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Centering Equity in Community College Virtual International Exchange: An Exploration of Program Typology and Participant Demographics

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ABSTRACT

This case study uses an equity-focused research lens to accomplish two tasks using data from two North Carolina community colleges. First, it situates community college virtual exchange programming within a pre-existing program typology to explore the extent to which community college virtual exchange is included in current conversations in international education. Second, it examines the demographic characteristics of community college students who participate in virtual exchange and compares them to those of students who study abroad. The purpose of this second task was to identify the extent to which virtual exchange programs advance equitable access to international education at community colleges. Results indicate that community college virtual exchange programs are not fully represented in the program typology and that virtual exchange is more accessible to some demographic groups compared to others. These findings have clear implications for advancing equity in international education broadly, and at community colleges specifically.

Keywords: community college, virtual exchange, program typology, access, equity

Virtual exchange programs, defined as “the engagement of groups of learners in extended periods of online intercultural interactions and collaboration with partners from other cultural contexts or geographical locations as an integrated part of their educational programmes and under the guidance of educators and/or expert facilitators” (O’Dowd, 2018, p. 5), have recently been the focus of increased attention during the COVID-19 pandemic. With study abroad programs grounded, international educators sought alternative, digital means for exposing their students to the world (Martel, 2020; Redden, 2020). Although the use of virtual options as a substitute for in-person study abroad is not a concept that is entirely new to the pandemic era (Hilliker, 2020), the increased prominence of these programs draws attention to questions surrounding their structure and the students who participate. As Helm (2019) notes, “[...] virtual exchange is no panacea: the design and implementation of virtual exchange projects requires time, resources, experiences and support, and outcomes are not always predictable or always successful” (140). However, recent research is promising in that it suggests that students can experience gains in cross-cultural communication skills and global awareness from participating in virtual exchange, at least at some institutions and in specific program contexts (e.g., Duffy et al., 2020; Soria & Troisi, 2014).

The COVID-19 pandemic also underscored long-standing inequities in access to international education both in the United States and elsewhere. For example, prior to the pandemic, the typical participant in US study abroad was white, female, and from a higher socioeconomic status background (e.g., Lingo, 2019; Lucas, 2018). International educators both in the United States and elsewhere have recently touted the potential for virtual international exchanges, which are often construed as a more affordable alternative to study abroad, to ensure that opportunities are more equitably distributed, particularly among student populations that the pre-pandemic model of international education traditionally underserved (Abdel-Kader, 2021; de Wit, 2016; Oviedo & Krimphove, 2021; Whalen, 2020). As de Wit (2016) suggests, “online intercultural learning is [...] a logical next step towards a more inclusive, innovative approach to internationalisation” (76). However, empirical evidence that explores the extent to which virtual international exchange results in more equitable access to international education is thin (Bali et al., 2021; Barbosa & Ferreira-Lopes, 2021; Satar, 2021).

In the United States, community colleges, public, open-access institutions that offer two-year credential programs intended to prepare students for advanced degrees as well as workforce and vocational training, are uniquely poised to test the assumption that virtual exchange programming can serve a democratizing function in international education. These institutions often serve a student population that often goes ignored and underserved, such as students from low-income backgrounds, those from minoritized racial/ethnic groups, and older students (González Canché, 2014). These student populations should be the target of virtual exchange if the goal is to create more equitable international education programming.

Relying on an equity-focused research lens (George Mwangi & Yao, 2020), this study accomplishes two tasks. First, we situate community college virtual exchange programming within a pre-existing program typology (Stevens Initiative, 2021), thus exploring the extent to which community college virtual exchange fits within common programmatic norms in the field. This exercise establishes the extent to which current conversations surrounding virtual exchange include opportunities that community colleges offer. Second, we examine the demographic characteristics of community college students who participate in virtual exchange and compare them to those of students who study abroad as a means of exploring the extent to which these programs advance equitable access to international education. We accomplish these two tasks through a case study, using data collected from two community colleges in North Carolina as part of a broader, comprehensive assessment of international programming at these institutions.

EQUITY-DRIVEN RESEARCH LENS

Virtual exchange and study abroad represent two of many ways that higher education institutions, including community colleges, promote internationalization on their campuses. Individuals working within higher education have traditionally viewed internationalization, often defined as “the process of integrating an international, intercultural, or global dimension into the purpose, functions, or delivery of postsecondary education” (Knight, 2012, p. 2), as either entirely value neutral or inherently positive (e.g., Buckner & Stein, 2020). Scholars, practitioners, and other professionals in higher education have worked under the assumption that study abroad in particular is an inherently positive learning experience for all participating students, without attention to whether intended learning comes to fruition (e.g., Vande Berg et al., 2014) or to negative experiences that students, particularly those from marginalized populations, often encounter when studying abroad (e.g., Willis, 2015).

In contrast, an equity-driven lens argues that internationalization cannot be neutrally defined, and that values, agendas, and ideologies are inherent in the internationalization process at any higher education institution (George Mwangi & Yao, 2020). “An equity lens assumes that education institutions and their processes are not neutral,” but rather that historical inequalities in power, privilege, and access will be reflected in the institutional structures that govern international education opportunities (George Mwangi & Yao, 2020, p. 3). This perspective builds on other recent voices in the field, who suggest that “for internationalization to be inclusive and not elitist, it must address access and equity” (de Wit & Jones, 2018, p. 18).

George Mwangi and Yao (2020) develop an equity-driven lens specific to research on the internationalization of education. These authors draw from Ng (2003)’s definition of equity, which “centers on removing barriers, redistributing resources, and inclusion for those disadvantaged by unequal and hegemonic power structures” (George Mwangi & Yao, 2020, p. 3). The current study adopts the assumption that international education opportunities are inherently

inequitable given that they arise from societal and institutional structures that perpetuate historical inequities. In this sense, key questions shift from a focus on how many students participate in international programs to questions about who is included and excluded.

Inequity in internationalization is not only reflected in the students who do or do not participate, but also in the representation of approaches to internationalization within broader, field-level dialogues. In this study, we also explore the extent to which a recent typology intended to “help practitioners and scholars understand what types of exchanges exist, how they are created, and what is required for implementation” (Stevens Initiative, 2021, p. 2) represents virtual exchange programs offered at US community colleges, an institutional type that is often absent from conversations about international education (Whatley & González Canché, 2022).

Drawing from George Mwangi and Yao’s (2020) equity-focused lens, the current study addresses the following research questions:

1. How and to what extent do the virtual international exchange programs offered at two community colleges fit within a recent virtual exchange program typology?
2. What are the demographic characteristics of students who participate in virtual international exchange at these two colleges? How do these demographic characteristics compare to those of students who study abroad?

Although conversations surrounding equity in international education are often difficult, such work is essential so that institutions and the practitioners who operate within them can identify inequity with the goal of developing and implementing more equitable forms of internationalization (Jones et al., 2021; Whatley & Stich, 2021).

PREVIOUS LITERATURE

Equity and Barriers in Access to Virtual International Exchange and Study Abroad

Although virtual exchange and study abroad both represent promising means through which community colleges can promote international opportunities, student access to these opportunities is not without its challenges. These challenges can limit participation generally and can also exclude certain groups of students in ways that relate systematically to their demographic and socioeconomic characteristics. Regarding virtual international exchange, prior research has reported challenges that include limited technical expertise of instructors, limited access to technology among students, time zone differences between participating students, institutional resistance to program implementation, and unequal linguistic power dynamics that emerge when the virtual exchange is in the native language of one group of participants and not the other (Bali, 2014; Custer & Tuominen, 2017; O’Dowd, 2013; Oviedo &

Krimphove, 2021). Students belonging to specific demographic groups may experience these challenges differently. For example, students from low-income backgrounds often have limited access to high-quality internet, a situation that can systematically exclude students from virtual exchange (Skinner, 2019). Students for whom English is not their native language may also be systematically excluded from virtual exchanges due to unequal linguistic power dynamics (Bali, 2014).

Barriers to study abroad participation are well-documented in the literature, and include not only the high cost of many study abroad programs, but also delayed progress towards degree completion as a result of participating, whether real or perceived, work and family obligations that prohibit students from leaving home for an extended period of time, and even a lack of role model and peer examples who have participated in an international educational experience (e.g., DeJong et al., 2010; Simon & Ainsworth, 2012; Soria & Troisi, 2014). Previous research indicates that, while community college study abroad is not immune to broad demographic trends in participation observed in other sectors of postsecondary education, wherein white students (e.g., Salisbury et al., 2011; Institute of International Education, 2019), students from higher socioeconomic status backgrounds (e.g., Lingo, 2019), and female-identifying students (e.g., Hurst, 2019) are more likely to participate, these trends may be weaker in the community college sector (e.g., Whatley, 2021). These results are promising for an equity-focused agenda and speak to the potential for community colleges to serve a democratizing function in US international education.

Approaches to Virtual Exchange

Equity in international education is not only an issue of who participates and who does not. Equity also means that the programs in which students participate are represented in broad field-level conversations. Regarding virtual exchange, O'Dowd (2018) provides an overview of different program models in higher education. These models include: foreign language learning initiatives, business studies initiatives, service provider approaches (wherein the goal is development of intercultural awareness, critical thinking, and/or digital literacy with content and online technology provided by an external organization), and shared syllabus approaches, wherein students in different international contexts work together for all or part of a course.

A more recent typology expands on the definition of virtual exchange and provides additional options for potential programs. More specifically, the Stevens Initiative (2021) framework includes the following activity types: paired courses with group projects; asynchronous learning and international communication modules; Hackathons (competitions where programmers work collaboratively on a project); videoconference dialogue, sometimes with an associated project; a pitch competition, sometimes with an associated Massive Open Online Course (MOOC); collaborative project-based learning; and one-on-one language learning practice. This typology considers these activities to be independent of the organizing program theme, such as business or cultural competence, thus allowing

for more flexibility in how the framework can be applied. However, the extent to which this typology accommodates the virtual exchange programs offered at community colleges is uncertain, an issue that the current study addresses.

METHOD

The research questions that guide this study inform key aspects of an equity-focused approach to the study of internationalization, which interrogates the assumption that international opportunities are inherently equitable (George Mwangi & Yao, 2020). The positionalities of this study's authors are a key component of this study, as our personal perspectives inform how we approached this equity-centered work initially and how we interpreted the study's results.

Positionality

This study's first author serves primarily as a researcher in relation to this project. Although she never attended or worked at a community college, she has collaborated with community college educators in a research capacity for approximately seven years of her professional career. As a white woman from a well-educated background, she identifies with many of the characteristics common among students who participate in international education opportunities. The study's second author serves as the Director of International Education at a medium-sized, semi-rural community college, Davidson-Davie Community College, a predominantly white institution. As her college's Senior International Officer, this author oversees all global learning activities, including study abroad programs, international students and scholars, a global certificate program for domestic students, and virtual exchange programs. As a white woman who majored in language and literature at a private liberal arts university, she is aware of fitting the mold of the traditional study abroad participant but is committed to expanding opportunities to underrepresented student populations. The study's third author brings an additional unique perspective to this research as she represents a large, urban community college, Central Piedmont Community College, that exhibits considerable diversity in its student population. As her college's Senior International Officer, she is responsible for identifying, promoting, designing, and facilitating all exchange programs, including traditional study abroad, faculty exchange, and virtual exchange. As an African-American, female, naturalized citizen, who has taught at both four-year institutions and community colleges, she has first-hand knowledge of the need for increased global competencies among college students.

Research Context

Davidson-Davie Community College serves Davidson and Davie Counties in north central North Carolina. Annually, over 13,000 students attend classes on its two campuses. Only 13.2% of adults aged 25 and above in the college's service area hold bachelor's degrees. Per capita income in the college's service area is

\$25,246 and 15.2% of area residents live in poverty. Among minorities, per capita income dips to \$15,070, with 30% in poverty (statistics based on institutional calculations). Davidson-Davie is the only institution of higher education in either of the counties it serves.

Despite its semi-rural location and relatively low-income community, Davidson-Davie has become a model for global initiatives for community colleges, especially in the state of North Carolina. As evidence of Davidson-Davie's impact on the field, the college received the Senator Paul Simon Award for comprehensive internationalization in 2021. Since 2010, Davidson-Davie has launched a regular series of on-campus 'Passport Events,' offering numerous internationally-themed presentations each semester. In 2013, Davidson-Davie created the Scholars of Global Distinction program, which allows domestic students to earn a transcript distinction by taking globalized courses, attending eight Passport Events, and completing a global experience. The college runs between three and six short-term faculty-led study abroad programs each year. Davidson-Davie has also leveraged several Fulbright programs, hosting Scholars-in-Residence and Foreign Language Teaching Assistants and sending administrators on International Education Administrators seminars. Most recently, Davidson-Davie has engaged in numerous virtual exchanges using new technologies such as Zoom, Slack, and Notion.

Central Piedmont Community College is a large, urban institution located in Charlotte, North Carolina that serves over 70,000 students through its curriculum, continuing education, college readiness, and special events programs. Central Piedmont offers a wide variety of certificate, diploma, and associate degree programs across multiple campuses. Central Piedmont reflects the rich diversity of a growing city of approximately 1.2 million residents, and with a 58.7% minority enrollment in 2018-19, is a majority-minority institution. The average student age is 32 years old, 79% work at least part-time and 46% are the first in their family to attend college (statistics based on institutional calculations).

Central Piedmont has offered short-term, faculty-led study abroad programs for many years. Since 2012, Central Piedmont has sent over 400 students to 15 different countries. All study abroad experiences are led by a diverse faculty team to provide students the opportunity to develop global competencies and skills. In 2012, Central Piedmont created the Global Learning Office to move beyond language immersion study abroad. The purpose of the Global Learning Office is to increase international educational opportunities for students and faculty, thus helping them gain global competency. Like Davidson-Davie, Central Piedmont participates in the Scholar of Global Distinction program.

Data Sources

Typology

To respond to this study's first research question, we used an inventory of all virtual exchange programs offered at Davidson-Davie and Central Piedmont during the spring and fall 2021 terms as our data source. The Stevens Initiative's

(2021) stated purpose for developing their framework was to create more consistent language to describe the emerging field of virtual exchange. As such, we explored the extent to which the programs offered at Davidson-Davie and Central Piedmont were readily described within the typology.

The typology's *Framework Key* encourages institutions to identify the following components of each virtual international exchange program:

- Lead Institution or Partnership Type Program
- Program Administration Type
- Learning Content or Topics
- Virtual Exchange Activity Type
- Program Duration
- Dosage/Amount of Activity by Type
- Total Number of Participants
- Key Participant Demographics
- Technology Used
- Cost per Participant
- Credential/Academic Credit of Outcome of Program Participation

Both schools implemented IREX's Global Solutions Conversations and a series of virtual presentations from South Africa. The Global Solutions Conversations followed a set curriculum, involving six binational meetings intended to develop empathy and mutual understanding. Students were matched with university students in the Kurdistan region of Iraq. Because program dates did not line up with the academic schedule and thus could not be tied to a class, students volunteered or chose to participate as a part of a course assignment. Many participated in the program as a global experience for the Scholars of Global Distinction program.

The virtual study abroad program to South Africa was in collaboration with an NGO. Learning content focused on global competencies, self-awareness, and understanding perspectives. This exchange offered four synchronous sessions via Zoom between students and community members in the US and South Africa. The exchange was five hours total spread over four months. While there was no cost directly to students and no specific credential or academic credit for participation, a diversity of students was able to participate. Assessment of this program was completed through both a survey and student testimonials. Participants had the option of attending one or more of the sessions.

At Davidson-Davie, additional virtual exchange programs included: the IREX Global Solutions Sustainability Challenge, interactions between Spanish students and native speakers through Lingua Meeting, and informal classroom discussions between students in Psychology and Communications classes with students at a partner university in St. Petersburg, Russia. During the time frame included in this study, two cohorts of students at Davidson-Davie participated in the Global Solutions Sustainability Challenge. The first cohort was paired with students from Jordan, and the second with a university in Iraq. The Sustainability

Challenge was a ten-week program including four bi-national meetings to discern a common problem and propose a sustainable solution through a business plan and a video. The technology involved included Zoom, Slack, and Notion. Many hours of work were required outside the binational exchanges. This program was offered free-of-charge to students, and students were able to earn badges through their participation.

In contrast to this voluntary experience, all students taking Elementary Spanish at Davidson-Davie are required to participate in six 30-minute sessions per eight-week semester through Lingua Meeting, an online platform which allows students to work with a native-speaker language coach in a real-time learning environment. Students log in to the Lingua Meeting platform for their sessions where native speakers, who try to align sessions with material being covered in class, serve as coaches to help each student gain confidence in their Spanish language speaking skills. The sessions are recorded, and coaches assess students using a rubric. All students seeking an Associate in Arts degree are required to have two semesters of world language, so many students participate in this program. The cost is \$10 per session per student.

The third exchange, discussions integrated into Psychology and Communications classes, is more informal than the two exchanges just described. In 2019, a Davidson-Davie administrator traveled to Russia on a Fulbright program where he made a connection with the Bonch-Bruevich Saint Petersburg State University of Telecommunications (Bonch). Since that time, several informal exchanges have taken place. The exchanges included in this study represent regular exchanges between students in Davidson-Davie Psychology and Communications classes and English students at Bonch. Typically, classes meet every other week for the eight-week term via Zoom. Class size varies, but averages around 20 students per class on each side of the exchange. Topics of discussion include stereotypes, food, music, and other areas of student interest.

In addition to the South Africa program, Central Piedmont offers students the Study Abroad Association 360 Virtual Exchange. This partnership operates in multiple countries and is an open enrollment virtual exchange. Learning content falls into four categories: Business, Humanities, Science, and Global Perspectives. Virtual exchange activities are primarily asynchronous, with occasional opportunities for synchronous sessions. Depending on the course, the dosage for student participation ranges from ten to thirty hours during an eight- or 16-week period. Students participating in this program are 17-60 years old and often have very limited prior exposure to international exchange. This exchange program is implemented using WebEx and Zoom, Brightspace learning management system, and the internet platform provided by the Study Abroad Association partner. The college bears the cost of the platform, resulting in no direct cost to students. Upon completion, students receive academic credit for the respective course that utilized the platform. For the period covered by this research, students received credit for Humanities, Business, and History courses.

Administrative Data

To respond to our second research question regarding demographic characteristics of students who participate in virtual exchange and study abroad we used administrative data representing 41,655 students attending Davidson-Davie and Central Piedmont. This dataset corresponds to cohorts entering fall 2016 through spring 2021 and includes all students over the age of 18¹. However, the dataset excludes students who were not identified as US residents. This exclusion is unfortunate, as these students certainly participate in virtual exchange and study abroad; however, demographic characteristics are collected differently for these students, thus precluding their inclusion in this study. Specifically, following federal data reporting guidelines, colleges classify non-US residents in a separate racial/ethnic identity category labeled “Nonresident.” Collecting and reporting information in this way means that we do not know the racial/ethnic identity of non-US residents. Given the centrality of demographics to this study, we chose to exclude this group of students rather than attempt to account for this missing information in another way.

For our analysis exploring the demographic characteristics of virtual exchange participants, we use data from all 14 cohorts, while we use data from cohorts entering fall 2016 through fall 2019 (N=28,910), to explore study abroad participation, given that the COVID-19 pandemic interrupted study abroad activity beginning in spring 2020. We explore several student demographic characteristics to uncover patterns of access and exclusion in both virtual exchange and study abroad. Specifically, these characteristics include the student’s age at enrollment in the community college, sex, racial/ethnic identity, and whether a student received Pell funding at any point during their enrollment, which we take to be an indicator, albeit imperfect, of low-income status (Rosinger & Ford, 2019). In the analyses described in the following section, we also include an indicator of students’ first declared degree program, as prior research has shown that degree program is an important predictor of participation in study abroad (Whatley, 2021).

Table 1 provides an overview of the categories corresponding to each of these variables along with descriptive statistics for each, including the overall group of students and virtual exchange and study abroad participants separately.

Table 1: Descriptive Statistics for All Students, Virtual Exchange Participants, and Study Abroad Participants

Variable	All Students (N=41,655)	Virtual Exchange (N=1,039)	Study Abroad (N=74)
Average age	23.38 (<i>sd</i> =7.90)	22.23 (<i>sd</i> =6.61)	22.53 (<i>sd</i> =8.12)
Female	0.55	0.59	0.72

¹ Given restrictions for using data from students under the age of 18, we were unable to include these students (N=4,176) in our analyses.

Male	0.45	0.41	0.27
Unknown sex	0.00	0.00	0.01
American Indian/Alaska Native	0.00	0.01	0.01
Asian	0.04	0.03	0.01
Black	0.28	0.16	0.14
Native Hawaiian/Pacific Islander	0.00	0.00	0.00
Hispanic	0.14	0.10	0.18
Multiracial	0.04	0.03	0.03
Unknown Race/ethnicity	0.04	0.04	0.11
White	0.46	0.63	0.53
Pell	0.46	0.66	0.49
Associate in Arts	0.30	0.53	0.32
Associate in Science	0.06	0.23	0.07
Associate of Applied Science	0.53	0.20	0.54
Associate in General Education	0.00	0.01	0.00
Certificate	0.09	0.03	0.07
Diploma	0.02	0.01	0.00
No Degree Program	0.00	0.00	0.00

As shown in Table 1, students with certain demographic characteristics were poorly represented in our dataset and therefore we chose to remove these students from our primary statistical analyses. While we felt it was important to represent these students descriptively in Table 1, thus affirming their presence at the two community colleges in this study and their participation in international learning opportunities, their low numbers preclude further statistical analysis. These groups include students whose sex was unknown (N=8), students identifying as American Indian/Alaska Native (N=207), and students identifying as Native Hawaiian/Pacific Islander (N=66). Additionally, we removed students enrolled in Associate in General Education degree programs (N=38) and students with no declared degree program (N=32). We also removed students enrolled in Certificate programs (N=3,568) and Diploma programs (N=1,028) because of their low enrollment in virtual exchange and study abroad.

These exclusions resulted in a dataset of 36,708 students for the analysis corresponding to virtual exchange participation (N=983 participants) and 25,437 for the analysis corresponding to study abroad (N=67 participants). In this study, we counted a student as a virtual exchange participant if they took part in any of the virtual exchange programs described previously, such as the Global Solutions Conversations or virtual South Africa experience. We considered students to be study abroad participants if they enrolled in a college-sponsored study abroad program for academic credit.

Analysis

Typology

The process of describing the virtual exchanges that took place at Davidson-Davie and Central Piedmont within the Stevens Initiative framework began with a careful reading of the descriptions of the projects given as examples in the framework documentation. Next, the authors had an initial meeting to discuss virtual exchange typologies and to compare the descriptions from the Stevens Initiative with offerings on the Davidson-Davie and Central Piedmont campuses. Next, an author representing each institution individually categorized their own exchanges. Finally, these two authors met an additional time to review and compare how they had categorized their programs and to resolve any differences in approach. This process was facilitated by the fact that some of the above-described virtual exchange opportunities were shared among both institutions.

While some of the virtual exchanges offered at Davidson-Davie and Central Piedmont did not fit neatly into any one of the Stevens Initiative categories, we were able to categorize them broadly based upon the descriptions provided. We created tables like the framework key provided in the Stevens Initiative report and attempted to identify all associated program components. From this exercise, we were able to compare and assess similarities and differences in virtual programs at both colleges. For example, both colleges had Lead Institution and Partnership program administration types that included NGOs and higher education institutions. Davidson-Davie offered a greater variety of synchronous sessions in their Dosage/Amount of Activity by Type category, while Central Piedmont reached a greater number of students through utilization of an asynchronous platform. This exercise also showed similarities in the technology used and academic credit outcome for program participants across both colleges' virtual exchange programs.

Administrative Data

To analyze the administrative data, we ran two separate logistic regression analyses, one predicting virtual exchange participation and a second predicting study abroad participation. These analyses describe the relationship between student demographic characteristics (age, sex, racial/ethnic identity, and Pell status) and participation in these two international learning opportunities. These analyses also control for a student's declared degree program, and they include an indicator for the community college a student attended to account for differences in the college environments within which students made choices about participating in virtual exchange and study abroad. In the results tables in the following section, coefficients from logistic regression models have been converted to average marginal effects for interpretation purposes. Summary tables with results in logistic regressions' default log odds are available from the first author upon request.

Given the centrality of demographic characteristics to our study and its corresponding focus on equity, we entered racial/ethnic identity categories into our regression models as effect rather than dummy codes. Unlike dummy coding, effect coding does not require the researcher to select a reference group to serve as the group to which all others are compared. Instead, comparisons are made to

an overall mean, a practice that avoids the centering of a single racial/ethnic group's experience with international education and, important for our purposes, provides a numerical representation of the association between all our racial/ethnic categories and the two international education opportunities that are the focus of this study (Mayhew & Simonoff, 2015). This approach to entering a student's racial/ethnic identity into our regression models is important from an equity perspective, as it avoids centering or normalizing the experience of a particular, often the historically advantaged, racial/ethnic group.

RESULTS

Virtual Program Typology

The virtual exchanges at both colleges fall into several categories of activity-type based on the Stevens Initiative's typology. The Global Solutions Sustainability Challenge falls under the heading of a collaborative project-based learning project, in which students work together to create a sustainable solution to a common problem. It could also be considered a Pitch Competition since binational teams compete for funding for their idea. The Global Solutions Conversations should be categorized as Videoconference dialogue, even though the program was carefully designed to follow a set curriculum. The Study Abroad Association 360 Virtual Program is an open enrollment, asynchronous tool. The Spanish-language focused virtual exchanges can be categorized as one-on-one language learning practice. These virtual exchange opportunities are well-described within the Stevens Initiative typology.

In contrast to these structured virtual exchange programs, the exchanges with South Africa and Russia do not align particularly well with the Stevens Initiative typology. These programs were open to students enrolled in multiple courses and disciplines and they did not have a specific credential or academic outcome identified. In certain instances, they were made available to local community members as part of an informal collaborative exchange. We were also sometimes unable to identify cost per participant per the framework, as often the colleges funded these programs on students' behalf or there were no costs incurred for the collaboration.

Regression Results

Table 2 summarizes the average marginal effects depicting the relationship between demographic characteristics and virtual exchange participation (column 1) and study abroad participation (column 2). As the first row of this table indicates, a student's age was not a significant predictor of participation in either case. For other demographic characteristics, key differences emerge when comparing virtual exchange and study abroad. First, while sex was not a significant predictor of whether a student participated in virtual exchange, female students were 0.2 percent more likely than their male counterparts to study abroad ($p < .01$). Regarding racial and ethnic identification, results indicate that Black

students were 0.5 percent less likely to participate in virtual exchange, while white students were 0.3 percent more likely to do so ($p < .01$ in both cases), compared to the average student in both cases. Turning to study abroad, students whose racial/ethnic identity was unknown were around 0.4 percent more likely to study abroad ($p < .01$) and white students were 0.1 percent more likely to do so ($p < .05$), compared to the average student. Finally, students receiving Pell funding were more likely to participate in virtual exchange compared to students not receiving this funding (0.5 percent more likely, $p < .001$), but Pell recipient status was not a significant predictor of study abroad participation.

Although not a student demographic characteristic, a student's degree program appeared to play a significant role in whether a student participated in virtual exchange, but not study abroad. Students who had declared an intent to earn an Associate in Arts or an Associate in Science degree were approximately four percent more likely to participate in virtual exchange compared to those enrolled in Associate of Applied Science programs ($p < .001$ in both cases).

Table 2: Logistic Regression Results Predicting the Relationship between Demographic Characteristics and Virtual Exchange and Study Abroad Participation

Variable	(1) Virtual Exchange	(2) Study Abroad
Age at entry	-0.000 (0.000)	-0.000 (0.000)
Female	0.002 (0.001)	0.002** (0.001)
Black ^a	-0.005** (0.002)	-0.002 (0.001)
Hispanic ^a	0.004 (0.002)	0.001 (0.001)
Asian ^a	0.002 (0.004)	-0.002 (0.002)
Multirace ^a	-0.003 (0.003)	-0.002 (0.002)
Unknown race/ethnicity ^a	0.002 (0.003)	0.004** (0.001)
White ^a	0.003**	0.001*

	(0.001)	(0.001)
Pell	0.005*** (0.002)	-0.000 (0.001)
Associate in Arts ^b	0.039*** (0.002)	0.000 (0.001)
Associate in Science ^b	0.043*** (0.002)	-0.000 (0.001)
Institution	-0.084*** (0.002)	-0.003*** (0.001)
Pseudo R2	0.47	0.06
Log likelihood	-2419.12	-432.49
Sample Size	36708	25437

Note. Average marginal effects; Standard errors in parentheses; ^a Effect codes, interpretation made in comparison to the average student; ^b Comparison group for degree program is Associate of Applied Science; * p<.05, ** p<.01, *** p<.001

LIMITATIONS

One clear limitation of this research is that it includes data from only two community colleges, both located in the same state and belonging to the same community college system. Our results may not generalize to other community colleges located in other states and belonging to other systems. Moreover, the perspectives of all three authors are grounded within these state and system contexts, thus impacting ways in which we interpret our findings and consider their implications. Despite this limitation, the current study is relevant to other community college contexts in that it serves as an example of how researchers and practitioners can examine equity in access in international education programming.

Regarding our regression analyses, an additional limitation is that we are unable to account for student characteristics that are not available in our dataset, such as a student's native language, their family structure, or if they are employed. Our inability to include this information in our analyses means that our regression results are underspecified to a certain extent. Finally, although we collected data from a variety of virtual exchanges, we do not define or otherwise categorize programs in our regression models due to the low number of students who participated in each program type. Future research is needed to explore virtual exchange and study abroad participation among student demographic groups regarding qualitative characteristics of these programs.

DISCUSSION

Framed within an equity-focused research lens (George Mwangi & Yao, 2020), this study provides answers to two research questions that help to explore inclusion and exclusion regarding community college virtual international exchange. This equity lens assumes that internationalization processes are not neutral and suggests that data are likely to show evidence of historical patterns of power and privilege. Broadly speaking, our results indicate that community college virtual exchange programs are not fully represented in the Stevens Initiative program typology and that virtual exchange is more accessible to some demographic groups over others.

In response to the first research question, which inquired how and to what extent the virtual international exchange programs at Davidson-Davie and Central Piedmont fit within the Stevens Initiative's (2021) recent virtual exchange program typology, we found that while programs with a Stevens Initiative affiliation, such as the Global Solutions Sustainability Challenge, were well-described within the typology, other programs did not readily fit. One finding of interest was that these community college virtual exchanges were not always tied to a specific class or degree program, and consequently students did not always earn academic credit for participation. Additionally, program cost per student was difficult to identify, as colleges often covered this cost on students' behalf within broader institutional funding categories. In these instances, the virtual exchange programs at these two community colleges did not find a clear home within the Stevens Initiative framework. Future iterations of this and other virtual exchange typologies need to consider the extent to which specific framework categories apply to program offerings across institutional types, particularly those that have traditionally been underrepresented.

Regarding student demographics, results suggested that Black students were less likely to participate in virtual exchange while white students were more likely to do so. While it is certainly possible that Black students are impacted by barriers to participation in virtual exchange such as limited access to technology (Bali, 2014; Custer & Tuominen, 2017; O'Dowd, 2013; Oviedo & Krimphove, 2021), our finding that students from lower socioeconomic status backgrounds, as indicated by their Pell recipient status, were more likely to participate in virtual exchange, refutes this explanation. Instead, it is likely that structural barriers explain the demographic patterns observed in our data. For many Associate in Arts and Associate in Science students, who are required to take courses such as Spanish, Psychology, Communications, Humanities, and History as part of their degree requirements, virtual exchange programs are readily available through their coursework. While not excluded from virtual exchange, students in other programs, particularly Associate of Applied Science programs, must take the initiative to seek out and enroll in a virtual exchange. To the extent that racial/ethnic groups are not evenly distributed among credential programs, these inequities persist in access to virtual exchange. Clearly, one solution to this inequitable distribution of virtual exchange opportunities is to develop and implement virtual exchange programs that fit within the curricular requirements of degree programs other than Associate in Arts and Associate in Science. An

additional solution is to adopt more virtual exchange programs that accept students from all credential programs.

Implications

Virtual exchange is a relatively new addition to the international offerings at the two community colleges participating in this study. Many of these programs were launched quickly when the COVID-19 pandemic hit. As such, the time to consider equity or lack thereof among participants was simply not available to the administrators who implemented many of these programs. As Helm (2019) indicates, virtual exchange programs are not inherently equitable on their own, but must be implemented with intention. In the future, practitioners need to be much more conscientious about which students are participating in virtual exchange programs such as those represented in this study. While some students self-selected into these opportunities, others were a mandatory part of a class. Most of the courses participating in virtual exchange tend to be tied to academic programs with fewer underrepresented students. Bringing virtual exchanges into other academic programs, particularly Applied Associate in Science programs and diploma or certificate programs, will help to address the inequities found in this study. Providing more training and opportunities for faculty to utilize virtual exchange will increase the practice of integrating these opportunities across disciplines. By highlighting inequities, practitioners can encourage the administration to provide more resources for virtual exchange. However, while closing the equity gap in virtual exchange, care must be taken to not track underrepresented students into virtual experiences instead of traditional study abroad programs, as such a practice would inevitably create additional inequalities among participation in international education opportunities, broadly defined.

CONCLUSION

The patterns observed in our data call into question the extent to which virtual exchange serves a democratizing function in international education. Although online intercultural learning has recently been called “a logical next step towards a more inclusive, innovative approach to internationalisation” (de Wit, 2016, p. 76) and, especially since the onset of the COVID-19 pandemic, numerous scholars and practitioners have promoted its potential to increase access to international education opportunity (Abdel-Kader, 2021; de Wit, 2016; Oviedo & Krimphove, 2021; Whalen, 2020), our results suggest that the mere implementation of virtual exchange programs does not translate into an automatic decrease in differential access (Helm, 2019). As with all educational programming, this study suggests that equity must be centered in virtual exchange programming for such an outcome to be obtained.

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