikely to narrow, considering Dunn's (2010) assertion that a person cannot value or teach what she cannot understand.

Cultural Competence and Teacher Education Programs

Individuals need time and experience to develop knowledge of different cultures, understand personal biases, and develop skills to engage with cultural diversity. Organizational support and systemic changes may be necessary to create processes to achieve cultural competence (Balcazar et al., 2009). For teacher education, these changes also take time to move through institutional decision-making processes in the U.S. Lin and Lucey (2010) called for focused attention to prepare teachers in developing cultural competence. Moretti et al. (2018) pointed out the valuable role of teacher educators as they create intervention projects to develop cultural competence.

Researchers have suggested self-reflection as a curriculum approach for teacher educators to use to encourage their students to become more culturally competent. Scholars have emphasized the critical role of self-reflection in student learning because "cultural self-awareness is a prerequisite to understanding groups from different cultures" (Spitzer, 2015, p. 49). Outcomes of many community-based, cultural immersion strategies have supported cultural self-knowledge as a necessary step to understanding others' cultural backgrounds (Balcazar et al., 2009; Darling-Hammond and Bransford, 2005; Fletcher, 2016; Gay, 2010; Gunn et al., 2013; Morettini et al., 2018; Nieto, 2013; and Young, 2010).

This task is especially challenging for many American White teachers and pre-service teachers living in predominantly White settings, as they haven't had the need to question or define their cultural identities and how they relate to others (Bersh, 2009; Lin & Lucey, 2010). In self-reflection, teachers and pre-service teachers elaborate on their own cultural backgrounds, values and beliefs. Acknowledging their cultural backgrounds through self-reflection has prompted self-examination of prejudice, privilege and cultural biases against diverse cultural groups (Arsal, 2019; Balcazar et al., 2009).

The review of the literature provides clear evidence that engaging teachers and pre-service teachers in self-reflection about their own culture is a necessary steppingstone to the development of intercultural competence. There are multiple formats through which teachers and pre-service teachers have engaged in this experience. One of them is writing an autobiography.

Developing Cultural Competence through Autobiography

Researchers have demonstrated that an autobiography can be focused on one or more purposes and shaped for curricula in many academic disciplines. Kozleski and Waitoller (2010) focused on using autobiographies to support teachers' self-reflection on their students' cultural diversity and disabilities. The experience shaped their responses, expectations and assessments for these students. Singleton (2020) engaged teachers in focused writing on racial identity. Lee (2012) used autobiography to facilitate pre-service teachers' examination and deconstruction of previously held beliefs, meanings and assumptions. Dentith and Maurer (2011) asserted that autobiography affirmed identity. It helped teachers understand the connection between self, community(ies) and "the other." Dentith and Maurer (2011) also found that autobiographies supported teachers in confronting student-teacher cultural gaps, leading to increased sensitivity to others' experiences and their position in society.

Writing an autobiography is a specific strategy to foster teachers' and pre-service teachers engagement in their own cultures (Bersh, 2018; Gunn et al., 2013; Hollinsworth, 2013; Ladson-Billings, 2000; Vavrus, 2002). For example, Amy et al. (2012) engaged pre-service teachers in sharing "cultural artifacts" representing an aspect of their cultural identities, followed by a learning narrative, through which they elaborated on the object's meaning and its relation to their cultural identities. Bersh (2018) examined the outcomes of an autobiography assignment that included voluntary participants' self-selected read-alouds and a semi-structured interview self-reflection. Schmidt's (1999) ABC Model included an autobiography, a biography (based on a case study of a child), and a cross-cultural comparison. Hernandez (2017) designed assignments with an autobiography, which focused on a linguistic profile and a PhotoStory, which was a cultural autobiography with family pictures. While the autobiographies offered extensive opportunity for self-reflection, several investigations found that the participants gained important insights from listening to others read aloud excerpts from their autobiographies (Bersh, 2018; Hollinsworth, 2013).

Conclusions of Previous Researchers

Researchers have demonstrated that writing autobiographies can have several positive results. Brooks (2015) found that autobiographies enabled pre-service teachers to articulate their own cultural values and beliefs. Moloney and Oguro (2015) described a structured component of the autobiography assignment that supported teachers' focus on affirmations of their backgrounds and prior knowledge, which resulted in increased openness to intercultural understanding. Dentith and Maurer (2011) found that autobiography was a means through which teachers developed critical analysis, raised levels of consciousness about culture, values and subjectivity, and increased understanding of global issues, among other gains.

Bersh's study (2018) reported that a five-week autobiography assignment included the following gains:

1. self-cultural awareness and identification of cultural biases,
2. recognizing that unconscious biases impact interactions with students' cultural diversity,
3. and making conscious the unconscious as a steppingstone to develop culturally responsive competency.

An interesting finding in the same study was that some participants (teachers and pre-service teachers) uncovered cultural biases of their own, including social issues such as alcoholism, child abuse and neglect; bias against different denominations within the same religion; bias against one's own original culture; and bias against cultural bias itself.

Self-reflection also supported pre-service teachers in identifying effective strategies for developing relationships with future students, co-workers, and school administrators from diverse cultural backgrounds. Hernandez (2017) reported that bilingual teachers gained a deeper understanding of their own cultural identities, leading to increased cultural knowledge, skills and dispositions to teach children from diverse racial, ethnic, language, and social class backgrounds.

The Intercultural Development Continuum (IDC)

The investigators reviewed several theoretical frameworks to understand the developmental processes of growth in intercultural competence (ICC). Eventually, the

investigators chose the Intercultural Development Continuum (IDC) as the theoretical foundation for course planning and assessment (Bennett, 1986; Hammer, 2022). Figure 1 presents an illustration of the IDC. There are five orientations or stages of the IDC: Denial, Polarization, Minimization, Acceptance and Adaptation. Denial and Polarization are within the Ethnocentric Category. Acceptance and Adaptation are within the Ethnorelativism Category. Minimization is a transitional stage between the Ethnocentric and the Ethnorelativism Categories, during which a person may become more experienced, empathetic, understanding, and adaptable. According to the IDC model, Ethnocentrism means that an individual believes her culture or ethnic group is superior to all other groups. In contrast, Ethnorelativism means that an individual believes her culture is one of many different cultures and that one is not superior to the other (Hammer, 2022).

The first orientation is Denial. At this stage, individuals are unaware of differences among cultures and may try to reduce their exposure to different cultures. Individuals within the Polarization orientation (stage two), mostly perceive differences with other cultures and may use statements such as “us and them.” The third orientation, or transitional stage, is Minimization. At this stage, individuals minimize differences among cultures and get along together. The following orientation in the continuum is Acceptance. At this stage, individuals view their culture as one of many complex cultures in the world; they deeply understand the meaning of cultural differences and learn respect for those differences. The last orientation, or stage five, is Adaptation. At this stage, individuals can put themselves in the other’s “shoes” and adapt their behaviors and communication style to better fit into that culture.

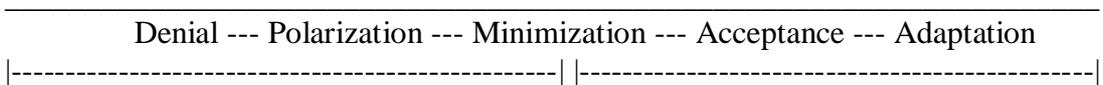


Figure 1. Intercultural Development Continuum (adapted from Hammer, 2022).

Cultural Competence through Multi-Layered Autobiography Assignments

The studies reviewed in this section lead to the conclusion that writing autobiographies supports teachers’ development of a variety of aspects in their cultural and intercultural competence. The studies also may lead to the conclusion

that writing an autobiography in combination with other related assignments produces a more robust learning experience for teachers and pre-service teachers. Instructional designers should note that, as knowledge is amplified, students' experiences are more meaningful and purposeful. As a result, learnings are drawn from several sources and multiple connections are made, often resulting in increased ICC.

Arzal (2019) designed a four-category intervention model that embedded several strategies for intercultural competence development in methods courses:

1. Learning about cultural diversity through materials such as biographies, stories, and drama.
2. Discussions about prejudice, self-reflection and peer dialogue.
3. Generating questions to explore biases.
4. Designing content and instruction reflecting cultural diversity.

The program was found to be effective in improving pre-service teachers' multicultural attitudes.

Other researchers commented on specific teaching strategies designed to foster ICC. For example, Bersh (2018) found that listening to peers reading aloud excerpts of their autobiographies, along with a post-autobiography self-reflection, triggered students' application of metacognition. Results showed more intercultural reflexivity among participants than simply writing the autobiography itself. Brooks (2015) complemented the teachers' written autobiographies with writing biographies based on a case study of a child. The follow-up intervention strategy focused on developing a cross-cultural comparison between the two. The conjunction of the three assignments produced more notable outcomes in raising teachers' understanding of cultural diversity and improved ICC.

Amy et al. (2012) used journals to connect affective experiences and cognitive frames, not just for the stories' sake, but to propel critical engagement with experiential knowledge toward intercultural competence. The researchers used a longitudinal approach, incorporating autobiographical information in multiple ways across a curriculum. These opportunities could happen periodically, formally or informally, in a learning journal and a reflective paper. This investigation also used guided activities in small groups for the exchange of autobiographical information. Discussion enabled teachers to connect their experience-based knowledge to course concepts and texts.

Darling-Hammond, et al. (2005) identified four teaching and learning categories as foundations to engage teachers in developing cultural competence: knowledge, experience, coaching or mentoring, and self-reflection. Sandell (2020) conducted a meta-analysis of 287 peer-reviewed articles to identify specific strategies that improved undergraduate students' intercultural competence. The analysis identified autobiography as a self-reflection tool that "includes elements of knowledge, experience, coaching, and reflection" (p. 25), leading to an increase in cultural competence for undergraduate students. As a result of the meta-analysis, Sandell used Darling-Hammond's theoretical framework to design her autobiography-centered, multi-layered assignment targeting ICC development among undergraduate students, including pre-service teachers.

Methodology

Institutional Profile

This investigation was conducted at a mid-sized public university in the Midwest region of the United States. The University is an applied research institution, with approximately 14,000 students enrolled in more than 200 academic programs, from bachelor's through doctoral degrees. The University is a diverse and global campus with 18% students of color and more than 1,175 international students from 95 countries. Education and support are provided by 1,600 faculty and staff, including 700 teaching faculty. In addition to programs in the local community, the face-to-face programs include partnerships in the major metropolitan area of the state of Minnesota. The University has a growing number of online programs to accelerate educational access and opportunity.

Course Design and Delivery

This investigation examined archived data from a semester-long course, Human Relations in a Multicultural Society. The course provides education in self-awareness and skills that are essential for living and working in a democratic and socially just society. The course addresses issues of oppression and social justice related to race/ethnicity, gender, age, class, religion, disability, physical appearance, sexual orientation and nationality, especially focusing on groups that have been historically excluded from the western power and decision-making (Sandell, 2020). Class meetings and discussions featured panel presentations, guest speakers, video recordings, small group discussions, and other activities, such as fishbowl

conversations (Facing History and Ourselves, 2021). These activities led students to consider their own cultural backgrounds, as well as those of others.

The Multi-Layered Autobiography Project

The instructor organized and designed the Multi-Layered Autobiography Project to lead pre-service teachers in developing a foundation for their cultural competence. For purposes of this Multi-Layered Autobiography Project, the instructor used an adapted definition of “culture” from West and Turner (2018), which includes the norms, behaviors, standards, values, etc. shared by a group of people and passed along to later generations. The researchers considered “culture” as composed of numerous microcultures, among a smaller group of human beings (with their own language, communication strategies, behavior rules, and expectations), who are bonded together by similar experiences, values, characteristics, organization membership, location, or histories. Some examples of microcultures included: branches of religion or spirituality, the LBGTQ community, people who grew up in Iowa, etc. Some of the micro-cultures that were included in the Multi-Layered Autobiography Project included: ethnicity, nationality, religion, language, gender, sexual orientation, ability, socio-economic class, education, military tradition, family composition (adoption, blended families, grandparenting, foster parents, etc.), and more.

The objectives of the Multi-Layered Autobiography Project fostered the development of: (1) knowledge, (2) experience, (3) coaching or mentoring, and (4) self-reflection.

The assignments in the Multi-Layered Autobiography Project included:

- an interview with a family elder
- a personal diversity story
- a cultural partnership and interview
- a service learning experience at a culturally diverse organization
- an autobiography paper

Additional textbook readings, instructor’s coaching prompts and other class activities, such as Fishbowl class discussions, aimed at enhancing the holistic quality of the intercultural experience and immersing the participants in deep self-reflection.

Table 1 lists the types of course assignments and activities for each type of the aforementioned objectives.

Knowledge	Experience	Coaching	Self-reflection
Information about micro-cultures.	Interview a family elder.	One-on-one meeting with an IDI-qualified administrator.	Autobiography paper
Speakers share their own diversity stories.	Cultural partnership to compare/contrast one's culture with others.	Instructor's class discussion prompts.	Description of personal micro-cultures.
Fishbowl class discussions.	Service learning to compare/contrast one's culture with others.	Instructor's prompts for exit tickets.	Anecdotes about one's micro-cultures.
Students sharing personal diversity stories.	Class discussions focus on cultural similarities and differences.	Individualized suggestions for student activities beyond class.	Projection of outcomes or consequences of one's micro-cultures.
Assigned readings in the course textbook.			Respond to prompts about textbook readings.

Knowledge about Family - Elder Interview

Each student interviewed an elder from their family focusing on questions about their heritage, family's history and culture. The interviews were completed early in the semester. Students submitted interview transcripts. Figure 2 provides examples of the questions the students posed to their family elder.

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- *Who is the oldest living relative in our family? What have they told us about our family history?*
 - *Who is the youngest living relative in our family? What does their birth say about our family's changing values and living situations?*
 - *How old were you and how did you learn that there were people who were "different" than our family? How were those differences valued?*
 - *What does our family believe about gender roles? About sexual orientation? About religion?*
 - *What are our religious values? Where did those beliefs come from?*
 - *What individuals and events in history are sources of pride for my family?*
 - *To what extent is knowledge of my family's history preserved? In what forms and in what ways is it passed on?*
 - *Do any ceremonies or festive occasions commemorate historical events in which my family participates? What are these occasions and why are they important in my family?*
 - *How does my family identify with the history and traditions of their country or region of origin? What changes have taken place in the country of origin since my family ancestors emigrated?*
 - *For what reasons and under what circumstances did my family ancestors come to the new country? Where did they come from? Where did they settle? How did I get to my hometown?*
 - *What does my family believe is the purpose of education?*
 - *What methods for teaching and learning are used at home? Do methods vary with the setting or according to what is being taught or learned?*
 - *What is the role of language in my family for teaching and learning?*
-

Figure 2. Examples of questions for elder interviews.

Personal Diversity Story

The Personal Diversity Story could be completed in one of several genres: a story format, as an academic research paper, poetry, radio play, a graphic novel, or something else. Regardless of which genre was selected, students should have described their cultural background with rich detail, including descriptions of at least six microcultures important to their lives.

Throughout the entire semester, students shared their own diversity stories in a class meeting. The presentation had a duration of a minimum of five minutes.

Cultural Partnership and Interview

Students were required to spend 10 hours of interaction with a peer, whose cultural background was different from that of each student. The instructor helped

matching-up the students with domestic or international peers. An important component of this partnership involved conducting an interview focusing on gaining knowledge about the peer's cultural background and experiences.

Service Learning Experience

Each student participated in 20 hours of service learning at an organization where its members' cultures differed from the students'. Some examples of these organizations included: homeless shelters, community centers teaching English classes to adults, nursing homes for the elderly, the local Pow Wow from the Dakota American Indians.

Autobiography Paper

Each student researched and wrote an Autobiography Paper focusing on their culture. Students collected information, brainstormed ideas, interviewed family members, read family scrapbooks, reviewed journals or diaries, and examined census data about persons who shared their characteristics. Students examined values and how their outlooks might have developed by actual lived experiences. The paper presented the context of their family and community backgrounds and addressed a minimum of six microcultures. The paper challenged students in deep self-reflection about the meaning behind those microcultures.

Population and Sample

This university's elementary teacher preparation program enrolls up to 180 new students each academic year. This investigation included archived class assignments and scores from 127 undergraduate students enrolled in a prerequisite course for elementary education majors. The university's Internal Review Board for research with human subjects approved the use of previously collected data for this investigation (IRB log #1137599).

Table 2 presents the demographic information collected from the students. All subjects included in this chart were individual students; this is an unduplicated count. However, all subjects did not respond to all demographic questions, so there is missing data.

Table 2. Selected demographic information for sample (N = 127).

Characteristic	# with this characteristic	% of total responses
Female	99	87.6
US Citizen	112	99.1
Between 18 and 24 years old	101	89.4
Completed secondary school	101	89.4
Second year of university	56	49.6
Third year of university	33	29.2
Member of ethnic majority	102	90.3
Childhood in North America	111	98.2
Lived only in North America	107	94.7

Variables

Investigators were interested in changes in two variables: an individual's orientation toward cultural differences and commonalities (Developmental Orientation or DO), and a person's engagement (or really the level of disengagement with his/her own culture; Cultural Disengagement or CD), according to Hammer (2009). Thus, the DO indicates an individual's or group's primary orientation toward cultural differences and commonalities; whereas the CD indicates an individual's or group's lack of engagement with his/her own culture.

Measurement

The Intercultural Development Inventory (IDIv3) was used to collect data (Hammer, 2009). Several faculty members at this institution use the IDI as a pedagogical and assessment tool with the goal of enhancing students' ICC and sensitivity. After individuals complete a survey, faculty or staff who are qualified administrators debrief the results with each participant. In order to become qualified to debrief students about the results of their individual IDI assessment, faculty and

staff must participate in a series of training sessions about the IDC and on administration of the IDI. This article's first author is an IDI qualified administrator who has used the IDI as a pedagogical and assessment tool since 2012. The second author was trained as an IDI qualified administrator in 2020.

The IDI is a 50-question instrument that uses the individual's responses to calculate an in-depth profile. The IDI also describes the stage of developmental orientation of an individual based on the answers provided and feedback on that particular stage. The questions are asked in the form of a response scale of five options. The scores of interest for this investigation were the Developmental Orientation (DO) and the Cultural Disengagement (CD). All results were exported and analyzed for significance using SPSS software (IBM Corp., 2019).

For this study, the IDI v3 was used as a measure of cultural competency because of its suitability for a university setting and ease of use. Developers have reported that the IDI is a cross-culturally generalizable (i.e., international and domestic diverse cultural groups), valid and reliable measure of intercultural competence that does not contain cultural bias. (Hammer, 2011; Hammer, Bennett, & Wiseman, 2003).

Data Collection

IDI scores from two semesters of a course, Human Relations in a Multicultural Society, were sorted from archived data. The IDI as a course and program assessment was completed online during regularly assigned class periods. Students completed the online inventory during the third week and the last week of the semester. The online survey took approximately thirty to forty minutes for each participant to complete. To avoid having the students feel coerced to participate, the instructor provided class time for completing the IDI, so that students did not have to use their own "free" time for the survey. Students also earned points just for completing the survey (i.e., not based on their scores) that were applied toward grades in the class.

Data Analysis

The dependent variable was student ICC, by two scores: DO and CD as reported by the IDI. The data was analyzed using the established protocols for the IDI version 3 (Hammer, 2009). The IDI software uses Microsoft Access add-on to generate reports about individual and/or group results. The data was de-identified and exported to

SPSS (IBM Corp, 2019) for cohort analysis using ANOVA tests. The researchers used paired samples t-tests to examine mean scores in DO and CD from the IDI to evaluate whether any significant indicators of change were observed.

Results

Results of the statistical analysis were organized around the three research questions to describe the intercultural competence for undergraduate students at the beginning and conclusion of the course, as well as the difference therein.

Research Question 1: What is the level of intercultural competence for undergraduate students prior to the beginning of the course, before the students engaged with a Multi-Layered Autobiography Project?

Research Question 2: What is the level of intercultural competence for undergraduate students after engaging with a Multi-Layered Autobiography Project?

Research Question 3: What is the difference in undergraduate students' intercultural competence before instruction and after instruction that includes a Multi-Layered Autobiography Project?

Beginning Intercultural Competence

As Table 3 indicates, beginning Developmental Orientation (DO) scores ranged from 61.80 to 121.80, with the mean of 87.14, indicating that students started the semester within the stage of Minimization. In this stage, members of the group see culture from their own viewpoints. They also tend to minimize cultural differences and focus on similarities instead of differences. The students' Cultural Disengagement (CD) scores ranged from 1.80 to 5.00, with the mean of 3.81, indicating that students in general were not well-engaged in their own cultural experience.

Table 3. Range and mean for beginning scores for Developmental Orientation and Cultural Disengagement.

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Developmental Orientation	127	61.08	121.80	87.14	14.17
Cultural Disengagement	127	1.80	5.00	3.81	.87

Concluding Intercultural Competence

Table 4 shows the levels of ICC among students at the conclusion of the course after completion of the Multi-Layered Autobiography Project. The Developmental Orientation scores ranged from 54.69 to 136.77, with a mean of 94.21, indicating that students were still within the range of the stage of Minimization at the conclusion of the semester. The Minimization stage is twice as wide as the rest of the stages. The lower half of the Minimization stage is within the Ethnocentric orientation and the upper half is within the Ethnorelative orientation. The students started in the Ethnocentric Minimization orientation and ended in the Ethnorelative Minimization orientation. Therefore, the participants increased their DO within the Minimization stage from Ethnocentric to Ethnorelative. It is possible and did happen. This is where the statistical analysis is important.

The students' Cultural Disengagement scores ranged from 2.20 to 5.00, with a mean of 4.41, indicating that students increased their engagement with their own cultural experience.

Table 4. Range and mean for concluding scores for Developmental Orientation and Cultural Disengagement.

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Developmental Orientation	127	54.69	136.77	94.21	15.62
Cultural Disengagement	127	2.20	5.00	4.41	.64

Change in Intercultural Competence

Data analysis included a paired samples t-test to reflect the statistical significance of differences before and after instruction with a Multi-Layered Autobiography Project. Table 5 presents information about the changes in students' Developmental Orientation and Cultural Disengagement.

Table 5. Changes in students' Developmental Orientation and Cultural Disengagement.

Variable	Mean Dif	sd	t	df	Sig. (2-tailed)*
Developmental Orientation	7.07	15.03	5.30	126	.000
Cultural Disengagement	.60	.83	8.14	126	.000

* $p < .000$

ANOVA analysis found there were statistically significant improvements in Developmental Orientation and in Cultural Disengagement between the beginning of the semester and the conclusion of the semester ($p < .001$).

Discussion

The purpose of this study was to investigate how a Multi-Layered Autobiography Project could impact the level of intercultural competence for undergraduate students, many of whom were aspiring teacher candidates. Investigators expected that the results would support the position that cultural self-knowledge is a necessary step to understanding others' cultural backgrounds and increasing ICC (Gay, 2010; Gunn et al., 2013; Hernandez, 2017; Darling-Hammond & Bransford, 2005; Balcazar et al., 2009; Morettini et al., 2018).

While most of the previous studies cited in this manuscript used qualitative methods of analysis (predominantly narrative analysis), the present study used the IDI as a tool for quantitative data analysis because of its ease of use and because it provides a valid and reliable measure of ICC (Hammer, 2011). The data analysis reported herein indicated a statistically significant increase in participants' ICC in their Developmental Orientation and reduction of their Cultural Disengagement. These findings replicate those in Sandell's (2020) study.

These findings were also congruent with previous research indicating that writing autobiography has led to increased cultural awareness, as well as other dispositional and academic gains (e.g., Dentith & Maurer, 2011; Gunn et al., 2009). Increased cultural competence was notably an evident gain for pre-service teachers, which concurs with findings in earlier studies that used autobiography assignments, such as Bersh (2018) and Hernandez (2017). The difference between pre-course and post-course data also indicated a significant increase in participants' knowledge and

beliefs regarding cultural diversity, in accordance with earlier research (Hernandez, 2017; Lee, 2012; Moloney & Oguro, 2015).

Although writing an autobiography has led to increased cultural awareness, an isolated autobiographical assignment within a teacher preparation program, or even within a single course, might not trigger outstanding teacher reflexivity regarding cultural self-knowledge and understanding of other's cultural diversity. An assignment to write one's autobiography alone does not have a major impact on raising understanding of other cultures. Noteworthy, previous studies focusing on writing autobiography alone have not shed statistically significant results regarding an increase in ICC.

Indeed, investigators have found that writing an autobiography in conjunction with other related assignments produced more significant increases in ICC among pre-service teachers. The Multi-Layered Autobiography Project in this investigation included several culturally-engaging assignments as an intervention strategy. The project included a family elder interview, a personal diversity story, a cultural partnership and interview, a service-learning experience, and an autobiography paper. The impact of this Multi-Layered Autobiography Project for transforming intercultural competence among pre-service teachers corroborates prior research, which used several intervention assignments in conjunction with, or as an extension of writing autobiography (e.g., Amy et al., 2012; Arzal, 2019; Balcazar et al., 2009; Bersh, 2018; Brooks, 2013; Hernandez, 2017; Morettini et al., 2018; Sandell, 2020).

A salient conclusion is that autobiography-centered, culturally related, multi-layered assignments produced a more robust intercultural learning experience for pre-service teachers. This finding was supported with a statistically significant improvement in intercultural competence. A major implication for teacher preparation programs is that engaging teachers in writing autobiography, especially with a cultural focus, has the potential for setting a foundation for activating ICC. However, additionally participating in other culturally related assignments or autobiography-based reflective activities can generate a more significant impact in Developmental Orientation and Cultural Disengagement.

The authors recommend that writing an autobiography should be combined with other culturally-focused intervention strategies. Such strategies would include engaging assignments to address a broad scope of diverse intercultural experiences. A family elder interview, a personal diversity story, a cultural partnership and interview, and a service-learning experience, are specific examples from the present study.

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