

International Service Learning in Technical Communication during a Global Pandemic

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Abstract. In this article, we explore the innovative practice of initiating global engagement by incorporating international service learning in an online TPC class to address the issue of the digital divide in the post-pandemic context. By presenting an analysis of 10 student interviews, 15 reflections, and two community member interviews, we reimagine the TPC programmatic future within the virtual classroom and rethink service learning in TPC by (a) presenting an example of serving the global community and (b) providing specific ways of creating a sustainable and meaningful partnership in post-pandemic classes.

Keywords: Digital Literacy, Global Community Engagement, International Service Learning, Social Justice, TPC

In the past two decades, service-learning programs that engage with a community within technical and professional communication (TPC) courses have significantly increased, providing students with opportunities to connect with and contribute to the community. Various scholars in the field have articulated the importance of service-learning courses that help in developing (a) relationships among students, university, and the community, (b) students as responsible and active citizens, and c) students' critical awareness of social issues (Bourelle, 2012;

Dubinsky, 2002; Eble & Gaillet, 2004; Sapp & Crabtree, 2002). In their survey report, Nancy Allen and Steven Benninghoff (2004) shared that 93% of the programs they surveyed featured service learning as a TPC pedagogical procedure. Service learning not only supports the community but also enhances students' critical thinking and awareness skills. While we suffer through a global pandemic with unknown consequences, TPC programs can implement local or international service-learning approaches that help students understand what roles they can play as global citizens to serve the most vulnerable populations during uncertain scenarios.

The COVID-19 pandemic has caused much suffering to vulnerable communities. Though there are a variety of challenges brought about by the global pandemic, one that is not often highlighted is that of digital literacy for information access. During disasters, the most vulnerable communities are the ones that suffer from multidimensional issues (Baniya, 2020). Many people in countries in the Global South are not only struggling with acquiring necessities but are also lacking proper digital literacy skills given the inadequacies of the virtual learning and work environments in which they find themselves. To address the digital literacy issues of the pandemic, during the Fall 2020 semester, the Creating User Documentation online class taught in the Department of English at Virginia Polytechnic Institute and State University (Virginia Tech) incorporated international service learning by partnering with the organization Code for Nepal with the aim of enhancing the digital literacy in rural Nepali communities. With this partnership, the students produced audience-centered documentation that targeted people in rural communities. In this article, we explore the impacts of this innovative TPC programmatic approach on the students and the community partners from Code for Nepal who collaborated on addressing the issue of digital literacy in rural Nepali communities during the COVID-19 pandemic.

To extend the scholarship in TPC programmatic actions that continue to create space for international scholarship and practice, this article presents a qualitative study of IRB-exempt interviews with 10 students enrolled in the Creating User Documentation class, two members of the community organization, and 15 student reflection videos. Our analysis reveals that international service learning (ISL) in TPC classrooms is an innovative approach to addressing global concerns brought on by the pandemic. Furthermore, we highlight that ISL TPC programs can create a meaningful international partnership that helps students gain cultural literacy via a multilingual perspective

(Gonzales, 2018) and serves the marginalized community by writing, designing, and curating information. Hence, this article showcases how TPC programs can be innovative in adapting to a worldwide pandemic through global engagement and social justice not only locally but internationally. We reimagine the TPC programmatic future within the virtual classroom and rethink service learning in TPC by (a) presenting an example of serving the global community and (b) describing specific methods that can be used to create a sustainable and meaningful partnership between academic institutions and service organizations in post-pandemic classes.

Incorporating International Service Learning in TPC Programs

Incorporating ISL in TPC programs can provide students with an opportunity to think globally and engage with the community on virtual platforms (Rice & St.Amant, 2018). ISL does come with its own challenges such as language and cultural differences, communication difficulties, and maintaining sustainable partnerships between classrooms and community organizations. Meanwhile, within the new global context “technical communicators have become central to meeting the communication needs of cultural and linguistic groups” (St.Amant, 2019, p.3). Hence, ISL can enhance the capacity of TPC students to adhere to the needs of linguistically and culturally diverse global communities. Participants can develop international partnerships in virtual environments through assorted digital platforms to create a cross-cultural environment as shown by Bruce Maylath et al. (2013). While international partnerships and local service learning in TPC programs are not new, service learning in an international context is. In a study supported by the Council for Programs in Technical and Scientific Communication (CPTSC) and conducted by Doreen Starke-Meyerring, Ann Hill Duin, and Talene Palvetzian (2007), the authors argue that global partnerships play an important role for TPC programs as workplaces are going digital and transnational. Scholars such as Steve Parks and Ahmed Abdelhakim Hachelaf (2018) have continued to develop international partnerships for community-based writing. Subsequently, with the social justice turn in TPC, scholars have highlighted the importance of including global engagements and partnerships in rethinking TPC programmatic actions (Agboka, 2013; Fraiberg, 2017; Walton et al., 2019).

In an attempt to rethink, adapt to the pandemic, and support suffering communities, the author who served as the instructor (Sweta Baniya) designed the Creating User Documentation course by using “explicit framing” as articulated by Rebecca Walton et al. (2016),

incorporating ISL, multicultural awareness, and digital literacy in the post-pandemic context. Explicit framing allowed Baniya to continue partnership work with Code for Nepal, an international, volunteer-based, non-profit organization that works towards promoting digital literacy among women and the rural Nepali population. The explicit framing also allowed Baniya to present the students with readings that directly addressed how to incorporate multicultural awareness when enhancing digital literacy and helped in creating assignments that met the class goals and Code for Nepal's goals. Baniya has been collaborating with the organization since the Spring of 2019, serving them in her classrooms and in other capacities. Currently, Baniya serves the organization in an advisory capacity. Baniya and Code for Nepal collectively brainstormed the current consequences of the first wave of the pandemic in Nepal and one of the prominent issues that they recognized involved the digital divide that emerged due to the virtual nature of work, teaching, and education. To aid communities needing support with digital literacy, Baniya and Code for Nepal collectively worked on designing a course that would help enhance digital literacy in Nepal. This work also supported the Code for Nepal's long-term goal of enhancing digital literacy in rural communities.

Creating User Documentation is one of the core courses in the Professional and Technical Writing Program in the Department of English at Virginia Tech. The focus of this class is to help students understand diverse audiences and gain knowledge and skills in composing user documentation. In Baniya's course, students learned about user documentation according to three main forms—procedures, processes, and narrative—and developed an understanding of the various technical tools and best practices available to them when creating user documentation. The students then applied what they learned from the readings by creating user documentation for rural communities and multicultural audiences. Most importantly, the course was grounded in service learning because it not only effectively teaches professional writing skills, it also develops students' ability to become active and caring citizens (Carnegie, 2012). The course incorporated ISL goals and assignments that fulfilled two purposes: (a) prepare audience-centered documentation in various formats and (b) calibrate documentation for rural Nepali audiences to support Code for Nepal.

The readings for Baniya's class were grounded in recognizing biases, understanding multicultural audiences, and identifying how the digital divide exacerbates inequalities. In this way, the students explored how digital literacy is an important aspect of

social justice and explicitly addressed the roles of communication in social change (Walton et al., 2016). Students conducted an audience analysis to understand user needs and requirements, followed by the development of print-based and video-based user documentation. Students produced several digital rhetoric-based documents of daily use software such as Slack, Zoom, PowerPoint, and Google Docs, and an instructional video of the same user documentation. Finally, the students produced prototypes for websites and mobile-based applications corresponding to user documents for the prototypes. Such prototypes worked towards supporting Code for Nepal's endeavor in enhancing digital literacy. The prototypes also addressed issues of the COVID-19 pandemic by curating resources and acknowledging the issues of cyber-crime and violence. Each assignment was followed by student reflections and a final video reflection (see Baniya et al., 2021). All of these assignments were shared with Code for Nepal.

In the following sections, we provide a literature review, describe our methods, present our results and discussions, and conclude with some takeaways for the instructors who wish to incorporate ISL in TPC courses.

Literature Review: International Service Learning in Virtual Environments

In this section, we provide an overview of service learning as a pedagogical approach in TPC classrooms for building partnerships within local and global communities and for thinking deeply about issues of social justice. Service-learning theories are grounded in building sustainable and reciprocal relationships with community partners while providing students an opportunity to develop their critical consciousness and understanding that their writing can impact the world (Bay et al., 2018; Cushman, 1996; Dubinsky, 2002; Parks & Hachelaf, 2018). Scholars argue that service learning in the classroom provides a wide range of benefits including the ability to: foster civic values; improve academic learning; prepare students for the workplace; develop cultural awareness; and, motivate students towards social justice work (Bouelle, 2014; Jones, 2017a; Matthews & Zimmerman, 1999).

Adapting to work with real-world organizations prepares students for their postgraduate careers. Understanding that their work impacts people outside of themselves holds students accountable for their work. When entering the workforce, students can feel confident that

they can immerse themselves in “the new discourse community of the workplace” and contribute to their employer in a meaningful way (Bourelle, 2012, p. 187). As Kelli Cargile Cook (2014) argues “service learning affords teachers and their students the opportunity to practice actual workplace writing while still in a classroom setting” (p. 28). Such skills prepare students to gain more insights into writing, communicating, and managing workloads by performing in a real-life scenario. Online service-learning classes can be spaces where TPC students have the opportunity to work with people from other nations on creating communication products intended for a global audience. Krista Soria and Brad Weiner (2013) found that in a virtual environment, service learning provides students with an opportunity to connect and remain grounded in the “real world” (p. 190). Similarly, Tatiana Batova (2020) showcased an approach to community-engaged learning in her user experience (UX) online classes that relied on sustainability as a thematic context and lean UX as a methodology for the course structure that students found meaningful and relevant.

ISL courses can also help students learn about different cultures from various locations (Bringle et al., 2010). In an online service-learning course, both organizations and students may be spread over a larger geographical area, becoming connected through virtual environments and communications (Nielsen, 2016), which helps students prepare for the modern demands of the TPC field. Today, TPC professionals are expected to be comfortable with writing documents that need to appear in multiple languages, are culturally appropriate, and are suitable for virtual publication (Maylath et al., 2013). This skill is becoming increasingly more valuable, given the rise of remote teams that consist of global colleagues and non-native English speakers in different time zones (Chaube, 2020; Rice & St. Amant, 2018; Starke-Meyerring et al., 2007). Moreover, ISL purposely integrates community activities that contribute to the educational objectives of the course and community issues while providing new, unique opportunities for learning (Bringle et al., 2010).

Incorporating service learning in the program is invaluable for enacting a curricular focus on social justice that eases the collaboration for the mutual benefit of both members of the community and of the university (Walton et al., 2016). Within such partnerships, privilege, race, gender, and multiple identities become discoverable. J. Blake Scott (2008) found that, based on his service-learning usability course, service learning in TPC classes helped students learn to flexibly respond to specific needs, understand rhetorical exigency, and establish a reciprocal relationship. In addition, service-learning

courses also aid in democratic participation in the classroom. Students understand how to analyze social injustices in local and global communities (Sapp & Crabtree, 2002). As service learning focuses on building a mutually beneficial relationship, it also provides an avenue for students to be exposed to social justice work by exploring their civic responsibilities (Jones, 2017a). David A. Sapp and Robbin D. Crabtree (2002) showcased how various projects incorporated in their courses helped students bring attention to diseases amidst rural and Spanish-speaking populations on the United States-Mexico border. Integrating social justice values into TPC coursework has allowed both students and community partners to critically think about issues involving civil rights, whether they be on a local or a global scale (Jones, 2017a; Walton et al., 2019). Community literacy, rhetoric, and TPC scholars continue to remind us that community engagement should be sustainable and reciprocal (Bay et al., 2018; Cushman, 1996; Geller et al., 2016). As Walton et al. (2019) state, social justice-oriented TPC helps investigate how communication amplifies the agency of the oppressed, the marginalized, and those who are materially, socially, politically, and/or economically under-resourced.

Furthermore, ISL specifically has the potential to meet the challenges of virtual learning during the global pandemic while also providing students with online service-learning experiences where students could still interact with and benefit the community. Administering a community engagement course during the pandemic, Nora K. Rivera and Laura Gonzales (2021) showcase a pedagogy of love as an approach to teaching community-engaged TPC during the pandemic in their Fall 2020 class. Moreover, Emma Rose et al., (2017) discuss a community-engaged partnership based on UX collaboration. Rose et al. (2017) argue that “community-based UX collaborations can amplify multiple types of expertise. However, UX methods may need to be adapted to be appropriate for community-based collaborations that incorporate local knowledge and needs.” (p. 228) Hence, there are various pedagogical pathways taken by TPC scholars in engaging with the community. Building off previous scholarship, our project demonstrates a new, virtual pathway for incorporating ISL while serving an international community. This approach provides a space for both community and student voices to be heard, offering a holistic relationship.

Research Design

We paired service learning-oriented research with TPC social justice scholarship to answer the following research questions:

1. How can TPC programs address complex challenges brought on by the global pandemic via ISL and engagement? Relatedly:
 - a. What are the innovative and sustainable practices of global engagement that can be created in post-pandemic classrooms to alleviate social justice issues?
 - b. How do TPC students perceive the incorporation of ISL and serving the marginalized community by writing and collaborating with an international community-based organization?

These questions were based on the three major themes of (a) ISL and TPC experiences presented in the class, (b) critical understanding of digital literacy as a form of social justice, and (c) incorporating global cultural awareness in technical writing and communications.

Research Background

To answer our research questions, we took a qualitative research approach that included (a) a narrative inquiry conducted with students from the Creating User Documentation class and community partners from Code for Nepal and (b) content analysis of the student reflection videos produced at the end of the semester. We took the narrative inquiry approach because it allowed us to listen to the students and their experiences working with the community partner and because it also allowed the students to join in the meaning-making process (Jones, 2017b). As Natasha Jones (2016) argued, “this data collection, analysis, and reporting all rest on a focus on participants’ telling of narratives (participants’ voice), the co-construction of the meaning of narratives by the participant and researcher, the presentation of findings in a narrative form” (p. 479). It was important for Baniya, as the instructor, to value student experiences and voices in her class so that together they could construct meaning from their experiences and engage with and support an international community to support.

Research Team

Baniya invited two students (Ashley Brein and Kylie Call) from the Creating User Documentation class to work as her research assistants and as co-authors of this article (this was supported by Virginia Tech College of Liberal Arts’ Undergraduate Research funding). It was important to conduct an unbiased interview and analysis of the data retrieved from both the interviews and the reflection content. Baniya mentored Brein and Call, teaching them how to conduct field research, collect data, and analyze information. Because Brein and Call worked

as research assistants on the project and conducted interviews, they were not included as participants and their reflections were excluded from our data in an effort to avoid bias.

Participants

For this study, we used purposive sampling, meaning the researchers looked for participants who possessed certain traits or qualities (Koerber & McMichael, 2008). We chose our class as a venue for recruiting participants. Since the study was situated within the class and service-learning partnership, the best way to learn about this partnership was through students and community members and providing space to hear authentic voices. We had two different sets of participants: students and community members who are the representatives of Code for Nepal who worked closely with the class. We recruited 10 student participants from the class of 17 and two community members who had significant inputs in this partnership as they conducted virtual meetings, provided feedback, and answered questions. The students were given extra credit for participating in this study. Students who did not participate in the study were not penalized and were instead provided with other optional extra credit opportunities. We interviewed community members and students because it was important for us to get both of their stories and experiences so that we could learn about the impacts of the course.

Interviews

Based on the major research question for this study, we designed 11 reflective interview questions for the students and eight different questions for the community members (See Appendix A). The questions were inspired by the DEAL model (Ash & Clayton, 2009) as it is “explicitly designed to move students beyond summarizing their experiences” and prompting students to stimulate further discussions (p. 44). These questions provided reflective space for the students to articulate their experiences and learnings about international partnerships, TPC, and social justice during the pandemic. We conducted the 10 student interviews in mid-November, three weeks before the semester ended, since there were extra points associated with the interviews. Interviews with two community members happened after the class ended. This timeline worked best because the semester was ending and students had already produced their materials for the organization and were preparing final drafts and reflections. The narrative inquiry approach helped us solicit students’ and Code for Nepal’s stories involving their experiences within this

service-learning class. Each interview lasted 25-45 minutes. Out of 10 student interviews, Baniya oversaw one interview with research assistants Brein and Call to train them on conducting interviews. Later, Brein and Call independently carried out six student interviews and two community members' interviews, and Baniya conducted the remaining three student interviews.

Student Reflections

In addition to the interviews, we analyzed 15 student reflection videos out of 17. We excluded two videos of the research assistants Brein and Call. The students in the class throughout the semester wrote two different written reflections and produced one video reflection. The first two written reflections focused on students' initial experiences of working on the first two projects. The third reflection (See Appendix B) asked the students to reflect on their entire semester's work in a 5-7 minutes-long video. To avoid the repetition that occurs in similar reflection data and since the first two reflections do not capture the entirety of student experience, we focused on only analyzing the 15 videos out of 17. Since the students were asked to summarize their experiences in their video, we narrowed in on their final reflection where students pondered their assignments, growth, and experiences.

Data Coding and Analysis

We took a grounded theory approach (Saldaña, 2013) to code and analyze our interview data and reflection data for emerging themes as they related to the following: aspects of serving a marginalized community; contributing to issues of social justice; service learning; digital literacy in post-pandemic situations; and personal and career growth for students. We did two levels of data coding using NVivo, a qualitative data analysis application. The first level of coding for student interviews, their reflections, and the Code for Nepal's interviews were done individually among the three of us (Baniya, Brein, and Call) where we created a list of codes that appeared in the data. After that, we met and discussed these codes and conducted a second level of coding that helped us create themes and explore patterns in our codes. We explored the major themes that came up in all the interviews and in the reflection videos together. The major themes articulated by the students were: (a) serving a marginalized community, (b) career development, (c) motivation for working, and (d) global audience awareness. The themes articulated by the community members were: (a) remote work, (b) student benefits, and (c) impacts. In Table 1 below, we present the major themes that emerged from the

student interviews and their reflections. Table 2 represents the major themes in the Code for Nepal’s members’ interviews.

Table 1. Major Themes in Student Interviews and Reflection Videos

Category	Definition	Codes	Examples of Coded Text
Serving a Marginalized Community	Realization of the importance of service learning and its impact on serving an international community	Productive/responsible global citizen; Recognizing Privileges; Community Awareness	“This experience has helped me become more aware that my skills can also make a difference. And then I can reach across the world to the spirit of a person, even if I am stuck in Blacksburg.”
Career Development	Growth in one’s professional path and skillset beyond service learning coursework	Future opportunities; Internship; Multicultural work environment; International Research	“It also helped me see how my research and writing skills can be used in the real world beyond the hypothetical environment in those classrooms. I feel empowered in my ability to be a contributing member of society because of the experiences I have had in creating user documentation.”
Motivations for Working and Transferring Knowledge	Motivations to work hard even during the pandemic and to use the knowledge gained in class towards serving the community	Applicable Reading; Project for Real People; Transferring Knowledge	“It just made me want to work a lot harder and put in a lot of a lot more effort into it.”

Category	Definition	Codes	Examples of Coded Text
Global Audience Awareness	Understanding different groups of people and their cultures from a global perspective	International Research; Intercultural awareness; Understanding Audiences	"...when it's an international audience like it was for this course, you have to account for cultural differences and language differences...you have to learn to overcome those challenges with it."

Table 2. Major Themes in Community Members Interview

Category	Definition	Codes	Examples
Remote Work	The opportunity to collaborate across the globe in a digital environment	Community Engagement; Technology Access; Partnership Collaboration; Global Context; Pandemic Challenges	"Everything we do with technology is misleading because of the pandemic. And we often don't think that while, you know, there might be people who do not know how to open a laptop or power on the laptop, right? So it's a perspective that can help students think about the world at large, and potentially also create more sense of empathy, about others."

Category	Definition	Codes	Examples
Student Benefits	The reciprocal relationship between community partners and students	Digital Literacy; Public Good; Knowledge Gap; Raising Awareness; Pandemic; Useful User Documentation; Inequality; Beneficial; Impactful;	“When it comes to building their capacity we intend to find a way to share these materials with those teachers. The second thing we’re doing is promoting these materials among our wider network of Code for Nepal partners...putting on some marketing through Facebook to promote these videos occasionally.”
Impacts	The impact of student works in future implementation	Further Implementation; Raising Awareness; Knowledge Gap Inequality	“The great thing about what the class has done is that there are so many materials that have been produced and pages and pages of user documentation... So we hope to market this to potential users who might benefit from learning these concepts... depending on who the folks are they can potentially, you know, adapt it or modify it, depending on their needs.”

Limitations of the Study

There are various limitations of the study such as the number of interviews, purposive sampling, and the positionality of the researchers as the teacher of and students in the class. We as authors of this article acknowledge that within these limitations, we have conducted our interviews objectively and without influencing our interviewees. However, in this article what we wanted to showcase is how TPC programs can be innovative in creating international partnerships that address global issues and how students perceive such partnerships. As our interview questions (Appendix A) suggest we wanted students to be reflective about the course that was grounded in social and digital justice and their learning from being involved in social justice actions in a global context. Moreover, in our other article (Baniya, et al., forthcoming) we share our challenges and reflections of this partnership.

Results and Discussions

In this section, we provide an overview of four major results that we gathered from the analysis of student interviews and reflections. We also analyze and discuss our interviews with the community members.

Eye-Opening: Serving a Marginalized Community via Technical Writing

In their interviews and reflections, the students expressed that engaging with an international marginalized community through TPC was an eye-opening experience as it helped them recognize their privileges and acknowledge the opportunities that digital access presents. The interviews showcased a development of critical awareness of how TPC can incorporate advocacy and social justice to serve a marginalized community. The course focused on learning how to create user documentation for audiences with varying digital literacies. This challenged the students to adapt to the international audiences' needs which required the students to think outside of the box. Such experiences helped students grow ethically and socially, a growth which was "fostered by reflection and conversation, designed to increase the students' investment in society" (Dubinsky, 2004, p. 21). The students showed growth in the class while reflecting on their biases and privileges. They developed a critical awareness by engaging with an international community. A student shared during an interview:

Working with a group in a marginalized area makes me a whole lot more appreciative of the privileges I have. It's

easy for me to take technology for granted, and it's easy to even be demoralized by the fact that during this pandemic, I only have things like FaceTime and zoom to connect with friends and family and school. However, working in this class really showed me that I'm actually very lucky to have these resources and to be able to continue pursuing an education. When I see situations like those that people in Nepal are enduring. It certainly is a wake-up call.

As the student said, the class was a wake-up call because most of the students did not know how a lack of digital literacy impacts people's livelihood, especially during a global pandemic. Many students at the beginning of the semester shared that they were not aware of the issues related to digital literacy as they said they grew up with technology readily available to them. Thus, in addition to learning how to create user documentation, the students were learning about the digital divide and how that has severely affected rural and marginalized communities in Nepal. The contextual understanding of social injustices helped the students to strategize their user documentation and work "empathetically and effectively across all differences - not only race/ethnicity, gender, class, sexuality, language, culture, ability, but also skill sets, goals, and situations," which is grounded in service learning and TPC (Shivers-McNair & San Diego, 2017, p. 100).

Other students articulated that the class helped them understand the ways their knowledge could help serve communities in need whether locally or globally. This awareness allowed students to become more invested in propagating digital literacy because they recognized the social divide a lack of digital literacy creates. As Hailing Ding (2014) noted, technical communicators have a civic responsibility. The class became a space where the students could understand and enact their civic responsibility. One student expressed in reflection:

Knowing that I can have an impact on a community in need was not only eye-opening but motivating and more satisfying than completing an assignment without having any use.

Similarly, another student stated in an interview:

I never would have thought that there were organizations like Code for Nepal that existed...basically...my perspective has changed...I've kind of opened the door to engage internationally.

As both students explain, this unique experience allowed them to think of ways that they could be involved in something impactful

to the community beyond boundaries. Students also noted that the class assignments were something more, as they were useful and life-changing. They expressed empathy and commitment to serve a marginalized community of which they were not a part. The students not only saw the benefits inherent in learning-by-doing, but they also saw the value inherent in working with community partners to solve problems (Dubinsky, 2002).

Preparation for Entering the Global Workforce with Civic Responsibilities

While there are obvious benefits for the partner organization, students also learn the skills they will need in the workplace, and they gain practical wisdom (*phronesis*) that enables them to be critical citizens (Dubinsky, 2002). The interviews demonstrated this when students revealed that they felt that their experience in the course prepared them for the global workforce. Using technology made available by online learning, they gained the skills necessary for creating products intended for diverse audiences. Furthermore, students developed a sense of intercultural awareness which is a necessary aspect of the global workforce. Service learning, used fully and reflectively, helps students develop critical thinking skills and therefore prepares students for the workplace in a more comprehensive way than many other pedagogical strategies because students apply what they have learned by working to develop reciprocal relationships with real audiences (Dubinsky, 2004). Our data revealed that several students felt that what they learned in the class could apply to their future careers and their world navigation. A lot of students expressed the feeling of being empowered, gaining different perspectives, and thinking of incorporating service in their career paths. A student said in an interview:

[It] helped me see how my research and writing skills can be used in the real world beyond the hypothetical environment in those classrooms. I feel empowered in my ability to be a contributing member of society because of the experiences I have had in creating user documentation. The Nepali citizens benefit because they are being provided with resources [for existing] in progressive technology during the pandemic, so they have the option to be safer as they work from home. ... I get the benefit of not only furthering my education but hopefully helping to further someone else's.

The connections made with the international audience also helped

students pinpoint qualities they expect to preserve for their future careers. The students felt fulfilled in their roles as technical communicators for global outreach, and, in return, they felt empowered in their personal growth which was reflected in the user documentation they produced. The students shared being motivated by the social justice aspect of the course which they intended to apply within their respective careers in the future. One student asserted during an interview:

I got into a law program. So there are two sides to the law. So there's the very corporate side of things. But then there's also more of a public interest, social justice kind of side. And that's really where I am looking to pursue a career. And the legal field is a very writing and research-based field. So these skills that I've been using in this class and other classes are very similar.

Similar to the student who was going to law school, another student who aimed to become a physician shared during an interview:

I want to serve my community as a physician. And in addition to that, I want to be able to educate my community about their specific health needs by implementing learnings from my minor professional and technical writing and in this class by creating documents that are simple, easy, informative, and applicable, so that they know like specific things about their health that they need, be it like STDs or STD information or health information or information about diabetes -- whatever you know is relevant because every community is different in that aspect. So, I know I want to serve, and I know that I've learned hands-on. And I think this class solidified that.

In these two narratives, both students are taking different career paths, however, they explicitly mentioned that the skills they learned in this class in terms of research, writing, social justice, and community work are something that they will be taking along with them. In addition to helping students narrow down their career paths, the class allowed students to take their first steps towards pursuing such careers. Service learning in TPC courses requires students to use their abilities for society's benefit as research and pedagogy that adopt community-based methods emphasize civic and social responsibility while enacting principles of collective action such as dialogue, reflection, and advocacy as a means for improving and contributing to public life (Jones et al., 2016).

Many students reflected that this class was like an internship

experience for them because the partnership with Code for Nepal provided students with hands-on experiences which included direct interactions with community partners. Students shared that the assignments were worthy investments of their time because they would reach people beyond their professor. Additionally, students thought that serving an international community virtually was a rare and valuable experience that showcased how they can continue to serve communities despite the uncertainties brought on by the COVID-19 pandemic. Students practiced writing for nonacademic audiences who have a different language, background, and context, noting that it was challenging yet rewarding. For many, this class was the first time that they were required to “respond to real situations and to write for real audiences” (Matthews & Zimmerman, 1999, p. 386). A student expressed in their reflection:

... this project felt a lot closer [to] my internship than just a normal school project. It felt like what we were making had the potential to have an impact on the world.

The course required students to produce materials for a real audience and community. This sense of purpose regarding the assignments fostered a deeper understanding of course concepts. Soria and Weiner (2013) argue that “the connections that students made between technical writing skills, service learning, and connections to future careers may have inspired them to become more active and engaged in their learning” (p. 194). Soria and Weiner found that students in a TPC course that featured service learning performed better academically than students in the same course that did not. In their partnership with Code for Nepal, students applied skills from the course curriculum such as document design and instruction writing. Ideally, because of this, every student walked away with high-quality documentation to incorporate into their professional portfolios.

Understanding Global Audiences’ Needs: Expanding and Transferring Knowledge

Piquing the students’ interest in Code for Nepal’s mission was critical in motivating students to conduct ethical and responsible research so that they could understand the needs of global audiences. Huatong Sun and Guiseppe Getto (2017) argue that technical communicators can no longer afford to consider their practices as being purely local and that the local and the global are not a binary relationship. Instead, the relationship between the local and the global should be a mutually constituted one. The students in the class were explicitly guided to understand global TPC through readings and discussions with the

community members. During an interview, a student observed how their perspective on differences created an overlap in culture and geographical spaces:

Now I have knowledge about what groups are marginalized and how their economy is laid out. The wealth is in the cities and rural areas are struggling more with the education, the digital literacy...I think that you can connect it back to America...it's kind of a similar wealth distribution. It's more concentrated in the cities and we need to focus more on certain things like education in the rural areas. I think that understanding this in other countries has given me a helpful point of view to apply to not only these products for Code for Nepal, but also thinking more locally as well for service projects.

The student's critical reflection showcases how researching and understanding international contexts made them contemplate local issues. Code for Nepal's grounding in addressing social issues sparked more interest in students, which motivated them to dig deeper into research and constantly reflect on local and global issues. Students also mentioned that the class's connection to marginalized communities in Nepal made them feel responsible for producing high-quality documentation adaptable to the local context and eager to understand and engage with the audience's context. Students carefully evaluated the needs, values, and attitudes of the intended audiences, which was a required goal of the class. Even though there was no direct contact with the audience, students understood how to conduct research to find reliable sources and cross-check facts with Code for Nepal to ask questions that would serve as the framework for their documentations. Our interviews revealed that consideration of the audience's background remained a top priority throughout the semester. A student remarked during an interview:

I think the major takeaway I took from this class, in terms of engaging with the international community, would be to know your audience. There's no way a person will automatically know the community's wants or needs without conducting that research and actually speaking with them and talking with them and getting to know them. And it's harmful to just assume, especially to assume that any community or people of any age, or just like us. And it can even lead to miscommunication, which can be pretty detrimental.

Throughout the semester, students recognized the importance of

understanding the local audiences of an international community to produce audience-centered user documentation that enhances digital literacy. Students further learned that understanding global communication, cultures, and different perspectives is critical in the interconnectedness of today's digital world. Due to globalization, technical communicators are expected to be able to work with colleagues living in different nations and coming from a range of cultural and linguistic backgrounds (St.Amant, 2011). The class's goal was similar, and students gained an understanding of how to design and format their user documentation to make information more retrievable for an audience from a different cultural and linguistic background, who may be unfamiliar with the subject matter or language, or who may not have access to certain resources. The community members gave extensive feedback to the students and their documentation which helped the students get a diverse perspective. As a result, the students' documentation satisfied the needs of the community members and their audiences. Although all the students were digitally literate and had a firm understanding of the documentation's subject matter, the challenge was tailoring their work to the readers' level of understanding. One student claimed during an interview:

I feel like ... a lot of people should know how to do these skills like research[ing] internationally to understand the audience that they're presenting to. ... You can make a crazy awesome product. But if you can't communicate it, well, it's not gonna be sold, you know?

The student reflects on their revelation that it was important for them to understand international audiences and their context; this critical thinking was developed continuously throughout the semester with assignments, discussions with community members, and feedback. Moreover, the class emphasized the aspect of reciprocity in service learning. While the partner Code for Nepal and citizens in Nepal received the student-produced documentation, the students gained skills to use assorted software, knowledge to understand global audiences, and learned how their work could be impactful in differing contexts. Even though some community members could not come to class due to time differences, they prepared asynchronous videos, provided feedback, and guided the students when they had questions. In addition to working across time zones, the student collaborated with their peers in a virtual environment. Some students found this challenging and time-consuming. A student commented in their reflection:

It's felt great being able to put all the skills I have learned in this major into resources that may be used by real people who need them. My hope is that someone will see the resources that I and my classmates have made, and it will help them in some aspect of their life, whether it be communicating with others or having a new creative outlet to express themselves.

Students recognized application of the course curriculum while working on their documentation. This opportunity to apply what they had learned in the real world fostered self-efficacy. For most students, this was the first time that they had ever communicated or engaged with an international audience. The close collaboration with community members eased their apprehensions. When students developed confidence in their abilities to do well, they put more effort into learning about the multiple issues of social justice in Nepal, leading them to produce prototypes such as "Interbyte," a mobile-based game that would train young adult girls to understand cyber-crime in Nepal. Some students voiced that the key to their success in international TPC was to abandon the fear that the task was impossible and immerse themselves in the culture of the audience and partner organization.

Motivation During the Global Pandemic

The entire service-learning experience, from meeting the Code for Nepal members to developing impactful documentation, motivated many students to work with diligence despite the challenges of the pandemic. However, there were some students that experienced a lack of motivation. The students who developed a connection with the course concept and partner organization were highly motivated to work. Each student had their own internal reactions to the process and to what they learned from the experience of working with their peers to create something innovative and beneficial for the community partner. In our results, we saw how students were able to reflect and think introspectively about their connection to the projects. Some students specifically mentioned that they felt more motivated and inclined to participate in other service-learning projects, courses, or experiences moving forward. While learning and actively engaging with the community through service-learning coursework, students recognized that sense of gratification as something that they may seek out in the future. One student said during an interview:

I think it's just the knowledge of knowing that my work could make a difference... That really motivated me.

Especially after doing all this research for Code for Nepal, and Nepal and my audience, I'm just understanding that I felt the drive to provide an effective product for them. So I think that...encouraged that extra motivation is just knowing the audience outside of my Professor grading it, and just knowing that this could actually be used in real life, for the betterment of our community.

As the pandemic forced virtual learning and remote work, engaging with the community across time zones provided students with a real-world setting where their classwork would be used. Rather than merely pursuing a passing grade on yet another assignment, the students felt altruistic, showcasing responsibility to the organization as opposed to only themselves, just as Soria and Weiner's (2013) students had. The students also benefited from applying their multiple literacies and education to their documentations by reflecting on their privileges and working collaboratively with the community partners in a symbiotic relationship (Eble & Gaillet, 2004). Accordingly, another student reflected during an interview on how the service component of the class made them take the class seriously:

It just made me want to work a lot harder and put in a lot of effort into it. Because, you know, I want to support people and I want to make sure that my explanations are coming across well and that it makes sense. So I think that impact had a motivational impact on me and taking my class a lot more seriously.

Students reflected on their own privileges while they became empathetic to others' circumstances, specifically to the Code for Nepal's audience's circumstances in Nepal. Service learning develops "an ability to work empathetically and effectively across differences—not only race/ethnicity, gender, class, sexuality, language, culture, and ability, but also skill sets, goals, and situations—[that] is at the heart of community strategy, much like technical communication and user experience." (Shivers-McNair & San Diego, 2017). Throughout the semester, readings, discussions, and collaborative learning with Code for Nepal continued to push students outside of their comfort zone so that they could serve communities beyond themselves. A student told of their journey of exposure to new, diverse cultures and ideas during an interview:

The readings, the research that I did, [and] these projects helped make me more aware of people outside of my community...which I think really helped me grow as a person, in addition to kind of growing just my educational

knowledge. This class definitely just opened my eyes to these concepts of different cultures, different statuses worldwide, and local communities as well.

Likewise, another student noted in their reflection:

I pushed myself to continuously improve and learn from Dr. Baniya's lectures and feedback to make sure my products would actually benefit the audience I was creating them for. So all in all, I have a deeper understanding of the class curriculum than I would have without the service-learning and community engagement aspects.

Both students reflect on class readings and lectures that helped them unleash their capabilities and feel motivated to work harder. In a way, students became the sustainable element to raising awareness and creating social change such that they became advocates who had the potential to transform generations and ultimately society through carefully implemented service learning experiences (Mitchell, 2008). Concrete motivations and emotions can potentially guide students to participate in more initiatives in the future.

Community Partner's Reflections

The members of Code for Nepal were interviewed so that we could analyze their perspectives as recipients of the service-learning partnership. Their responses illuminate the benefits and impacts of student work in a highly digital and mutually beneficial environment. Participating in this project remotely provided Code for Nepal with an opportunity to collaborate with students and the university, creating a partnership for supporting communities in need. As the organization is completely volunteer-based without a strong source of regular funding, this partnership created resources that otherwise would have been outsourced. One interviewee said:

I think it is a responsibility for universities to really help students understand how global experience can be very useful and that it requires more resources. So, I think that in this very rapidly changing context, universities have a lot of responsibility to help their students understand the importance of global experience.

From a post-pandemic standpoint, these kinds of opportunities can be made more widely available and accessible to marginalized, developing communities through growing digital possibilities. Both interviewees mentioned that the collaboration between Code for Nepal and students allowed for greater community engagement across borders, despite major time zone differences. Efforts made by

faculty, students, and Code for Nepal ensured smooth communication efforts that overcame numerous obstacles. Although Code for Nepal members were never able to meet students in person, the virtual Zoom meetings provided an ideal avenue for collaboration and conversation. Another interviewee discussed how uplifting it was to promote more global engagement, while briefly touching on the stigma behind service learning treating the community as a research lab:

I think service learning can be a great mechanism to help students gain more experience...and the community gets some resources that they can use very well to help the public. So I am not concerned about treating the committee as a research lab.

Service learning is a valuable tool for expanding global engagement and knowledge sharing, but we can gather that the practice itself can be morphed and shaped according to the community and present circumstances. Offering a digital approach in creating a virtual partnership invites greater opportunities for collaboration and for communities to be involved across country borders.

Another key component of this partnership involves initiatives used to raise awareness about complex issues that normally may not be discussed in traditional higher education classrooms. Both interviewees from Code for Nepal highlighted how important it was to see that students were engaged in learning about their culture and understanding the problems their community is facing, specifically gender disparity. Students analyzed and discussed these inequalities with help from Code for Nepal members. One member shared:

Because the students have done the research and created some very targeted products for a specific group of users, I think we will feel more confident in our ability to market this to some of the folks that we want to help. So all that to say, a really, really helpful collaboration and partnership are here.

One of the challenges or dissatisfactions recognized by students was the fact that they would not be able to see the products they created in action, a feat which unfortunately was impossible to accomplish within a semester timeframe. Code for Nepal members promised that student-produced materials would be used in a meaningful way. One member observed:

Our hope is to market this to potential users who might benefit from learning these concepts...depending on who the folks are they can potentially, you know, adapt it or

modify it, depending on their needs.

The process of implementing students' work, specifically instructional videos, informational websites, and interactive phone/tablet apps, was not over when the class ended. These projects marked the beginning of students' activism in the community and their efforts to promote digital literacy, but they cannot be immediately utilized. Both interviewees highlighted that the students' work was valuable and would be used for countless contexts and audiences.

Programmatic Approaches to International Service-Learning in TPC

As the field of TPC is becoming more global, various scholars are calling for a broader scope of intercultural and international inquiry that values local knowledge systems, historical background, and social and political contexts (Agboka, 2013; Jones et al., 2016; Rice & St.Amant, 2018). In this context, developing meaningful and reciprocal partnerships with international community-based organizations and incorporating such partnerships in TPC programs will help diminish international barriers in communication. In this article, we showcased how incorporating international service-learning into the TPC program led to the creation of a meaningful partnership that benefited both the students and the community even during a global crisis like COVID-19. Such partnerships allowed students to dive into the virtual work environment and learn valuable skills while also recognizing how their efforts and technical writing prowess could help communities in need.

The international partnership in the context of this study allowed the students to work across a global context, with diverse and multicultural audiences, and on projects of civic significance that would benefit the rural audiences that Code for Nepal supports. Students were challenged to think about rural audiences who may own computers but may not know how to turn them on. Walton et al. (2019) suggest that the field rethink its research, teaching, and service practices by serving the community and tackling injustices through a social justice lens. In rethinking TPC programs, ISL that specifically supports marginalized communities can be an asset that helps our students more thoroughly understand global injustices so that they may work to solve them. Digital media and the virtual learning environment bring people from around the globe together, allowing them to access more content that quickly bridges the gap between local concerns and creates a space for international dialogue (Walwema, 2018). Numerous TPC scholars have incorporated service learning for community justice and student development as active

and responsible citizens (Eble & Gaillet, 2004; Sapp & Crabtree, 2002). Ann Shivers-McNair & Clarissa San Diego (2017) argue that social justice-oriented community work aims not only for cross-cultural communicative competence but also for advocacy and change. In contrast to local service learning, engaging on a virtual platform in an online classroom allows us to incorporate international service learning and work towards supporting communities suffering through social injustices due to issues such as a global pandemic.

It is prime time for TPC programs to dream bigger and develop meaningful partnerships with communities elsewhere in the world to not only prepare students for the global workforce but to also make students responsible citizens who serve global communities. International partnerships for collaborative TPC teaching are common. While the field already knows and values the importance of international partnerships, to take these partnerships to the next level TPC programs, teachers, and administrators can implement ISL within their classrooms as we did. These partnerships are challenging, time-consuming, and demanding because they require equal commitment from teachers, students, and community partners and an equal balance of reaching course goals and meeting community needs. Despite these challenges, instructors can successfully nurture these partnerships by getting involved with a potential organization through volunteering and service, utilizing university funding and resources to benefit community partners. Incorporating a relationship with a community partner in a transnational context into a curriculum, convincing students, and expecting them to play the role their instructor has envisioned are equally challenging. For these kinds of partnerships to work in the classroom, there should be room for errors, newer challenges, and opportunities for reflection and learning for all stakeholders. Establishing this understanding early on for all parties involved is necessary because this process is not straightforward.

We want to acknowledge that we are highlighting these experiences because they are meaningful, but we recognize that service learning in an international context can get messy due to cultural differences and barriers, lack of student commitment, and communication barriers caused by remote work. These challenges, however, are no different than the everyday challenges of teaching and working in a global environment. What makes these challenges difficult in a 16-week semester is that some students might find this kind of learning to be an additional burden they did not sign up for. The asynchronous format of the course might have exacerbated this problem and, on top of everything, the global pandemic had disrupted

everyone's lives. Another obstacle arose with the mere fact that the class was being conducted in a virtual world. This meant that students had the power to turn off their computers and phones whenever they wanted, terminating communication with their professor, community partners, peers, and projects. To address this challenge, Baniya allowed for deadline extensions as needed, giving students a voice in the group conversation where they could reflect on their lack of contribution to the group project and then take charge to finish the project on time. Baniya also constantly asked students to reflect on how their work is connected to Virginia Tech's motto of "Ut Prosim" (that I may serve), reminding them not only the importance of Code for Nepal and its mission but also of how concepts taught in class would benefit them long-term, as an understanding of both were necessary for students to receive a passing grade. Baniya's involvement invited students who struggled with participation to contribute to the class throughout the semester. According to Robert G. Bringle and Julie A. Hatcher (1999), the relationship between community service and educational aspects of service learning is not always clear. Reflection activities "bridge" these concepts and "direct the student's attention to new interpretations of events and provide a means through which the community service can be studied and interpreted, much as a text is read and studied for deeper understanding" (Bringle & Hatcher, 1999, p. 112). Reflection activities required additional time and effort, however, these reflections encouraged student accountability and dedication.

Conclusion: Addressing Complex Global Challenges in TPC Classrooms

In this article, we showcased an example of how virtual TPC classrooms can incorporate ISL and help students understand the complexities of global challenges. As demonstrated by student interviews and reflections, and community members' interviews, such coursework creates a reciprocal relationship that is beneficial to both students and communities. This example also demonstrates how international partnerships within TPC classrooms that incorporate aspects of social justice can help students understand complex global challenges and engage in their civic responsibilities. TPC programs and classes can develop pedagogical interventions to address complex global challenges, like a global pandemic, in an effort to help communities like Nepal. In turn, students learn to be better communicators and develop a sense of civic responsibility and cultural awareness on

a global scale. Students become competent in navigating remote project teams, which was a challenge put forth by the global pandemic. With many companies choosing to stay online following the outbreak of COVID-19, understanding digital communication tools and the importance of intragroup project management is necessary.

We suggest that teachers, community partners, and administrators critically think about and carefully plan programs that allow for collaborative work across time and space, providing stakeholders with ample opportunities for critical reflection. This action ensures the potential for clear and concise suggestions for those involved as both the projects and overall partnership progress while being equally supported by the administration. From a larger perspective, universities have responsibilities towards communities not only locally but also globally as they continue to benefit from the broader international student population. While some universities have clear objectives for international development and partnerships, others might not. Therefore, starting a partnership in a space like the TPC classroom can demonstrate the importance of global awareness and collaboration and could be exemplary in addressing global challenges that make our lives complex. Lastly, we want to conclude with what one of the students expressed in an interview, "Experience comes with learning. Learning about these relationships, how can we collaborate and coordinate our efforts with working together overseas, is really just a beneficial experience to have."

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Appendix A: Interview Questions

Interview Questions for Students:

1. Please tell us your experiences of service-learning in the past.
2. How has your experiences been in your partnership with Code for Nepal so far this semester?
3. What about the projects in this class have stuck out to you/made an impact on you? **Why?**
4. How has your perception of post-pandemic digital literacy changed after participating in this class?
5. What are the **major takeaways** from this class in terms of engaging with an international community, researching them, and preparing documents for them?
6. How has the experiences of conducting research, understanding a new community, and working for marginalized communities in a poor geographical area in Nepal been for you?
7. How has service-learning impacted your learning and your growth as a student of Virginia Tech in terms of our *Ut Prosim* motto?
8. What will you remember about this one-year from now if you had to tell someone something about it? **Why?**
9. Did you stumble upon some new or changed belief about something in your musing? **Describe it.**
10. Do you think students' engagement with the international community is necessary? If yes, why? If not, why?
11. How can you educate others or raise awareness about this group or social issue or the issue of digital literacy?

Interview Questions for Code for Nepal:

- 1) Describe your experience of working with our class Creating User Documentation?
- 2) What are the challenges of the partnership with the university?
- 3) Can you describe how the student work will be used in the community in Nepal?
- 4) Do you think this kind of work is impactful to the students and the community?
- 5) What do you think universities can do better in terms of working with the community?
- 6) Oftentimes, service learning is criticized for treating a community as a research lab, what do you think about that?
- 7) How do you see this experience with our class being beneficial to you as a community-volunteer based organization?
- 8) What has been the most impactful work from our class that you think will help Code for Nepal and your communities?

Appendix B: Reflection Video Assignment Sheet

In 5-7 minutes reflect on the community engagement and working with Code for Nepal in this class. You can use zoom to record your video, use presentation slides to showcase your projects and be as creative as you can. I am not requiring this video to be extravagant. But please include closed captions because that is a requirement for accessibility.

In your video reflection, you will

- Provide your introduction including what this video is about and what you will talk about in this video. (Example: My name is X, I am from X major, and in this video, I will provide you with an overview of ...")
- Provide an overall experience and reflection of assignments of this class
- Reflect on the process of completing your assignments for Code for Nepal. How different your experience was with inclusion of service-learning / Community engagement in the class.
- Include personal experiences of learning.
- Look professional in this video meaning please avoid wearing sweatshirts as we might curate these videos professionally via the library or [organization name]'s website. However, you also have the option of walking through the slides, images and you not being present on the video.
- Include Code For Nepal logos, colors, themes, and also VT logos at the end of the project.
- Include that you prepared this video for our class with information about the class and your professor.

Submission Details

Please submit the videos on our google drive. Also, please make sure that you submit a google drive link to the canvas assignment that way I can give you points.

Author Information

Sweta Baniya is an assistant professor of rhetoric and professional and technical writing and an affiliate faculty of Center for Coastal Studies at Virginia Polytechnic Institute and State University. Through a transnational and non-western perspective, her research focusses on transnational coalitions in disaster response, crisis communication, and nonwestern rhetorics. She is working on her first book-length project *Transnational Assemblages: Social Justice Oriented Technical Communication in Global Disaster Management* where she explores transnational activism in the April 2015 Nepal Earthquake and 2017 Hurricane Maria.

Ashley Brein is a recent graduate of Virginia Polytechnic Institute and State University. She studied public relations with a double minor in leadership & social change and professional & technical writing. Her passion for serving others has led her to learn about and appreciate new cultures, stories, and global concepts. She is fascinated by the digital landscape and how people play a role in it all.

Kylie Call is a senior at Virginia Polytechnic Institute and State University who studies professional and technical writing. Currently, she is an undergraduate research assistant and a publishing assistant for Virginia Tech Publishing. She recently won second place in SIGDOC Conference 2021's Microsoft Student Research Competition (undergraduate division). After graduation in May 2022, Kylie plans to work as a technical writer.
