

Does Virtual Exchange Shape Student Engagement, Social Capital and Tolerance?

An Experimental Study among UAE and US-Based Students

Report

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Executive Summary

In the field of education in particular, due to financial constraints, cultural norms, or the practical impacts of the COVID lockdowns and rising instability, students increasingly interact virtually, rather than in person. Scholars debate the impact of new technologies on social capital, tolerance, and student success, but despite the post-pandemic world in which we now live, little or no research examines the impact of student interaction using Zoom, including in the context of Virtual Exchange (VE). The AUS/PSU research team, wanting to enrich the literature and support practitioners, piloted a survey instrument in Fall 2022, which allowed them to uncover some of the complex effects of the VE experience and uncovered some positive and potentially negative impacts of the practice.

A study team from the American University of Sharjah (Katsos) and Portland State University (Benstead, Hughes, and Mudiamu), with support from the Stevens Initiative, developed and implemented a survey tool designed to assess the impact of Virtual Exchange (VE) on student engagement, social capital, and cross-cultural understanding among students at the American University of Sharjah (AUS) in the United Arab Emirates and Portland State University (PSU) in the United States.

Using an experimental design with pre- and post-surveys—along with a pedagogical approach that assigned course credit to taking the surveys—the team surveyed 95 students across both institutions and focused their survey on more than 30 dependent variables across four themes: (1) assessment of the course, (2) student success and engagement, (3) political engagement and social trust, and (4) tolerance and intercultural attitudes.

Despite the small sample size in this pilot study, the team found statistically significant experimental results for three critical outcome variables measuring social capital, tolerance, and intercultural understanding. The findings thus suggest *that VE shapes students' attitudes in ways that similar courses without a VE component do not*. UAE-based students developed significantly greater social capital—that is, trust of others from their society—as a result of participating in the VE. US students were also significantly more likely to agree that citizens should be informed of international issues as a result of participating in the Virtual Exchange with students in the UAE, while UAE-based students already believed this to be the case and were thus unaffected by the exchange. Yet students in both the US as well as the UAE were significantly *less* likely to state that they would like to develop friendships with people from the other country as a result of the VE.

Some of the findings thus raised the possibility that the VE could be associated with a decline in tolerance or positive feelings about the partner country. As a result, the authors urge more research to ensure that VE, as a tool of public diplomacy and foreign policy, abides by the Do No Harm (DNH) doctrine (OECD, 2009). Researchers need to know more about the positive benefits of VE, as well as how to mitigate any potential harms that might arise from an experience like it. And, they must explore how to support students like those at PSU who are juggling childcare and work in addition to the VE.

In response to these findings, the researchers' main recommendation, among others, is establishing a data collection hub that will collect data over time and space for multiple classrooms. The researchers should be trained in survey methods and statistical methods. This will allow even more researchers to understand and improve VE as a pedagogical tool that can potentially both improve student learning and engagement as well as build attitudes that facilitate engagement and cooperation within and across cultures after graduation.

Introduction

The study team at the American University of Sharjah (Katsos) and Portland State University (Benstead, Hughes, and Mudiamu) developed and implemented a survey tool designed to assess the impact of Virtual Exchange (VE) on student engagement, social capital, and cross-cultural understanding among a sample of 95 students at the American University of Sharjah in the United Arab Emirates and Portland State University. As part of the exchange, teams of students engaged in a project in which they researched and proposed strategies for reaching a Sustainable Development Goal (SDG) in one of the MENA region countries. Using an experimental design in which two treatment sections at AUS and one section at PSU participated in the VE and two control sections at AUS did not participate in the VE, the researchers established an effective methodology for assessing the impact of VE on student engagement and attitudes.

The survey instrument focused on 32 dependent variables across four themes: (1) assessment of the course, (2) student engagement, (3) political engagement and social capital, and (4) intercultural attitudes and tolerance. Despite the small *n*, the researchers found statistically significant impacts of VE on three variables measuring social capital, tolerance, and intercultural understanding. However, the results of the VE were complex and not positive in every case. UAE-based students developed greater social capital—that is, trust of others from their society—as a result of participating in the exchange. US students were more likely to agree that citizens should be informed of international issues as a result of participating in the VE, while UAE-based students already believed this to be the case and were thus unaffected by the exchange. But, students in both the US as well as the UAE were *less* likely to state that they would like to develop friendships with people from the other country as a result of the exchange.

The pilot study's small sample size should caution against generalization. Given the statistically significant impacts of VE on several outcomes related to building healthy democracies and maintaining international cooperation, the findings support the need for further research into the potential for VE to enhance student learning. At the same time, some of the analyzes suggest that the VE could be associated with more negative views of the partner country or cultures. Some students struggled with undertaking a group project while also having significant childcare responsibilities and the need to work, often full-time, while studying. As a result, the researchers urge more research to ensure that Virtual Exchange, as a tool of public diplomacy and foreign policy, abides by the Do No Harm (DNH) doctrine (OECD, 2009). We need to know more about the positive benefits of VE, as well as how to mitigate any potential harms that might arise in the complex array of VE experiences among different countries and student profiles.

In response to these findings, the researchers' main recommendation, among others, is establishing a data collection hub that will collect data over time for multiple classrooms. The researchers should be trained in survey and statistical methods. This will allow more practitioners to understand and improve VE as a pedagogical tool that can potentially both improve learning and engagement as well as build attitudes that facilitate engagement and cooperation within and across cultures after graduation.

By highlighting the impact of virtual interactions on tolerance and social capital—and the potentially negative or complex impacts—our research contributes to literature on political attitudes and practitioners seeking to promote cooperative relationships between US and MENA societies.

Literature Review

Scholar-practitioners are exploring the efficacy of VE Virtual Exchange in course evaluations, level of student engagement, enhancement of social capital, and development of intercultural attitudes (Landorf, Doscher & Hardwick, 2018; Barbosa et al., 2020; Daniel et al., 2003; Deardorff, 2022). Student overall course satisfaction and performance with the VE Virtual Exchange courses trend positive (West et al. 2022; Appiah-Kubi & Annan, 2020) with the strongest learning outcomes being improved student collaboration and cross-cultural communication skills (O'Dowd, 2021; Zak, 2021). While VE is seen to enhance disciplinary knowledge for students (Vahed & Rodriguez, 2021), there is more of a debate on its effectiveness in building social capital (Júnior & Finardi, 2018; Harrison, 2015). Many studies show that VE Virtual Exchange improves intercultural competence in student participants (Zak, 2021). The current literature relies on qualitative and case studies and can benefit from more methodological diversity and empirical approaches to understanding the impacts of VE Virtual Exchange (Zak, 2021).

Political scientists are also interested in understanding the social processes that foster tolerance (Jones & Bajan, 2021) and reduce negative stereotypes and biases with implications increasing interpersonal trust and reducing conflict. Classroom-based field experiences provide unique and ideal contexts in which to do so (Jones, 2015), as well as to compare VE with traditional study abroad experiences. In a natural experiment among study abroad students, Jones (2015) finds that students returning were significantly more likely to say they had fewer attitudes in common with those in their host country, but were more patriotic toward their own country. But she suggests that what develops may well be “enlightened nationalism”—a sharper sense of national difference, and pride in that difference, tempered by tolerance and the realization that such differences need not be threatening” (no page).

Like Jones' work, we too find that the results of VE on attitudes may be complex and must be interrogated. No one study offers a definitive answer on how VE shapes attitudes because every assignment—every student—is different. Crucially, we need to know if VE has positive impacts and if so what they are. We also need to know if there are harms associated with VE that must be avoided.

Moreover, political scientists also want to understand the processes that support social capital, due to its association with strong democratic engagement (Putnam, 2000) and the durable resolution of civil and international conflict (Fred-Mensah, 2004; Koizumi, 2019). Putnam defines social capital as “connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them” (2001, p. 19). Social capital is the foundational glue that makes democracies and economies function. Theoretically, stronger social capital fosters not only more robust democracies but also the confidence needed to sustain peacebuilding during and after conflict. This is because social capital involves not only trust toward members of one's group (that is, bonding capital in homogenous groups) but also toward members of one's social group who are different (that is, bridging capital in heterogeneous groups) (Gittell & Vidal 1998; Putnam 2000). Social capital helps create social bonds that support peacebuilding, improved democracy, and more robust economic cooperation.

A key mechanism by which social capital develops is through community associations, but how VE could function is less clear. Social capital theory argues that when citizens participate in civil society organizations, their experiences should lead them to develop interpersonal trust and tolerance (Putnam, 2000). Social could also develop through VE, but this must be explored. Existing literature suggests that social media and networking sites may weaken a sense of community by limiting in-person contact, or they may create new forms of online community that enhance relationships and social trust. A study of a Toronto suburb found that high-speed Internet access and a local discussion group increased social capital by strengthening weak social ties and facilitating mobilization around issues of concern (Hampton & Wellman, 2003). In a survey of undergraduates, Diani (1992) found a strong association between Facebook use and bridging social capital (that is, trust between people from different social groups) and that students with lower self-esteem and life satisfaction experienced greater psychological well-being through the use of the social network. But we have little evidence about how VE using Zoom shapes social capital or attitudes.

Methodology

In order to explore these processes, we undertook this pilot study within the context of a VE between the American University of Sharjah (AUS) and Portland State University (PSU) supported by the Stevens Initiative and the Aspen Institute. In Fall 2022, Katsos and Benstead piloted a VE course with INS120 Global Problems (AUS) and PS 361U Introduction to Middle East Politics, assigning a common project 30 percent of each course's overall grade. Working in groups, students selected a UN Sustainable Development Goal (SDG) and one MENA country and created a multimedia presentation proposing a strategy for addressing the SDG. The faculty (Katsos and Benstead) gathered anecdotal information about the students' experiences from discussions with them and course evaluations.

The following year, Katsos and Benstead, working in collaboration with PSU colleagues Mudihamu and Hughes, sought Aspen Institute support to conduct this experimental study, which Katsos and Benstead implemented during their second offering of the VE exchange in Fall 2022. Using an experimental design with pre- and post-surveys, the researchers piloted a survey instrument that allowed them to uncover the complex effects of the VE experience. (See Appendix 1 and 2 for the surveys).

Data and Measurement

The study used an experimental design to assess the impact of VE participation on students' attitudes and engagement. The research was reviewed and approved by PSU's IRB. There were four groups of participants: A treatment group consisting of one class of students at PSU and one class of students at AUS who participated in VE and a control group consisting of two classes of students at AUS who completed the same class and group project with members of their own class in the UAE (i.e., the non-VE sections). Appendix 3 (Table A3.2) shows statistically insignificant relationships between key demographics and assignment to the treatment and control groups in the pooled dataset (i.e., pre- and post-surveys). This indicates that random assignment to the three AUS sections (one treatment and two control) was effective and allowed for comparisons both within as well as between students, comparing the responses of students before and after the course as well as across the control and treatment groups at the end of the study.

Table 1 shows the number of students in the classes and the response rate to the survey received in each of the control and treatment groups and across the pre- and post-surveys. Although the survey was anonymous and voluntary, students were asked to send an email to the instructor after taking the surveys in order to earn a small credit in the course (about 2% for each of the pre- and post-test surveys). The response rate was about 100% in the pre-test and 91.7% for the post-test for PSU students and 92.9% and 64.4% for AUS students. (For the full response rates by section, see Appendix 3 Table A3.1).¹

Survey

There were 32 dependent variables included in the questionnaire. (See Appendix 4 Table A4.1 for a list of the dependent variables and full experimental analysis). These variables were grouped into four broad categories: (1) evaluation of the course, (2) learning outcomes and student engagement, (3) political engagement and social capital, (4) intercultural attitudes and tolerance.

¹ We also assessed whether attrition between the pre- and post-survey may have biased our experimental results. We find that there is a substantively small but statistically significant attrition of less affluent students from PSU between the two tests. The opposite was true for AUS. Given the substantively small difference, it is unlikely that attrition explains the experimental results.

Table 1. Group Sizes (Number of Respondents Completing the Survey in Each Group)

Group	Time 1 (Pre-test)	Time 2 (Post-Test)
AUS Section 1 (VE Treatment)	26	16
AUS Section 2 (Control)	52	21
AUS Section 3 (Control)		
PSU-Section 1 (VE Treatment)	17	12
<i>Total</i>	95	49

Demographic Background of Students

The survey also included measures of key independent variables such as socioeconomic status, gender, and religion to describe the student samples and to explore preliminary heterogeneous treatment effects, although we only analyzed average treatment effects in this pilot student due to the small sample. The demographic questions included in the study illustrate different backgrounds in the PSU and AUS student bodies. (See Appendix 3 Table A3.3).

Crucially, PSU students are significantly older, with a mean age of 26.7 years for PSU students versus 19.9 years for the AUS students ($p < .001$). The students also had a significantly different gender profile. PSU students identified as male (26%), female (67%), and non-binary (8%), compared to male (33%) and female (67%) among AUS students ($p < .05$). PSU students were often US-born (67%), with 33% born outside the US, while among the AUS students, 62% were born in the UAE, 5% in the US, and 32% in neither ($p < .001$). Familial profiles also differed. 17% of PSU have children, compared to none among AUS students ($p < .05$).

This is underscored by differences in socioeconomic background. AUS students had higher SES than PSU students, both during their growing-up years and presently. Among PSU students, 12% did not have enough resources growing-up, 50% had enough, and 39% had enough and could save ($p < .01$). For AUS students, the distribution was 2%, 27%, and 71%, respectively. Currently, 27% of PSU can save, compared to 74% of AUS students ($p < .001$). 46% of PSU students, compared to 14% of AUS students are the first in their families to go to university ($p < .05$). 46% of PSU students plan to pursue graduate education, compared to 79% of AUS students who plan to or already have. These differences help us understand why PSU students more often reported in the open-ended responses challenges to participating in the VE, which took place either late at night or early in the morning and posed a barrier for students with significant childcare responsibilities and the need to work, sometimes full-time.

AUS students are significantly more likely to have traveled internationally than PSU students ($p < .001$). 67% of PSU students in the post-survey had traveled to countries such as Canada ($n=2$), Mexico ($n=2$), Costa Rica, Japan, Italy, Panama, Lebanon, Germany, UK, Peru, Jamaica, China, Uganda, Ethiopia, Turkey, and Qatar. 92% of AUS students had traveled internationally to Canada, Austria, Singapore, China, Russia, South Korea, France ($n=7$), Indonesia, UK ($n=4$), Sri Lanka ($n=3$), Jordan, India ($n=3$), Germany ($n=6$), Oman ($n=5$), UAE ($n=2$), Saudi Arabia ($n=3$), Switzerland ($n=5$), KSA ($n=2$), Kuwait, Malaysia ($n=2$), United States ($n=3$), Turkey ($n=9$), Mauritius ($n=2$), Bahrain, Nepal, Uzbekistan, Albania, Pakistan, Portugal, South Africa ($n=3$), Norway, Qatar, Netherlands, Belgium, Kazakhstan, Georgia, Thailand ($n=3$), China ($n=2$), Seychelles, Lebanon, Syria ($n=3$), Nigeria, and Egypt.

Findings

We analyzed the 32 outcome measures (See Appendix 4) for average treatment effects and found three statistically significant results of the VE on social capital and tolerance, including one that found a negative or complex impact of VE. *To summarize, UAE-based students developed greater social capital—that is, trust of others from their society—as a result of participating in the exchange. US students were more likely to agree that citizens should be informed of international issues as a result of participating in the VE, while UAE-based students already believed this to be the case and were thus unaffected by the exchange. But, students in both the US as well as the UAE were less likely to state that they would like to develop friendships with people from the other country as a result of the exchange. (Results that are statistically significant are italicized).*

(1) Evaluation of the Course

There was no statistically significant impact of the VE on course evaluations, but the questions offered insights about potential improvements to the VE experience. There were no significant differences across the treatment and control groups or across the two contexts (PSU and AUS) in terms of students' evaluations. Overall, students believed that the course was worthwhile, with more than 91% of students stating this (Measure 18; See Appendix 4 Table A4.1 for a full list of outcome variables). While students expressed mixed views about whether they would take another VE, 56% of those who took part in the VE sections said they would consider enrolling in another VE (Measure 25). Surprisingly most students did not find the course overly onerous. The modal response in all treatment and control groups indicated that students found the course to be a similar amount of work to their other classes (Measure 23).

About half of the VE participants at PSU and AUS identified positive aspects of the experience, such as the chance to meet new people from other cultures or come out of their shells. Half focused on negative elements, such as the difficulty of getting in touch with others and scheduling time to work on the project. While most students did not rate the course as being more time-consuming than their other classes, they did encounter challenges (and perhaps valuable learning opportunities) associated with navigating different cultural backgrounds and time zones.

AUS students who participated in the VE were more likely to recommend the course to a friend, but the differences are not statistically significant. 81% of those in the AUS VE group would recommend the course, compared with 76% in the AUS control sections and 64% of PSU VE students (Measure 24). While PSU students did not rate the VE as less worthwhile than AUS students, PSU students have more work and family obligations that may make VE less appealing.

More research is needed with a larger sample size to understand how VE affects course evaluations. However, what seems clear is that the experience was positive for some students and negative for others, perhaps due at times to idiosyncratic factors like personality or more systematic elements such family and work responsibilities.

(2) Student Engagement

Content-based learning outcomes. The findings suggest that the content-based learning objectives of the course were achieved. 100% of AUS VE students said that the class made them understand more about international affairs, compared to 85% in the AUS control group, although the difference is not statistically significant. As expected, PSU and AUS were significantly more likely to state that they understood the importance of the United Nations SDGs after the course than before the course.

Student engagement. There were no significant impacts of the VE on the desire to do well in their studies (Measure 1), perceived confidence to ask questions (Measure 2), perceived confidence to contribute to class discussion (Measure 3), perceived ability to connect coursework to everyday life (Measure 4), or

perceived ability to create connections across courses (Measure 5). This may be because these measures of student engagement were not directly related to the SDG assignment or that they develop over the course of multiple university experiences.

(3) Political Engagement/Efficacy and Social Capital

Political interest/engagement. *Students did not differ significantly across groups in their desire to make a difference in their local community (Measure 9), but the VE was associated among US students with a stronger belief that citizens should stay informed about international issues. Following the VE, PSU students are significantly more likely to state that citizens should stay informed about international issues ($p < .001$). (Table 2). Prior to the VE, only 19% of PSU students believed this, while 91% believed this after the VE. AUS students universally agreed with this statement before the course and therefore there was a ceiling effect that prevented us from finding a significant experimental effect among AUS students.*

Table 2. Effect of VE on Belief that Citizens Should be Informed About World Issues

Group	Time 1 (Pre)		Time 2 (Post)	
	Disagree	Agree	Disagree	Agree
1) AUS Section 1 (VE-Treatment)		100.00%	12.50%	87.50%
2) AUS Section 2 (VE-Control)		100.00%		100.00%
2) AUS Section 3 (VE-Control)				
3) PSU-Section 1 (VE-Treatment)	81.25%	18.75%	9.09%	90.91%

Question wording: Measure 12: “It is crucial that citizens of any nation stay informed about international issues.” Agree=1, Disagree=0.

Although the differences are not statistically significant due to the small n, students in the PSU VE group and the AUS VE group developed a stronger plan to get involved in politics as a result of the experience. The mean response among AUS VE students was 1.69 before the course and 2.00 after. The mean response among PSU VE students was 2.50 before the course and 2.73 after the course. (Measure 15). There are no significant impact of the VE on the plan to get involved in one’s community. (Measure 16).

Political efficacy. PSU students were more likely to agree after the VE than before that they are able to make a difference in their local community, although the effect does not reach conventional significance ($p < .10$). (Measure 10). There are no differences across the groups in terms of whether they think the world’s problems are too difficult to understand. (Measure 11).

Social capital. *There is a statistically significant improvement in interpersonal trust among AUS students who participated in the VE. Prior to participation, 58% stated that people are generally trustworthy, compared with 94% after participation ($p < .05$). The impact among AUS students who worked on the group project with their own classmates (i.e., the control group) increased a small amount in interpersonal trust. There was no increase in interpersonal trust for PSU students as a result of participating in the VE. (Measure 14; Table 3) This difference may be because of the authoritarian vs. democratic political contexts that the students are embedded in. The finding suggests that the difficult work of collaborating across time zones with others in another country is associated with a greater bump in social trust toward those in one’s own society.*

Table 3. Effect of VE on the Belief that People in My Society are Generally Trustworthy

Group	Time 1 (Pre)		Time 2 (Post)	
1) AUS Section 1 (VE-Treatment)	42.31%	57.69%	6.25%	93.75%
2) AUS Section 2 (VE-Control)	51.92%	48.08%		
2) AUS Section 3 (VE-Control)			45.00%	55.00%
3) PSU-Section 1 (VE-Treatment)	68.75%	31.25%	72.73%	27.27%

Question wording: *Measure 14*: “People in my society are generally trustworthy.” Agree=1, Disagree=0.
1 vs 2 in the pre-test: $\chi^2(1) = 0.6414$ Pr = 0.423

(4) Intercultural Attitudes

Surprisingly, very few measures of intercultural attitudes were impacted by the VE experience. In fact only one is significant, and it indicated a negative impact of the VE. Among students from both AUS as well as PSU, students who participated in the VE were less likely after the experience than before to state that they would like to be friends with people from the exchange country. (Measure 22). The effect is large enough among AUS students to reach statistical significance. Before the VE, 62% of AUS students in the treatment group stated that they believed that participation would increase their interest in making friends from the US, while only 25% said that it did ($p < .05$). (Table 4). Among the AUS control group, however, there was no change. 64% before and 58% after said that they believed that the course would or did increase their interest in making friends with others from the US, although the difference was not statistically significant.²

Table 4. Effect of VE on Desire to Make Friends with Others from the Partner Country

Group	Time 1 (Pre)			Time 2 (Post)		
	No	Maybe	Yes	No	Maybe	Yes
1) AUS Section 1 (VE-Treatment)		38.46%	61.54%	6.25%	68.75%	25.00%
2) AUS Section 2 (VE-Control)		36.00%	64.00%	5.88%	35.29%	58.82%
2) AUS Section 3 (VE-Control)						
3) PSU-Section 1 (VE-Treatment)		13.33%	86.67%	9.09%	27.27%	63.64%

Question wording: *Measure 22*: “To what extent do you believe participation in virtual exchange impacted your interest in making friends from your partner country (i.e., US or UAE)?” Increased interest=3, Did not alter interest=2, Decreased interest=1./“How do you believe participation in virtual exchange will impact your interest in making friends from your partner country (i.e., US or UAE)?” Increased interest=3, Did not alter interest=2, Decreased interest=1.

² It is worth noting that there is an increase in the desire to study abroad among the AUS VE group between the pre- and post- tests, although the difference is not statistically significant. Before the VE, 24% said yes; after, 31% said yes. Among the AUS control sections and the PSU students, there was a decline in the desire to study abroad (Measure 7).

This might be due to the assignment, which called attention to social and development problems in the MENA region. Had the assignment focused on problems in the US, the effects might have been different. More data are needed to understand the impact, and also to ensure that VE as an intervention adheres to the doctrine of Do No Harm. Were an intervention to lead students to develop more negative views of people from the partner culture, this would be a concern. However, if the experience leads to stronger social capital, this impact might outweigh any changes to intercultural attitudes. Positive attitudes are important, but a willingness to accept those who are different and engage constructively and peacefully with them (i.e., bridging social capital)—perhaps even if you don't like them—could be more crucial.

Intercultural attitudes. Indicators of intercultural attitudes suggest that the VE improved tolerance among AUS students, but had no impact or decreased intercultural understanding and PSU students. Effects were not statistically significant. Among AUS students who begin the VE, 23% believed the course would change their view of the world. This proportion increased to 38% who perceived that their view of the world changed as a result of the course. Among AUS students who were not enrolled in the VE, 22% expected that their views of the world would change as a result of the course, which increased only marginally to 25% after the course. Similarly, among PSU students who were enrolled in the VE, 13% expected that their views of the world would change as a result of the course, which fell to 9% after the exchange. (Measure 21).

Although the differences are not statistically significant, there is an increase during the course in the extent to which both groups of AUS students disagree that ME cultures have negative aspects, while disagreement decreases among PSU students after the course. (Measure 26).

There are no significant differences in belief that western cultures have negative aspects. (Measure 27). AUS students in the VE exhibited greater agreement that the Middle Eastern people are victims of unfair stereotypes than AUS in the control group, but the effect does not reach conventional significance levels ($p < .10$) and is substantively insignificant (a difference of .01 units on a four-point scale). (Measure 28).³

Implications

Conclusions for Institutions and Organizations

This study has several implications for institutions and organizations who conduct VE Virtual Exchange. First, because VE Virtual Exchange is a tool of foreign policy and public diplomacy, it is important that the Do No Harm (DNH) doctrine (OECD, 2009) be considered by faculty and administration supporting VE Virtual Exchange. Second, it is useful to consider the demographics of student cohorts when preparing students for the VE, especially between institutions that serve primarily non-traditional students being matched with those that serve traditionally-aged students. Non-traditional students usually have more responsibilities outside of their studies, which gives them less flexibility to engage synchronously. This should be considered in the selection of synchronous and asynchronous activities by faculty in the VE course. This approach supports the DNH doctrine by having faculty partners address this in the course

³ There are no significant differences in the extent to which the groups believe Americans are victims of unfair stereotypes (Measure 29). Although the differences are not statistically significant, students in the AUS exchange exhibited greater agreement after the VE that it is important to interact with people from different cultures. (Measure 30). Although there are no significant differences, students in the AUS VE developed greater agreement that it is important to treat everyone with respect, while those in the AUS control decreased in this belief, as did the PSU students in the VE. (Measure 31). There are no significant differences in the mean number of countries the students wish to visit in the future, although all groups increased in the average number they identified and their desire to visit KSA. There is no significant difference in or pattern in responses to the desire to visit the US and the UAE. (Measure 32).

design and in the student engagement activities. Third, in cases where there is a significant time difference, focus on asynchronous communication and activities to build student engagement; synchronous may be too burdensome for traditional as well as non-traditional students to manage. Faculty might approach the emphasis on more asynchronous communication as action research as a way to assess their pedagogical impact in VE. Fourth, institutions need to offer faculty more dedicated and targeted support in order to develop this pedagogy intentionally. Support could include better training on audio-visual software, digital privacy regulations, leading virtual teams, and other topics related to digital engagement. Lastly, institutions should be encouraged to include Virtual Exchange VE in their formal international partner MOUs to establish recognition for VE Virtual Exchange and consider developing a series of co-taught VE courses as part of a joint degree program or other collaboration.

Recommendations for VE Practitioners

For practitioners, including VE coordinators and faculty, this study recommends several value-added activities. First, it is important to have a strategy for data collection which includes giving the survey instrument at the right time (usually on the first and last day of class), devoting class time to taking to surveys, and assigning points in the course for considering taking the survey. Second, in order to compound the value of the research being conducted, a research hub or large data collection project is recommended. Such a project could bring in researchers with skills in experimental design, instrumentation/questionnaire design, and data analysis. Third, make data collection part of the faculty cohort VE training program and give financial incentives to faculty who participate in data collection. Since faculty are at the heart of the VE endeavor, the fourth recommendation is to encourage faculty self-selection into the VE course by offering a course release to design a new course for VE, which is not current practice. Fifth, allowing for lower course enrollment in a VE course while faculty are piloting it would allow for more attention to be paid to the quality of the intercultural learning. Lastly, while VE has been promoted as interdisciplinary, usually between the VE projects, but sometimes within each course itself, we recommend that discipline-specific and student learning outcomes be developed in course design and syllabi. This will support VE in the academic disciplines which is very important to faculty teaching and research.

Further Directions for Research

The methodology used in the pilot study, including the research design and the questionnaire design, resulted in valid and reliable results. The researchers have high confidence that the changes observed in the dependent variable can be attributed to the treatment (i.e., the VE).

The main shortcoming of the study is the small number of students in the study (95 answered the pre-test and 49 answered the post-test). As a result, the findings of the average treatment effects should mainly be suggestive. Yet they resulted in data that illustrate just how complex the effects of VE on students may be. The effects could depend heavily on the topic of the assignment, the type of academic institutions, and many other factors.

As a result, we recommend repeating this study using a questionnaire that is largely the same but which trims the number of questions on student engagement, given the limited number of significant findings on those indicators, and which adds more questions on tolerance, a sense of nationalism, attitudes about international conflict, measure of pro-social attitudes (e.g., tolerance toward refugees), and attitudes about gender issues, among others.

We recommend that the Stevens Initiative and the Aspen Institute consider funding a research hub that would regularly collect and analyze data from students before and after VE exchanges. This might involve integrating data collection into the requirements of the incoming cohorts and/or providing small stipends on an ongoing basis to faculty willing to re-implement a VE and implement the questionnaire in their courses.

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Appendix

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Appendix 1: Pre-Course Survey Instrument

Introduction

1. **Thank you for your willingness to participate in this in class survey. Your participation is voluntary and you may skip questions or stop the survey at any time. Your answers are completely anonymous and confidential. Your name will not be recorded and there will be no way to know what your answers were. There are no risks to participating. May we proceed?**

Yes

No

2. **Prof. Katsos and Prof. Benstead are inviting you to take part in a brief online survey about student engagement. This survey takes ten minutes and participation is voluntary. No one is aware that you were invited to participate in this survey. Your answers will be anonymous and you are free to stop the survey at any time. Many students at our university are being invited to participate in this anonymous survey which will be used to understand student engagement in their studies and broader global issues.**

What happens to the information collected? Information collected from you for this research will be analyzed by researchers to understand students' engagement with course materials.

How will I and my information be protected? We will take measures to protect your privacy. The survey will never ask for or record your name or location. Your answers are completely anonymous. Despite taking steps to protect your privacy, we can never fully guarantee that your privacy will be protected.

What if I want to stop being in this research? You do not have to take part in this study, but if you do, you may stop at any time. You have the right to choose not to join in any study activity or completely stop your participation at any point without penalty or loss of benefits you would otherwise get. Your decision whether or not to take part in research will not affect your relationship with the researchers, Portland State University, or the American University of Sharjah.

Will it cost me money to take part in this research? There is no cost to taking part in this research, beyond your time.

If you have questions or concerns, contact the research team at: Kristina Katsos (kkatsos@aus.edu) and Dr. Lindsay Benstead (benstead@pdx.edu)

Who can I speak to about my rights as a research participant? The Portland State University Institutional Review Board ("IRB") is overseeing this research. The IRB is a group of people who review research studies to make sure the rights and welfare of the people who take part in research are protected. The Office of Research Integrity is the office at Portland State University that supports the IRB.

**If you have questions about your rights, or wish to speak with someone other than the research team, you may contact: Office of Research Integrity PO Box 751
Portland, OR 97207-0751 Phone: (503) 725-5484 Toll Free: 1 (877) 480-4400 Email:
psuirb@pdx.edu**

Consent Statement

I have had the chance to read and think about the information about the study. I have asked any questions I have, and I can make a decision about my participation. I understand that I can ask additional questions anytime while I take part in the research.

May we proceed with the survey?

- Yes
- No

3. Which course are you enrolled in?

- INS120 Section 1 (AUS)
- INS120 Section 2 (AUS)
- INS120 Section 3 (AUS)
- PS 361U (Introduction to Middle East Politics) at Portland State University

Demographics 1

1. What is your age in years?

2. What is your major(s) and/or minor(s) in your current degree program? *Check all that apply.*

- Social Sciences - ex. Psychology, Sociology, Political science, International Relations etc. (Specify) _____
- Humanities - ex. Languages, Performing Arts, Media Studies, History etc. (Specify) _____
- Natural Sciences and Engineering - ex. Biology, Chemistry, Computer Engineering etc. (Specify) _____
- Business
- I'm not sure yet

3. Are you currently?

- First year undergraduate
- Second year undergraduate
- Third year undergraduate
- Fourth year undergraduate
- Fifth or more year undergraduate
- Postbac student
- Graduate student

4. What is your gender?

5. Were you born in the US or UAE?

- US
- UAE
- Neither

6. What language(s) do you speak at home? (Check all that apply)

- English
- Arabic
- French
- Spanish
- Urdu
- Farsi
- Hindi
- Chinese
- Korean
- Japanese
- Swahili
- Other _____

7. What is your religion/spiritual affiliation?

8. Do you have children?

- Yes
- No

Student Success and Engagement in Studies

Speaking of your classes in general, please tell us the extent to which you agree or disagree with the following statements:

1. It is important to me to do well in all of my classes.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

2. I am confident about asking questions in my classes when I don't understand something.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

- 3. I contribute to discussions in most of my class sessions.**
 Strongly Agree
 Agree
 Disagree
 Strongly Disagree
- 4. I can make connections from learning in my coursework to my everyday life.**
 Strongly Agree
 Agree
 Disagree
 Strongly Disagree
- 5. I am able to recognize themes and connections between different courses that I take.**
 Strongly Agree
 Agree
 Disagree
 Strongly Disagree
- 6. I feel confident in my ability to learn new information.**
 Strongly Agree
 Agree
 Disagree
 Strongly Disagree
- 7. Do you have a plan as to how you will complete your degree?**
 Yes
 No
 Maybe
- 8. Do you plan to pursue graduate studies?**
 Yes
 No
 Maybe
- 9. Do you have a professional or personal goal for after your degree completion?**
 Yes
 No
 Maybe
- 10. Do you plan to Study Abroad before graduation?**
 Yes
 No
 Maybe

11. Which best describes your level of interest in taking this class?

- Very Interested
- Somewhat Interested
- Not Interested

Political Engagement and Efficacy/Social Capital

Please tell us if you agree or disagree with the following statements:

1. I'm motivated to make a difference in my local community.

- Agree
- Disagree

2. I am able to make a difference in my local community.

- Agree
- Disagree

3. Problems in the world are too complicated for me to have an impact.

- Agree
- Disagree

4. Activism, like community groups, rarely makes a difference.

- Agree
- Disagree

5. It is crucial that citizens of any nation stay informed about international issues.

- Agree
- Disagree

6. International politics is too complicated for everyday citizens to understand.

- Agree
- Disagree

7. People in my society are generally trustworthy.

- Agree
- Disagree

8. Are you a member of any organized group, association, or club?

- No
- Yes

9. If you had a personal emergency, how many people would you ask for help?

- None
- One
- Two
- Three or more

Please indicate your thoughts about the following statements:

10. I plan to get involved with political issues in my country in the future.

- Yes
- No
- Maybe

11. I am interested in volunteering in my community.

- Yes
- No
- Maybe

12. I think this class will make me understand more about international affairs.

- Yes
- No
- Maybe

13. Currently, I understand what sustainability is.

- Yes
- No
- Maybe

14. Currently, I understand why the United Nations Sustainable Development Goals (SDGs) are important.

- Yes
- No
- Maybe

Interest in Partner Region and Its People, Tolerance

To what extent do you agree or disagree with the following statements:

1. Middle Eastern cultures have many negative aspects.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

- 2. Western cultures have many negative aspects.**
 Strongly Agree
 Agree
 Disagree
 Strongly Disagree
- 3. People from the Middle East are sometimes victims of unfair stereotypes.**
 Strongly Agree
 Agree
 Disagree
 Strongly Disagree
- 4. People from the United States are sometimes victims of unfair stereotypes.**
 Strongly Agree
 Agree
 Disagree
 Strongly Disagree
- 5. It is important to interact with people from different cultures, even if you may have different attitudes than they do.**
 Strongly Agree
 Agree
 Disagree
 Strongly Disagree
- 6. It is important to treat everyone with respect, even if they have different beliefs than you.**
 Strongly Agree
 Agree
 Disagree
 Strongly Disagree
- 7. Participation in this class will likely change my views of the world.**
 Strongly Agree
 Agree
 Disagree
 Strongly Disagree
- 8. Have you ever travelled internationally? If so, please list up to three nations that you have visited.**
-

9. How many countries have you visited (including the one you live in)?

- Only the country I live in
- Visited 1 or 2
- Visited 3-10 countries
- Visited 11 or more countries

10. Have you ever visited or lived in?

	No	Yes
United States	<input type="checkbox"/>	<input type="checkbox"/>
United Arab Emirates	<input type="checkbox"/>	<input type="checkbox"/>
Other MENA country (other than UAE)	<input type="checkbox"/>	<input type="checkbox"/>
China	<input type="checkbox"/>	<input type="checkbox"/>
Europe	<input type="checkbox"/>	<input type="checkbox"/>
Russia	<input type="checkbox"/>	<input type="checkbox"/>

11. If you have the opportunity in the future, would you like to visit the following countries for the first time (or again if you have visited)? Check all that apply.

- United States
- Canada
- United Arab Emirates
- Saudi Arabia
- China
- A North African nation (eg. Morocco)
- Russia
- An EU nation (including UK)
- India
- Pakistan

12. How do you believe participation in virtual exchange will impact your interest in making friends from your partner country (i.e., US or UAE)?

- Increase Interest
- Not alter interest
- Decrease Interest

Demographics 2

- 1. Thinking of your family of origin when you were growing up, would you say you:**
 - Had enough economic resources to cover your needs and could save.
 - Had enough economic resources to cover your needs but could not save.
 - Did not have enough economic resources to cover your needs.

- 2. Do you currently:**
 - Have enough economic resources to cover your needs and can save.
 - Have enough economic resources to cover your needs but cannot save.
 - Do not have enough economic resources to cover your needs.

- 3. Are you the first person in your immediate family (i.e., parents, siblings) to attend college/university?**
 - Yes
 - No

- 4. What is your current Grade Point Average (GPA)?**

- 5. How many university-level courses have you taken before this one that focused on a country other than one you live in?**
 - None
 - 1-5
 - 6 or more

Appendix 2: Post-Course Survey Instrument

Introduction

- 1. Prof. Katsos and Prof. Benstead are inviting you to take part in a brief online survey about student engagement. This survey takes ten minutes and participation is voluntary. No one is aware that you were invited to participate in this survey. Your answers will be anonymous and you are free to stop the survey at any time. Many students at our university are being invited to participate in this anonymous survey which will be used to understand student engagement in their studies and broader global issues.**

What happens to the information collected? Information collected from you for this research will be analyzed by researchers to understand students' engagement with course materials.

How will I and my information be protected? We will take measures to protect your privacy. The survey will never ask for or record your name or location. Your answers are completely anonymous. Despite taking steps to protect your privacy, we can never fully guarantee that your privacy will be protected.

What if I want to stop being in this research? You do not have to take part in this study, but if you do, you may stop at any time. You have the right to choose not to join in any study activity or completely stop your participation at any point without penalty or loss of benefits you would otherwise get. Your decision whether or not to take part in research will not affect your relationship with the researchers, Portland State University, or the American University of Sharjah.

Will it cost me money to take part in this research? There is no cost to taking part in this research, beyond your time.

If you have questions or concerns, contact the research team at: Kristina Katsos (kkatsos@aus.edu) and Dr. Lindsay Benstead (benstead@pdx.edu)

Who can I speak to about my rights as a research participant? The Portland State University Institutional Review Board ("IRB") is overseeing this research. The IRB is a group of people who review research studies to make sure the rights and welfare of the people who take part in research are protected. The Office of Research Integrity is the office at Portland State University that supports the IRB.

If you have questions about your rights, or wish to speak with someone other than the research team, you may contact: Office of Research Integrity PO Box 751 Portland, OR 97207-0751 Phone: (503) 725-5484 Toll Free: 1 (877) 480-4400 Email: psuirb@pdx.edu

I have had the chance to read and think about the information about the study. I have asked any questions I have, and I can make a decision about my participation. I understand that I can ask additional questions anytime while I take part in the research.

May we proceed with the survey?

Yes

No

2. Which course are you enrolled in?

- INS120 Section 1 (AUS)
- INS120 Section 2 (AUS)
- INS120 Section 3 (AUS)
- PS 361U (Introduction to Middle East Politics) at Portland State University

Demographics 1

1. What is your age in years?

2. What is your major(s) and/or minor(s) in your current degree program? *Check all that apply.*

- Social Sciences - ex. Psychology, Sociology, Political science, International Relations etc. (Specify) _____
- Humanities - ex. Languages, Performing Arts, Media Studies, History etc. (Specify) _____
- Natural Sciences and Engineering - ex. Biology, Chemistry, Computer Engineering etc. (Specify) _____
- Business
- I'm not sure yet

3. Are you currently?

- First year undergraduate
- Second year undergraduate
- Third year undergraduate
- Fourth year undergraduate
- Fifth or more year undergraduate
- Postbac student
- Graduate student

4. What is your gender?

5. Were you born in the US or UAE?

- US
- UAE
- Neither

6. What language(s) do you speak at home? (Check all that apply)

- English
- Arabic
- French
- Spanish
- Urdu
- Farsi
- Hindi
- Chinese
- Korean
- Japanese
- Swahili
- Other _____

7. What is your religion/spiritual affiliation?

8. Do you have children?

- Yes
- No

9. How many university-level courses have you taken before this one that focused on a country other than the one you live in?

- None
- 1-5
- 6 or more

Student Success and Engagement in Studies

Speaking of your classes in general, please tell us the extent to which you agree or disagree with the following statements:

1. It is important to me to do well in all of my classes.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

2. I am confident about asking questions in my classes when I don't understand something.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

- 3. I contribute to discussions in most of my class sessions.**
- Strongly Agree
 - Agree
 - Disagree
 - Strongly Disagree
- 4. I can make connections from learning in my coursework to my everyday life.**
- Strongly Agree
 - Agree
 - Disagree
 - Strongly Disagree
- 5. I am able to recognize themes and connections between different courses that I take.**
- Strongly Agree
 - Agree
 - Disagree
 - Strongly Disagree
- 6. I feel confident in my ability to learn new information.**
- Strongly Agree
 - Agree
 - Disagree
 - Strongly Disagree
- 7. Do you have a plan as to how you will complete your degree?**
- Yes
 - No
 - Maybe
- 8. Do you plan to pursue graduate studies?**
- Yes
 - No
 - Maybe
- 9. Do you have a professional or personal goal for after your degree completion?**
- Yes
 - No
 - Maybe
- 10. Do you plan to Study Abroad before graduation?**
- Yes
 - No
 - Maybe

11. Would you recommend to a friend to participate in a Virtual Exchange project like this one?

- Yes
- No
- Not Interested

12. Please share something that you learned from participating in the Virtual Exchange project.

13. How could the Virtual Exchange project/assignment be improved?

Political Engagement and Efficacy/Social Capital

Please tell us if you agree or disagree with the following statements:

1. I'm motivated to make a difference in my local community.

- Agree
- Disagree

2. I am able to make a difference in my local community.

- Agree
- Disagree

3. Problems in the world are too complicated for me to have an impact.

- Agree
- Disagree

4. It is crucial that citizens of any nation stay informed about international issues.

- Agree
- Disagree

5. International politics is too complicated for everyday citizens to understand.

- Agree
- Disagree

6. People in my society are generally trustworthy.

- Agree
- Disagree

7. Are you a member of any community group, association, or club (e.g., sports group, cultural group, trade union, non-governmental organization)?

- No
- Yes

8. If you had a personal emergency, how many people would you ask for help?

- None
- One
- Two
- Three or more

Please indicate your thoughts about the following statements:

9. I plan to get involved with political issues in my country in the future.

- Yes
- No
- Maybe

10. I am interested in volunteering in my community.

- Yes
- No
- Maybe

11. This class made me understand more about international affairs.

- Yes
- No
- Maybe

12. This course was a worthwhile learning experience.

- Yes
- No
- Maybe

13. Currently, I understand what sustainability is.

- Yes
- No
- Maybe

14. Currently, I understand why the United Nations Sustainable Development Goals (SDGs) are important.

- Yes
- No
- Maybe

Interest in Partner Region and Its People, Tolerance

To what extent do you agree or disagree with the following statements:

- 1. Middle Eastern cultures have many negative aspects.**
 - Strongly Agree
 - Agree
 - Disagree
 - Strongly Disagree

- 2. Western cultures have many negative aspects.**
 - Strongly Agree
 - Agree
 - Disagree
 - Strongly Disagree

- 3. People from the Middle East are sometimes victims of unfair stereotypes.**
 - Strongly Agree
 - Agree
 - Disagree
 - Strongly Disagree

- 4. People from the United States are sometimes victims of unfair stereotypes.**
 - Strongly Agree
 - Agree
 - Disagree
 - Strongly Disagree

- 5. It is important to interact with people from different cultures, even if you may have different attitudes than they do.**
 - Strongly Agree
 - Agree
 - Disagree
 - Strongly Disagree

- 6. It is important to treat everyone with respect, even if they have different beliefs than you.**
 - Strongly Agree
 - Agree
 - Disagree
 - Strongly Disagree

7. Participation in this class changed my views of the world.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

8. Have you ever traveled internationally? If so, please list up to three nations that you have visited.

9. How many countries have you visited (including the one you live in)?

- Only the country I live in
- Visited 1 or 2
- Visited 3-10 countries
- Visited 11 or more countries

10. Have you ever visited or lived in?

	No	Yes
United States	<input type="checkbox"/>	<input type="checkbox"/>
United Arab Emirates	<input type="checkbox"/>	<input type="checkbox"/>
Other MENA country (other than UAE)	<input type="checkbox"/>	<input type="checkbox"/>
China	<input type="checkbox"/>	<input type="checkbox"/>
Europe	<input type="checkbox"/>	<input type="checkbox"/>
Russia	<input type="checkbox"/>	<input type="checkbox"/>

11. If you have the opportunity in the future, would you like to visit the following countries for the first time (or again if you have visited)? Check all that apply.

- United States
- Canada
- United Arab Emirates
- Saudi Arabia
- China
- A North African nation (eg. Morocco)
- Russia
- An EU nation (including UK)
- India
- Pakistan

12. To what extent do you believe participation in virtual exchange impacted your interest in making friends from your partner country (i.e., US or UAE)?

- Increase Interest
- Not alter interest
- Decrease Interest

Demographics 2

1. Thinking of your family of origin when you were growing up, would you say you:

- Had enough economic resources to cover your needs and could save.
- Had enough economic resources to cover your needs but could not save.
- Did not have enough economic resources to cover your needs.

2. Do you currently:

- Have enough economic resources to cover your needs and can save.
- Have enough economic resources to cover your needs but cannot save.
- Do not have enough economic resources to cover your needs.

3. Are you the first person in your immediate family (i.e., parents, siblings) to attend college/university?

- Yes
- No

4. What is your current Grade Point Average (GPA)?

5. How much time did you spend doing the work in this course?

- More time than other courses
- About the same amount of time as other courses
- Less time than other courses

6. Do you recommend that Virtual Exchange experiences like this one be used in other courses at your university?

- Yes
- No

7. Would you take another course with a Virtual Exchange project like this one?

- Yes
- No

8. Why would you take or not take a course in the future with a Virtual Exchange project like this one?

Appendix 3: Randomization Tests

Table A3.1 shows the response rates obtained in each section in the pre-and post-surveys.

Table A3.1. Response Rates in Treatment and Control Groups

Group	Approximate number of students beginning the class	Number of students taking the pre-test	Approximate number of students completing the class	Number of students taking the post-test
AUS Section 1 (VE-Treatment)	28	26 (92.9%)	25	16 (64.0%)
AUS Section 2 (VE-Control)	29	25 (89.3%)	28	2 (7.1%)
AUS Section 3 (VE-Control)	30	27 (90.0%)	30	19 (63.3%)
PSU-Section 1 (VE-Treatment)	17	17 (100%)	12	12 (91.7%)
Total		96		49

Table A3.2 shows statistically insignificant relationships between key demographics and assignment to the treatment and control groups in the pooled dataset (i.e., pre- and post-surveys), indicating random assignment to the three AUS sections. In the three AUS sections, one participated in the Virtual Exchange and two did not.

Table A3.2. Randomization (AUS Only)

Variable	AUS section 1 (Treatment)	AUS section 2 (Control)	AUS section 2 (Control)	Total
Age				
17	4 (9.5%)	3 (11.1%)	2 (4.3%)	9 (7.8%)
18	9 (21.3%)	3 (11.1%)	10 (21.7%)	22 (19.1%)
19	7 (16.7%)	5 (18.5%)	5 (10.9%)	17 (14.8%)
20	7 (16.7%)	4 (14.8%)	13 (28.3%)	24 (20.9%)
21	9 (21.4%)	9 (33.3%)	15 (32.6%)	33 (20.7%)
22	4 (9.5%)	2 (7.4%)	1 (2.1%)	7 (6.1%)
23	2 (4.8%)	1 (3.7%)	0 (0.0%)	3 (2.6%)
Total	42 (100%)	27 (100%)	46 (100%)	115 (100%)
	$\chi^2(12) = 10.6324$ Pr = 0.561			
Gender				
Male	13 (31.7%)	9 (34.6%)	13 (28.3%)	35 (31%)
Female	28 (68.29%)	17 (65.4%)	33 (71.7%)	78 (69%)
Non-binary	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Total	41 (100%)	26 (100%)	46 (100%)	113 (100%)
	$\chi^2(2) = 0.3299$ Pr = 0.848			
Birthplace				
English only	2 (4.8%)	1 (3.7%)	0 (0.0%)	3 (2.6%)
English and other languages	28 (66.7%)	17 (63%)	40 (87%)	85 (73.9%)
Other language(s) only	12 (28.6%)	9 (33.3%)	6 (13%)	27 (23.5%)
Total	42 (100%)	27 (100%)	46 (100%)	115 (100%)

	$\chi^2(4) = 7.5800$ Pr = 0.108	
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Table A3.3 shows statistically significant relationships between key demographics and assignment to the treatment and control groups in the pooled dataset (i.e., pre- and post-surveys). This indicates that PSU and AUS students have different characteristics. Importantly, PSU students were significantly older than AUS students ($p < .001$).

PSU students were not surprisingly more likely than AUS students to speak only English at home ($p < .001$), but both student samples were diverse in their linguistic backgrounds. 42% of PSU students only speak English at home, while 58% speak Arabic, French, Spanish, and Tigrinya in addition to English. Among AUS students, 70% speak English as one of their languages at home, while 30% of the AUS students do not speak English at home. AUS students speak Arabic, French, Urdu, Hindi, Bangla, Malayalam, Russian, Telugu, and Tamil as the only or one of their languages.

In terms of religious background, the modal category among AUS students is Islam (30 students), with others identifying Agnostic (1), Atheist (2), Christian (2), Hindu (1), and Jainism (1). The most common answer among PSU students is None (6 students), followed by Atheist (1), Catholic (1), Christian (1), Jewish (1), Morman (1), and Islam (1).

Table A3.3. Significant Differences in Demographics between the Two Universities

Variable	AUS section 1 (Treatment)	AUS section 2 (Control)	AUS section 2 (Control)	PSU section 1 (Treatment)	Total
Age					
17	4 (9.5%)	3 (11.1%)	2 (4.4%)	0 (0.0%)	9 (6.3%)
18	9 (21.4%)	3 (11.1%)	10 (21.7%)	0 (0.0%)	22 (15.4%)
19	7 (16.7%)	5 (18.5%)	5 (10.9%)	2 (7.1%)	19 (13.3%)
20	7 (16.7%)	4 (14.8%)	13 (28.3%)	6 (21.4%)	30 (21%)
21	9 (21.4%)	9 (33.3%)	15 (32.6%)	2 (7.1%)	35 (24.5%)
22	4 (9.5%)	2 (7.4%)	1 (2.2%)	0 (0%)	7 (4.9%)
23	2 (4.8%)	1 (3.7%)	0 (0%)	3 (10.7%)	6 (4.2%)
26	0 (0%)	0 (0%)	0 (0%)	2 (7.1%)	2 (1.4%)
27	0 (0%)	0 (0%)	0 (0%)	4 (14.3%)	4 (2.8%)
28	0 (0%)	0 (0%)	0 (0%)	2 (7.1%)	2 (1.4%)
34	0 (0%)	0 (0%)	0 (0%)	1 (3.6%)	1 (0.7%)
39	0 (0%)	0 (0%)	0 (0%)	1 (3.6%)	1 (0.7%)
40	0 (0%)	0 (0%)	0 (0%)	1 (3.6%)	1 (0.7%)
44	0 (0%)	0 (0%)	0 (0%)	3 (10.7%)	2 (2.1%)
45	0 (0%)	0 (0%)	0 (0%)	1 (3.6%)	1 (0.7%)
Total	42 (100%)	27 (100%)	46 (100%)	28 (100%)	143 (100%)
	$\chi^2(42) = 90.8836$ Pr = 0.000				
Gender					
Male	13 (31.7%)	9 (34.6%)	13 (28.3%)	9 (32.1%)	44 (31.2%)
Female	28 (68.3%)	17 (65.4%)	33 (71.7%)	17 (60.7%)	95 (67.4%)
Non-binary	0 (0%)	0 (0%)	0 (0%)	3 (7.1%)	2 (1.4%)
Total	41 (100%)	26 (100%)	46 (100%)	28 (100%)	141 (100%)
	$\chi^2(6) = 8.6421$ Pr = 0.195				

Language					
English only	2 (4.8%)	1 (3.7%)	0 (0%)	11 (40.7%)	14 (9.9%)
English and other languages	28 (66.7%)	17 (67%)	50 (87%)	16 (59.3%)	101 (71.1%)
Other language(s) only	12 (28.6%)	9 (33.3%)	6 (13%)	0 (0%)	27 (19%)
Total	42 (100%)	27 (100%)	46 (100%)	27 (100%)	142 (100%)
	$\chi^2(6) = 46.2478$ Pr = 0.000				

Appendix 4: Full Experimental Results

There were approximately 32 outcome measures (i.e., dependent variables) in the survey. Table A4.1 categorizes the measures, gives the question wording, and identifies the re-codings for the variables.

Table A4.1. Key Dependent Variables in the Study

(1) Evaluation of the course: *Measure 18:* “This course was a worthwhile learning experience.” 0=No, 1=Somewhat, 2=Yes. *Measure 23:* “How much time did you spend doing the work in this course?” More time than other courses=3, About the same amount of time as other courses=2, Less time than other courses=1. *Measure 24:* “Would you recommend to a friend to participate in a Virtual Exchange project like this one?” No=0, Yes=1. *Measure 25:* “Would you take another course with a Virtual Exchange project like this one?” No=0, Yes=1. “Why would you take or not take a course in the future with a Virtual Exchange project like this one?” (Open-ended).

(2) Learning outcomes and student engagement:

(a) Learning outcomes. *Measure 17:* “I think this class will make me understand more about international affairs.” / “This class made me understand more about international affairs.” 1=No, 2=Maybe, 3=Yes. *Excluded from Analysis:* “Currently, I understand what sustainability is.” 0=No, 1=Maybe, 2=Yes. *Measure 20:* Currently, I understand why the United Nations Sustainable Development Goals (SDGs) are important.” 0=No, 1=Maybe, 2=Yes.

(b) Student engagement. *Measure 1:* “It is important to me to do well in all of my classes.” Strongly agree=4, Agree=3, Disagree=2, Strongly disagree=1. *Measure 2:* “Confident asking questions in class: I am confident about asking questions in my classes when I don't understand something.” Strongly agree=4, Agree=3, Disagree=2, Strongly disagree=1. *Measure 3:* “I contribute to discussions in most of my class sessions.” Strongly agree=4, Agree=3, Disagree=2, Strongly disagree=1. *Measure 4:* “I can make connections from learning in my coursework to my everyday life.” Strongly agree=4, Agree=3, Disagree=2, Strongly disagree=1. *Measure 5:* “I am able to recognize themes and connections between different courses that I take.” Strongly agree=4, Agree=3, Disagree=2, Strongly disagree=1. *Measure 6:* “I feel confident in my ability to learn new information.”

(3) Political interest/engagement, political efficacy, and social capital:

(a) Political interest/engagement. *Measure 9:* “I'm motivated to make a difference in my local community.” Agree=1, Disagree=0. *Measure 12:* “It is crucial that citizens of any nation stay informed about international issues.” Agree=1, Disagree=0. *Measure 15:* “I plan to get involved with political issues in my country in the future.” No=0, Yes=0. *Measure 16:* “I am interested in volunteering in my community.” No=1, Maybe=2, Yes=3.

(b) Political efficacy. *Measure 10:* “I am able to make a difference in my local community.” Agree=1, Disagree=0. *Measure 11:* “Problems in the world are too complicated for me to have

an impact.” Agree=1, Disagree=0. *Measure 13*: “International politics is too complicated for everyday citizens to understand.” Agree=1, Disagree=0. I did not analyze this one.

(c) Social capital. *Measure 14*: “People in my society are generally trustworthy.” Agree=1, Disagree=0.

(4) Intercultural attitudes:

(a) Desire to study abroad and make friends with people from other countries. *Measure 7*: “Do you plan to Study Abroad before graduation?” No=0, Maybe=1, Yes=2. *Measure 22*: “To what extent do you believe participation in virtual exchange impacted your interest in making friends from your partner country (i.e., US or UAE)?” Increased Interest=3, Did not alter interest=2, Decreased Interest=1. / “How do you believe participation in virtual exchange will impact your interest in making friends from your partner country (i.e., US or UAE)?” Increased Interest=3, Did not alter interest=2, Decreased Interest=1.

(b) Intercultural attitudes. *Measure 21*: “Participation in this class changed my views of the world.” Strongly Agree=4, Agree=3, Disagree=2, Strongly Disagree=1. / “Participation in this class will likely change my views of the world.” Strongly Agree=4, Agree=3, Disagree=2, Strongly Disagree=1. *Measure 26*: “Middle Eastern cultures have many negative aspects.” Strongly Agree=4, Agree=3, Disagree=2, Strongly Disagree=1. *Measure 27*: “Western cultures have many negative aspects.” Strongly Agree=1, Agree=2, Disagree=3, Strongly Disagree=4. *Measure 28*: “People from the Middle East are sometimes victims of unfair stereotypes.” Strongly Agree=4, Agree=3, Disagree=2, Strongly Disagree=1. *Measure 29*: “People from the United States are sometimes victims of unfair stereotypes.” Strongly Agree=4, Agree=3, Disagree=2, Strongly Disagree=1. *Measure 30*: “It is important to interact with people from different cultures, even if you may have different attitudes than they do.” Strongly Agree=4, Agree=3, Disagree=2, Strongly Disagree=1. *Measure 31*: “It is important to treat everyone with respect, even if they have different beliefs than you.” Strongly Agree=4, Agree=3, Disagree=2, Strongly Disagree=1. *Measure 32*: “If you have the opportunity in the future, would you like to visit the following countries for the first time (or again if you have visited)?” *Check all that apply.* United States, Canada, United Arab Emirates, Saudi Arabia, China, A North African nation (e.g., Morocco), Russia, An EU nation (including UK), India, Pakistan.

Evaluation of the Course

Measure 18: “This course was a worthwhile learning experience.” 0=No, 1=Somewhat, 2=Yes.

Overall, students in the course, including those in the VE, believed that the course was a worthwhile experience. 89.5% of those in the AUS control believed it was worthwhile, compared with 93.8% in the AUS VE group and 90.9% in the PSU VE group. 2.2% of students in the AUS VE group did not believe that the course was worthwhile. There were no significant differences across the groups. (Table A4.2 & A4.3).

Table A4.2. Effect of VE on Belief that the Course Was Worthwhile

Group	Time 1 (Pre)			Time 2 (Post)		
	No	Somewhat	Yes	No	Somewhat	Yes
1) AUS Section 1 (VE-Treatment)				2.2%		93.8%
2) AUS Section 2 (VE-Control)					10.5%	89.47%
2) AUS Section 3 (VE-Control)						
3) PSU-Section 1 (VE-Treatment)					9.1%	90.9%

Note: Not asked in the pre-test.

$\chi^2 = 2.8891$ Pr = 0.236 (Between groups – AUS pre – No difference exp)

Table A4.3. Effect of VE on Belief that the Course Was Worthwhile

Group	Time 1	Time 2
1) AUS Section 1 (VE-Treatment)		1.88(.50)
2) AUS Section 2 (VE-Control)		1.89(.32)
2) AUS Section 3 (VE-Control)		
3) PSU-Section 1 (VE-Treatment)		1.91(.30)

Note: Not asked in the pre-test.

$\chi^2 = 2.8891$ Pr = 0.236 (Between groups – AUS pre – No difference expected)

Measure 23: “How much time did you spend doing the work in this course?” More time than other courses=3, About the same amount of time as other courses=2, Less time than other courses=1.

Among PSU students 18% believed the course took more time than other courses, compared 31% of AUS students in the VE and 20% of AUS students who were not in the exchange. The modal response among all three groups was “about the same amount of time as other courses.” This suggests that the VE was not overly onerous in terms of time commitment, even though, as discussed below, many students found the time zone and group work challenges very difficult. (Table A4.4 & A4.5).

Table A4.4. Amount of Time Spent on the Course

Group	Time 1 (Pre)			Time 2 (Post)		
	Less time than other courses	About the same amount of time as other courses	More time than other courses	Less time than other courses	About the same amount of time as other courses	More time than other courses
1) AUS Section 1 (VE-Treatment)				12.50%	56.25%	31.25%
2) AUS Section 2 (VE-Control)				15.00%	65.00%	20.00%
2) AUS Section 3 (VE-Control)						
3) PSU-Section 1 (VE-Treatment)				27.27%	54.55%	18.18%

1 vs 2 in the post-test: $\chi^2 = 0.6014$ Pr = 0.740 (Between groups – AUS post)

Table A4.5. Amount of Time Spent on the Course

Group	Time 1	Time 2
1) AUS Section 1 (VE-Treatment)		2.19(.66)
2) AUS Section 2 (VE-Control)		2.05(.60)
2) AUS Section 3 (VE-Control)		
3) PSU-Section 1 (VE-Treatment)		1.91(.70)

1 vs 2 in the post-test: $\chi^2 = 0.6014$ Pr = 0.740 (Between groups – AUS post)

Measure 24: “Would you recommend to a friend to participate in a Virtual Exchange project like this one?” No=0, Yes=1.

AUS students who participated in the VE were more likely to recommend the course to a friend, but the difference is not statistically significant. 81% of those in the AUS VE group would recommend the course, compared with 76% in the AUS control sections and only 63% of PSU students in the VE. (Table A4.6).

Table A4.6. Recommendation to Others to Take This Course

Group	Time 1 (Pre)		Time 2 (Post)	
	No	Yes	No	Yes
1) AUS Section 1 (VE-Treatment)			18.75%	81.25%
2) AUS Section 2 (VE-Control)			23.81%	76.19%
2) AUS Section 3 (VE-Control)				
3) PSU-Section 1 (VE-Treatment)			36.36%	63.64%

1 vs 2 in the post-test: $\chi^2 = 0.1372$ Pr = 0.711 (Between groups – AUS post)

Measure 25: “Would you take another course with a Virtual Exchange project like this one?”
 No=0, Yes=1. “Why would you take or not take a course in the future with a Virtual Exchange project like this one?” (Open-ended).

Students expressed mixed enthusiasm to take another VE like this one. Half of those in the AUS VE group said they would, compared with 64.71% of AUS students who did participate in the VE. 63.64% of PSU students in the VE would. (Table A4.7).

Table A4.7. Would Take Another Course with a VE Like This One

Group	Time 1 (Pre)		Time 2 (Post)	
	No	Yes	No	Yes
1) AUS Section 1 (VE-Treatment)			50.00%	50.00%
2) AUS Section 2 (VE-Control)			35.29%	64.71%
2) AUS Section 3 (VE-Control)				
3) PSU-Section 1 (VE-Treatment)			36.36%	63.64%

1 vs 2 in the post-test: $\chi^2(1) = 0.7298$ Pr = 0.393 (Between groups – AUS post)

In general, the open-ended responses show that about half of students in the VE (for both PSU as well as AUS groups) expressed a positive view of the VE experience and have expressed a negative comment. When asked, “Why would you take or not take a course in the future with a Virtual Exchange project like this one?” The table of contents has been removed from the report in order to report the findings in aggregate form only and not identify possible respondents.

Learning outcomes and student engagement

(a) Learning outcomes

Measure 17: “I think this class will make me understand more about international affairs.” / “This class made me understand more about international affairs.” 1=No, 2=Maybe, 3=Yes.

At the conclusion of the semester, 100% of the AUS students in the VE exchange said that the class made them understand more about international affairs, compared to 85% in the control group, although the difference is not statistically significant. This proportion was also greater than the pre-test, in which 84.6% of students in the VE stated that they expected to learn more about international affairs in the class. 88% of PSU students believed that they would learn more about international affairs through the course, while 100% believed that they after the experience. While these differences are not statistically significant due to the small number of cases, they indicate a high level of agreement that the course supported their learning on international affairs and that the effect was possibly greater among the AUS students in the VE compared with those who were not enrolled in the VE section. (Table A4.8 and A4.9).¹

¹ Note that this item was excluded from the Appendix because there were no significant impacts of the treatment. “Currently, I understand what sustainability is.” 0=No, 1=Maybe, 2=Yes.

Table A4.8. Effect of VE on Perceived Understanding of International Affairs

Group	Time 1 (Pre)			Time 2 (Post)		
	No	Maybe	Yes	No	Maybe	Yes
1) AUS Section 1 (VE-Treatment)	7.7%	7.7%	84.6%			100.0%
2) AUS Section 2 (VE-Control)		4.0%	96.0%		15.0%	85.0%
2) AUS Section 3 (VE-Control)						
3) PSU-Section 1 (VE-Treatment)		12.5%	87.5%			100.0%

1 vs 2 in the pre-test: $\chi^2(2) = 4.5299$ Pr = 0.104 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(1) = 2.6182$ Pr = 0.106 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(2) = 2.7206$ Pr = 0.257 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(1) = 1.4850$ Pr = 0.223 (Within groups – PSU)

Table A4.9. Effect of VE on Perceived Understanding of International Affairs

Group	Time 1	Time 2
1) AUS Section 1 (VE-Treatment)	2.77(.59)	3.00(0.00)
2) AUS Section 2 (VE-Control)	2.96(.20)	2.85(.37)
2) AUS Section 3 (VE-Control)		
3) PSU-Section 1 (VE-Treatment)	2.88(.34)	3.00(0.00)

1 vs 2 in the pre-test: $\chi^2(2) = 4.5299$ Pr = 0.104 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(1) = 2.6182$ Pr = 0.106 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(2) = 2.7206$ Pr = 0.257 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(1) = 1.4850$ Pr = 0.223 (Within groups – PSU)

Measure 20: Currently, I understand why the United Nations Sustainable Development Goals (SDGs) are important.” 0=No, 1=Maybe, 2=Yes.

As expected, PSU and AUS students were significantly more likely to state that they understood the importance of the United Nations Sustainable Development Goals after the course than before it began. In the AUS treatment group, 62% stated before the VE that they understood the importance of the SDGs, compared to 100% after the experience ($p < .05$). In the PSU group, 75% said that they understood the importance before the experience and 100% said they did after the experience, but the effect was only marginally significant ($p < .10$). Students in the control group (AUS) also increased their knowledge of the importance of the SDGs. (Table A4.10).

Table A4.10. Effect of VE on Understanding of SDGs' Importance

Group	Time 1 (Pre)			Time 2 (Post)		
	No	Maybe	Yes	No	Maybe	Yes
1) AUS Section 1 (VE-Treatment)	11.54%	26.92%	61.54%			100.00%
2) AUS Section 2 (VE-Control)	1.92%	7.69%	90.38%			100.00%
2) AUS Section 3 (VE-Control)						
3) PSU-Section 1 (VE-Treatment)		25.00%	75.0%			100.00%

1 vs 2 in the pre-test: $\chi^2(2) = 9.4562$ Pr = 0.009 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: N/a (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(2) = 8.0769$ Pr = 0.018 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(1) = 3.2283$ Pr = 0.072 (Within groups – PSU)

(b) Student engagement

Measure 1: “It is important to me to do well in all of my classes.” Strongly agree=4, Agree=3, Disagree=2, Strongly disagree=1.

There were no statistically significant differences across the groups in their desire to do well in their studies. (Table A4.11).

Table A4.11. Effect of VE on Importance of Doing Well in Class

Group	Time 1	Time 2
1) AUS Section 1 (VE-Treatment)	3.73(.53)	3.75(.58)
2) AUS Section 2 (VE-Control)	3.71(.54)	3.76(.54)
2) AUS Section 3 (VE-Control)		
3) PSU-Section 1 (VE-Treatment)	3.88(.34)	3.73(.47)

1 vs 2 in the pre-test: $\chi^2(2) = 0.0397$ Pr = 0.980 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(2) = 0.0587$ Pr = 0.971 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(2) = 0.4130$ Pr = 0.813 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(1) = 0.9428$ Pr = 0.332 (Within groups – PSU)

Measure 2: “Confident asking questions in class: I am confident about asking questions in my classes when I don't understand something.” Strongly agree=4, Agree=3, Disagree=2, Strongly disagree=1.

There were no statistically significant differences across the groups in their perceived confidence to ask questions in class. (Table A4.12).

Table A4.12. Effect of VE on Perceived Confidence to Ask Questions

Group	Time 1	Time 2
1) AUS Section 1 (VE-Treatment)	3.12(.77)	3.13(.96)
2) AUS Section 2 (VE-Control)	3.00(.76)	2.90(.77)
2) AUS Section 3 (VE-Control)		
3) PSU-Section 1 (VE-Treatment)	3.13(.64)	3.18(.75)

1 vs 2 in the pre-test: $\chi^2(3) = 0.5893$ Pr = 0.899

(Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(3) = 3.4638$ Pr = 0.325 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(3) = 2.0660$ Pr = 0.559 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(2) = 0.5403$ Pr = 0.763 (Within groups – PSU)

Measure 3: “I contribute to discussions in most of my class sessions.” Strongly agree=4, Agree=3, Disagree=2, Strongly disagree=1.

There were no statistically significant differences across the groups in their perceived confidence to contribute to discussions in class. (Table A4.13).

Table A4.13. Effect of VE on Perceived Confidence to Contribute to Class Discussion

Group	Time 1	Time 2
1) AUS Section 1 (VE-Treatment)	2.81(.85)	2.88(.96)
2) AUS Section 2 (VE-Control)	2.73(.69)	2.81(.81)
2) AUS Section 3 (VE-Control)		
3) PSU-Section 1 (VE-Treatment)	3.27(.65)	2.78(.78)

1 vs 2 in the pre-test: $\chi^2(3) = 2.1503$ Pr = 0.542 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(3) = 1.2152$ Pr = 0.749 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(3) = 1.6949$ Pr = 0.638 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(2) = 0.5706$ Pr = 0.752 (Within groups – PSU)

Measure 4: “I can make connections from learning in my coursework to my everyday life.”

Strongly agree=4, Agree=3, Disagree=2, Strongly disagree=1.

There were no statistically significant differences across the groups in their perceived ability to connect coursework to everyday life. (Table A4.14).

Table A4.14. Effect of VE on Perceived Ability to Connect Coursework to Everyday Life

Group	Time 1	Time 2
1) AUS Section 1 (VE-Treatment)	3.31(.62)	3.31(.48)
2) AUS Section 2 (VE-Control)	3.08(.68)	3.19(.60)
2) AUS Section 3 (VE-Control)		
3) PSU-Section 1 (VE-Treatment)	3.43(.51)	3.40(.52)

1 vs 2 in the pre-test: $\chi^2(3) = 2.1652$ Pr = 0.539 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(2) = 1.6113$ Pr = 0.447 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(2) = 1.7446$ Pr = 0.418 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(1) = 0.0355$ Pr = 0.851 (Within groups – PSU)

Measure 5: “I am able to recognize themes and connections between different courses that I take.” Strongly agree=4, Agree=3, Disagree=2, Strongly disagree=1.

There were no statistically significant differences across the groups in their perceived ability to create connections across courses that the student takes. (Table A4.15).²

Table A4.15. Effect of VE on Perceived Ability to Make Connections Across Courses

Group	Time 1	Time 2
1) AUS Section 1 (VE-Treatment)	3.38(.64)	3.56(.51)
2) AUS Section 2 (VE-Control)	3.40(.53)	3.33(.66)
2) AUS Section 3 (VE-Control)		
3) PSU-Section 1 (VE-Treatment)	3.63(.50)	3.73(.47)

1 vs 2 in the pre-test: $\chi^2(2) = 1.8637$ Pr = 0.394 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(2) = 1.8882$ Pr = 0.389 (Between groups – AUS post) 1 in pre- and post-test comparison for AUS students: $\chi^2(2) = 1.4453$ Pr = 0.485 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(1) = 0.3068$ Pr = 0.580 (Within groups – PSU)

Political Engagement and Social Capital

² There were no significant results for this item and it has been left out of the Appendix. *Measure 6:* “I feel confident in my ability to learn new information.”

(a) Political Interest/Engagement

Measure 9: “I’m motivated to make a difference in my local community.” Agree=1, Disagree=0. There are no statistically significant differences across the groups. (Table A4.16).

Table A4.16. Effect of VE on Desire to Make a Difference in the Local Community

Group	Time 1 (Pre)		Time 2 (Post)	
	Disagree	Agree	Disagree	Agree
1) AUS Section 1 (VE-Treatment)	7.69%	92.31%	6.25%	93.75%
2) AUS Section 2 (VE-Control)	21.15%	78.85%	10.00%	90.00%
2) AUS Section 3 (VE-Control)				
3) PSU-Section 1 (VE-Treatment)	18.75%	81.25%		100.00%

1 vs 2 in the pre-test: $\chi^2(1) = 2.2615$ Pr = 0.133 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(1) = 0.1636$ Pr = 0.686 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(1) = 0.0311$ Pr = 0.860 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(1) = 2.3203$ Pr = 0.128 (Within groups – PSU)

Measure 12: “It is crucial that citizens of any nation stay informed about international issues.” Agree=1, Disagree=0.

Following the VE, PSU students are significantly more likely to state that citizens should stay informed about international issues ($p < .001$). Prior to the VE, only 18.75% of PSU students believed this, while 90.91% believed this after the VE. AUS students universally agreed with this statement before the course. (Table A4.17).

Table A4.17. Effect of VE on Belief that Citizens Should Stay Informed About International Issues

Group	Time 1 (Pre)		Time 2 (Post)	
	Disagree	Agree	Disagree	Agree
1) AUS Section 1 (VE-Treatment)		100.00%	12.50%	87.50%
2) AUS Section 2 (VE-Control)		100.00%		100.00%
2) AUS Section 3 (VE-Control)				
3) PSU-Section 1 (VE-Treatment)	81.25%	18.75%	9.09%	90.91%

1 vs 2 in the pre-test: N/a (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(1) = 2.6471$ Pr = 0.104 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(1) = 3.4125$ Pr = 0.065 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(1) = 13.5952$ Pr = 0.000 (Within groups – PSU)

Measure 15: “I plan to get involved with political issues in my country in the future.” No=1, Maybe=2, Yes=3.

Although the differences are not statistically significant due to the small n, students in both the PSU VE group as well as the AUS VE group developed a stronger plan to get involved in politics as a result of the experience. The mean response among AUS VE students was 1.69 before the course and 2.00 after the course. The mean response among PSU VE students was 2.50 before the course and 2.73 after the course. The control group saw a small decrease in this outcome. (Measure 15). (Table A4.18 & A4.19).

Table A4.18. Effect of VE on Plan to Get Involved in Politics

Group	Time 1 (Pre)			Time 2 (Post)		
	No	Maybe	Yes	No	Maybe	Yes
1) AUS Section 1 (VE-Treatment)	53.85%	23.08%	23.08%	37.50%	25.00%	37.50%
2) AUS Section 2 (VE-Control)	44.23%	21.15%	34.62%	40.00%	35.00%	25.00%
2) AUS Section 3 (VE-Control)						
3) PSU-Section 1 (VE-Treatment)	12.5%	25.00%	62.50%	9.09%	9.09%	81.82%

1 vs 2 in the pre-test: $\chi^2(2) = 1.1172$ Pr = 0.572 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(2) = 0.7597$ Pr = 0.684 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(2) = 1.2923$ Pr = 0.524 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(2) = 1.3048$ Pr = 0.521 (Within groups – PSU)

Table A4.19. Effect of VE on Plan to Get Involved in Politics

Group	Time 1	Time 2
1) AUS Section 1 (VE-Treatment)	1.69 (.83)	2.00 (.89)
2) AUS Section 2 (VE-Control)	1.90(.89)	1.85(.81)
2) AUS Section 3 (VE-Control)		
3) PSU-Section 1 (VE-Treatment)	2.50(.73)	2.73(.65)

1 vs 2 in the pre-test: $\chi^2(2) = 1.1172$ Pr = 0.572 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(2) = 0.7597$ Pr = 0.684 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(2) = 1.2923$ Pr = 0.524 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(2) = 1.3048$ Pr = 0.521 (Within groups – PSU)

Measure 16: “I am interested in volunteering in my community.” No=1, Maybe=2, Yes=3.

There are no significant differences of the VS on the plan to get involved in my community. (Table A4.20).

Table A4.20. Effect of VE on Plan to Get Involved in My Community

Group	Time 1	Time 2
1) AUS Section 1 (VE-Treatment)	2.62(.70)	2.63(.72)
2) AUS Section 2 (VE-Control)	2.67(.55)	2.65(.67)
2) AUS Section 3 (VE-Control)		
3) PSU-Section 1 (VE-Treatment)	2.88(.34)	2.91(.30)

1 vs 2 in the pre-test: $\chi^2(2) = 2.3442$ Pr = 0.310 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(2) = 0.0900$ Pr = 0.956 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(2) = 0.0703$ Pr = 0.965 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(1) = 0.0767$ Pr = 0.782 (Within groups – PSU)

(b) Political Efficacy

Measure 10: “I am able to make a difference in my local community.” Agree=1, Disagree=0.

PSU students were more likely to agree after the VE than before that they are able to make a difference in their local community, although the effect does not reach conventional significance levels ($p < .10$).

There are no statistically significant differences for other comparisons. (Table A4.21).

Table A4.21. Effect of VE on Perceptions of Ability to Make a Difference in the Local Community

Group	Time 1 (Pre)		Time 2 (Post)	
	Disagree	Agree	Disagree	Agree
1) AUS Section 1 (VE-Treatment)	34.62%	65.38%	31.25%	68.75%
2) AUS Section 2 (VE-Control)	41.18%	58.82%	40.00%	60.00%
2) AUS Section 3 (VE-Control)				
3) PSU-Section 1 (VE-Treatment)	25.00%	75.00%		100.00%

1 vs 2 in the pre-test: $\chi^2(1) = 0.3117$ Pr = 0.577 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(1) = 0.2950$ Pr = 0.587 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(1) = 0.0505$ Pr = 0.822 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(1) = 3.2283$ Pr = 0.072 (Within groups – PSU)

Measure 11: “Problems in the world are too complicated for me to have an impact.” Agree=1, Disagree=0.

There are no statistically significant differences in the effect of VE on perceptions that problems in the world are too complicated. (Table A4.22).³

Table A4.22. Effect of VE on Perceptions that Problems in the World Are Too Complicated

Group	Time 1 (Pre)		Time 2 (Post)	
	Disagree	Agree	Disagree	Agree
1) AUS Section 1 (VE-Treatment)	30.77%	69.23%	43.75%	56.25%
2) AUS Section 2 (VE-Control)	41.18%	58.82%	35.00%	65.00%
2) AUS Section 3 (VE-Control)				
3) PSU-Section 1 (VE-Treatment)	18.75%	81.25%	9.09%	90.91%

1 vs 2 in the pre-test: $\chi^2(1) = 0.7944$ Pr = 0.373 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(1) = 0.2864$ Pr = 0.593 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(1) = 0.7269$ Pr = 0.394 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(1) = 0.4819$ Pr = 0.488 (Within groups – PSU)

(c) Social Capital

Measure 14: “People in my society are generally trustworthy.” Agree=1, Disagree=0.

There is a statistically significant improvement in interpersonal trust among AUS students who participated in the VE. Prior to participation, 58% stated that people are generally trustworthy, compared with 94% after participation ($p < .05$). The impact among AUS students who worked on the group project with their own classmates (i.e., the control group) increased a small amount in interpersonal trust. There was no increase in interpersonal trust for PSU students as a result of participating in the VE. (Table A4.23).

³ There were no statistically significant experimental effects for this measure and it was not included in the appendix. *Measure 13*: “International politics is too complicated for everyday citizens to understand.” Agree=1, Disagree=0.

Table A4.23. Effect of VE on Interpersonal Trust (People in My Society are Generally Trustworthy)

Group	Time 1 (Pre)		Time 2 (Post)	
1) AUS Section 1 (VE-Treatment)	42.31%	57.69%	6.25%	93.75%
2) AUS Section 2 (VE-Control)	51.92%	48.08%		
2) AUS Section 3 (VE-Control)			45.00%	55.00%
3) PSU-Section 1 (VE-Treatment)	68.75%	31.25%	72.73%	27.27%

1 vs 2 in the pre-test: $\chi^2(1) = 0.6414$ Pr = 0.423 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(1) = 6.6531$ Pr = 0.010 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(1) = 6.3101$ Pr = 0.012 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(1) = 0.0495$ Pr = 0.824 (Within groups – PSU)

Intercultural Attitudes

(a) Desire to study abroad and make friends with people from other countries

Measure 7: “Do you plan to Study Abroad before graduation?” No=0, Maybe=1, Yes=2.

There are no statistically significant differences across the groups. However, it is worth noting that there is an increase in the desire to study abroad among the AUS VE group between the pre- and post-test. Before the VE, 24% said yes; after, 31% said yes. Among the AUS control sections and the PSU students, there was a decline in the desire to study abroad. (Table A4.24).

Table A4.24. Effect of VE on Plans to Study Abroad

Group	Time 1 (Pre)			Time 2 (Post)		
	No	Maybe	Yes	No	Maybe	Yes
1) AUS Section 1 (VE-Treatment)	56.00%	20.00%	24.00%	62.50%	6.25%	31.25%
2) AUS Section 2 (VE-Control)	38.46%	32.69%	28.85%	52.38%	28.57%	19.05%
2) AUS Section 3 (VE-Control)						
3) PSU-Section 1 (VE-Treatment)	68.75%	18.75%	12.50%	54.55%	36.36%	9.09%

1 vs 2 in the pre-test: $\chi^2(2) = 2.2734$ Pr = 0.321 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(2) = 3.1113$ Pr = 0.211 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(2) = 1.5220$ Pr = 0.467 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(2) = 1.0571$ Pr = 0.589 (Within groups – PSU)

Measure 22: “To what extent do you believe participation in virtual exchange impacted your interest in making friends from your partner country (i.e., US or UAE)?” Increased Interest=3, Did not alter interest=2, Decreased Interest=1. / “How do you believe participation in virtual exchange will impact your interest in making friends from your partner country (i.e., US or UAE)?” Increased Interest=3, Did not alter interest=2, Decreased Interest=1.

Among students from both AUS as well as PSU, students who participated in the Virtual Exchange were less likely after the experience than before to state that they would like to be friends with people from the exchange country. The effect is large enough among AUS students to reach statistical significance. Before the VE, 62% of AUS students in the treatment group stated that they believed that participation would increase their interest in making friends from the US, while only 25% said that it did ($p < .05$). Among the AUS control group, however, there was no change. 64% before and 58% after said that they believed that the course would or did increase their interest in making friends with others from the US, although the difference was not statistically significant. Before the VE, 87% of PSU students stated that they believed that participation would increase their interest in making friends from the US, while only 63% said that the exchange increased their interest, although the relationship did not increase their interest in making friends with others from the partner country. (Table A4.25 & A4.26).

Table A4.25. Effect of VE on Desire to Make Friends with Others from the Partner Country

Group	Time 1 (Pre)			Time 2 (Post)		
	No	Maybe	Yes	No	Maybe	Yes
1) AUS Section 1 (VE-Treatment)		38.46%	61.54%	6.25%	68.75%	25.00%
2) AUS Section 2 (VE-Control)		36.00%	64.00%	5.88%	35.29%	58.82%
2) AUS Section 3 (VE-Control)						
3) PSU-Section 1 (VE-Treatment)		13.33%	86.67%	9.09%	27.27%	63.64%

1 vs 2 in the pre-test: $\chi^2(1) = 0.0445$ Pr = 0.833 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(2) = 4.0154$ Pr = 0.134 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(2) = 6.2192$ Pr = 0.045 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(2) = 2.4424$ Pr = 0.295 (Within groups – PSU)

Table A4.26. Effect of VE on Desire to Make Friends with Others from the Partner Country

Group	Time 1	Time 2
1) AUS Section 1 (VE-Treatment)	2.62(.50)	2.19(.54)
2) AUS Section 2 (VE-Control)	2.64(.48)	2.53(.62)
2) AUS Section 3 (VE-Control)		
3) PSU-Section 1 (VE-Treatment)	2.87(.35)	2.55(.69)

1 vs 2 in the pre-test: $\chi^2(1) = 0.0445$ Pr = 0.833 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(2) = 4.0154$ Pr = 0.134 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(2) = 6.2192$ Pr = 0.045 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(2) = 2.4424$ Pr = 0.295 (Within groups – PSU)

(b) Intercultural attitudes

Measure 21: “Participation in this class changed my views of the world.” Strongly Agree=4, Agree=3, Disagree=2, Strongly Disagree=1. / “Participation in this class will likely change my views of the world.” Strongly Agree=4, Agree=3, Disagree=2, Strongly Disagree=1

Due to the small number of observations, differences are not statistically significant. However, indicators of intercultural attitudes suggest that the VE improved tolerance among AUS students, but had no impact or decreased intercultural understanding and PSU students. Among AUS students who begin the VE, 23.% believed the course would change their view of the world. This proportion increased to 38%, who perceived that their view of the world changed as a result of the course. Among AUS students who were not enrolled in the VE, 22% expected that their views of the world would change as a result of the course, which increased only marginally to 25% after the course. Similarly, among PSU students who were enrolled in the VE, 13% expected that their views of the world would change as a result of the course, which fell to 9% after the exchange. (Table A4.27 and A4.28).

Table A4.27. Effect of VE on Perception of Views of the World

Group	Time 1 (Pre)			Time 2 (Post)		
	No	Maybe	Yes	No	Maybe	Yes
1) AUS Section 1 (VE-Treatment)	15.38%	61.54%	23.08%	18.75%	43.75%	37.50%
2) AUS Section 2 (VE-Control)	10.20%	67.35%	22.45%	10.00%	65.00%	25.00%
2) AUS Section 3 (VE-Control)						
3) PSU-Section 1 (VE-Treatment)	20.00%	66.67%	13.33%	27.27%	63.64%	9.09%

1 vs 2 in the pre-test: $\chi^2(2) = 0.4706$ Pr = 0.790 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(2) = 1.6670$ Pr = 0.435 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(2) = 1.3608$ Pr = 0.506 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(2) = 0.2534$ Pr = 0.881 (Within groups – PSU)

Table A4.28. Effect of VE on Perception of Views of the World

Group	Time 1	Time 2
1) AUS Section 1 (VE-Treatment)	2.08(.62)	2.15(.59)
2) AUS Section 2 (VE-Control)	2.12(.56)	2.19(.75)
2) AUS Section 3 (VE-Control)		
3) PSU-Section 1 (VE-Treatment)	1.93(.59)	1.82(.60)

1 vs 2 in the pre-test: $\chi^2(2) = 0.4706$ Pr = 0.790 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(2) = 1.6670$ Pr = 0.435 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(2) = 1.3608$ Pr = 0.506 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(2) = 0.2534$ Pr = 0.881 (Within groups – PSU)

Measure 26: “Middle Eastern cultures have many negative aspects.” Strongly Agree=1, Agree=2, Disagree=3, Strongly Disagree=4.

Although the differences are not statistically significant, there is an increase during the course in the extent to which both groups of AUS students disagree that ME cultures have negative aspects, while disagreement decreases among PSU students at the course. (Measure 26). (Table A4.29).

Table A4.29. Effect of VE on Perception that Middle Eastern Cultures Have Negative Aspects

Group	Time 1	Time 2
1) AUS Section 1 (VE-Treatment)	2.81(.75)	2.88(.81)
2) AUS Section 2 (VE-Control)	2.40(.77)	2.75(.55)
2) AUS Section 3 (VE-Control)		
3) PSU-Section 1 (VE-Treatment)	3.00(.73)	2.62(.76)

1 vs 2 in the pre-test: $\chi^2(3) = 5.2538$ Pr = 0.154 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(3) = 3.3239$ Pr = 0.344 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(3) = 0.4758$ Pr = 0.924 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(3) = 2.3844$ Pr = 0.497 (Within groups – PSU)

Measure 27: “Western cultures have many negative aspects.” Strongly Agree=1, Agree=2, Disagree=3, Strongly Disagree=4.

There are no significant differences in belief that western cultures have negative aspects. (Measure 27). (Table A4.30).

Table A4.30. Effect of VE on Perception that Western Cultures Have Negative Aspects

Group	Time 1	Time 2
1) AUS Section 1 (VE-Treatment)	2.20(.76)	2.13(.86)
2) AUS Section 2 (VE-Control)	2.04(.77)	2.35(.75)
2) AUS Section 3 (VE-Control)		
3) PSU-Section 1 (VE-Treatment)	2.31(.79)	2.09(.70)

1 vs 2 in the pre-test: $\chi^2(3) = 3.2286$ Pr = 0.358 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(3) = 3.0938$ Pr = 0.377 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(3) = 2.0969$ Pr = 0.553 (Within groups – AUS)
 3 in pre- and post-test comparison for PSU students: $\chi^2(3) = 0.8903$ Pr = 0.828 (Within groups – PSU)

Measure 28: “People from the Middle East are sometimes victims of unfair stereotypes.”
 Strongly Agree=4, Agree=3, Disagree=2, Strongly Disagree=1.

AUS students in the VE exhibited greater agreement that the Middle Eastern people are victims of unfair stereotypes than AUS in the control group, but the effect does not reach conventional significance levels ($p < .10$) and is substantively insignificant (a difference of .01 units on a four-point scale). (Measure 28). (Table A4.31).

Table A4.31. Effect of VE on Perception that Middle Eastern People are Victims of Unfair Stereotypes

Group	Time 1	Time 2
1) AUS Section 1 (VE-Treatment)	3.58(.58)	3.56(.73)
2) AUS Section 2 (VE-Control)	3.63(.49)	3.55(.51)
2) AUS Section 3 (VE-Control)		
3) PSU-Section 1 (VE-Treatment)	3.75(.77)	3.64(.67)

1 vs 2 in the pre-test: $\chi^2(2) = 2.0281$ Pr = 0.363 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(2) = 4.6125$ Pr = 0.100 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(2) = 1.9912$ Pr = 0.370 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(3) = 3.1519$ Pr = 0.369 (Within groups – PSU)

Measure 29: “People from the United States are sometimes victims of unfair stereotypes.”
 Strongly Agree=4, Agree=3, Disagree=2, Strongly Disagree=1.

There are no significant differences in the extent to which the groups believe Americans are Victims of Unfair Stereotypes (Measure 29). (Table A4.32).

Table A4.32. Effect of VE on Perception that Americans are Victims of Unfair Stereotypes

Group	Time 1	Time 2
1) AUS Section 1 (VE-Treatment)	2.65(.80)	2.94(.85)
2) AUS Section 2 (VE-Control)	2.73(.85)	2.65(.67)
2) AUS Section 3 (VE-Control)		
3) PSU-Section 1 (VE-Treatment)	2.69(.95)	2.73(.79)

1 vs 2 in the pre-test: $\chi^2(3) = 0.5120$ Pr = 0.916 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(3) = 6.0946$ Pr = 0.107 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(3) = 1.6521$ Pr = 0.648 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(3) = 1.1122$ Pr = 0.774 (Within groups – PSU)

Measure 30: “It is important to interact with people from different cultures, even if you may have different attitudes than they do.” Strongly Agree=4, Agree=3, Disagree=2, Strongly Disagree=1.

Although the differences are not statistically significant, students in the AUS exchange exhibited greater agreement after the VE that it is important to interact with people from different cultures. (Measure 30). (Table A4.33).

Table A4.33. Effect of VE on the Belief that It is Important to Interact with People from Other Cultures

Group	Time 1	Time 2
1) AUS Section 1 (VE-Treatment)	3.62(.50)	3.82(.40)
2) AUS Section 2 (VE-Control)	3.71(.46)	3.70(.46)
2) AUS Section 3 (VE-Control)		
3) PSU-Section 1 (VE-Treatment)	3.88(.34)	3.82(.40)

1 vs 2 in the pre-test: $\chi^2(1) = 0.6432$ Pr = 0.423 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(1) = 0.2574$ Pr = 0.612 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(1) = 1.4507$ Pr = 0.22 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(1) = 0.1667$ Pr = 0.683 (Within groups – PSU)

Measure 31: “It is important to treat everyone with respect, even if they have different beliefs than you.” Strongly Agree=4, Agree=3, Disagree=2, Strongly Disagree=1.

Although there are no significant differences, students in the AUS VE developed greater agreement that it is important to treat everyone with respect, while those in the AUS control decreased in this belief, as did the PSU students in the VE. (Measure 31). (Table A4.34).

Table A4.34. Effect of VE on the Belief that It is Important to Treat Everyone with Respect, Even if they Have Different Beliefs

Group	Time 1	Time 2
1) AUS Section 1 (VE-Treatment)	3.73(.67)	3.81(.54)
2) AUS Section 2 (VE-Control)	3.80(.46)	3.75(.72)
2) AUS Section 3 (VE-Control)		
3) PSU-Section 1 (VE-Treatment)	3.81(.40)	3.64(.67)

1 vs 2 in the pre-test: $\chi^2(3) = 2.4262$ Pr = 0.489 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(3) = 2.2065$ Pr = 0.531 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(3) = 2.9885$ Pr = 0.393 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(2) = 1.5166$ Pr = 0.468 (Within groups – PSU)

Measure 32: “If you have the opportunity in the future, would you like to visit the following countries for the first time (or again if you have visited)?” *Check all that apply.* United States, Canada, United Arab Emirates, Saudi Arabia, China, A North African nation (e.g., Morocco), Russia, An EU nation (including UK), India, Pakistan.

There are no significant differences in the mean number of countries the students wish to visit in the future, although all groups increased in the average number they identified and their desire to visit KSA. There is also no significant difference in or pattern in responses to the desire to visit the US and the UAE. (Measure 32). (Table A4.35).

Table A4.35. Effect of VE on the Countries Students Wish to Visit in the Future

Group	Mean Number of Countries		Desire to Visit Saudi Arabia		Desire to Visit US		Desire to Visit UAE	
	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2
1) AUS Section 1 (VE-Treatment)	5.19 (2.51)	5.75 (2.62)	.50 (.51)	.75 (.45)	.85 (.37)	.75 (.45)	.27 (.45)	.56 (.51)
2) AUS Section 2 (VE-Control)	5.46 (2.24)	6.45 (2.52)	.36 (.48)	.55 (.51)	.74 (.44)	.80 (.41)	.42 (.50)	.60 (.50)
2) AUS Section 3 (VE-Control)								
3) PSU-Section 1 (VE-Treatment)	4.43 (1.95)	5.8 (2.75)	.64 (.50)	.45 (.52)	.29 (.46)	.18 (.40)	.57 (.51)	.44 (.50)

Mean Number of Countries: 1 vs 2 in the pre-test: $\chi^2(9) = 12.9223$ Pr = 0.166 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(9) = 14.2313$ Pr = 0.114 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(8) = 10.1264$ Pr = 0.256 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(8) = 12.0130$ Pr = 0.151 (Within groups – PSU)

Saudi Arabia: 1 vs 2 in the pre-test: $\chi^2(1) = 1.3882$ Pr = 0.239 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(1) = 1.5411$ Pr = 0.214 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(1) = 2.5694$ Pr = 0.109 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(1) = 0.8865$ Pr = 0.346 (Within groups – PSU)

US: 1 vs 2 in the pre-test: $\chi^2(1) = 1.1100$ Pr = 0.292 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(1) = 0.1286$ Pr = 0.720 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(1) = 0.5939$ Pr = 0.441 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(1) = 0.3645$ Pr = 0.546 (Within groups – PSU)

UAE: 1 vs 2 in the pre-test: $\chi^2(1) = 1.6710$ Pr = 0.196 (Between groups – AUS pre – No difference expected)

1 vs 2 in the post-test: $\chi^2(1) = 0.0514$ Pr = 0.821 (Between groups – AUS post)

1 in pre- and post-test comparison for AUS students: $\chi^2(1) = 3.6123$ Pr = 0.057 (Within groups – AUS)

3 in pre- and post-test comparison for PSU students: $\chi^2(1) = 0.1082$ Pr = 0.742 (Within groups – PSU)