

Teachers' First Experiences with Global Projects: Emerging Collaboration and Cultural Awareness

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Two cohorts of teachers participated in a professional development program in summer 2016 and 2017 focused on incorporating global perspectives and activities into K-12 classrooms using contemporary technologies. One part of this program required teachers to plan and carry out a global project with an international classroom as a means to introduce them to a host country's education system before they traveled abroad to that country the following summer. This paper summarizes descriptive survey results from 22 teachers and 264 of their K-12 students to depict the types of global projects undertaken along with the key outcomes that were supported (i.e., development of global skills, collaboration, and awareness of global issues and cultural perspectives). Results indicated that teachers new to global project design implemented two primary types of global projects: sharing and comparing cultural information and pen pal projects with either unscripted or scripted topical conversations. Students expressed high interest in global projects, but in these types of projects the topics of discussion chosen (or not chosen) by teachers and students did not lend themselves to developing advanced cultural awareness. Student interaction fell short of higher levels of collaboration. Implications are provided for professional development that prepares teachers to design

more comprehensive projects focused on authentic themes that may better elicit collaboration and expand student awareness of global issues and cultural perspectives beyond the outcomes seen in this study.

Keywords: global collaboration, global project, global learning, cultural awareness

TEACHERS' FIRST EXPERIENCES WITH GLOBAL PROJECTS: EMERGING COLLABORATION AND CULTURAL AWARENESS

The globalization of the world economy and rapidly evolving global issues such as terrorism, climate change, and data security have led to the increased call in education standards for students to develop their cultural awareness and intercultural collaboration capabilities (Mansilla & Jackson, 2011). Today's students will need to be prepared for work with international peers to address society's most pressing challenges on a global scale, which involves understanding diverse cultures, histories, and perspectives. One strategy for simultaneously introducing students to diverse cultural perspectives while supporting collaborative skill development is a project-based approach where students from different countries work together on a joint activity. Global projects have become more prevalent in recent years due to new standards calling for global collaboration (ISTE, 2017), and increased access to the internet and diverse tools for communication, group processing, and web-based product development. Gajek (2015) identified more than 140 web-based tools for supporting project communication and/or artifact development in a survey of language teachers participating in telecollaboration.

Global projects have been shown to improve student skills and expand ideas through collaboration and communication, and there are many options for how to use technology to facilitate student work. Korsager and Slotta (2015) studied high school student participation in a four-nation collaboration around climate change, reporting that students who engaged in more collaborative writing with peers and participation in discussions and chats were able to develop better explanations of causalities with linked concepts and perspective taking. Harms, Janosz, and Maietta (2010) describe high school student participation on global engineering modules, reporting that students working across classrooms learned to communicate their ideas in drawings and design concepts more clearly, and that commenting and receiving feedback on solution ideas shared in forums helped students "improve their own ideas, designs, and solutions" (p. 27).

Gibson, Rimmington, and Landwehr-Brown (2008) discuss further “attributes and processes” that can be developed through global collaboration (p. 14). Among these are: dispositions and values such as respecting different viewpoints; global awareness of common issues and others’ perspectives; technology skills to research, communicate, and present; intercultural communication skills to avoid misunderstandings and insults; reflection skills to continuously examine experiences toward improved learning; collaboration skills to team and co-construct artifacts or perspectives; and critical thinking skills such as reasoning and hypothesizing about global problems.

In the present study, we were interested in how K-12 teachers’ global projects could support the development of these global skills recognized by Gibson et al. (2008) and asked teachers to report examples of how their projects supported them. In particular, we regarded the student process *collaboration* and the student attribute *global awareness* to be somewhat complementary and examined these concepts in more depth by also asking teachers to describe how their projects supported them. The complementary nature of these concepts is related to the greater likelihood of building collaboration in projects where students develop solutions to global issues. In these projects, students are thought to have more opportunities to weigh and integrate peer perspectives on designated global topics, a key aspect of collaboration. In the following sections, frameworks are presented that informed our inquiry into developing collaboration and cultural awareness in global projects.

Developing High-Level Collaboration in Global Projects

One global skill of interest in the present study was high-level collaboration and how teachers working with global projects could achieve it. Updated technology standards released by the International Society for Technology in Education (ISTE, 2017) emphasize students as *global collaborators* who must learn to work with others across an interconnected world. Standards recommend students “use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.”

As most global projects are supported by online tools, what does good collaboration look like in an online setting? Murphy (2004) presented a framework that she used to code forum transcripts among pre-service teachers of French for evidence of collaboration. The framework begins with “social presence” which involves the recognition that a peer group exists and interacting with that group socially, not just academically, supports the development of a community that can ultimately undergird higher levels of collaboration. The second level of the framework is “articulating individual perspectives” which is rather like one-way communication of ideas

without feedback or consideration of others' ideas. This contrasts with the third level of the framework, "accommodating or reflecting the perspectives of others," which requires students to consider beliefs and values beyond their own. Murphy (2004) notes, "this process of questioning, evaluating, and criticizing perspectives, beliefs and assumptions allows participants to restructure their thinking" (p. 423). When disagreement occurs, "they must work together to produce shared meanings" which is the fourth level of the framework (p. 423). The fifth level of the framework is "building shared goals and purposes" which might involve working with a matched partner or team to select a project focus or topic. The final level of the framework is "producing shared artifacts" which reflects the notion that collaboration always results in "something new" being created such as a group document or presentation (p. 423). In the current study, teachers were asked to report examples of students collaborating at these different levels in their global projects to understand the types of projects that may support higher level collaboration.

Developing Awareness of Global Issues and Cultural Perspectives in Global Projects

Global projects fit under the larger umbrella term of *global education* (Standish, 2014) that has been aligned with progressive education and the development of self (e.g., empathy, respect, care) and society (e.g., social justice, community) (DeNobile, Kleeman, & Zarkos, 2014). The updated ISTE (2017) technology standards encourage global collaboration with an emphasis on examining local and global "issues and problems from multiple viewpoints," investigating solutions to those issues, and working in project teams "toward a common goal."

Many organizations and authors have suggested global issues that students can investigate in projects to develop their global awareness (e.g., Oxfam, 2015). The Partnership for 21st Century Skills (n.d.) recommends students investigate and connect with others around "conceptual units of study" including: global society, geography, environment, education, economy, and politics (p. 13). The United Nations (2017) promotes 17 sustainable development goals (SDGs) that provide mutually relevant topics for students in different countries to investigate together (e.g., gender equality, clean water, decent work). In a study into global teenager learning circles, Chitanana (2010) noted that student conversations across countries were guided by relevant topics selected in consultation with the teacher such as globalization, human rights, and the environment. The author noted that relevant topics were motivating to students who were inclined to "contribute thoughtfully to the discussion" (p. 32).

When students address authentic global issues with peers, they may be more likely to reach higher levels of cultural awareness (and collaboration) as they are exposed to diverse perspectives on common issues that they must weigh and integrate. For example, when discussing universal access to health care, students might be led to discuss perspectives on related issues of taxation, regulation, and poverty. In contrast, some global projects may not be guided by global issues, with students more simply tasked with emailing an international pen pal about their daily life (i.e., schooling, favorite foods, pastimes). In this latter case, the cultural awareness gained is more superficial and possibly reinforcing of stereotypes (e.g., *As I suspected, my American pen pal likes football and guns.*).

One useful framework among many for understanding the levels of cultural awareness that students can achieve is the four-level awareness framework presented by Hanvey (1987). At level one, students become aware of “superficial or very visible cultural traits [or] stereotypes” and may interpret these traits as “unbelievable” or “bizarre” (p. 20). At level two, students become more aware of “significant and subtle cultural traits that contrast markedly with one’s own,” but may still interpret these traits as “unbelievable” or “irrational” (p. 20). Level two type awareness can emerge from “culture conflict” situations that are not analyzed (p. 20). At level three, students have the same awareness as level two, but the interpretation is “believable cognitively” because it has come about via “intellectual analysis” or research (p. 20). Finally, at level four, students develop insider awareness of “how another culture feels” on the basis of familiarity or immersion which enhances “believability” (p. 20). In the present study, teachers working with different global projects were asked to identify levels of cultural awareness obtained by their students to better understand how higher level awareness can be supported.

Further Contextualizing Global Projects in Terms of Common Challenges

Despite these possibilities to build cultural awareness and develop high-level collaboration, global projects can be difficult to co-implement with partners due to challenges in timing, planning, technology, and communication. As an example of timing challenges, Patterson, Carrillo, and Salinas (2012) found it difficult to coordinate class schedules and opted for primarily asynchronous communication between U.S. and Colombian classrooms with only two synchronous activities scheduled at the beginning and end of their global project to introduce students and share final presentations.

Planning global projects can also present challenges as discovered by Hoffstaedter and Kohn (2014) who found the poor quality of sound in a second language telecollaboration an impediment to communication, particularly in a whole class setting. They advocated for flipping the classroom to

conduct pair work from home rather than from a school computer lab. Also, Harms et al. (2010) discussed a program in which twenty teachers were trained to implement sustainability projects between schools (e.g., water purification), highlighting the importance of documenting ideas clearly for other schools, and noting the value in a “systems requirements document” that each school contributed to and reworked (p. 27).

Technology and communication can also present challenges for global projects with partner schools requiring access to similar tools to communicate and co-create (Patterson et al., 2012). If partner students speak a different language, technology support will need to be provided for translation (Patterson et al., 2012), and students communicating in a second language may be more comfortable speaking or writing depending on the assigned task. For example, Jauregi (2015) discovered students preferred video-based technology over written communication for “elaborating topics, sharing personal experiences, and negotiating meaning,” but chat environments made them less anxious than video communication (p. 270). In the current study, teachers were asked which of these common challenges for global projects they faced toward better understanding where additional supports may be needed.

Summary: Addressed Research Gaps in Global Projects at the K-12 Level

While research has addressed how communicative competence and intercultural awareness develops through global projects at the tertiary or higher education level, limited research is available to understand learning associated with global projects at the K-12 level (Jauregi, 2015). As global projects are increasingly encouraged and found in K-12 schools, there is a need to understand what outcomes of interest can be supported in particular projects, including: macro-level attributes and processes (Gibson et al., 2008), levels of collaboration (Murphy, 2004), and awareness of global issues and cultural perspectives (Hanvey, 1987). In this study we investigate these gaps in the literature on global projects at the K-12 level to inform how these outcomes of interest are supported when teachers new to global project design first implement a global project between their own and an international classroom.

METHODS

Design and Research Questions

A descriptive survey research design was selected to describe what global learning skills, levels of collaboration, and awareness of global issues and cultural perspectives can be achieved by K-12 students participating in global projects. Survey questions also informed issues known to impact on global project work. Research questions included the following:

1. What global learning skills, per those suggested by Gibson et al. (2008) (e.g., critical thinking skills, intercultural communication skills), are supported in teachers' global projects?
2. What levels of inter-classroom collaboration, per Murphy's (2004) on-line collaboration framework, are achieved through teachers' global projects?
3. What levels of cultural awareness, per Hanvey's (1987) cultural awareness framework, are achieved through teachers' global projects?
4. What issues known to impact on global project work, per those suggested by Patterson et al. (2012) (e.g., logistical, technological, time-related), are evident in teachers' global projects?

Procedures

Thirty in-service teachers from one U.S. state participated in two professional development cohorts during spring/summer 2016 and 2017. This foundation-funded program prepared teachers to incorporate global perspectives and activities into their classrooms with technology. Both cohorts participated in four Saturday classes on a university campus before studying abroad for two weeks in Finland (2016) and Sweden (2017) with additional classes held in those countries. To better expose these teachers to international education systems and to model and encourage global connections, they completed a global project with an international classroom in or near the host country before traveling abroad.

To prepare teachers for conducting global projects, in our first class we presented a rationale for global collaboration drawing on standards and cultural awareness frameworks, we shared sites and organizations that could help teachers find willing partners for collaboration (e.g., Global SchoolNet, Global Virtual Classroom, iEARN, ePals), and to assist with curricular planning, we discussed Peters (2009) concept of global *pathways* that provide common ground for working with international peers (e.g., social justice, global conditions). We also shared the Lindsay and Davis (2013) "taxonomy of global connection" to illustrate the types of connection possible with

example global projects shared for each of five levels (p. 54). Levels one and two of this taxonomy are not global, but rather support intra-connection across a teacher's own classroom, or inter-connection between classrooms in a school or district as a means of preparing students for working with distant persons using specified technologies. At level three (managed global connections), a teacher joins an existing global project managed by a third party (e.g., globalschoolnet.org). Managed projects vary in terms of student-student connection, but intensive collaboration between classrooms is rare with the teacher more commonly supporting student work in his/her classroom that is shared to a common group site where limited commenting/feedback may be offered. At level four (student-student connections, teacher-managed), students in different classrooms work cooperatively on a teacher-defined task, researching topics separately before coming together to discuss with partners and share findings with the larger group. At level five (student-student connections, student-managed), students in different classrooms work collaboratively on a student-defined task, teaming to complete a joint project with support from teacher coaches as needed.

Teachers in our professional development program were asked to join a pre-existing level three project or create an original level four-five project per the Lindsay and Davis (2013) framework, identify a partner teacher outside North America, involve at least one class in the project, and prepare a summary video about the completed project to share with the group. Teachers who agreed to participate in our related research completed a post-survey after their project ended and distributed surveys to their K-12 students to give feedback on the project.

Participants

Of the 30 teachers selected for the program, 22 consented to research participation when they completed a post-survey about their project (n=12 in 2016, n=10 in 2017). These participants averaged 8.6 years of teaching experience and taught social studies (n=8), English language arts (n=7), science (n=2), music (n=1), and other general (n=3) content areas. Sixteen of the 22 teachers also collected parental consent forms and student post-surveys about their project with 264 student surveys received across grade levels (see Table 1).

Table 1
Participant Demographics by Survey Group

	Teacher Survey	Early Grades Survey	General Student Survey
<i>Total Sample Size</i>	n=22	n=101	n=163
<i>School Levels</i>	Elementary, n=12	2nd, n=46	3rd, n=13
	Middle, n=4	3rd, n=33	4th, n=14
	High, n=6	4th, n=22	5th, n=20
			7th, n=11
			8th, n=20
			11th, n=31
		12th, n=54	
<i>Gender</i>	Male, n=5	Male, n=52	Male, n=69
	Female, n=17	Female, n=49	Female, n=93
<i>Race/Ethnicity</i>	Caucasian, n=19	Caucasian, n=50	Caucasian, n=99
	Hispanic, n=0	Hispanic, n=29	Hispanic, n=36
	African-American, n=2	African-American, n=15	African-American, n=15
	Other, n=0	Other, n=6	Other, n=12

Instruments

A teacher survey was prepared to capture the project activities undertaken in each teacher's classroom and how those activities supported common global learning skills (per those suggested by Gibson et al., 2008), collaboration (per the levels in the online collaboration model of Murphy, 2004), and cultural awareness (per the levels in the cultural awareness framework of Hanvey, 1987) (Appendix A). Teachers were also asked if they faced certain challenges conducting their project per issues noted by Patterson et al. (2012).

Two student surveys were also created. At their discretion, teachers could distribute either an early grades survey with fewer questions, simplified language, and *smiley face* response options (Figure 1), or a general survey with more questions and standard Likert-scale response options. Items on both surveys focused on the quality of global projects based on categories suggested by Marek, Brock, and Savla (2015) and Treleaven (2004) (e.g., supported learning processes and communication, purposeful collaboration, adequate resources, facilitated experiences, mutually respectful teams). Students were also asked what they learned about the partnering culture and if they would like to participate in further global projects.



Figure 1. Smiley-face scale, early grades survey.

Data Analysis

Items on the teacher survey that related to research questions one, two, and three were entirely open-ended, with teachers describing global learning skills supported in their project, levels of collaboration supported, and examples of cultural awareness achieved. The number of teachers who indicated their project supported a given skill, level of collaboration, or level of cultural awareness were tallied, with examples selected to illustrate how teachers new to global project work were able to support or not support these varied outcomes. When teachers provided examples of how a project supported a given skill, level of collaboration, or level of cultural awareness, these examples were verified to actually fit those skills/levels, or moved to other skills/levels if the teacher had placed that example in the wrong place. A final section of the teacher survey included five-point, Likert scale items (1=strongly disagree to 5=strongly agree) with teachers noting issues that negatively impacted their ability to run a global project. The percent of teachers who agreed or strongly agreed a given item impacted their ability to run a global project was reported.

Student surveys primarily consisted of five-point, Likert-scale items (1=strongly disagree to 5=strongly agree) that were summarized by descriptive statistics. Likert-scale items on the general student survey were compared across school level groups (elementary, middle, high) using analysis of variance (ANOVA) to determine if one group had different reactions to global projects than other groups. Likert-scale responses to some questions about communication and collaboration skills supported in a given project were also useful to provide context for research questions one and two. Each student survey also included a few open-ended items asking students to describe things they learned about another culture, with these items open-coded and categorized by type to provide further context for research question three.

Teacher survey data were analyzed first, with student data used to provide confirmatory evidence. For example, teacher descriptions of student collaboration and cultural awareness suggested both developed to a limited extent in these global projects. Student surveys likewise indicated communication and collaboration between classrooms were limited. In fact, what

students learned about a culture was somewhat superficial and generally was not related to global issues unless prompted by a teacher.

Limitations

While this descriptive survey research offers a broad-based description of global projects enacted by teachers new to global project design, and details the types of global learning skills, levels of collaboration, and levels of cultural awareness supported, the study has a few key limitations to note. First, the research relies entirely on teacher and student self-report of global project activities through survey data. No student artifacts were collected or available for review from which researchers could have better verified the presence or absence of a given skill, collaboration, or cultural learning opportunity. Second, this research emphasizes breadth over depth, not describing any single global project and its resulting outcomes in detail. While the research provides an understanding of common issues across a collection of projects, it would not be possible to replicate the procedures of any one project in particular.

RESULTS

Global Projects Undertaken: General Description and Student Reactions

Teachers indicated they worked with partner classrooms in Finland (n=8), Sweden (n=8), Denmark (n=2), Spain (n=2), Norway (n=1), Canada (n=1), Egypt (n=1), South Korea (n=1), Turkey (n=1), India (n=1), Russia (n=1), and Ukraine (n=1). Four teachers worked with partner teachers in more than one country. Teachers' project descriptions were categorized into two groups: 1) sharing and comparing cultural information with a discussion of differences, or 2) pen pal projects that varied with either open or scripted conversations and occasionally involved sharing personal artifacts with a peer.

In the first category, thirteen teachers (eight elementary, two middle, three high) tasked students with sharing something specific from American culture, receiving similar information from international peers, with follow-up commenting or chats and video calls to discuss differences. Sharing and comparing was the most common project type among elementary teachers. In three projects, students created general presentations about themselves or schools and communities to share with a partner class using tools like VoiceThread, Google Slides, and Prezi. In three projects, students shared specific information about their schools such as dress codes and school lunch options using Google Slides and Lino boards. In two projects, students shared folktales with tools like KidBlog, with commenting on different

cultural values and traditions represented. In two projects, students shared digital sticky notes on Lino boards seeded with specific topics (landmarks, landforms, climate, schools, hobbies), promoting comparison.

In the second category, nine teachers (four elementary, two middle, three high) assigned international pen pals to their students for correspondence. In a majority of these projects (n=6), correspondence was left unscripted with students sharing personal information (e.g., hobbies, daily activities, musical interests) and superficial information about their respective countries (e.g., holidays, foods). In three projects, the topic of conversation was teacher scripted, such as discussing violations of the Universal Declaration of Human Rights with potential solutions, or discussing different sustainability practices and thoughts on climate change. In three projects, correspondence required pen pals to exchange personal artifacts such as “Where I’m From” poems, artwork depicting children’s personal refuges, and posters advocating for river health.

Global projects undertaken by teachers and students were novel, appreciated by students, and increased students’ interest in learning about other cultures. Only 31.3% of students responding to the general survey (n=163) agreed or strongly agreed that they had participated in similar global projects before, suggesting global projects were new for many participants. A majority of students responding to the general survey at 82.8% agreed or strongly agreed that they were interested in more global projects with other countries, and 80.1% agreed or strongly agreed that they wanted to learn more about the people and country they collaborated with. None of these results differed across sub-groups (Table 2). A majority of students responding to the general survey (84.7%) agreed or strongly agreed that they enjoyed working on their global project. High school students reported high enjoyment, but significantly lower than middle and elementary students. Findings on the early grades survey were similarly positive, with 91.7% of students choosing the top two “smiley face” levels on their simplified scale when asked if they liked working with international students, and 90.8% choosing the top two levels when asked if they liked their project. Many students provided favorable open-ended comments:

I really enjoyed learning and digging into these different countries. It was refreshing getting to read letters from people my age. My teacher did a great job setting this up for us, and encouraging us through it. (11th grade student)

This was a fun experience to go through by communicating with kids like me from a different part of the world. (8th grade student)

Table 2
Prior Experience with and Future Interest in Global Projects
(1=strongly disagree to 5=strongly agree)

Items	Elementary	Middle	High	ANOVA Result
I have participated in similar global projects before.	M=2.5, SD=1.2 ^a	M=2.5, SD=1.3 ^a	M=2.6, SD=1.4 ^a	F(2, 160) = .18, p = .84
I am interested in more global projects with other countries.	M=4.3, SD=.86 ^a	M=4.4, SD=.9 ^a	M=4.1, SD=1.1 ^a	F(2, 160) = 1.4, p = .24
I am interested in learning more about the people and country we worked with.	M=4.2, SD=.9 ^a	M=4.3, SD=1.0 ^a	M=4.0, SD=1.2 ^a	F(2, 158) = 1.5, p = .24
I enjoyed working on this global project.	M=4.6, SD=.71 ^a	M=4.8, SD=.48 ^a	M=4.2, SD=.97 ^b	F(2, 160) = 7.4, p = .001

*means with the same superscript letter do not significantly differ from one another at the p < .05 level

RQ1: Global Learning Outcomes

Teachers described how their projects supported skill building in six global learning competency areas proposed by Gibson et al. (2008). According to teachers, intercultural communication and technology skills were supported most often, and creative thinking least often (Table 3). Teachers at the high school level reported their projects as supporting the most outcomes.

Table 3
Number of Teachers Reporting a Global Project Supported a Given Outcome (n=22 possible)

Research Skills	Critical Thinking or Problem-Solving Skills	Creative Thinking Skills	Intercultural Communication Skills	Collaboration, Teamwork Skills	Technology Skills
n=18	n=16	n=14	n=21	n=16	n=21
Elem=10/12	Elem=9/12	Elem=6/12	Elem=12/12	Elem=10/12	Elem=11/12
Middle=3/4	Middle=1/4	Middle=3/4	Middle=3/4	Middle=1/4	Middle=4/4
High=5/6	High=6/6	High=5/6	High=6/6	High=5/6	High=6/6

Eighteen of 22 teachers indicated their projects supported research skills with students identifying basic facts and figures about their partner countries (e.g., geography, landmarks). Students also researched information about their own country to share with international peers (e.g., folk tales).

A few teachers engaged in Mystery Skypes that required students to research clues about their city/state/region to share with a partner classroom using the conferencing software Skype, with the partnering classes using one another's clues during Skype sessions to figure out where the other class was located geographically. In comparative projects, such as looking at differences between American and international school lunches, students researched facts like nutritional value in foods. In pen pal projects, unscripted conversations prompted research as described by one tenth grade teacher:

When students received responses from their pen pals, they researched more about each country to ask questions... For example, one student discussed drug overdose after Prince and one of our students died within the same week. She looked up data on drugs in Denmark to ask a follow up question about her research. Another student discussed the political divide in the United States and looked into politics in Ukraine, which led to more questions about Russia.

Sixteen teachers indicated their projects supported critical thinking or problem solving. Teachers who conducted "Mystery Skypes" reported that students engaged in critical thinking by selecting helpful clues that would not give away a particular location, and problem solving by working with clues given by a partner class to determine a specific location. Two teachers noted that writing to an international pen pal required critical thinking to decide what topics of conversation would be of interest to their peer, and to "be reflective about their own values and traditions, evaluating and analyzing aspects of their lives and then communicating those ideas." One teacher reported that comparing and contrasting U.S. and international cultural information required critical thinking. Another teacher reported that students discussing scripted issues in pen pal projects (e.g., human rights concerns, climate change, river health) required problem solving because students offered solutions to combat those problems.

Fourteen teachers indicated their projects supported creative thinking. Six teachers suggested creative thinking was required for students to generate videos and other artifacts to introduce themselves and to depict American culture. For example, one teacher reported that students "found creative ways to share the things about their city and school that make them proud," such as media showcasing their downtown, video clips of dance performances, and images of art work. A few teachers noted the specific artifacts that many students shared were creative products, such as poems about themselves and fractured folktales that adapt a pre-existing tale.

Twenty-one teachers indicated their projects supported the building of intercultural communication skills. Several teachers indicated that global

collaboration gave students practice in carefully selecting written words and carefully projecting spoken words for international peers who were just learning English. Conversely, students also gained practice interpreting writing from and carefully listening to peers whose first language was not English, and learned lessons about respecting difference:

Students learned about language, slang, and translation. A student wanted to know if she could say she was “short as heck” in her letter. We discussed how that might lead a student to look up the word “heck” and maybe find something about “heckling” that wouldn’t make sense. (10th grade teacher)

The students learned that they needed to be very clear and project their words when they spoke because the Finnish students were just learning English. They also, sometimes, had to listen to the Finnish kids a couple times to understand due to their accents. The students learned to be patient and understanding and not get frustrated when they were trying to communicate. (4th grade teacher)

One student giggled after reading the simple English of one of her pen pals. Another student reminded her that her Finnish would be considerably less understandable. (10th grade teacher)

Beyond support for writing and speaking skills, two teachers discussed how global collaboration gave students the opportunity to consider “first impressions” and how to present themselves to others through media.

On the general survey ($n=163$), 71.2% of students agreed or strongly agreed that they were more comfortable communicating with international partners after participating in their project, suggesting their confidence in intercultural communication was increasing through global project work. A one-way analysis of variance (ANOVA) yielded significant variation among sub-groups on this item, $F(2, 160) = 7.3$, $p = .001$. A post hoc Bonferroni test showed that the agreement of high school students to communication comfort was moderate ($M=3.7$, $SD=1.1$) and significantly less than middle school students at $p = .001$.

Sixteen teachers indicated their project supported collaboration and teamwork, but mostly in terms of their own students working together in a classroom to prepare questions and media for sharing with an international classroom, and to discuss differences between cultures. Only two teachers described American and international students actually collaborating on a joint product in the form of solutions to human rights problems and partner

poetry:

With the class in Spain we first created Partner Poetry using John Lennon’s “Imagine,” a song suggested by Carmen, the teacher in Spain. The students had to pull lines from the song to alternate writing one line at a time as a poem. They used Padlet to accomplish this.... (5th grade teacher)

Most teachers indicated their projects supported technology skills with students learning to prepare and share different media through tools such as Google Docs and Slides, VoiceThread, Prezi, and Lino and Padlet boards. Students prepared audio and video clips with supplemental tools such as GarageBand, iMovie, MovieMaker, and the SnagIt screen recorder. Shared writing between classrooms was supported with tools such as email, Kid-Blog, and Google documents:

Students kept their correspondence in a Google document in their Google Drive. Each pair of pen pals had a folder in their Google drive, and they were responsible for keeping their letters in this folder. (11th grade teacher)

RQ2: Levels of Collaboration Supported Across Projects

Teachers reported examples of collaboration from their projects that fit into Murphy’s (2004) six levels of collaboration. It is perhaps not surprising that “co-constructing shared perspectives” and “building shared purposes” were the two collaboration levels supported least, as the sharing and comparing of cultural information and pen pal projects that our teachers reported rarely called for negotiating peer cultural perspectives on global issues or establishing shared goals for a broader project (e.g., joint research and artifact development) (Table 4).

Table 4
Number of Teachers Who Reported Their Global Project Supported Murphy’s (2004) Different Levels of Collaboration (n=22)

Level 1. Social Presence	Level 2. Articulating Individual Perspectives	Level 3. Accommodating or Reflecting Perspectives of Others	Level 4. Co-Constructing Shared Perspectives or Meanings	Level 5. Building Shared Purposes and Goals	Level 6. Producing Shared Artifacts
n=19	n=9	n=10	n=6	n=5	n=11
Elem=10/12	Elem=2/12	Elem=4/12	Elem=3/12	Elem=4/6	Elem=6/12
Middle=4/4	Middle=2/4	Middle=3/4	Middle=1/4	Middle=0/4	Middle=3/4
High=5/6	High=5/6	High=3/6	High=2/6	High=1/6	High=2/6

Nineteen teachers indicated their projects supported level one of the collaboration model, “social presence,” with students introducing themselves to one another, asking questions, and sharing basic details about their likes and dislikes (hobbies, sports) and their schools (lunches, recess practices). Teachers reported that students shared this information in both asynchronous modes (e.g., pen pal letters, file shares, prepared videos and Google slides) and synchronous modes (e.g., scheduled Skype sessions):

We shared information (My name is..., I like...) with both classes through letters and slides in Google Docs. (2nd grade teacher)

My students definitely accomplished this in our global collaboration introduction videos. We shared about our schools, our hobbies, and what we hoped to learn from the other class. (6th grade teacher)

Nine teachers indicated their projects supported level two of the collaboration model, “articulating individual perspectives,” with students expressing their perspectives or opinions on topics like human rights, school lunches, climate change, and politics:

Students had to express human rights’ concerns that bothered them and explain why they wanted to help solve that problem. (7th grade teacher)

With their pen pal exchange, many students discussed their political views with their Finnish partners.... (11th grade teacher)

They used their own opinions to compare/contrast the lunches. “I think this food would be better/worse because...” (9th/11th grade teacher)

Ten teachers indicated their projects supported level three of the collaboration model, “accommodating or reflecting the perspectives of others,” with students incorporating different perspectives into solutions and writing:

Students were asked to get opinions from their pen pals on violations of the Universal Declaration of Human Rights. (10th grade teacher)

My students accomplished this through the comments on the blog posts. The comments would show agreement, disagreement, or new perspectives on folktales themes. (6th grade teacher)

The US students thought the Sweden school was more “wealthy” since they did not have disposable plates in the cafeteria, when in fact it was due to the belief of less to recycle and less waste. (3rd grade teacher)

While six teachers indicated their projects supported level four of the collaboration model, “co-constructing shared perspectives and meanings,” only two teachers offered valid examples where students worked across classrooms to generate “strategies to help combat human rights’ problems” and to provide feedback on peer podcasts (i.e., assessing the presentations and asking clarifying questions). Likewise, only one of five teachers who suggested their project supported “building shared goals and purposes” provided a valid example where students in one U.S. and one Swedish class studied Islamophobia and shared public service announcements to promote tolerance.

Finally, despite eleven teachers indicating their students engaged in level six of the model, producing shared artifacts, in most of these classrooms the “shared” artifact was not something created by an American student in collaboration with an international student. Rather, two or more American students may have collaborated to create a VoiceThread presentation about their school to share. In two classrooms, products were created jointly by American and international students in the form of shared research documents in Google Docs and shared Google Slides.

Four items on the general student survey (n=163) addressed quality of project communication and collaboration. While mutual respect and supportive technology for collaboration were widely reported, frequent communication was lacking in many projects which may have suppressed student ability to achieve project goals (only 57.1% agreed or strongly agreed that communication with international partners was frequent and productive, and only 68.1% agreed or strongly agreed that they were able to achieve project goals with partners) (Table 5). Middle school students were the most agreeable on these items, with their result significantly greater than at least one other grade level group on each item.

Table 5
Quality of Global Project Communication and Collaboration
 (1=strongly disagree to 5=strongly agree)

Items	Elementary	Middle	High	ANOVA Result
My class and international partners were understanding and respectful of each other.	M=4.1, SD=1.0 ^a	M=4.6, SD=.62 ^b	M=4.4, SD=.86 ^{ab}	F(2, 160) = 3.8, p = .03
The technology tools used in this global project supported collaboration with international partners.	M=3.5, SD=1.3 ^a	M=4.6, SD=.57 ^b	M=3.8, SD=1.2 ^a	F(2, 160) = 8.2, p = .000
Communication with international partners was frequent and productive.	M=3.5, SD=1.3 ^{ab}	M=4.1, SD=.92 ^a	M=3.3, SD=1.3 ^b	F(2, 160) = 5.0, p = .008
My international partner(s) and I were able to achieve/complete project goals.	M=3.7, SD=1.3 ^a	M=4.4, SD=.86 ^b	M=3.6, SD=1.1 ^a	F(2, 160) = 6.2, p = .003

*means with the same superscript letter do not significantly differ from one another at the $p < .05$ level

RQ3: Cultural Understanding Outcomes

Responding to an open-ended item on their survey, teachers described limited and general cultural information that students learned through global project work: cultural traditions (e.g., storytelling, clothing, holidays); government-provided education, transportation, and healthcare systems; and weather and geography. Perhaps most importantly, four teachers reported that students were able to identify common ground between cultures: “They were surprised to learn that their pen pals also enjoyed fishing and riding ATVs, and that they shared many other similar hobbies.”

On their survey, teachers also reported examples of students’ developing cultural awareness across the four levels of the Hanvey (1987) framework (Table 6). Eighteen teachers reported examples of students achieving level one awareness. However, only one teacher reported a valid example of students achieving level two awareness when U.S. students learned that Swedish students held different beliefs about food and exercise. Likewise, only one teacher reported a valid example of students achieving level three awareness when U.S. students began their project with a book study of

Swedish culture and identified different perspectives with regard to immigration. No example of level four awareness were given, which would be expected since attaining that level requires immersion beyond the scope of a short-term project.

Table 6
Number of Teachers Who Reported Their Project Supported Cultural Awareness
at Different Levels of the Hanvey (1987) Framework (n=22)

Level 1. Awareness of Superficial or Visible Cultural Traits	Level 2. Awareness of Contrasting Cultural Traits via Culture Conflict Situations	Level 3. Awareness of Contrasting Cultural Traits via Intellectual Analysis	Level 4. Awareness of Cultural Feelings by Way of Immersion, Living in the Culture
n=18	n=1	n=1	n=0
different school schedules, games played, foods eaten; similar interests in clothing brands, apps	different beliefs about food and exercise discussed in email conversations	different perspectives on immigration identified in book study	no examples given

Only 48.5% of students responding to the general survey (n=163) agreed or strongly agreed that their project addressed an important community issue, suggesting about half of the students may have found comparing topics like lunch foods or exchanging personal information like hobbies to be somewhat superficial. A one-way analysis of variance (ANOVA) yielded no significant differences across the three sub-groups on this item, $F(2, 160) = 1.14$, $p = .32$. On the early grades survey, results were more positive with 75.3% of students (n=85) choosing the top two “smiley face” levels when asked if their project was about something important to them.

In terms of open-ended items, students listed things they learned about their partner country on both student surveys. Students listed mostly basic cultural products and some practices (e.g., clothing, food, school schedules, sports played, holiday traditions, religion). When asked to describe any ideas or beliefs held by their international peers that differed from their own, only a few students identified different “beliefs” about myths, religion, the death penalty, and human rights. Where students did uncover different beliefs seemed to be in projects where the teacher scripted or structured conversation with a goal for the learning. More commonly, students identified different international “practices” such as more restrictive school dress in Russia, using reusable plates and silverware in Swedish schools, not citing a “pledge of allegiance” in international countries, or Swedish students living at home with parents even after school is complete. It was noteworthy that 19 students identified beliefs and practices that were unexpectedly similar to their own:

I thought it was very interesting to have the opportunity to connect with someone I would otherwise not communicate with. I never really thought of Denmark to be a similar place to America but it seems that a lot of their traditions and customs are similar or the same. (11th grade student)

RQ4: Potential Issues Impacting Global Projects

Patterson et al. (2012) identified issues global educators may face in carrying out intercultural exchanges. Drawing on these issues, 65% of teachers agreed or strongly agreed that a lack of time and space in their curriculum, and managing the logistics of work across time zones were the biggest barriers to implementing global projects (Table 7). Finding international partners to collaborate with, and co-planning with those partners, were issues that 60% and 45% of teachers agreed or strongly agreed were problematic. Despite teachers not having time in their curriculum to integrate global projects, only 15% of teachers found it problematic to identify global projects that could tie into their curriculum, so lack of “fit” with one’s curriculum was not seen as a major issue.

Table 7
Percent of Teachers Who Agree/Strongly Agree that an Issue Negatively Impacted Their Ability to Run a Global Project (n=20)

	Potential Issues	Percent
<i>Time-Related</i>	Implementing project due to a lack of time/space in my curriculum.	65.0%
	Logistics or working across time zones.	65.0%
<i>Planning-Related</i>	Finding an international partner teacher in my content area/grade level willing to collaborate.	60.0%
	Co-planning the specific activities in a collaborative project with my international partner teacher.	45.0%
	Finding a project that matched my curricular standards/requirements.	15.0%
<i>Technology-Related</i>	Technical issues and certain tools not functioning as expected.	35.0%
	Training and preparing students to use certain tools.	10.0%
<i>Communication-Related</i>	Communication or getting participants speaking different languages to work together.	10.0%
	Cultural differences or getting students with diverse backgrounds to work together.	0.0%

Most teachers did not report communication to be an issue—navigating different languages or cultural differences to get students working together. However, real collaboration between classrooms was limited in these projects as noted. Since two-thirds of teachers reported working across time zones to be a logistical challenge, this may have factored into the limited student-student communication many students reported across projects:

I liked the Google Doc project a lot, but I wish we could have talked to the Swedish students at least a couple of times. (12th grade student)

I wish we could communicate with the partners instead of just learning about the same topics. We (the students) had no contact with them at all. (11th grade student)

It was really fun. I wish we could have talked to the people in India, and have gone for longer and had some time with just your partner. It was always the whole class at the same time, which was a little hard to work with, and we had to take turns [referring to a Mystery Skype] (5th grade student)

Thirty-five percent of teachers agreed or strongly agreed that technical issues were problematic when running their global project, but only 10% found training students to use tools to be problematic. Two teachers mentioned that their partner teachers had different tool preferences for communication and collaboration, preferring written communication like email over Skype sessions or joint work with Google Slides, and preferring whiteboard tools like Padlet over collaborative Google Docs. Teachers had to negotiate mutually available tools with international peers, sometimes consenting to a non-preferred option given the available technology in the international schools was reportedly less than or different from most U.S. schools.

DISCUSSION

For most teachers and students in this study, global projects were an entirely new experience. Only a third of students across school levels reported ever working on a global project before. With only a few exceptions, most teachers in this study chose to develop an original global project with a peer teacher they identified, contacted, and worked with to co-plan an experience. The projects they created largely fell into two categories--sharing and

comparing cultural information and pen pal projects with either unscripted or scripted topical conversations. These types of projects typically resulted in students gaining some awareness about another culture on somewhat superficial topics. Many students reported their project did not address important issues in their communities, signaling teachers infrequently tied their projects to global pathways or themes (e.g., climate change, immigration).

Regardless, students expressed an interest in learning more about the countries they collaborated with, and taking on more global projects with different countries. These projects made an impact and provided a good starting point for teachers and students just learning to support cross-classroom collaboration. As noted by Cook, Bell, Nugent, and Smith (2016), even lower-level global awareness can help to “build capacity for future global collaboration because students begin to develop an appreciation for the differences among cities, towns, and countries across the globe” (p. 20).

The sharing and comparing and pen pal projects teachers created in this study match with two of three categories identified by O’Dowd and Waire (2009) in their synthesis of telecollaborative projects: “comparison and analysis tasks,” and “information exchange tasks” (p. 175). Notably absent from most of our teachers’ projects was the third category, “collaborative tasks,” where students “work together to produce a joint product or conclusion” (p. 178). Our teachers’ activities also match well with three of six levels on Cook et al.’s (2016) continuum of global education: *global awareness* activities to begin learning about a different country’s landmarks and cities; *parallel activities* in which students mostly work within their own class on a task (e.g., designing posters about river health) that might be shared with the other class but is not co-constructed in any meaningful way; and *limited communication* in which students may share an idea or artifact with another class for discussion or feedback. Largely absent from most of our teachers’ projects were *shared data* in which classes make use of data collected by different peer classes, *engaged collaboration* focused on project-based work and design challenges, and *global contribution* or further project-based work focused on developing products designed to make an impact for people with needs.

From these frameworks, we know that teachers in this study could have gone further to include more collaboration and enhanced communication between students of different cultures. Students in this study reported infrequent communication in many projects. Others have noted that global projects can and probably should include multiple task types to support different competencies, building from simple information exchange and comparisons to more involved collaborations (Guth & Helm, 2012; O’Dowd & Waire, 2009). The activities our teachers completed could be considered a starting point and complemented with added tasks. Given the first layer of Murphy’s

(2004) collaboration model is *social presence*, the types of information exchange and pen pal activities the students in this study experienced established this presence and could be used to build toward real collaboration on jointly-investigated issues.

As reported in this study, one reason teachers may not go further to incorporate higher-level collaboration into their projects is due to time issues, either the challenge of working intensively across time zones or the challenge of incorporating more time-consuming collaborative work into an already full curriculum. Another reason teachers may have failed to incorporate higher-level collaboration into their projects is the limited training we provided on global project designs with inadequate time to plan. Our introduction to global projects was only a few hours. In contrast, Harms et al. (2010) trained twenty teachers in sustainability content and related global projects over six days. Cincera and Maskova (2011) evaluated teacher implementation of the GLOBE program in the Czech Republic and found similarly low-level implementation of the available curricular activities (i.e., data collection and worksheets, not projects and discussions). They noted that the level of teacher skill combined with level of effort may have influenced the result, with a need to emphasize the importance of higher-level activities in training.

One suggestion for training is to provide teachers with multiple strategies for collaboration to increase the odds they can find one that works for their classroom. Harms et al. (2010) describe different collaboration models supported in cross-classroom work, including but beyond sharing and receiving feedback from others on solutions. The authors also recommend mentorship where a group of students who have completed a module are available to support future peers going through a module, workflow where a task is divided into parts with each class completing one part and passing their work on to the next group, and subsystems where each class completes one part of a larger design that must work together in tandem.

Training in global project design should also be tied to global pathways, providing teachers time to plan appropriate themes for their curriculum. In this study, students were more likely to identify different beliefs in international peers when their work was scripted or structured around set topics. In many global projects, students are prompted to discuss set topics (e.g., “waste disposal, vegetarian diet”), and students favor “topics like fashion where they [are] able to talk about themselves and their likes and dislikes” (Hoffstaedter & Kohn, 2014, p. 149). Relating back to the collaboration model presented by Murphy (2004), prompting students to discuss global issues seems particularly useful to elicit some of the higher-level steps of collaboration. On a topic like climate change, students can articulate and accommodate others’ perspectives on the topic to develop shared meaning, and they can set goals for their subsequent joint work on the topic that

might involve research and ultimately proposing solution strategies in the form of an artifact (e.g., poster, video, presentation). As students engage in these higher-level steps of collaboration, they will be more likely to develop awareness of both the global issues they are investigating and peers' cultural perspectives on those issues (Figure 2).

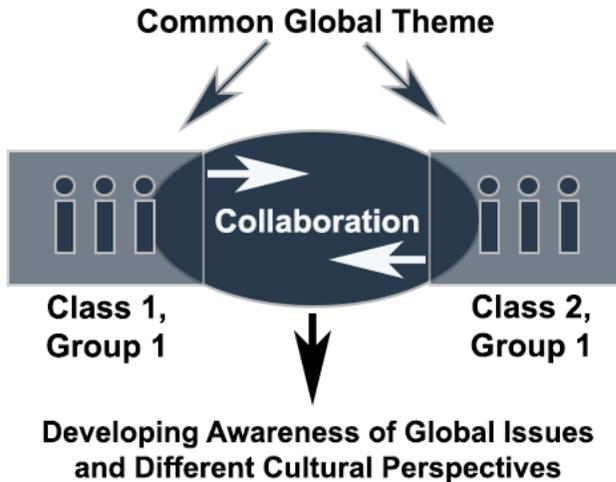


Figure 2. Interplay between global issues, collaboration between classrooms, and developing awareness of those global issues and peer cultural perspectives.

Despite well-planned projects resulting from initial training, teachers still face their biggest unknown in global project work--how a project design will work in an international setting. Identifying willing partner teachers was reportedly one of the biggest challenges for teachers in this study, and even when a partner had been identified, teachers had to negotiate technology and pedagogy. Our teachers indicated access to technology tools and digital resources was not problematic for them, but reportedly their peers had less technology and different access to and preferences for using technology. In one study of Polish language teachers' uptake of telecollaborative projects, Gajek (2015) reported "the crucial factor influencing teachers' activity is convenient access to technology" along with related confidence in ICT skills (p. 4). Despite U.S. schools generally having a good technology infrastructure, and some teachers the requisite ICT skills, the same is not a given for international partners and could impact on willingness to partner or quality of participation. As others have noted, teachers must also be

willing to negotiate “alternative pedagogical beliefs” from partner teachers and integrate these into their global project designs as well (O’Dowd & Waire, 2009, p. 185).

Implications for Professional Development and Practice

The following implications for teacher professional development and practice can be taken from this study:

- Introduce teachers to global themes that can provide the focus for higher-level collaboration (e.g., United Nations Sustainable Development Goals, <https://www.un.org/sustainabledevelopment/>), and work with teachers to select a theme or themes that ties into their curriculum in some way.
- Introduce teachers to general collaboration models (e.g., Murphy, 2004) and collaboration strategies (e.g., Harms et al., 2010), and as teachers plan a global project, encourage them to align the tasks in their project with these models or strategies to ensure higher-level collaboration is supported.
- Provide time during training sessions to give instructor and peer feedback on global project plans, with ideas for moving beyond more simplistic sharing of cultural information or pen pal type projects. Acknowledge that projects like “information exchange” are supportive of “social presence” and building toward collaboration, but recognize the limits of this work to support negotiation of diverse perspectives and working toward shared goals and artifacts.
- Support teachers in finding partners to work with on global projects. This partnering step can be a frustrating and de-motivating experience. Starting with a level-three managed global project suggested by the Lindsay and Davis (2013) framework may help teachers to not only sample global collaboration but also to identify individual partners for future collaborations. Other services like ePals may help teachers with partner matching in a content area.

CONCLUSIONS

The global projects undertaken by teachers in this study helped students gain limited cultural awareness about the countries with which they interacted. While most projects could have gone further to incorporate higher-level collaboration around authentic global problems, this was also the first attempt at a global project for most teachers and their students. The knowledge teachers gained about connecting with international peer teachers, co-planning a project, and implementing varied technologies, provided

valuable experiences on which teachers can build to implement more refined and advanced projects.

It remains to be seen if teachers will continue to conduct global projects. However, on a post-evaluation about our overall professional development program, teachers were asked if any projects should be dropped. Only one teacher indicated the global project should be dropped ($n=29$), while nine mentioned the global project as something that should “definitely” be kept as a “must do” part of the program. Teachers found conducting global projects a challenge, but they were also a valuable experience for themselves and their students. The time available for teachers to conduct more intensive projects with collaborative negotiation and co-construction is limited. Therefore, it is important for sites and services that aid teachers in peer matching to allow for specification of curricular topics of interest. This tight matching will help teachers find partners who share their goals, avoiding wasted time on topics that lack fit, and allowing teachers to justify the time for the project.

Finally, this study provided a macro view of global projects looking across 22 teachers of different content areas at different school levels. While this approach is informative to understand trends in the types of global projects novice teachers will develop, and common outcomes supported by these projects, it would also be beneficial for future research to take a micro approach and look at individual projects in specific content areas and grade levels. Research on global projects at the K-12 level is limited, and there is a need to understand content-specific pedagogical approaches that work well between geographically dispersed students, and the most effective technology platforms for supporting those approaches. Opportunities exist to develop advanced learning environments capable of quickly partnering international peers in a private group space and supporting specific goal-oriented collaborations (e.g., language development, mathematical analysis, scientific argument building).

The importance of global project work is clear, as the world becomes increasingly interdependent and intermingled, and students will need to be skilled in working with persons from diverse cultures. ISTE (2017) and other professional organizations have recognized this need in new standards calling for increased global collaboration opportunities for teachers and students. The global project work undertaken by teachers in this study represents a first step for most in this sample and a bridge to further opportunities.

References

- Chitanana, L. (2010). Students' perception of the role of tele-collaborative learning projects: A case of the Global Teenager project at Mucheke High School in Zimbabwe. *International Journal of Instruction*, 3(1), 19-38.
- Cincera, J., & Maskova, V. (2011). GLOBE in the Czech Republic: A program evaluation. *Environmental Education Research*, 17(4), 499-517. <http://doi.org/10.1080/13504622.2011.557497>
- Cook, L. A., Bell, M. L., Nugent, J., & Smith, W. S. (2016). Global collaboration enhances technology literacy. *Technology and Engineering Teacher*, 75(5), 20-25.
- DeNobile, J., Kleeman, G., & Zarkos, A. (2014). Investigating the impacts of global education curriculum on the values and attitudes of secondary students. *Geographical Education*, 27, 28-38.
- Gajek, E. (2015). Implications from the use of ICT by language teachers: Participants of international projects. *Universal Journal of Educational Research*, 3(1), 1-7. <http://doi.org/10.13189/ujer.2015.030101>
- Gibson, K. L., Rimmington, G. M., & Landwehr-Brown, M. (2008). Developing global awareness and responsible world citizenship with global learning. *Roeper Review*, 30(1), 11-23. <http://doi.org/10.1080/02783190701836270>
- Guth, S., & Helm, F. (2012). Developing multiliteracies in DLT through telecollaboration. *ELT Journal*, 66(1), 42-51. <https://doi.org/10.1093/elt/ccr027>
- Hanvey, R. G. (1987). International cross-cultural awareness and methods to attain empathy and integration in the new culture. In L. F. Luce & E. C. Smith (Eds.), *Toward Internationalism* (pp. 52-69). Rowley, MA: Newbury House.
- Harms, H., Janosz, D. A., & Maietta, S. (2010). The systems and global engineering project. *The Technology Teacher*, 69(6), 25-27.
- Hoffstaedter, P., & Kohn, K. (2014). Task design for intercultural telecollaboration in secondary schools: Insights from the EU project TILA. In S. Jaeger, L. Bradley, E. J. Meima, & S. Thouëšny (Eds.), *CALL Design: Principles and Practice; Proceedings of the 2014 EUROCALL Conference, Groningen, The Netherlands* (pp. 146-150).
- ISTE. (2017). *ISTE standards for students*. Retrieved from: <http://www.iste.org/standards/for-students>
- Jauregi, J. (2015). Integrating telecollaboration for intercultural language acquisition at secondary education: Lessons learned. In F. Helm, L. Bradley, M. Guarda, & S. Thouëšny (Eds.), *Critical CALL: Proceedings of the 2015 EUROCALL Conference, Padova, Italy* (pp. 268-273). <https://doi.org/10.14705/rpnet.2015.000344>
- Korsager, M., & Slotta, J. D. (2015). International peer collaboration to learn about global climate changes. *International Journal of Environmental Science Education*, 10(5), 717-736. <http://doi.org/10.12973/ijese.2015.262a>
- Lindsay, J., & Davis, V. (2013). *Flattening classrooms, engaging minds: Move to global collaboration one step at a time*. Boston, MA: Pearson.
- Mansilla, V. B., & Jackson, A. (2011). *Educating for global competence: Preparing our youth to engage the world*. New York: Asia Society Partnership for Global Learning.
- Marek, L. I., Brock, D-J. P., & Savla, J. (2015). Evaluating collaboration for effectiveness: Conceptualization and measurement. *American Journal of Evaluation*, 36(1), 67-85. <https://doi.org/10.1177/1098214014531068>
- Murphy, E. (2004). Recognising and promoting collaboration in an online asynchronous discussion. *British Journal of Educational Technology*, 35(4), 421-431. <http://doi.org/10.1111/j.0007-1013.2004.00401.x>

- O'Dowd, R., & Waire, P. (2009). Critical issues in telecollaborative task design. *Computer Assisted Language Learning*, 22(2), 173-188. <http://dx.doi.org/10.1080/09588220902778369>
- Oxfam. (2015). *Education for global citizenship: A guide for schools*. Retrieved from: <http://www.oxfam.org.uk/education/global-citizenship/global-citizenship-guides>
- Partnership for 21st Century Skills. (n.d.). *Teacher guide to K-12 global education grade level indicators*. Retrieved from: <http://www.p21.org/our-work/global-education>
- Patterson, L. M., Carrillo, P. B., & Salinas, R. S. (2012). Lessons from a global learning virtual classroom. *Journal of Studies in International Education*, 16(2), 182-197. <https://doi.org/10.1177/1028315311398665>
- Peters, L. (2009). *Global education: Using technology to bring the world to your students*. Eugene, OR: International Society for Technology in Education (ISTE).
- Standish, A. (2014). What is global education and where is it taking us? *The Curriculum Journal*, 25(2), 166-186. <http://doi.org/10.1080/09585176.2013.870081>
- Treleaven, L. (2004). A new taxonomy for evaluation studies of online collaborative learning. In T. S. Roberts (Ed.), *Online Collaborative Learning: Theory and Practice* (pp. 160-180). Hershey, PA: IGI Global. <http://doi.org/10.4018/978-1-59140-174-2.ch007>
- United Nations. (2017). *Sustainable development goals: 17 goals to transform our world*. Retrieved from: <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>

APPENDIX A: TEACHER SURVEY ON GLOBAL COLLABORATIVE PROJECT

Instructions: Please complete this survey to tell us about the global collaborative project your students worked on, as part of your participation in the cultural connections, collections, and reflections professional development program. The survey should be taken after you have completed your global collaborative project.

1. Who did your students collaborate with (description of partner classes, countries, etc.)?
2. What exactly did your students do with their international peers, or what was the nature of their collaboration?
3. If applicable, please give an example or examples of how your students honed the following global learning skills (Gibson et al., 2008) by working on this project (some may be blank):

a. research skills	
b. critical thinking or problem solving skills	
c. creative thinking skills	
d. intercultural communication skills	
e. collaboration/teamwork skills	
f. technology skills	

4. What facets of culture did your students learn about by working on this project?
5. As the teacher, what did you learn about the partner culture and education system by coordinating this project?
6. What levels of collaboration (Murphy, 2004) did your students achieve by working on this project, and please give an example or examples of the different levels achieved (some may be blank):

Level 1 Social Presence (sharing personal information, "I'm a student at x middle..." stating purposes, "I hope to learn more about..." expressing motivation, "I'm excited about this project...")	
Level 2 Articulating individual perspectives (statement of personal opinion, "I believe the author is saying..." reporting on content without reference to perspectives of others, "this article is about...")	
Level 3 Accommodating or reflecting the perspectives of others (challenging others' statements, "I disagree because..." introducing new perspectives, "we haven't thought about..." coordinating across perspectives, "our focus seems to be on...")	

Level 4 Co-constructing shared perspectives and meaning (seeking clarification, "what did you mean by..." soliciting feedback, "how should we do x...", "responding to questions, "I have a suggestion...")	
Level 5 Building shared purposes and goals (proposing a shared goal, "could we design..." working toward a shared goal)	
Level 6 Producing shared artifacts (document or other artifact produced by group members working together)	

7. What levels of cultural awareness (Hanvey, 1987) did your students achieve by working on this project, and please give an example or examples of the different levels achieved (some may be blank):

Level 1 Awareness of superficial or very visible cultural traits or stereotypes based on tourism, textbooks, and travel magazines.	
Level 2 Awareness of significant and subtle cultural traits that contrast markedly with one's own due to culture conflict situations.	
Level 3 Awareness of significant and subtle cultural traits that contrast markedly with one's own through intellectual analysis.	
Level 4 Awareness of how another culture feels from the standpoint of the insider by way of cultural immersion: living in the culture.	

8. The following known issues (Patterson et al., 2012) negatively impacted my ability to run a global collaborative project in my classroom:

Finding an international partner teacher in my content area/grade level willing to collaborate.	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Co-planning the specific activities in a collaborative project with my international partner teacher.	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Finding a project that matched my curricular standards/requirements.	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Implementing project due to a lack of time/space in my curriculum.	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Logistics or working across time zones.				
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cultural differences or getting students with diverse backgrounds to work together.				
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communication or getting participants speaking different languages to work together.				
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training and preparing students to use certain tools.				
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technical issues and certain tools not functioning as expected.				
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other Issues (please list): _____

9. I would be interested in conducting another global collaborative project in the future.				
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>