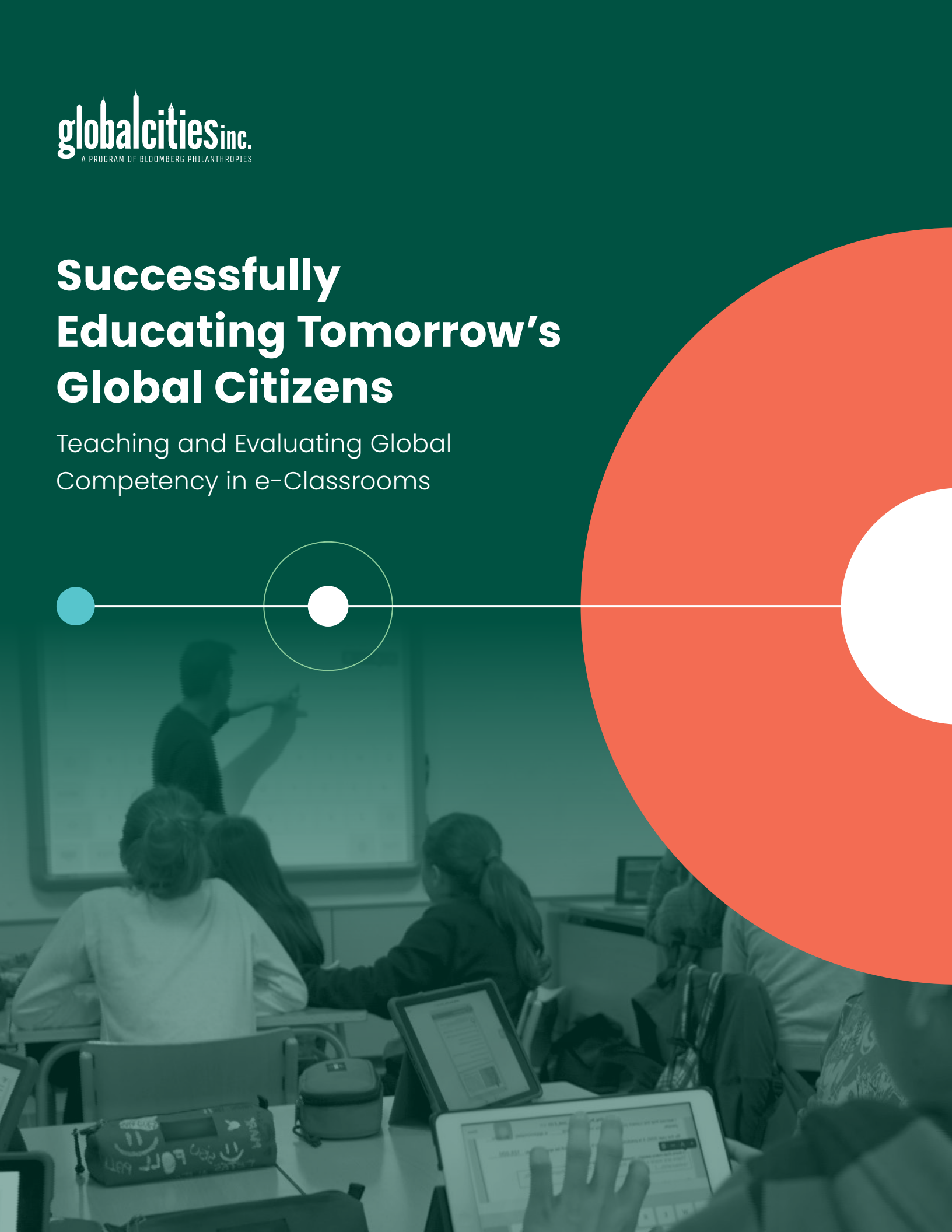


Successfully Educating Tomorrow's Global Citizens

Teaching and Evaluating Global
Competency in e-Classrooms



About Global Cities, Inc.

A Program of Bloomberg Philanthropies

Global Cities, Inc. has extensive experience using technology to forge connections among students and educators that promote learning, including through our signature program, Global Scholars. We have also gathered empirical evidence that these connections develop the skills that students need to be successful in today's globalized world. We have shown how technology can offer unique opportunities for learning through dialogue and collaboration. Interaction with peers is an incomparable motivator for kids, whether the connections take place in the local classroom or across national borders. We have trained our worldwide network of educators to supervise and guide student learning on digital platforms, and they have provided continuous feedback about what works. What we have learned is relevant to all educators, whether they are teaching remotely or in physical classrooms, to ensure every child has access to the education they deserve.

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A Letter from Marjorie Tiven

Something new and exciting is going on in classrooms around the world.

Through our program, Global Scholars, students ages 10 to 13 are learning and practicing global competency with international peers. They engage in cross-cultural dialogue in online discussion boards and work with their classmates to complete hands-on projects that explore similarities and differences among their countries and communities. Over the past eight years, more than 90,000 public-school students from 110 cities in 37 countries worldwide have taken part. Some 40 percent of students are from the United States and 60 percent are international.

Global competency is critical in preparing students to solve any global problem. In many schools, education is focused locally, with limited engagement beyond the four walls of a classroom. Yet students are entering a world where problems are connected to one another, and where they are expected to compete and collaborate in a global marketplace upon graduation. The purpose of global competence education is to prepare students for this world, by equipping them with the knowledge, skills, attitudes, and behaviors that they will need to confront the global issues we face, from food insecurity to pandemics.

In the Global Scholars e-classroom, student conversation drives discovery and provides evidence of learning. Over the course of a school year, students meet peers from 8 to 10 different cities and investigate a global problem together in the online discussion boards in our e-classrooms. They conduct research, create projects guided by our curriculum, and post and reply to one another in the discussion boards. At the same time, their teachers meet their international counterparts in interactive, live professional development videoconferences and in our educator discussion

WELCOME

boards. This model is grounded in project-based learning, features a curriculum with assignments that prompt students to examine their personal experiences as citizens of their cities and the world, and builds on student dialogue as a primary resource for learning.

The need for global competency is universal, so our model is targeted to all kinds of learners. The interactive Global Scholars program capitalizes on the things that matter to students ages 10 to 13: their interest in one another, enjoyment of digital tools, and curiosity about their own lived experiences. This forms an accessible foundation for sophisticated student learning. Engaging in constructive dialogue with people from many countries and cultures, researching complex problems, and developing thoughtful, equitable solutions that address the needs of entire communities—these are difficult tasks for adults, yet our educators report that students this age are accomplishing them in Global Scholars classrooms every day.

The program’s champions are its veteran educators, school leaders, and students. They have long provided anecdotal evidence that Global Scholars students and educators are engaged, enthusiastic, and are developing global competency. A London teacher told us his students run down the hallways so they won’t be late for Global Scholars class. A New York City middle-school principal said he wants to wallpaper the corridors with our Student Learning Outcomes so teachers can see them every day. Three large school districts, each with more than one million students, have requested enrollment across their schools.

In this report, we detail new evaluation evidence that affirms the anecdotal testimonials. Global Cities has defined what students should learn to become globally competent adults, developed curricula to teach these learning outcomes, trained educators to teach this complicated subject matter, created metrics to assess hard-to-measure student learning outcomes, and analyzed the data from our discussion boards. This research has produced empirical evidence showing that students **are** learning, as well as **what** they are learning, **where** in the curriculum they are learning, and **how** they are learning. This analysis shows the value of discussion boards as a source for student learning and assessment.

Our important findings address four global learning outcomes. The evidence for Global Engagement shows students acknowledging their ability to change the world and demonstrating that they were willing to do so. Appreciation for Diversity was demonstrated by thousands of students from dozens of cities worldwide, showing they could interact with one another in ways that were respectful, inquisitive, and substantive. Students who grasped the complexities of global issues and recognized their importance, starting with a foundation of geographic knowledge, showed their growth in Global Knowledge. And the Cultural Understanding data showed that these 10- to 13-year-olds, just beginning to develop a sense of self and their own cultures, were understanding and appreciating cultural differences.

To assess this new and different approach to teaching and learning, we designed an original methodology. It was developed jointly by Global Cities, Inc. and Out of Eden Learn (OOEL), a digital exchange provider and an active research project at Harvard Graduate School of Education’s Project Zero. At OOEL, the work was led by Liz Dawes Duraisingh and Carrie James with Christina Smiraglia, Sarah Sheya, and Devon Wilson. The codebook we produced was further tested for reliability and validity by the evaluation research firm Glass Frog Solutions, led by Rebecca Casciano and Erica Chutuape.

This report presents how we measured what students learn and our innovative way of teaching global competency through direct peer connections. Not only are the findings supported by the data, they are reflected in the voices of students. As one Mumbai Global Scholar said, *“I still cannot cease to be amazed by the diversity of thinking among people and the millions of ways of interpreting a simple sentence.”*



Marjorie B. Tiven
President and Founder, Global Cities, Inc.

EXECUTIVE SUMMARY

In today's world, engaging in respectful and constructive dialogue with individuals from many countries and cultures, understanding complex global problems, and working to solve them collaboratively are clearly important priorities. We urgently need a better understanding of how to teach these competencies to children from a young age. Key to addressing this challenge is being able to identify what students need to know to become globally competent adults and creating tools to guide and measure their progress.

Through our research, we identified empirical indicators of global learning outcomes and developed metrics for their evaluation. We analyzed discussion board data from Global Scholars e-classrooms and found strong evidence that students ages 10 to 13 are demonstrating critical global competencies that are both hard to learn and hard to measure.

The Global Scholars Model: Lessons from the e-Classroom

Global Scholars was created and is operated by [Global Cities, Inc.](#), a Program of Bloomberg Philanthropies, to help students around the world develop global competency. The goal of global competence education is to prepare students with the knowledge, skills, attitudes, and behaviors they will need for life in an increasingly interconnected world.

Since 2013, this pioneering digital exchange program has provided unique opportunities for global competency learning by connecting students ages 10 to 13 to peers in cities across the globe, and educators to colleagues worldwide. Cumulatively, more than 90,000 public-school students from 110 cities in 37 countries have participated, with 40 percent of enrollment in the U.S. and 60 percent international.

Sustained, direct peer connections among students around the world provide the cornerstone for our model's key elements: a project-based curriculum focused on a global issue and linked to specific learning outcomes, authentic assignments grounded in firsthand observation, a digital environment for practicing communication skills, and professional development for our teachers. Students

exchange ideas weekly in e-classroom discussion boards as they research and develop sophisticated solutions to a global problem and then take action where they live.

We have seen firsthand that digital interactions among adolescents are an incomparable motivator, making the world smaller and the local classroom larger and more diverse by connecting students who share the experience of living in urban areas. But in order to better understand the progress Global Scholars students were making, we needed metrics for evaluating global competency learning.

In the global education field, there are few established learning outcomes that are sufficiently articulated for measurement. Therefore, our first task was to conceptualize global competency in terms of nine clearly identified [learning outcomes](#). The process of developing these learning outcomes involved feedback from our international network of Global Scholars educators, input from social science researchers, and the literature on global learning.¹ The outcomes include the four global student learning outcomes that are the focus of this report: Global Engagement, Appreciation for Diversity, Global Knowledge, and Cultural Understanding.

¹ Tiven, M. B., Fuchs, E. R., Bazari, A., & MacQuarrie, A. (2018). *Evaluating Global Digital Education: Student Outcomes Framework*. New York, NY: Bloomberg Philanthropies and the Organisation for Economic Co-operation and Development.

With a clear understanding of global competency and identifiable learning outcomes, our interactive, student-centered digital exchange model was designed to promote student development in these domains. From the very beginning, participating educators shared continuous feedback on their experiences. It was their contention that sustained, direct peer connections drive learning and promote student engagement—early evidence that our model was working. We further observed that the posts and replies in the Global Scholars e-classroom discussion boards reflected what students were learning. As students move through our nine-month curriculum, they use the discussion boards to exchange observations and ideas about a global problem and learn how their peers worldwide understand and confront similar challenges.

While global competency learning is often considered difficult to evaluate, our research shows that global competency can be empirically identified and systematically measured using data from e-classroom discussion boards. In the Global Scholars e-classroom, student conversation both drives discovery and serves as evidence of learning.

Developing a Successful Methodology for Evaluating Global Learning

Global Cities' goal from the outset was to test this model of global digital exchange. We had one overriding research question: What is the evidence that learning is taking place in Global Scholars e-classrooms? We developed a methodology to identify the learning students demonstrate in discussion boards, and successfully used it to evaluate learning in the Global Scholars program. This report is grounded in three pillars of our evaluation work: identifying what students need to learn in order to become globally competent adults; demonstrating how we teach these outcomes to students ages 10 to 13; and analyzing student posts and replies on Global Scholars discussion boards to gather evidence of this difficult-to-measure learning.

In 2019, in partnership with [Out of Eden Learn \(OOEL\)](#), an initiative of Project Zero at Harvard Graduate School of Education, we developed and tested an original methodology for coding discussion board data, based on our four global student learning outcomes: Global Engagement, Appreciation for Diversity, Global Knowledge, and Cultural Understanding. We were seeking evidence that students were demonstrating these learning outcomes—specifically, what aspects of global learning were they demonstrating, how frequently, and at what point in the curriculum progression? Underlying these questions was a larger one: what aspects of the program model appeared to drive student learning?

We answered these research questions by analyzing demonstrations of the 55 [empirical indicators](#) of our four global learning outcomes. The data for our study was a sample of 1,167 discussion board posts and replies, written by students from 17 cities in 12 countries. The sample was taken from approximately 111,000 posts and replies created by 15,698 students during the 2018–19 program year.

The Global Scholars curriculum emphasizes learning outcomes that are inherently challenging to measure. The work of distinguishing these indicators in student writing is complex and requires careful attention to nuance. The 55 indicators provide the means to connect theoretical constructs (the four global learning outcomes) to empirical data (posts and replies in the discussion boards). The indicators make it possible to find empirical evidence of the global student learning outcomes; the codebook we created provides a practical tool to identify this evidence in student conversation and writing. Using this tool, we were able to measure the extent to which learning was taking place in Global Scholars e-classrooms. While rigorous in design and application, this is a categorically different way to evaluate learning than a standardized test with multiple-choice questions.

The codebook provides instructions and illustrative examples that enable educators, researchers, and program designers to recognize these indicators in student posts and use this tool to guide and evaluate global competency learning. The codebook is a tool that makes it possible to capture evidence of learning in progress by looking carefully at students' own words. And it allows us to answer our most important question: yes, students are learning in Global Scholars e-classrooms.

By coding the sample of posts and replies, we produced a dataset that could be analyzed for evidence of student learning across the four global learning outcomes: Global

Engagement, Appreciation for Diversity, Global Knowledge, and Cultural Understanding. OOEL's analysis of this data found evidence of all four global learning outcomes, determined what aspects of global competency were demonstrated most frequently by students, and identified the stages in the curriculum when this occurred. The analysis also revealed important connections among the knowledge, skills, attitudes, and behaviors that students were demonstrating. These patterns provide insight into why this learning was occurring and point to elements of the curriculum and program design that drive student growth in these learning outcomes.

What Students Learned

Global Engagement:

Students were interested in global issues and recognized that they can change the world.

Global Engagement was the most prevalent of the four global learning outcomes, and the attitude *Interest in global issues* was the most prevalent of all 55 indicators. Also prevalent were attitudes related to student agency, demonstrating that students both recognized they were able to make a difference and showed they were willing to act on that understanding.

Appreciation for Diversity:

Students around the world showed they can interact with one another respectfully, inquisitively, and substantively.

We found high prevalence of three indicators related to constructive dialogue across differences. Students displayed these competencies consistently over the course of the year, demonstrating that they were not just learning in the abstract how to communicate respectfully with each other, but were applying these skills.

Global Knowledge:

Students recognized the importance of learning about global issues when they engaged with peers worldwide.

They exchanged observations about their lives and cities with peers in the e-classroom. Their posts included vivid descriptions of local geography that their global peers used to learn about world geography. Later in the year, as students examined the topic through a global lens and took action in their own communities, they demonstrated a progression in learning, from simple knowledge to a recognition of the importance of that knowledge, laying the groundwork for ongoing growth.

Cultural Understanding:

Students learned to appreciate the cultures of others by first reflecting on the many cultures to which they belong and then exchanging views in discussion boards.

Evidence of Cultural Understanding was found in every discussion board despite the recognized challenges of teaching and learning this concept. The most prevalent Cultural Understanding indicators, *Positive attitude towards other cultures* and *Understanding of one's culture* are directly connected to the Global Scholars digital exchange model, in which students first reflect on their own cultures and then read and reply to peers' discussion board posts to learn about similarities and differences worldwide.

How Students Learn

The analysis showed relationships between learning outcomes and among empirical indicators within learning outcomes, which provided insights into how students learn global competency.

Curiosity about the topic and one another are mutually reinforcing.

The Global Scholars curriculum was designed with the expectation that communicating with peers worldwide about global issues would increase student interest in these issues and that, in turn, interest in global issues would motivate further conversation. The discussion board data supports this approach. The Appreciation for Diversity skill *Ability to listen to others and discuss issues in a respectful and unbiased way* appeared in the same posts as the Global Engagement attitude *Interest in global issues* in 148 out of 295 posts. This data pattern suggests that student interest in an engaging topic and in one another are mutually reinforcing.

Appreciation for Diversity and Cultural Understanding are interrelated.

Global Cities expected a strong relationship between Appreciation for Diversity and Cultural Understanding. We created four pairs of knowledge indicators that address the same concepts, but at different levels—the simpler “awareness” for Appreciation for Diversity and the more complex “understanding” for Cultural Understanding. The analysis showed that these pairs often appeared in the same discussion boards at different levels of prevalence. For example, a relatively low prevalence indicator of Cultural Understanding, *Understanding of one’s culture*, frequently appeared in the same discussion boards as a higher-prevalence indicator of Appreciation for Diversity, *Awareness of one’s culture*. This pattern provides evidence of the important relationship

across outcomes and suggests how students learn Cultural Understanding—that it develops in tandem with Appreciation for Diversity but is more difficult to teach and learn.

Positive student attitudes about taking action lead to positive behaviors.

Relationships among indicators within the same outcome also provided important lessons, such as the notable overlap of attitudes and behavior related to taking action on global issues. This tracks with our curriculum progression—students build positive attitudes by first observing a global problem, and then having the opportunity to tackle it hands-on. The data indicate that this is exactly what happened during the culminating community action project, which gave students the rare chance to carry out their own plan to improve the world. In addition to recognizing they could make a difference and showing they were willing to do so, students demonstrated the behavior *Working to contribute to local, regional, or global improvement*. Notably, 81 percent of the 100 posts coded for this behavior appeared during this final unit, showing that students successfully translated their positive attitudes into actions.

Why Students Are Learning

The research shows that the Global Scholars digital exchange model successfully teaches global competency and points to the program elements that appear to drive student learning.

Sustained international peer connections through e-classroom discussion boards motivate students to learn.

In Global Scholars e-classrooms, students communicate with classmates in 8 to 10 geographically diverse cities. They start by observing the problem they are studying in their own schools and neighborhoods, collaborating with local classmates to conduct research and develop solutions. Then, exchange with peers provides a global perspective—students are interested to hear what classmates around the world are observing and ask questions to find out more. A post from Barcelona elicited a response from a student in New York City that illustrates this enthusiasm.²



NYC.Student

“Dear Global scholar, I really like how your water activity is helpful for your health and I think that it is very cool. One question I have for you is do the singers and instrument players play while you watch the water. Thank you for sharing such a cool culture of yours I hope you can get back to me. Sincerely, Mariam”

Curricula are intentionally linked to global learning outcomes.

Within the curriculum, each of the five units is designed to teach certain indicators of our global learning outcomes, which students continue to develop over the course

of the year. Our curriculum materials and professional development sessions show educators how this intended learning is linked to specific curriculum activities, and what this learning looks like in the e-classroom.

A focused real-world topic facilitates student learning.

The Global Scholars curriculum focuses on a single global problem, giving students something to talk about that they all have in common. For example, students gain a hands-on understanding of the complicated subject of water use and waste when they conduct a school water audit and compare the results with peers in cities worldwide. They discover similarities and differences in the challenges their cities face and the resources available to address them. This is exciting for students who are 10 to 13 years old—and they engage deeply with these challenging topics.

Ongoing professional development contributes to teacher effectiveness.

It takes trained teachers to make this approach successful. Global Scholars educators participate in ongoing videoconference professional development focused on our project-based, interdisciplinary curriculum, the student learning outcomes it is designed to teach, and how to guide and supervise communication in e-classroom discussion boards. These highly interactive sessions also provide direct peer connections for teachers, who discuss effective classroom practices and observations of student learning. These teachers are gaining pedagogic skills needed to teach any challenging global problem and to guide and evaluate student progress in an online environment.

² Students' words are presented as posted in discussion boards except where identifying information has been removed.

Looking Ahead

Educators and policymakers must promote the power of global digital exchange and the promise of teaching global competency.

Getting students ages 10 to 13 to want to learn about complex global problems, and to want to change the world, is a significant achievement. Throughout the Global Scholars learning journey, our analysis showed that sustained, direct peer connections reinforced student interest in global issues, leading them to recognize the importance of learning about these issues and their own ability to change the world. Global Scholars has also been successful in teaching students to appreciate diversity and to understand cultural differences.

These findings are significant for addressing the challenges of today's world. Given the global nature of current political and environmental challenges, as well as the interconnectedness of the world's economies, it is more important than ever that students learn to interact with people from different countries and cultures and to appreciate differences. Students also need to learn to collaborate to address complex global issues.

There is general agreement that students should be learning to become globally competent adults, but the outcomes associated with global competency have been considered difficult to define, teach, and measure. By articulating the student learning outcomes that constitute global competency, demonstrating how these outcomes can be taught through asynchronous discussion board communication, and developing an innovative approach to evaluating progress, we have shown that this work is not only desirable but achievable. Our findings show how educators can teach these global learning outcomes using a structured curriculum and direct peer connections, and how students can demonstrate growth in global learning on a digital platform.

We have no doubt that curiosity about students from other countries and an international audience for assignments make digital exchange the key to successful student and educator engagement. We urge education leaders and policymakers to prioritize direct peer connections to teach global competency and to make these opportunities accessible to all students. Discussion board technologies, which are both affordable and impactful, should be considered by both existing and newly developed global education programs. We invite our peers to use Global Cities' student learning outcomes and indicators, the codebook, and the evaluation framework to create and study the impact of new global competency curricula and digital exchange program models.³

³ To participate in demonstrations of our codebook for global student learning outcomes, contact [Global Cities, Inc.](#)



OVERVIEW



The Global Scholars Model

Teaching Children Global Competency

In today's world, engaging in constructive dialogue and addressing complex global issues are clearly important priorities. We urgently need a better understanding of how to teach these competencies to children from a young age. What do students need to know to become globally competent adults? How can this learning be taught? How can we develop metrics for measuring global competency learning?

There are few program models for teaching global competency that are supported by evaluation data. And although digital classrooms and online dialogue became a necessity at the height of the COVID-19 pandemic, that experience also revealed how little we actually know about how teachers can best teach and how students can best learn online. The reality is that there is limited empirical research that addresses either the subject matter of global competency or the digital learning environment of online discussion boards.

Global Scholars is such a model—a digital exchange program developed and tested by Global Cities, Inc., a Program of Bloomberg Philanthropies, to advance specific learning outcomes that K-12 students need to be successful in today's world. The Global Scholars program clearly identifies and teaches students the knowledge, skills, attitudes, and behaviors they need to become globally competent adults. Designed for students ages 10 to 13, Global Scholars empowers young adolescents to develop sophisticated solutions to global problems and communicate about them respectfully with peers around the world. Students connect with one another in e-classroom discussion boards, while educators participate in interactive videoconferences to receive professional development grounded in this unique model. These would be considerable accomplishments for any education initiative, but they are particularly noteworthy for one focused on this age group.

The Organisation for Economic Co-operation and Development (OECD) Director for the Directorate of Education and Skills, Andreas Schleicher, described Global Cities' framework for teaching and measuring global competency thus:

“The [student learning outcomes] framework that Global Cities developed is a really good way to make outcomes of global citizenship, of global competency, visible, tangible, teachable in the classroom. It gives teachers a yardstick, to what extent those ideas are actually translating into classroom practices.”⁴

Global Scholars demonstrates that digital interactions among young people are an incomparable motivator, making the world smaller and the local classroom larger and more diverse by connecting students who share the experience of living in urban areas. We've seen firsthand that it is possible for students to learn the core components of global competency in supervised e-classroom discussion boards. Now our research shows that this learning, often considered difficult to assess, can be systematically measured using data from these discussion boards.

The Discussion Cycle: Learning in International e-Classroom Discussion Boards

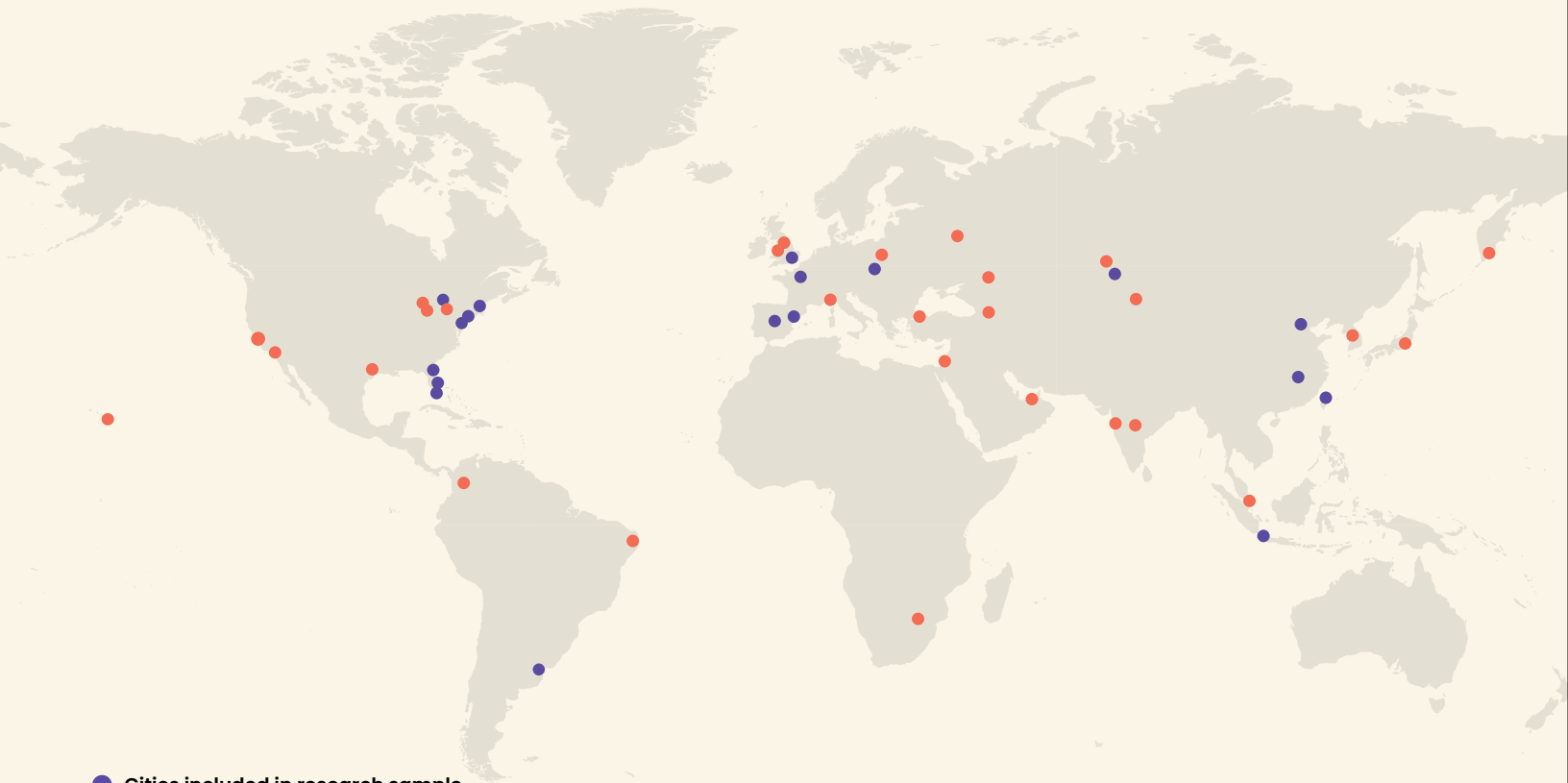
Over the last eight years, we have collected data to understand what and how students are learning in our e-classrooms. Cumulatively, more than 90,000 public-school students from 110 cities in 37 countries have participated, with 40 percent of enrollment in the U.S. and 60 percent international.⁵

⁴ Remarks presented by video at Global Scholars Reception Honoring the Catalan Regional Ministry of Education, to preview publication of *Evaluating Global Digital Education: Student Outcomes Framework*. Barcelona, Spain: November 13, 2018.

⁵ Enrollment data as of January 2022.



Global Scholars Cities 2018–19



● Cities included in research sample

Barcelona, Beijing, Boston/Everett, Boston/Medford, Buenos Aires, Fort Lauderdale/Broward County, Jacksonville, Jakarta, London, Madrid, Miami, New York City, Nur-Sultan, Paris, Shanghai, Taipei, Toronto, Warsaw

Global Scholars classes worldwide are linked via asynchronous discussion boards on a secure digital platform. All activities are conducted in English. Students communicate by submitting and receiving messages, guided by an original project-based curriculum about how to solve a global problem. Each Global Scholars e-classroom includes approximately 300 students from a group of 8 to 10 cities that are selected to ensure geographic diversity.

The e-classroom has its own set of discussion boards, which can receive hundreds of posts and replies that are viewable by all members. In the e-classroom, “discussion” refers to the full experience of a student completing an assignment, posting original work, completing a follow-up assignment to deepen understanding, reviewing and responding to posts from students in other cities, and checking back for their replies. The curriculum is structured around this full cycle of engagement and teachers receive interactive professional development to ensure they are equipped to guide learning and communication.

Participating schools commit a minimum of two hours per week to Global Scholars, during which students complete curriculum activities and post and reply in discussion boards. Most teachers integrate Global Scholars into the school day as part of social studies, science, language arts, English or other subject areas. Discussions in the e-classroom are curriculum-guided, teacher-supervised, and designed to capture students’ thoughts and attitudes. Consequently, these posts and replies provide both an excellent opportunity for students to learn and a rich source of data for analyzing their learning.

Teaching Global Problem Solving

Throughout the nine-month Global Scholars curriculum, students first learn in their local classroom with their teacher and peers. This serves as preparation for engaging and collaborating with peers all over the world in e-classroom discussion boards.



The curriculum changes each year and focuses students on a timely global challenge. These topics are interdisciplinary and have observable impacts in daily life around the world, such as clean water, environmental sustainability, or the world food supply. For each topic, the Global Scholars team of experienced educators, in consultation with content experts and teachers worldwide, develop new student workbooks and educator guides. These materials are designed to maximize the educational value of interacting with international peers.

Throughout five units of study, students complete assignments to explore core concepts related to the topic at the local and global levels and make connections across disciplines as they conduct research and learn from one another. The goal is for students to observe how a worldwide challenge plays out in their own cities and then gain a global perspective by exchanging observations with international peers. Each unit culminates in a digital project in which students synthesize what they have learned and apply it to their local contexts.

Global Scholars connects the local to the global. The pedagogical value of this opportunity cannot be overstated. The curriculum guides students to examine a topic through an increasingly wide lens: first as it relates to their own lives, then their cities, then the world. This progression is critical to how and why students are learning.

In the early units, assignments are grounded in firsthand observation, an aspect of authentic learning that engages student interest as they witness the global problem up close. Activities call on students to research and creatively design responses to a global challenge through project-based learning, with opportunities to work independently, in small groups, or as a whole class. After building background knowledge, completing projects, and forming their own opinions, students review proposed solutions from other cities and respond with ideas and questions. The curriculum guides students to post and reply in the discussion boards each week, establishing connections with international peers that expand on what they are learning through their own research.

Our curriculum is designed to advance the four major global learning outcomes that we have identified in prior research: Global Engagement, Appreciation for

Diversity, Global Knowledge, and Cultural Understanding.⁶ Assignments are not only highly engaging but also are targeted to specific indicators of these global learning outcomes. Each is designed to teach an aspect of the knowledge, skills, attitudes, and behaviors that will enable students to become globally competent adults.

For example, while studying global water issues, students researched and analyzed news articles to understand how climate change affects cities, drew connections to impacts they observed in their own neighborhoods, and discussed actions to improve water security. The assignment was intended to develop an attitude, interest in global issues, as well as a skill, research competency students apply to investigating a global issue. This attitude is an empirical indicator of Global Engagement (43-GE) and this skill is an indicator of Global Knowledge (35-GK), two of the learning outcomes that are the foundation of the Global Scholars curriculum.

A Worldwide Audience and a New Primary Text

The Global Scholars model is grounded in feedback from participating educators, who tell us that digital connections drive learning and promote student engagement. They confirm that peer curiosity and the potential for peer approval inspire kids to put their best schoolwork forward. Students are intensely motivated by the prospect of sharing their work with peers around the world who will respond to them directly. They also value the opportunity to learn from one another's work.

This creates a dynamic opportunity for student-driven learning. In Global Scholars, the discussion board posts and replies provide a new and exciting primary source of information that all students use to learn about global issues and how their peers worldwide understand and confront similar challenges. In addition to the discussion board technology at the core of peer exchange, each curriculum unit requires students to apply different digital tools to research, create, and present assignments. In this way, they have frequent opportunities for hands-on technology practice, from video editing to 3D design. They use the discussion boards, websites, and applications to actively learn and share ideas with one another, rather than passively consume information online.

⁶ For more detail, see "Global Competency Begins Here" and *Evaluating Global Digital Education: Student Outcomes Framework*.

Discussion in the e-Classroom

Through this e-classroom exchange, students in Taipei and Jacksonville, Florida, gained new insights into their own environments, one another's cities, and the global issues of climate change and water security. Students researched the topic, practiced respectful communication, and learned to recognize and appreciate different perspectives. This fundamentally different way of learning allows students to develop the knowledge, skills, attitudes, and behaviors that support global competency—often at the same time.

First, the Taipei student shared what they were learning:⁷



Taipei.Student

Deer Peers,

We analyzed the news articles like 'Coral Bleaching', 'Greenhouse Effect' and 'Impact of Climate Change' in Liberty Times or by Dai Changfeng. The articles taught us that climate change impact our city by sea level rises and global temperatures rise. Another impact of climate change in our city that we have observe is the temperature of the sea rises and causes the coral bleaching. In the other hand, the power of typhoons have increased year by year, and it caused the economic losses. Some ideas we have are we can ride bikes or take public transportation to school or to work, set the temperature of the air conditioners at 28 degrees, and don't create too much trash.

Sincerely,
Sean

Then, the Jacksonville student replied in kind:



Jacksonville.Student

Thanks for posting! Climate change impacts our cities in similar ways. We both have rising sea levels and temperature, which can destroy many ecosystems. However, I never thought about how typhoons hurt the environment. Florida is famous for its yearly hurricanes, but I never realized that it has the ability to harm my water security. On the contrary, I believe that many people would be concerned about the effects of climate change. Climate change has a huge impact on the environment, so it's only normal to be concerned about it.

And the Taipei student responded:



Taipei.Student

Thanks for your reply! But what I mean about typhoons is that the power of typhoons is a phenomenon of climate change we have observed. The power increasing of typhoons means the climate of the Earth is getting more and more extreme. On the other hand, the scouring of the typhoon will also harm our water security, too.

⁷ Students' words are presented as posted in discussion boards except where identifying information has been removed.



Preparing Teachers for Complex Content

Global competency is challenging for students to learn, especially at the developmental stage of 10 to 13 years old. Recognizing this challenge, we emphasize the central role of classroom teachers in leading the Global Scholars curriculum-guided digital exchange. They use our educator guide and student workbook to help students learn to communicate respectfully in discussion boards and grapple with complex global problems. We prepare educators to lead these activities through live professional development five times a year, prior to the start of each curriculum unit.

Professional development sessions are interactive and give educators the chance to exchange ideas with colleagues around the world. They discuss insights from our curriculum assignments and the digital tools students use in each unit. More broadly, they share strategies to facilitate conversation in their own classrooms and guide student communication in e-classroom discussion boards. These are important lessons to support teaching global competency. Just as student learning is intended to be applicable to any global problem, teachers are gaining skills needed to bring any real-world issue into their classrooms, whether the issue is climate change, racial justice, or food insecurity. They are also learning to guide and observe student progress in an online environment—an essential skill both in the classroom and when teaching remotely.





Research Approach

Defining Global Learning

At Global Cities, Inc., our goal from the outset was to test our model of global digital exchange. We had one overriding research question: What is the evidence that learning is taking place in Global Scholars e-classrooms? To answer that, first we had to articulate what students should be learning and then develop new methodologies for measuring their progress.

We started by conceptualizing global competency in terms of clearly identified learning outcomes, an important step in a field which had few outcomes that were sufficiently articulated for measurement. In 2016, with feedback from our international network of Global Scholars educators, input from social science researchers, and the literature on global learning, we developed nine student learning outcomes that constitute our definition of global competency.⁸ This includes four global learning outcomes: Global Engagement, Appreciation for Diversity, Global Knowledge, and Cultural Understanding; and five general learning outcomes that support both global competency and all learning: Digital Literacy, Language Communication, Self-Efficacy, Academic Engagement, and Critical Thinking.

Since each outcome is complex and learning environments vary, we recognized that there are many ways students could demonstrate their learning. To enable educators and evaluators to find evidence of global competency learning, we developed a total of 112 empirical indicators across the developmental competency areas of knowledge, skills, attitudes, and behaviors. Each indicator is assigned to a global or general learning outcome, which provides a ready guide to look at student progress. For example, we identified a total of 17 indicators of the knowledge, skills, attitudes, and behaviors that support the Appreciation for Diversity global learning outcome. One skill is the *Ability to listen to others and discuss issues in a respectful and unbiased way—7-AD*, or the seventh

indicator related to Appreciation for Diversity.

A behavioral indicator of this outcome is *Interacting with people of different backgrounds positively and respectfully—15-AD*, or the fifteenth indicator.⁹

Our identification of empirical indicators was expansive. We recognized that many are difficult to measure and did not expect to find all indicators in every curriculum activity, especially considering the variation in assignments throughout the year and in our students' developmental stages. However, defining the indicators was the critical first step in making these student learning outcomes explicit, measurable, and age-appropriate. And in the years since, we have identified specific indicators as the focus for each curriculum unit, making explicit to educators what we are aiming to teach and what learning they can expect to observe. In this way, the evaluation metrics we developed are directly connected to curriculum design and learning goals.

New Tools to Find Evidence of Learning

Even as we defined these outcomes and indicators, we recognized there were few existing tools to measure them, particularly using discussion board data. In 2019, in partnership with Out of Eden Learn (OOEL), an initiative of Project Zero at Harvard Graduate School of Education, we developed and tested a prototype for coding discussion board data based on our four global student learning outcomes. We were seeking evidence that students were demonstrating these learning outcomes. Specifically, we wanted to determine what aspects of global learning they were demonstrating, how frequently, and at what point in the curriculum progression this learning appeared. Underlying these was a larger question: What aspects of program design appeared to drive student learning?

8 Tiven, M. B., Fuchs, E. R., Bazari, A., & MacQuarrie, A. (2018). *Evaluating Global Digital Education: Student Outcomes Framework*. New York, NY: Bloomberg Philanthropies and the Organisation for Economic Co-operation and Development.

9 Indicators are named as follows: a unique number followed by a two-letter abbreviation of the student learning outcome, then the indicator definition in italics. For example, **43-GE** *Interest in global issues* (GE represents Global Engagement). For the full list visit this [link](#).



We answered these research questions by analyzing demonstrations of the 55 empirical indicators of our four global learning outcomes.¹⁰ The limited research on the global outcomes made these indicators a priority for our work, so we focused on them rather than our five general learning outcomes and attendant 57 empirical indicators.

The data for our study was discussion board posts and replies from the Global Scholars curriculum for 2018–19, which focused on water pollution and conservation.¹¹ This included 30 assignments in 15 discussion boards, which generated approximately 111,000 individual posts and replies. These were created by 15,698 students from 51 cities in 25 countries around the world.¹² Our approach was to systematically study a representative sample of 1,167 posts, written by students from 17 cities in 12 countries. The unit of analysis was the posts and replies, not individual students or classes. This sample was selected to be representative of the geographic diversity of the e-classrooms and all assignments in the curriculum.¹³

From Theoretical Constructs to Empirical Data

The 55 empirical indicators were critical for coding the data. The four global learning outcomes are theoretical constructs; the indicators are empirical and sufficiently granular that we were able to make distinctions among discussion board posts and replies that corresponded to our learning outcomes. The codebook we created provides instructions and illustrative examples that enable educators, researchers, and program designers to recognize each of the indicators in student writing.

With Global Cities' student learning outcomes evaluation framework in hand, OOEL began by closely examining 200 posts and writing initial coding instructions to identify the 55 target indicators of global learning. OOEL then applied these initial instructions to code all 1,167 posts in the sample, engaging in an iterative process to refine the instructions until the final codebook was produced.

¹⁰ There are 15 indicators for Global Engagement, 17 for Appreciation for Diversity, 14 for Global Knowledge, and nine for Cultural Understanding.

¹¹ See Appendix F: [World of Water Curriculum, 2018–19](#).


¹² See Appendix H: [Enrollment by City, 2018–19](#).

¹³ See Appendix A: [Sampling Methodology](#).

Several types of indicators were challenging to distinguish in the empirical data. In some cases, multiple indicators address similar concepts but call for a different level of demonstration, such as “awareness” versus “understanding.” Other challenges included defining what constitutes positivity, tolerance, and a “different” background. Global Cities collaborated with OOEL throughout the process of revising the coding instructions to differentiate more clearly among indicators. By intentionally refining coding instructions for every indicator, we enabled future coders to make these distinctions.¹⁴

An example of these distinctions can be seen in the coding instructions for the first indicator of Appreciation for Diversity, **1-AD** *Awareness of how one’s life and the lives of others are influenced by broader cultural and historical contexts*. The instructions indicate that a post should be coded for **1-AD** when a student recognizes that “cultural and/or historical components make up one’s identity and those of one’s peers.”¹⁵

This post would be coded **1-AD** in keeping with the coding instructions:



Warsaw.Student

“Hi! I would like to tell you about a water celebration in my culture called ‘smingus dyngus’. Smingus dyngus is from pagan times. It was a rite of old Slavs. The holiday was celebrated in honor of the end of winter and symbolized imminent spring. On Easter monday boys and girls have water fights. They use water guns and buckets. One fact you may find interesting is every farmer on that day walked and poured his fields with holy water.”

To clarify the threshold for a student post qualifying as evidence of this indicator, the instructions also note that if this post had simply named “a cultural component/feature without connecting it to their life or others’ lives,” it should not be coded for **1-AD**. In addition, the codebook includes example posts and replies that were coded for each indicator to illustrate what they look like in discussion board data.

Codebook Refinement and Validation

To test the reliability of the codebook, Global Cities engaged a third-party evaluation firm, [Glass Frog Solutions](#), to apply the codebook to the same sample to identify evidence of global learning. The two resulting data sets were compared for prevalence and patterns of indicators. Wherever there was a significant discrepancy, OOEL, Global Cities, and Glass Frog reviewed the coding and considered the clarity of coding instructions, interpretation of examples, and random error. As a result, in some cases the coding instructions were edited for clarity. In other cases, new examples were substituted in the codebook that better reflected the coding instructions. For all indicators, we also added examples that illustrate three levels of demonstration for each target outcome—minimum, average, and strong—to provide further guidance on how to code global learning outcomes.

Once this work was complete, OOEL revisited the full sample of 1,167 posts and reexamined evidence of 11 of the 55 indicators. This produced the final dataset on which the analysis in this report is based.¹⁶ The final codebook reflects this careful process of reconciling differences among coders from each organization. To test the final codebook with these modifications, in October 2021 Glass Frog conducted another test, in which a new set of coders applied the fully revised codebook to a subset of 140 posts from the original sample and found strong agreement across the 55 indicators. The iterative process of testing and refinement improved the reliability of this final tool, a particular priority when measuring outcomes for which there has been limited study.

¹⁴ See Appendix C: Sample Codebook Pages.

¹⁵ Global Student Learning Outcomes Codebook © 2020 Global Cities, Inc. and President and Fellows of Harvard College, all rights reserved.

¹⁶ See Appendix for prevalence of all 55 indicators of the four global student learning outcomes.



Major Findings

OOEL’s data analysis found evidence of learning in key areas across all four global learning outcomes and determined which aspects of global competency were demonstrated most frequently by students:

- **Global Engagement:** Our students acknowledged their ability to change the world and demonstrated that they were willing to do so.
- **Appreciation for Diversity:** Thousands of students from dozens of cities worldwide were learning to interact with one another in ways that were respectful, inquisitive, and substantive.
- **Global Knowledge:** Starting with a foundation of geographic knowledge, students both grasped the complexities of global issues and recognized their importance.
- **Cultural Understanding:** These 10- to 13-year-olds, who were just beginning to develop a sense of self and their own cultures, were understanding and appreciating cultural differences.

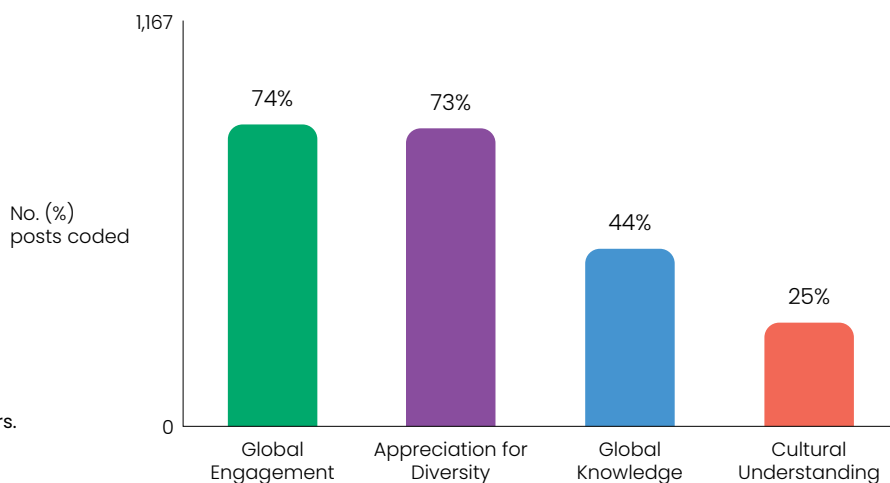
Importantly, the data showed not just what students were learning but how frequently and where in the curriculum they showed evidence of learning. These patterns of prevalence revealed relationships among the knowledge, skills, attitudes, and behaviors that students were demonstrating and provided information about how students learn this complex subject matter. They also led OOEL to hypothesize about why this learning

was occurring, pointing to elements of the Global Scholars curriculum and program design that support student growth.

The Global Scholars curriculum emphasizes learning outcomes that are inherently challenging to measure. The work of distinguishing indicators of these outcomes in student posts and replies is complex and requires careful attention to nuance. The indicators make it possible to find empirical evidence of the global student learning outcomes; the codebook provides a practical tool to identify this evidence in student writing. Using this tool, we were able to measure the extent to which learning was taking place in Global Scholars e-classrooms. While rigorous in design and application, this is a categorically different way of assessing student learning compared to administering a standardized test with a clear set of correct answers. Our codebook makes it possible to capture evidence of learning in progress and answers our first and most important question: yes, it is clear that learning is taking place.

In the following section we discuss the analysis of the global student learning outcomes in order of frequency in the data: Global Engagement, Appreciation for Diversity, Global Knowledge, and Cultural Understanding. For each outcome, we highlight indicators that are notable for their prevalence and detail what they tell us about how students learn. We also discuss the aspects of the Global Scholars program model that likely contributed to these positive results.

Prevalence of Global Learning Outcomes in Student Posts and Replies



Based on a sample of 1,167 student posts. Some individual posts were coded for multiple indicators.

A circular inset image showing a group of people in a meeting. In the foreground, a person is using a laptop. The laptop screen displays a diagram with a central oval and two smaller circles connected by lines. Other people are visible in the background, some looking at the laptop. The entire image is overlaid with a semi-transparent blue circle.

ANALYSIS

Global Engagement

What does it look like when students ages 10 to 13 recognize their ability to change the world? That's the development captured in the Global Engagement student learning outcome, which encompasses interest in learning about the world, communicating and collaborating with people from many countries and cultures, and finding solutions to global problems.¹⁷

In this post, a Taipei student demonstrated Global Engagement by sharing a personal objective to improve the local community:



Taipei.Student

"I want to warn people about the severe water issues that our country is facing, such as water pollution, rising sea levels and many more... solving these issues alone isn't what I can do, but if I just let some people hear my voice, it might spread across the whole globe."

Global Engagement was the most prevalent of the four global student learning outcomes studied, with evidence of development in this domain appearing in 74 percent of all posts in our sample. The analysis conducted by OOEL suggests that the Global Scholars curriculum and direct peer connections are helping students develop the desire and skills to make a difference in the world—a core element of Global Engagement.

As OOEL noted,

The Global Scholars program provides early adolescents with compelling opportunities to investigate and develop agency in relation to an urgent global issue in the company of peers in their classrooms and, through a dynamic online context, with peers from different cities... key features of the program meet students where they are and support them toward becoming more globally engaged citizens... Students appeared to be intrinsically motivated to engage with the Global Scholars curriculum even though they are participating in it via a formal school setting (p. 315–316).¹⁸

OOEL examined the data for the Global Engagement indicators to find out what aspects of this outcome students demonstrated most frequently. The prevalence of this outcome was driven in part by three attitudes—a notable finding in itself, because attitudes are a competency area that can be difficult to assess using traditional methods.

The first attitude was the foundational **43-GE Interest in global issues**. This was the most prevalent out of all 55 indicators of the four global learning outcomes—it was coded in 41 percent of all posts and replies in our sample, or 483 out of 1,167, and found in all 15 discussion boards. OOEL commented, "While initial curiosity needs to be aroused, it also needs to be sustained, and the

¹⁷ Tiven et al. (2018), *Evaluating Global Digital Education*, 66.

¹⁸ In-text citations refer to archived Internal Report, Harvard Graduate School of Education's Out of Eden Learn (OOEL), May 27, 2021.

arc of activities in the [Global Scholars] curriculum seems to have succeeded in doing that, as reflected in the high prevalence and dispersed distribution of coding for this indicator” (p. 285). This is an important finding, because interest in global issues lays the foundation for further learning.

The other two prevalent attitudes show what students do with their learning about global issues: take action to address them. The data show frequent demonstrations of student agency. For example, **45-GE** *Recognition of*

one’s capacity to advocate for and contribute to local, regional, or global improvement was coded in 300 posts, and **47-GE** *Willingness to take action to address global issues* was coded in 123 posts. These attitudes often appeared together in the same posts—66 times out of a possible 123, demonstrating that students were not just recognizing that they could make a difference in the world, but were willing to take action (p. 309).

The Challenge of Assessing Attitudes

Global learning outcomes reflect knowledge, skills, attitudes, and behaviors. All are important, but specific attitudes provide the foundation for the positive behavioral changes needed to become a globally competent adult. Five of the 10 most prevalent indicators of global learning reflected student development of positive attitudes, suggesting that discussion boards can effectively capture attitudinal shifts, an area of learning that is often considered difficult to assess. The prevalence of attitudes in the coding shows the value of the codebook, which reveals nuanced insights into the wide range of competencies students are developing, as well as how and why they are showing growth.

Prevalence Rank	Global Learning Outcome	Indicator	% of Sample Coded	Count of Posts Coded
1	GE	43-GE Interest in global issues	41%	483
3	GE	45-GE Recognition of one’s capacity to advocate for and contribute to local, regional, or global improvement	26%	300
7	AD	13-AD Willingness to interact with peers and adults of different backgrounds respectfully	15%	178
8	GE	42-GE Interest in the larger world, particularly unfamiliar people and places	14%	159
10	CU	26-CU Positive attitude towards other cultures	12%	141

NOTE: We are aware of the limitations of methodologies for measuring attitudes that rely on student self-reporting, such as survey research and reflective assessments. In our evaluation framework, we wrote, “It is important to note that discrete learning styles and differences in academic and personal growth of individual students mean that not all students who experience shifts in their attitudes and behaviors are cognizant of them or can adequately express them through a reflective exercise” (p. 55). We recommended supplementing these approaches with classroom observations. Discussion board analysis offers similar insight by allowing coders to observe student behavior rather than to rely only on students’ perceptions of growth.

These prevalence patterns show how the codebook allows researchers to capture areas of learning, such as attitudes, that are generally difficult to measure. And it provides nuanced insights into what students are learning, as well as how and why.

To explain what was driving student learning, OOEL looked to elements of the Global Scholars curriculum design. At its core, our curriculum is about how to solve any global problem. However, for each year's curriculum topic, we focus on a single global problem. OOEL concluded that this approach to topic selection contributed to the prevalence of attitudes critical to Global Engagement.

Each year's curriculum focuses on a single topic that is urgent, relevant, far-reaching or truly global, and in need of local and global attention and action... Organizing a curriculum around a global issue that students can relate to and which they intuitively know to be important encourages students' interest and intrinsic motivation (p. 284-299).

The curriculum topics allow students living in cities anywhere in the world to both observe these issues close to home and learn from the observations of peers across the globe. Combining an accessible, global issue with peer connections in discussion boards is clearly part of a successful formula for sparking student interest and motivating young people to learn and take action.

In the post below, students shared their learning about school water use. OOEL coded this post from students in Kazakhstan for the indicator **47-GE Willingness to take action to address global issues** because it indicates a desire and clear intention to make changes.



Nur-Sultan.Student

"Our group did field research by water audit in our school a month. we have checked how much water our school spends for ckeaning, cooking, in the laboratories and toilets. The most important thing we learned was that we should save and spend it deliberately. sometimes we don't notice how much water we spend a day, a month, etc. but our natural resources are limited and we must protect and save them."

Global Scholars assignments are designed to teach specific aspects of our student learning outcomes that are identified through the empirical indicators. These learning opportunities are even more powerful when they are grounded in firsthand observation. The Nur-Sultan post appeared in Unit 2, as students began examining global water issues through a personal lens. In the assignment "My Water Footprint," they calculated their daily water consumption, while in "School Water Audit" they toured their school to document how water is accessed and used.

The analysis showed spikes in positive student attitudes and behaviors corresponding with these authentic assignments that emphasize immediate observation. The water footprint and water audit discussion boards were among those with the highest prevalence of the Global Engagement outcome indicators overall, as well as the largest spikes of the indicator **43-GE, Interest in global issues**. Seeing these issues up close piqued students' interest and motivated them to take action. In this way, the data support the Global Scholars curriculum approach—assignments grounded in firsthand observation and peer connections motivate student learning.

Peer exchange in discussion boards offers a global perspective, even at these early stages of the curriculum. In their e-classrooms, Global Scholars students learn from the observations of peers in 8 to 10 cities. As OOEL observed, "Students are afforded opportunities to explore personal and local dimensions of a complex global problem (specifically, water) while also investigating its distant impacts as conveyed by online peers living in different cities and countries" (p. 279). By "bringing macro global issues down to individual- and community-level entry points," students are able to engage directly with these issues, and directly with one another (p. 266). Technology offers them this opportunity, which is otherwise not possible within the walls of any single classroom.

The curriculum builds from having students observe the global problem to tackling it hands-on. The year's final unit is the popular community action project, which gives students the rare chance to carry out their own plan to improve the world. This unit provides opportunities to apply and strengthen the attitudes students develop over the course of the program, as they expand their focus from personal to citywide, worldwide, and then back to their home community.

It's therefore not surprising that in addition to recognizing they could make a difference and showing they were willing to do so (**45-GE** and **47-GE**), during Unit 5 students also demonstrated the behavior **55-GE** *Working to contribute to local, regional, or global improvement*. In fact, 81 percent of the posts coded for **55-GE** appeared during this concluding unit. The overlaps of these three indicators during this culminating project show that as students develop, discuss, and implement their plans to make a difference, they are simultaneously demonstrating agency and a willingness to address global issues.

In the post below, students from Barcelona shared their community action project goal. This meets the codebook criteria for the indicators **47-GE** and **45-GE** because these students express both their plans and the expectation that they will have an impact.



Barcelona.Student

"Hi everyone, Our Community Action Goal is related to plastic waste. The action we will take to achieve this goal is do a game to kids of primary school and do a presentation about the plastic waste. Achieving this goal will help our community by changing the behavior of people so that they are aware of this huge problem that affects all the world. Please give us your advice about our idea Sincerely, Your friends Alessandro, Alba, Maria, Erik, Youssef, Luíser and Mireia"

Students are not just taking action but discussing their plans and progress with peers around the world. In discussing **45-GE**, OOEL hypothesized, "their motivation to recognize themselves as potential agents of change may have increased as they read other students' posts and built on what one another were saying" (p. 308).

Our educators report that even students who are generally disengaged participate enthusiastically when conducting field research, inventing solutions to global problems, and receiving responses from international classmates interested in their work. This anecdotal evidence is supported by our earlier research based on student survey data. That study, also using data from the 2018-19 school year, found that students who started the program with low levels of Global Engagement, Global Knowledge, and self-confidence reported markedly higher levels of all three at the end of the Global Scholars program.

To explain this increased engagement, OOEL drew upon the educational psychology literature and noted that a learning environment like Global Scholars "supplies a great deal more surprise and novelty than a regular classroom, in part because of the unpredictability of peer-to-peer interactions involving students living in unfamiliar cities dotted around the world.... Many of the discussion board posts and replies that we examined spoke to a more spontaneous and genuine curiosity—that is, an intrinsic motivation—to learn more about the world (Ryan & Deci, 2000)" (p. 271). Direct peer connections in the e-classrooms clearly have the potential to increase student interest and motivation. Project-based learning builds on this interest by giving students the opportunity to act.

Outcome Overlap

The analysis of Global Engagement confirmed that students do not develop this learning outcome in a vacuum. For example, alongside the Global Engagement indicator **43-GE Interest in global issues**, students frequently demonstrated the Appreciation for Diversity indicator **7-AD Ability to listen to others and discuss issues in a respectful and unbiased way**. Half of the posts coded for **7-AD** were also coded for **43-GE**, or 148 out of 295 posts.

This post illustrates the overlap of these outcomes. Students in Broward County, Florida, responded to a post from New York City students about their research on pollution in the Hudson River:



Broward.Student

“Hi Friends, Thank you for sharing your project. Our group found it interesting that you guys researched the Hudson River which flows from the Adirondack mountains flowing southern into the upper New York Bay. We also find it interesting that your river is a brownish color but not necessarily because of pollution it’s because an average 2,200 tons of sediment fall in from the upper state. You asked for feedback on more solutions and where to find good resources. We think in order to make your water cleaner you should start by picking up pollution around your area and see if you could talk to your governor about those tons. Other advice is you should read books on the Hudson river and how it formed to see if you could see how to clean up. You should also research this website called Hudson River cleanup. Could you please tell us more about why you chose the Hudson River. Sincerely, Mia, Julia, and Anaclara.”

OOEL coded this post for **43-GE Interest in global issues** because students explicitly stated that their interest in global water issues was stimulated by the posts of their New York City peers and asked a question to elicit further information. The post was also coded for **7-AD Ability to listen to others and discuss issues in a respectful and unbiased way** because the students restated what they learned from the New York City post and offered thoughtful advice.

As OOEL noted,

It is impossible to say if students’ interest in an important global issue encouraged them to engage respectfully with their global peers or if students’ openness or excitement to engage with those peers helped spark their interest in the issue of water. Most likely, these two broad aspects of the Global Scholars curriculum were mutually reinforcing... pointing to the overall power of global digital exchange—especially when combined with a student-centered and project-based learning curricular approach—as a rich and holistic learning experience (p. 285-286).

The fact that these two indicators appeared so frequently in the same posts supports our conceptualization that the global learning outcomes are integrated components of global competency. This pattern of prevalence also supports a fundamental finding—completing the assignments and reading peers’ perspectives in discussion boards builds both respectful communication and interest in the world. It reflects the important relationship between two key features of the Global Scholars program: the opportunity for direct peer connections and focus on solving a global problem.

Next, we further explore the outcome Appreciation for Diversity to see how students develop and demonstrate respectful communication in Global Scholars e-classrooms.

Appreciation for Diversity

How do thousands of 10- to-13-year-old students from dozens of cities worldwide learn to interact with one another in ways that are respectful, inquisitive, and substantive? The global learning outcome Appreciation for Diversity is at the core of this challenge, and it is essential for developing global competency. This outcome encompasses understanding the myriad ways in which people and perspectives can differ, recognizing and rejecting biases and intolerance, and showing respect and positivity when communicating and collaborating with others, both locally and globally.¹⁹

Appreciation for Diversity was the second-most prevalent of the four global student learning outcomes, appearing in 73 percent of all posts and replies in the sample. Indicators of Appreciation for Diversity were found consistently in all 15 discussion boards, with rates of prevalence ranging from 3 percent to 10 percent of posts and replies on each board. In other words, students engaged in respectful conversation with one another, right from the start of the year. Their dialogue demonstrates the power of peer exchange as core to curriculum design, with posts and replies serving as a primary resource for learning.

Indeed, OOEL noted that the high prevalence of Appreciation for Diversity was driven by three indicators that “all relate in various ways to interacting with diverse others respectfully, positively, thoughtfully, and with openness to difference” (p. 161).²⁰ The first is a skill, **7-AD Ability to listen to others and discuss issues in a respectful and unbiased way**, which was coded in 295 posts. The second is an attitude, **13-AD Willingness to interact with peers and adults of different backgrounds respectfully**, which was coded in 178 posts. Importantly, the third is the behavior to which this skill and attitude lead: **15-AD Interacting with people of different backgrounds positively and respectfully**. OOEL coded this behavior in 459 posts, making it the second-most prevalent of the 55 indicators studied.

The prevalence of these three indicators demonstrates that students are not just learning in the abstract how to respectfully communicate with one another, they are applying these skills. It highlights the unique opportunities the Global Scholars program provides for students to practice, researchers to measure, and educators to assess the skill of “listening,” the attitude of “willingness to interact,” and the behavior of “interacting positively and respectfully.” OOEL attributed the prevalence of these indicators to peer exchange in e-classrooms. When students have the opportunity to engage with one another in discussion boards, guided by the curriculum and their teachers, they learn positive and respectful communication.

As OOEL wrote,

There was overall consistency in students’ illustrations of respectful listening throughout the entire Global Scholars program... this is likely due to the overarching structure of the program, which included explicit opportunities for students to react to the experiences and posts of their international peers and thus required them to listen to those peers. The entire premise of the program is founded on exchange (p. 166).

¹⁹ Tiven et al. (2018). *Evaluating Global Digital Education*, 50.

²⁰ In-text citations refer to Internal Report, Harvard Graduate School of Education’s Out of Eden Learn (OOEL), May 27, 2021.

The enthusiasm and respect generated by these interactions is clear in posts like the one below, in which a Toronto student responds to a Barcelona peer's introduction to their city:



Toronto.Student

"Hey Toni, From your introduction, your city sounds astonishing! We have some monuments here in Toronto, Ontario, Canada. One of my favourite monuments that I been to is called "Still Dancing" it is super cool. One question that I have for you is, can you drink the water from the two rivers? Do they need to be purified? I love hearing all about you and your city, hope you reply soon!"

This post demonstrates the attitude **13-AD Willingness to interact with peers and adults of different backgrounds respectfully** because the student expressed interest in what their peer shared, as well as the behavior **15-AD Interacting with people of different backgrounds positively and respectfully** because they responded both respectfully and positively, including by thanking their peer and noting commonalities. These two indicators often appeared in the same discussion boards. OOEL observed that, "It makes sense that these two indicators would generally move in parallel, as a willingness to interact respectfully would seem necessary for a respectful interaction to occur, and, in turn, respectful interactions demonstrate a willingness to interact respectfully" (p. 174).

While these indicators appeared with frequency throughout the year, their patterns of prevalence during different units of the curriculum provide insight into what drives student learning. The positive behavior captured in **15-AD**, for example, was demonstrated most frequently as students introduced themselves and their cities in Unit 1. This suggests that connecting with peers around the world was so motivating that, even at the very start of the program, students were already demonstrating positivity and respect with frequency. The data show students continued to demonstrate this attitude throughout the year, confirming the centrality of Appreciation for Diversity to all aspects of global learning.

The related skill **7-AD Ability to listen to others and discuss issues in a respectful and unbiased way** was also prevalent in every discussion board, demonstrating consistency in students' ability to listen and engage in constructive dialogue. Consider this post from a Medford, Massachusetts student at the start of the program year, in response to a "Meet the Global Scholars" introductory video from Shanghai:



Medford.Student

"What I enjoyed in the your school... is about how your peers were dancing in the background, because it made your video enjoyable, funny, and entertaining. I learned in the video, is that you cant drink tap water in Shanghai because you may get sick or you can be in danger if you drink the tap water. In your school, at recess we also have a track, that we play soccer on and basketball too! One question I have about your city is, where does your water source come from? What is in your water source that prevents your city from drinking the tap water? Sincerely, John"

This post exemplifies **7-AD** and is consistent with the coding instructions that call for active listening. This student shares new learning from peers, asks thoughtful and empathetic questions about something specific in their video, and notes similarities between their schools—all examples of active listening. We also note that this post was written in response to a student-created video project, lending support to the view that multimedia can be an effective driver of substantive and respectful discussions among students.

Absence of Negatives

Appreciation for Diversity also includes indicators for students addressing negative behavior by their peers. In OOEL's analysis of this learning outcome, coders did not find indicators related to negative behaviors. There was one instance of **9-AD Ability to identify and critically reflect on bullying behavior online and in-person**; however, the student was reflecting on an incident outside of school. There were no instances of students addressing stereotyping or intolerance, which are designed to be captured by **6-AD Ability to identify and critically reflect on stereotypes in thinking about others** or **17-AD Intervening against intolerant behavior online and in-person**.

This is not surprising because the rare instances of negative behavior are removed from Global Scholars discussion boards, but it is notable because these findings stand in stark contrast to the frequency of such behaviors on many digital platforms. We attribute the low incidence of negative behaviors in Global Scholars e-classrooms to the positive influences of teachers and the communication norms that are integrated into our curriculum. These include the Global Scholars Pledge, which describes how to be part of a respectful and inclusive community; the Internet Safety Agreement, which describes how to behave responsibly online; and lessons regarding respectful communication built into assignments throughout the year.

This lack of negative behaviors also reflects students' willingness to foster and enact these norms in their discussion board interactions. OOEL cited earlier education research and noted, "Use of enthusiastic, empathetic, curious, and sensitive language in posts can inspire posts similar in tone, thus establishing norms for positive discourse (Postmes, Spears, & Lea, 2000)" (p. 320).

Supervision and moderation of the discussion boards by both classroom teachers and Global Cities staff was another component in establishing and maintaining a safe environment for students. OOEL also noted that Global Scholars professional development may have led teachers to place greater emphasis on the qualities of tolerance, respect, openness, or positivity in their classrooms (p. 176).

Respectful communication is most effectively learned through modeling and ongoing opportunities for practice. One way the Global Scholars curriculum teaches Appreciation for Diversity is by providing prompts that structure the practice of respectful communication. For instance, Global Scholars encourages students to ask, "What do you think?" and to solicit their peers' thoughts by writing sentences that begin, "We would like your feedback on..." or "Please give us your advice about..." OOEL made clear that students are utilizing these dialogue initiators, and that such tools are supported by the global education literature.

We think it is also a positive finding that the thoughtfully developed sentence starters and prompts seem to have an intended effect in getting students to articulate their willingness to interact with others respectfully; this supports the continued use of this scaffolding language as well as the tailored development of prompts and sentence starters that address relevant indicators. This connection resonates with existing research, which has found that providing targeted writing prompts and sentence starters can support successful peer dialogue in digital learning environments (Hodgin, 2016; Kreikemeier & James, 2018) (p. 172).

While these prompts may amplify the presence of certain indicators in the data, their purpose is to help students develop their skills in communicating respectfully without prompts, critical to developing Appreciation for Diversity and expressing it within and beyond the classroom. In addition, posts and replies were not coded as demonstrating any indicator of learning outcomes if students simply copied and pasted a prompt without writing further.

In sum, the prevalence of respectful communication indicators and the absence of indicators related to negative behavior is clear evidence that Global Scholars is helping students interact with one another in ways that are respectful, inquisitive, and substantive. OOEL's analysis shows that the opportunities created by frequent, curriculum-guided discussion board interactions result in learning how to appreciate diversity. Discussion board analysis allows us to capture this learning.

Global Knowledge

How can students grasp the complexities of global issues and recognize their importance? Global Knowledge is necessary for students to understand the world—how it is connected and divided, the people who inhabit it, and the challenges they face. This component of global competency builds from knowledge of basic geography to understanding that global issues are borderless and require solutions that are complex, interdisciplinary, and adaptable to different settings.²¹

Educators have many tools to determine whether students are proficient in geography, but the more complex aspects of global knowledge can be difficult to assess. In our conceptualization of this outcome and its empirical indicators, as well as in the development of the Global Scholars curriculum, our focus was on the skills and attitudes students need to acquire global knowledge and the interdisciplinary concepts they must understand to contextualize this knowledge.

The Global Scholars curriculum is designed to guide students from gaining geographic knowledge to understanding global issues, and the patterns in the discussion board data reflect this progression. In the first three units of the curriculum, as students closely observed their own city and compared it with their peers' cities, **27-GK Knowledge of local and world geography** appeared most frequently. In total, coders found this indicator in 17 percent of the sample, or 194 posts and replies. Later in the year, as students examined the topic through a global lens and then took action in their own communities, students demonstrated more complex understanding such as **28-GK Knowledge of global issues and their local impact**. Overall, this indicator was

found in 11 percent of our sample, or 131 posts and replies. Students also exhibited a related attitude that can lead to future learning, **39-GK Recognition of the importance of learning about global issues that affect us all**, which was found in 10 percent of our sample, or 118 posts and replies.

OOEL described the importance of direct peer connections in supporting students' progression from learning basic geography to grappling with complex issues and acknowledging their importance.

Basic geographic knowledge might be viewed as a gateway for learning more about the world and eventually developing one's global competence across different dimensions. At the same time, the opportunity to engage with other young people who are embarked on a shared mission to understand a global issue as it applies to their local contexts and the world at large seems to foster an understanding of important issues that transcend national boundaries, as well as an appreciation for the importance of developing this kind of knowledge in today's world (p. 260).²²

²¹ Tiven et al. (2018). *Evaluating Global Digital Education*, 61.

²² In-text citations refer to archived Internal Report, Harvard Graduate School of Education's Out of Eden Learn (OOEL), May 27, 2021.

Because Global Scholars students live in cities around the world, the program is an ideal vehicle for students to consider their geographic home and how it relates to other places. The curriculum starts by having students observe their own locations and introduce themselves to peers around the world. Students vividly describe their environments, such as in this Taipei student's "Say Hello" post, the first assignment in Unit 1:



Taipei.Student

"Dear Oliver, Nice to meet you, too! I think my city is beautiful! Cause there are many mountains in my city. Like Maokong, Maokong is not a tall mountain, but there are many tea plantations over the hills in Maokong. In Spring, there will be many Lupinus in Maokong. It's very beautiful ! Do you like tea? Cindy"

This post was coded for **27-GK Knowledge of local and world geography** because the student described specific aspects of local geography to an international peer. Noting the spike of **27-GK** in the program's very first assignment, OOEL observed, "Given the introductory nature of the 'Say Hello' discussion board, students may be particularly enthusiastic to share any facts they know about their local areas and communities. This was especially salient in students' exchanges as they shared details about their knowledge of local and world geography when commenting on one another's posts" (p. 253). Reading and responding to discussion board posts differs greatly from studying geography by memorizing textbook facts, especially in the way it motivates students to learn. Each student will encounter different geographic content based on what their peers share in the e-classroom. But all students have the opportunity to learn this content in a uniquely engaging way.

Demonstrations of geographic knowledge appeared most frequently near the midpoint of the program in Unit 3. The curriculum prompted students to again exchange observations about their own cities, this time in relation to city water systems—such as how people access water and how wastewater is removed. OOEL found that, "As students reflected on where water travels to and from, they were likely to make connections between what they already know and what they were learning and observing. This manifested as a sharing of geographic knowledge" (p. 243).

At this moment in the curriculum, complex questions are posed to promote deeper geographic exploration and critical thinking, one of Global Cities' general learning outcomes. In the Unit 3 assignment "From Nature to Faucet," students are asked "How do you think culture and geography affect different water systems?" The question was intended to push students to explore how geography affects not just one water system, but different water systems—and it did. This assignment accounted for 22 percent of the student posts and replies coded for **27-GK**, the largest spike of geographic knowledge observed in our sample. OOEL noted that students responded to this question "in ways demonstrating their knowledge of local and world geography and the relationships between this knowledge and the impact on water" (p. 244).

After reading a London peer's "From Nature to Faucet" post, a Madrid student reflected on the impact of geography on water access and use:



Madrid.Student

"Dear Safak, Thank you for teaching me about the water system in London. The water system in my city is similar because our water comes from freshwater near our cities. However, our systems are different because you get the water from your rivers and I get it on the reservoirs. I think geography affects our water systems because where I live there are mountains that rains and snow a lot and we have access to the water. Something I learned from your post that I can use in my city it's that we can reuse the water."

In this post the student demonstrates **27-GK** by showing understanding of local geography and naming new learning about world geography. This post also shows the excitement generated by learning this information from peers around the world. OOEL notes that the opportunity to hear from many different places and cultures also prevents a potential pitfall: “The sheer range of participants engaged in [Global Scholars] and the bringing together of young people around issues of common interest and local relevance arguably helps sidestep the propensity of some global education approaches to encourage the imposition of one’s own values on other people or the promotion of patronizing or pitying attitudes towards others” (p. 259-260).

In Unit 4, students expand their investigation of water issues to the global level. It is therefore not surprising that evidence of students developing **28-GK Knowledge of global issues and their local impact** was most prevalent in this unit. OOEL found that at this stage of the curriculum, “students really begin to dive into the issue of water from a more global perspective. Thus, it makes sense that we observed students’ knowledge about a global issue—in this case, water—coming to the forefront at this point” (p. 248).

Two assignments in particular were associated with **28-GK**: “Global Water Issues,” which asked students to analyze the causes of and potential solutions to different types of pollution, and “A Changing Planet,” in which students analyzed local news articles about the impacts of climate change. OOEL noted that both activities encouraged “students to consider cause-and-effect relationships, particularly causal relationships related to the global issue of water” (p. 245). Some 71 percent of the data coded for **28-GK** came from these two discussion boards.

This included a reflection on “A Changing Planet” by two New York City students:



NYC.Student

“The article taught us that climate change impacts our city by climate change can make sea levels rise and oceans are becoming warmer. Longer and more intense droughts threaten crops, wildlife and freshwater supplies. To address this crisis we must reduce carbon pollution or/and prepare for the consequences of global warming. Another impact of climate change in our city that we have observed is fish being killed in the ocean because of warmer climates and warmer climates creates algae which can harm fish.”

This post was coded for **28-GK** because it does more than acknowledge a global issue; it acknowledges the impact of global issues on the local environment and the impact of local actions on the global climate. Students are successfully synthesizing what they learned in their research with what they have observed firsthand.

Alongside the development of knowledge of global issues was recognition of their importance, setting the stage for ongoing learning. The indicator **39-GK** *Recognition of the importance of learning about global issues that affect us all* appeared frequently in the same Unit 4 discussion boards as **28-GK**. In other words, as OOEL noted, “gaining knowledge about a topic, in this case the global issue of water, may lead to a recognition of the importance of that topic—an attitudinal shift” (p. 253). Students continued to demonstrate this attitudinal indicator as they completed their Unit 5 community action projects. They showed their recognition of the importance of global issues that affect us all by creating and implementing plans to teach others about these problems.

For example, London students noted that by increasing awareness within their school they could impact global water scarcity. They demonstrated **39-GK** by writing about their plan to share information on this global issue with others:



London.Student

“Our goal is to raise awareness of hygiene practices to improve public health in our school. To teach others how to improve our environment through picking up litter and recycling. To monitor our water footprint and reduce it, therefore improving waterscarcity around the world. We are going to do this by making videos to spread the word of our goal. We also are going to do this in our school to improve water usage and pollution. From Harry and his friend Dawid”

OOEL highlighted the important role that teachers play in guiding student exploration of these complex topics. Global Scholars educators participate in five professional development sessions over the course of the program year, each of which coincides with the start of a new unit. In these sessions, teachers connect with counterparts around the world and explore instructional approaches and digital tools to support their work with our project-based, student-centered curriculum.

OOEL wrote,

Studies have found that while teachers generally acknowledge that it is important to teach today’s young people about complex global issues and are generally motivated to do so (Brown, 2009), they often feel uncertain about how to teach them.... [Teachers] also tend to think about global issues or global knowledge in terms of fixed content knowledge, rather than thinking about the procedural knowledge that Global Cities takes care to consider, such as applying, synthesizing, or managing knowledge. In this sense, Global Cities offers an invaluable means for middle school teachers to navigate this complicated terrain (p. 261).

Students are developing Global Knowledge because the program is supporting the “active learning and critical thinking [that] are essential if students are to grapple with issues such as water scarcity and contamination on both a local and global level” (p. 258). Long after our program ends, students will have more questions to answer about water pollution and climate change, but they also will have gained a local and global perspective on these issues that no textbook could provide, and the skills and motivation for further learning.

Cultural Understanding

How do you teach 10- to 13-year-olds, who are just beginning to develop a sense of self and their own culture, to understand and navigate cultural differences? What do they need to know to communicate with peers from many cultures, whether those peers are from their neighborhood, their physical classroom, or their digital classroom with students from cities around the world?

Students demonstrate Cultural Understanding when they recognize the norms, characteristics, and values that shape how each of us interprets the world.²³ This component of global competency requires students to first understand their own cultures, then use that understanding to appreciate different perspectives and communicate and collaborate with others.

Because students must both recognize and apply a complex concept, Cultural Understanding is the most challenging of the four global learning outcomes for teachers to teach and for students to learn. In fact, OOEL noted that when it comes to learning concepts like culture, even awareness presents a challenge at this developmental stage,

Although developing an awareness of something may seem like a relatively low bar, becoming aware of one's own culture or how one's life is shaped by historical and cultural factors, for example, can in fact be relatively demanding. This awareness requires a level of self-reflection and abstract thinking that many middle schoolers are only just acquiring as they develop an integrated sense of self and the capacity to consider their lives in an abstract sense or as an overall "story" (Damon & Hart, 1988; Harter, 1999; McAdams, 1993) (p. 188).²⁴

Given this difficulty, it is not surprising that indicators of Cultural Understanding had the lowest prevalence of all four student global learning outcomes, at 25 percent of our sample, or 293 posts and replies. OOEL attributed this to the complexity of the outcome, the developmental stage of Global Scholars students, and the lower number of indicators for this outcome (p. 185).²⁵ However, it is significant that OOEL found evidence of Cultural Understanding in all 15 discussion boards and that researchers coded successfully for all nine of its empirical indicators. This demonstrates that students were making progress in this complex learning outcome across the curriculum and throughout the program year.

The importance of Cultural Understanding in the Global Scholars program can be traced in the data related to two indicators. **26-CU Positive attitude towards other cultures** is central to the Global Scholars program design and the most prevalent Cultural Understanding indicator. **19-CU Understanding of one's culture (behaviors, identity, beliefs)** provides insight into how students learn—that understanding of one's own culture is the foundation for appreciating others, and that Cultural Understanding develops in tandem with Appreciation for Diversity.

The data show high prevalence of **26-CU Positive attitude towards other cultures**, which was coded in 12 percent of our sample, or 141 posts and replies. This is a fundamental

²³ Tiven et al. (2018). *Evaluating Global Digital Education*, 55.

²⁴ In-text citations refer to archived Internal Report, Harvard Graduate School of Education's Out of Eden Learn (OOEL), May 27, 2021.

²⁵ Cultural Understanding has the fewest indicators of the four global learning outcomes. The nine Cultural Understanding indicators were coded a total of 744 times (an average of 83 times per indicator). By comparison, the 17 Appreciation for Diversity indicators were coded a total of 1,177 times (an average of 69 times per indicator).

attitude of Cultural Understanding, and its prevalence suggests that the Global Scholars curriculum design is working. Through direct communication with international peers in discussion boards, students are learning not just to tolerate cultural differences, but to appreciate them.

Consider this post from a student in Taipei, reacting to a Unit 3 project called “My Local Waterway” shared by their counterparts in Medford, Massachusetts. The Medford students studied the Mystic River and Boston Harbor and identified sources of pollution, presented potential solutions, and highlighted the role of these bodies of water in local culture. In their response, the Taipei student demonstrates the enthusiasm generated by this glimpse of another city and culture:



Taipei.Student

“Dear friends, I think your video is really good and your commentary is also very good. I think you can try to pick up organize a acitivity to pick the trash in your river, and if other people see you doing this, they might join you. there is also this problem in my city. So we have a sewage treatment plant. Is there a sewage treatment plant in your city? Sincerely, Max”

OOEL coded this reply for **26-CU** because the Taipei student expressed a positive attitude in response to facets of culture that the Medford students shared.

It is not surprising that this demonstration of Cultural Understanding emerged during the final project for this unit, as it reflects the larger pattern for all nine Cultural Understanding indicators. Collectively, they were most prevalent in the final discussion board of each of the five curriculum units, in which students present, discuss, and provide feedback on digital projects that synthesize their learning from that unit and apply their insights to their local contexts. OOEL noted that these assignments emphasize the engineering design process of brainstorming, planning, creating, testing, revising, and sharing, which Global Scholars teaches as a thinking routine that can be applied to any global problem. OOEL suggested that the design process promotes the type

of deep thinking that allows students to demonstrate Cultural Understanding (p. 318).

The indicator **19-CU** *Understanding of one’s culture (behaviors, identity, beliefs)* provides equally important lessons about how students learn Cultural Understanding. Despite its comparatively lower prevalence (coded in 4 percent of the sample, or 52 posts and replies), the patterns in the data suggest its critical role in learning this outcome. Posts exhibiting **19-CU** were most frequently found early in the year, during the Unit 2 assignment “Water in My Culture,” in which students began their exploration of global water issues by reflecting on the role water plays in their own lives and traditions. They were encouraged to consider the different groups to which each of them belongs, each of which has a unique culture—that of their families, cities, countries, and many more—and how these different cultures may influence their ideas and experiences.

This prevalence near the outset of the Global Scholars program reflects a core principle of our curriculum design: starting with reflecting on personal experiences builds foundational knowledge that helps students understand the cultures of others. OOEL highlighted this important connection: “Portions of the curriculum that specifically invited students to share aspects of their own culture and look closely at these aspects of other students also seemed to promote a positive attitude towards other cultures” (p. 222).

The Global Scholars curriculum utilizes peer exchange to promote this connection. Each time students reflect on their own cultures they are then asked to read and reply to peers’ posts, where they learn about cultural similarities and differences worldwide. For example, in this post, a New York City student described a water-related tradition of personal importance, in this case from their religion:



NYC.Student

“In my religion, we mainly use water for baptisms... The water is there because when it is poured on the baby, it shows he or she has washed away all of their sins. In my cousin’s church there is holy water that is placed all around the church and you can wet your finger in there and make the sign of the cross on your forehead.”

This post was coded for **19-CU** because it not only identified a tradition, meeting the threshold for awareness, but it also explained the meaning of a ritual in that tradition, meeting the threshold for understanding. Other students reading such posts gained a unique and engaging source of cultural information.

Importantly, demonstrations of **19-CU** were not limited to Units 1 and 2, when the assignments were focused on the personal and the local. The prevalence pattern for **19-CU** shows that students were able to continue making connections to their own cultures in Unit 4, when the curriculum lens widens to their city and then to the global level.

In Unit 3, after learning from peers' research on a floating contraption called "Mr. Trash Wheel" that removes garbage from a Baltimore city waterway, a Jacksonville, Florida, student reflected not only on the technological innovation, but also on the importance of clean water to the city's vibrant culture and economy:



Jacksonville.Student

"I think Mr. Trash wheel would help our wastewater in Jacksonville. It could really help clean the St. Johns river. (A major body of water in our city) I've seen pictures online of people with green roofs, which is basically gardens on peoples roof. We also have wastewater treatment plants. These reflect Jacksonville's culture and geography because Jacksonville's water is very important to our society. We have lots of bridges, seafood, a naval base, a cargo port, and a lot of citizens who need clean drinking water. So having clean non-polluted water is important."

This post was coded for **19-CU** *Understanding of one's culture (behavior, identity, beliefs)* because the student indicated that their own waterway was unclean and could benefit from a similar cleaning process, while also noting that water is very important to their city. This is a nuanced view of local culture.

OOEL observed that **19-CU** spiked in this Unit 3 "City Solutions" assignment, in which students learned about ways to improve city water systems and debated which would work best based on local culture and geography. It spiked again in the globally focused Unit 4 assignment, "A Changing Planet," where students researched news articles to understand how climate change impacts cities and brainstormed actions to reduce their carbon footprints. These spikes in the data show that students continued to make thoughtful connections to their own cultures even while investigating complex issues of pollution and climate change.

Outcomes in Tandem: Cultural Understanding and Appreciation for Diversity

In addition to tracing the prevalence pattern for **19-CU** *Understanding of one's culture (behaviors, identity, beliefs)*, OOEL compared it to the related Appreciation for Diversity indicator **2-AD** *Awareness of one's culture (behaviors, identity, beliefs)* and found important similarities. This pair of indicators addresses the same concepts about behaviors, identity, and beliefs, but at the higher level of understanding for Cultural Understanding versus the lower level of awareness for Appreciation for Diversity. They were frequently found in the same posts, reflecting a larger pattern for these two outcomes.

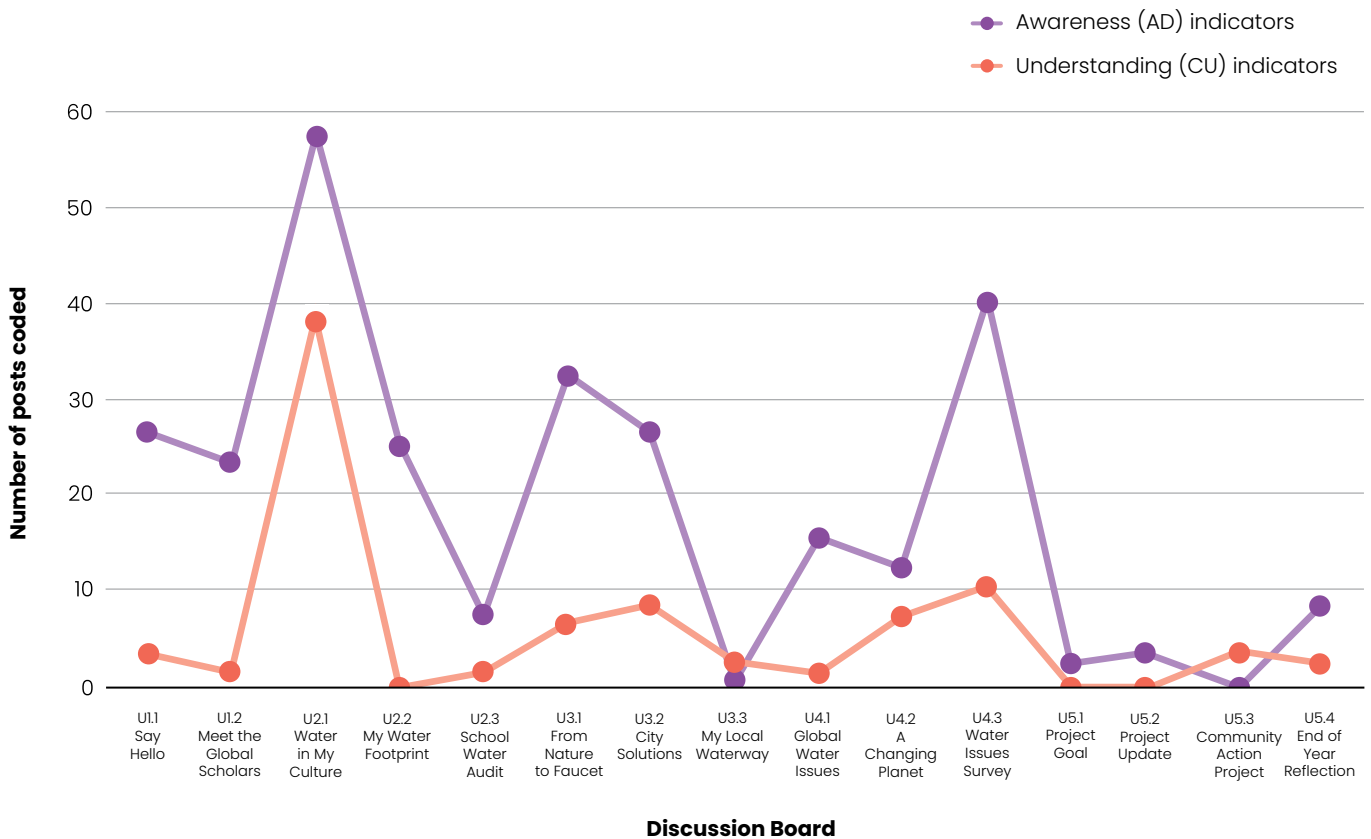
OOEL wrote,

More posts were coded for awareness (**1-AD** to **4-AD**) than for understanding (**18-CU** to **21-CU**), as expected, since understanding is the more challenging type of indicator to achieve. Further, the paired indicators were often found to be present in the same discussion boards, suggesting that the curriculum design led to some students demonstrating awareness, while other students were able to demonstrate understanding (p. 228).

As the chart below illustrates, both awareness and understanding were most prevalent in the Unit 2 discussion board “Water in My Culture.” This was also the location of the most frequent demonstrations of **19-CU** *Understanding of one’s culture (behaviors, identity, beliefs)*, such as the baptism example from the student in New York City. This prevalence shows that students

are developing foundational knowledge from early in the year. Awareness and understanding continued to move in parallel as the program progressed, suggesting a close connection between these outcomes and demonstrating that students are building the foundational awareness that can lead to more complex understanding.

Awareness and Understanding Across the Program Year



NOTE: Comparison of the prevalence of posts coded for “awareness” (Appreciation for Diversity) and posts coded for “understanding” (Cultural Understanding). Includes 221 posts coded for knowledge indicators **1-AD, 2-AD, 3-AD, 4-AD** and 64 posts coded for knowledge indicators **18-CU, 19-CU, 20-CU, 21-CU**.

CONCLUSIONS

1 What Students Learned

2 How Students Learn

3 Why Students Are Learning

1. What Students Learned

Global Cities and Harvard Graduate School of Education’s Out of Eden Learn (OOEL) developed a successful methodology to measure student global learning in discussion boards, and it showed that Global Scholars students were learning global competency.

By creating and applying coding instructions for 55 empirical indicators of global competency, we found evidence of student learning across four global learning outcomes: Global Engagement, Appreciation for Diversity, Global Knowledge, and Cultural Understanding. OOEL’s analysis of this data determined what aspects of global competency were demonstrated most frequently and identified the stages in the curriculum when students were showing evidence of this development.

Global Engagement:

Students were interested in global issues and recognized that they can change the world.

Global Engagement was the most prevalent of the four global learning outcomes, and the indicator **43-GE Interest in global issues** was the most prevalent of all 55 empirical indicators of global learning. Two attitudes closely associated with student agency—an aspect of

our general learning outcome Self-Efficacy—also appeared with frequency at multiple points in the year: **45-GE Recognition of one’s capacity to advocate for and contribute to local, regional, or global improvement** and **47-GE Willingness to take action to address global issues**. They were often found in the same posts, demonstrating that students recognized they can make a difference and were willing to act on that understanding. This is especially important because research shows that Self-Efficacy is critical to all types of learning.²⁶ The Global Scholars curriculum, organized around a global problem with peer connections in discussion boards, sparked students’ interest and motivated them to learn and take action.

26 Tiven et al. (2018). *Evaluating Global Digital Education*, 80.

Appreciation for Diversity:

Students around the world showed they can interact with one another respectfully, inquisitively, and substantively.

We found high prevalence of three indicators related to constructive dialogue across differences: the skill **7-AD Ability to listen to others and discuss issues in a respectful and unbiased way**, the attitude **13-AD Willingness to interact with peers and adults of different backgrounds respectfully**, and the behavior **15-AD Interacting with people of different backgrounds positively and respectfully**. These indicators were prevalent from the start of the program and students displayed them consistently over the course of the year, demonstrating that they are not just learning in the abstract how to respectfully communicate with one another, but are applying these skills. OOEL observed, “This is likely due to the overarching structure of the program, which included explicit opportunities for students to react to the experiences and posts of their international peers and thus required them to listen to those peers. The entire premise of the program is founded on exchange” (p. 165).²⁷ The data suggest that frequent discussion board interactions and teacher guidance are helping students learn to communicate respectfully and to appreciate diversity.

Global Knowledge:

Students recognized the importance of learning about global issues when they engaged with peers worldwide.

OOEL pointed to the importance of direct peer connections in motivating student progress, noting the excitement generated by learning information from classmates their own age around the world. This excitement and knowledge development started right away; the indicator **27-GK Knowledge of local and world geography** appeared most frequently in the first units of the year. Students exchanged observations about their own lives and cities in the e-classrooms, including vivid descriptions of local geography that their global peers used to learn about world geography. This knowledge laid the foundation for students to understand larger global issues. Later in the year, as students examined the topic through a global lens and took action in their own communities, they

showed progress on two more sophisticated indicators, **28-GK Knowledge of global issues and their local impact** and **39-GK Recognition of the importance of global issues that affect us all**. This progression in learning, from simple knowledge to recognizing the importance of that knowledge, lays the groundwork for ongoing growth. Once students recognize the importance of learning about these issues, they may be more likely to seek opportunities to do so in the future.

Cultural Understanding:

Students learned to appreciate the cultures of others by first reflecting on their own cultures and exchanging views in discussion boards.

Cultural Understanding is an ambitious concept for teachers to teach and for students to learn. It is significant that coders found evidence of Cultural Understanding in every discussion board and found demonstrations of all nine Cultural Understanding indicators. The most prevalent Cultural Understanding indicator was **26-CU Positive attitude towards other cultures**, followed by the less frequent but foundational indicator **19-CU Understanding of one’s culture (behaviors, identity, beliefs)**. This is directly connected to the Global Scholars model, in which students first reflect on cultures to which they belong, and then read and reply to peers’ discussion board posts to learn about similarities and differences worldwide. This sequencing of peer exchange is intended to help students develop a positive outlook about unfamiliar places and perspectives, and the data suggest that it works. OOEL highlighted the importance of peer connections in Global Scholars: “Portions of the curriculum that specifically invited students to share aspects of their own culture and look closely at these aspects of other students’ cultures also seemed to promote a positive attitude towards other cultures” (p. 223).

²⁷ In-text citations refer to archived Internal Report, Harvard Graduate School of Education’s Out of Eden Learn (OOEL), May 27, 2021.

2. How Students Learn

The analysis showed relationships between learning outcomes and among empirical indicators, which provided insights into how students learn global competency.

The fact that critical indicators of different learning outcomes appeared so frequently in the same posts supports Global Cities' conceptualization of these outcomes as interrelated elements of global competency. By revealing which indicators appear together, and at what stage of the curriculum, the codebook enabled us to analyze discussion board data in a way that provides insights at a level not possible through traditional assessment methods. Our earlier student survey research revealed important information about what students were learning, particularly the growth of students who were initially less engaged. But it couldn't tell us how and why they were learning. Discussion board analysis adds another dimension to our understanding by providing a record of student ideas and actions in progress. This makes it possible to observe growth in knowledge, skills, attitudes, and behaviors, along with how the relationships among these areas of learning manifest themselves. The discussion board data on these connections affirms foundational elements of the program model.

Student curiosity about the topic and one another are mutually reinforcing.

The Global Scholars curriculum was designed with the expectation that students who communicate with peers worldwide about global issues would increase their interest in these issues and that, in turn, student interest in global issues would motivate further conversation. The discussion board data support this approach. OOEL observed that the skill indicator of Appreciation for Diversity **7-AD** *Ability to listen to others and discuss issues in a respectful and unbiased way* often appeared in the same posts and replies as the attitudinal indicator of Global Engagement **43-GE** *Interest in global issues*. In fact, half of the posts coded for **7-AD** were also coded for **43-GE**, or 148 out of 295 posts. OOEL suggested that the relationship between the location of these indicators of different learning outcomes occurs as a result of two

key program elements: direct peer connections and the curriculum topic of solving a global problem.

OOEL noted,


Most likely, these two broad aspects of the Global Scholars curriculum were mutually reinforcing... pointing to the overall power of global digital exchange—especially when combined with a student-centered and project-based learning curricular approach (p. 284).

This pattern and prevalence of data is a critical piece of evidence in documenting the power of curriculum-guided digital exchange to drive interest in global issues and develop student skill in respectful communication.

Appreciation for Diversity and Cultural Understanding are interrelated.

In developing our student learning outcomes and indicators, we expected that there would be a strong relationship between learning Appreciation for Diversity and learning Cultural Understanding. In articulating indicators for these outcomes, Global Cities created four pairs of knowledge indicators that addressed the same concepts, but at different levels of achievement: the simpler "awareness" for Appreciation for Diversity (**1-AD** to **4-AD**) and the more complex "understanding" for Cultural Understanding (**18-CU** to **21-CU**). The analysis showed that these pairs often appeared in the same discussion boards at different levels of prevalence.

For example, a relatively low-prevalence indicator of Cultural Understanding, **19-CU** *Understanding of one's culture (behaviors, identity, beliefs)*, frequently appeared in the same discussion boards as a higher-prevalence indicator of Appreciation for Diversity, **2-AD** *Awareness of one's culture (behaviors, identity, beliefs)*. This pattern



provides empirical evidence of the important relationship across outcomes and of how students are learning Cultural Understanding—that it develops in tandem with Appreciation for Diversity but is more difficult to achieve. Finding these paired indicators in the same discussion boards shows students are developing an awareness of diversity that, in the future, may lead to the more complex understanding of culture. The much higher prevalence of awareness indicators associated with Appreciation for Diversity shows that students are building toward aspects of Cultural Understanding that they have not yet reached. Such insights demonstrate the value of the codebook in identifying related indicators while making distinctions among them.

Positive student attitudes about taking action lead to positive behaviors.

Relationships among indicators within the same outcome also provided important lessons in how students learn global competency, notably the overlap of student attitudes and behavior related to taking action on a global issue. This is a central aspect of the outcome Global Engagement and a core goal of the Global Scholars curriculum. OOEL found that the attitudes **45-GE** *Recognition of one's capacity to advocate for and contribute to local, regional, or global improvement* and **47-GE** *Willingness to take action to address global issues* often appeared together in the same posts: 66

out of a possible 123. They appear with frequency for the first time in Unit 2, when students examine the global problem as it impacts them as individuals. This tracks the progression of our curriculum, which was designed so that students build positive attitudes by first observing a global problem, then practicing the skills and understanding that can prepare them to take action, and finally tackling the problem hands-on. The data indicate that this is what happened—with the guidance of their teachers and the Global Scholars curriculum, students translated their attitudes about solving a global problem into the behavior of working on a solution.

During the culminating community action project in Unit 5, which gave students the rare chance to carry out their own plan to improve the world, the data show that in addition to recognizing they could make a difference and showing they were willing to do so (**45-GE** and **47-GE**), students also demonstrated the behavior **55-GE** *Working to contribute to local, regional, or global improvement*. Notably, 81 percent of the posts coded for **55-GE** appeared during this unit. The overlap of these three indicators during this culminating project shows that as students developed, discussed, and implemented their plans to make a difference, they were simultaneously demonstrating agency and a willingness to tackle global issues. The curriculum is designed to develop these competencies and provide opportunities to practice them in sequence. And the data show that it is working. It is the prior learning from the first four units that equips students to succeed in the community action project.

3. Why Students Are Learning

The research shows that the Global Scholars digital exchange model successfully teaches global competency, and points to the program elements that appear to drive student learning.

First, the structure of the e-classroom itself plays an important role.

Global Scholars e-classrooms are constructed so that students communicate with classmates in a geographically diverse group of 8 to 10 cities. Connecting the local to the global is an important element of the curriculum. Students start by observing the global problem they are studying in their own schools and neighborhoods, collaborating with local classmates to conduct research and develop solutions. Then, peer exchange provides a global perspective—students are interested to hear what classmates around the world are observing and ask questions to find out more. The process of posting and replying about shared assignments is a continuously engaging experience.



Nur-Sultan.Student

“Hi Lafayette, I am very intrested in your topic and I have some questions for you. Where is the whale watching happens at a specific date or it happens at any time? I got excited about duck cars, I want to learn more about this strange car, can you explain how it can drive on land and on water at the same time? Your friend Akram”

Examples of positive and respectful posts show the sheer curiosity and joy that students experience as they communicate with peers worldwide. These discussion board posts and replies provide students a new primary source for learning about places and cultures around the world.

Our e-classroom design has additional benefits for both students and teachers. OOEL highlighted the asynchronous nature of discussion boards as an advantage, because it provides teachers the opportunity for oversight and gives students time to reflect and respond. OOEL noted, “The fact that the discussion boards were asynchronous allowed the students more space to consider how they wanted to engage with peers and also allowed them opportunities to reflect on and consolidate their learning (Hull & Stornaiuolo, 2014; Kreikemeier & James, 2018)” (p. 221). We also ensure that the discussion boards are a safe and constructive learning environment by making respectful communication an explicit focus of the curriculum, supporting teachers to guide student communication, and dedicating Global Cities staff to closely monitor the e-classrooms throughout the program year.

Second, the activities in the Global Scholars curriculum are focused on a single global problem, giving students something to talk about that they all have in common.

For example, students gain a hands-on understanding of the complicated question of their water footprint when they conduct a school water audit and compare the results with peers in cities worldwide. They discover similarities and differences in the challenges their cities face and the resources available to address them. This is exciting for students ages 10 to 13—and they engage deeply with these challenging topics. Middle-schoolers don't often get asked their opinions about global problems, much less have the chance to make a difference, yet these young adolescents are full of ideas and the energy to grapple with them.

Third, and most importantly, it takes trained teachers to make this approach successful.

Through live professional development, Global Scholars educators learn to teach complex content and to guide and supervise communication on the digital platform. These highly interactive sessions also provide direct peer connections for teachers, who learn from one another about the practices that work in their classrooms and share information about the learning they are observing. Professional development is clearly important in preparing them to guide student exploration of global issues that are challenging to teach. OOEL noted, "Global Cities offers an invaluable means for middle school teachers to navigate this complicated terrain" (p. 32). This observation aligns with the results of [our student survey research](#), which found that students whose teachers attended all five Global Scholars professional development sessions reported more growth in their confidence in communicating global knowledge compared to students whose teachers participated in fewer sessions. Just as students are learning to research and address any global problem, teachers are learning the skills needed to bring any real-world issue into their classrooms.

Looking Ahead

Educators and policymakers must promote the power of global digital exchange and the promise of teaching global competency.

Getting students ages 10 to 13 to want to learn about complex global problems, and to want to change the world, is a significant achievement. Throughout the Global Scholars learning journey, our analysis showed that respectful communication with peers reinforced student interest in global issues, leading them to recognize the importance of learning about these issues and their own ability to change the world. Direct peer connections provide the cornerstone for our model's key elements: a project-based curriculum linked to specific learning outcomes, authentic assignments grounded in firsthand observation, and the digital environment for practicing communication skills. The e-classroom and discussion boards are a thriving space in which these positive outcomes occurred.

Why are these findings significant for addressing the challenges of today's world? Given the global nature of our current political and environmental challenges, as well as the interconnectedness of the world's economies, it is more important than ever that students learn to interact with people from different countries and cultures and to appreciate differences. Students also need to learn to collaborate to address complex global issues. While there is general agreement that students should be learning to become globally competent adults, the outcomes associated with global competency have been considered difficult to define, teach, and measure.

By articulating the student learning outcomes that constitute global competency, demonstrating how these outcomes can be taught through asynchronous discussion board communication, and developing an innovative approach to evaluating progress, we have shown that this work is not only desirable but achievable. Our findings show how educators can teach global learning outcomes using a structured curriculum and direct peer connections and how students can demonstrate growth in global learning on a digital platform.

Based on continuous feedback from educators at every level, we have no doubt that curiosity about peers in different places around the world—and an international audience for student assignments—makes direct peer exchange the key to successful student and educator engagement. We urge education leaders and policymakers to prioritize direct peer connections to teach global competency and to make these opportunities accessible to all students. Discussion board technologies, which are both affordable and impactful, should be considered by both existing and newly developed global education programs. We invite our peers to use our [student learning outcomes and indicators](#), [codebook](#), and the [evaluation framework](#) to create and study the impact of new curricula and digital exchange program models.²⁸

28 To participate in demonstrations of our codebook for global student learning outcomes, contact [Global Cities, Inc.](#)



APPENDIX

Appendix

A: Sampling Methodology	E: Indicator Prevalence
B: Selected Posts and Replies, 2018–19	F: World of Water Curriculum, 2018–19
C: Sample Codebook Pages	G: Enrollment by Year
D: Indicators by Global Learning Outcome	H: Enrollment by City, 2018–19

A: Sampling Methodology

The total Global Scholars enrollment for 2018–19 was 15,698 students from 51 cities in 25 countries. They were organized into 51 e-classrooms, each composed of approximately 300 students from schools in 8 to 10 cities around the world. All e-classrooms were carefully constructed to be geographically diverse.

The unit of analysis for this study was posts and replies, not individual students. Global Cities and OOEL started to construct the research sample by selecting three of the 51 e-classrooms to study. One e-classroom was chosen based on its high level of discussion board activity. The other two were chosen because they included classes whose work had been the focus of previous data collection, including classroom observations and administering reflective assessments for students.

The next level of sample selection was posts and replies. It is important to note that posts and replies vary in terms of the number of students actually responsible for constructing the message. In some cases, Global Scholars assignments guide students to post and reply independently. In other cases, students complete their work in pairs, groups, or as a whole class with a single ambassador posting on their behalf. Students are instructed to sign their posts with all contributors; however, they do not always do this.

The sample included only the text of the posts and replies and did not incorporate multimedia, which could be a single embedded photograph or a fully developed project. These student digital projects are currently the subject of separate Global Cities analysis.

A total of 1,167 posts and replies were chosen, written by students from 17 cities in 12 countries.²⁹ To ensure the data reflected the program as a whole, OOEL used four criteria to construct the sample. Overall, the full group of posts needed to originate from every assignment, occur at varied times during the assignment, represent every school in the e-classroom, and include posts that did and did not receive replies. Where a post received more than one reply, each reply counted as a separate unit. Replies that were brief, trivial, or copied from other students were excluded.

This sample size was large enough to capture significant statistical variation, but small enough to allow for in-depth analysis. Each of the 1,167 posts and replies was reviewed to determine whether it could be coded for one or more indicators by following the instructions in the codebook. There were many instances in which multiple indicators were found in a single post. In this study, we did not control for the other factors that may have influenced student learning.

29 All data are from archived Internal Report, Harvard Graduate School of Education's Out of Eden Learn (OOEL), May 27, 2021.

B: Selected Posts and Replies, 2018–19

City Solutions



Nur-Sultan.Student

Dear, peers!

The solution we think is most helpful for our city is telling people to economize, save water and don't waste water, because most people in our city don't worry about consequence.

Some solutions that are already used in our city are smart water and clean dirty water to clean water.

The solutions reflect our local culture and geography because people are different, we have different cultures. Some people economize water, some people don't.

Sincerely,
Amirkhan.



NYC.Student 1

Dear Amirkhan,

We chose the same solution (Telling people to save water and not waste water and to use storm water for different things) because people like to litter and don't realize the damage they have created.

Geography and culture did influence the solution we choose because in New York there is a lot of garbage and trash and we need to save water because we may soon run out. A question we have about the solution you shared is how can your city do better?

This waterway is interesting because our Hudson River is polluted and we want to find a way to fix it but we have no progress :(

Sincerely,
Nate and Josh



NYC.Student 2

Dear Amirkhan,

We chose a different solution because our city will not be affected by just telling people what to do. Geography and culture did not influence the solution because people will not listen.

A question we have about the solution is why would people listen and not do something else?

Sincerely,
Ashveer



Nur-Sultan.Student

in reply to NYC.Student 1

Dear Nathaniel, Thank you for the question! I think we can do better if we will make fines for wasting water. I think it is a good idea and people would not waste water. If they waste water, fines will be more expensive. I think there would be progress if we did that. Thank you Nate and Josh for the question.



Nur-Sultan.Student

in reply to NYC.Student 2

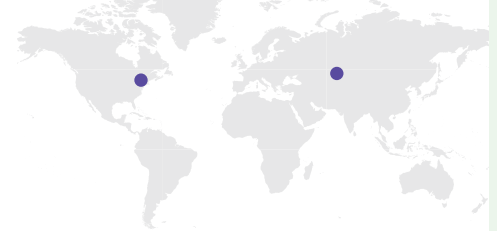
Dear Ashveer. Thank you for the question! I think people don't care about impact or they are lazy. I think a person thinks that if he waste water, it will not be bad, because he thinks that there is a lot of water and he will not affect the amount of water. And many people think so. That's why water is wasting fast. Thank you Ashveer for your question.

“We need to save water because we may soon run out.”

Students from Nur-Sultan and New York City reflect on solutions to the problems of litter and water waste. They come to two important realizations: these problems exist elsewhere, and their peers are similarly concerned.

NUR-SULTAN, KAZAKHSTAN

NEW YORK CITY, NY, U.S.



Water in My Culture



Buffalo.Student
Water Celebration in Buffalo NY

Hi Global Scholars,

I would like to tell you about a water celebration in Buffalo, it is an annual water festival which means it happens every year.

People participate by eating food and doing many water games.

One fact you may find interesting is that it started out small in someone's backyard but people were interested and through out the years it got bigger and more popular so now it takes place on the West Side of Buffalo.

Your friend,
Jerikah



Madrid.Student

Dear, Jerikah

Thank you for telling me about a water celebration in Buffalo.

I think what you shared is interesting because I think that is important learn celebrations of other cultures.

A question I have for you is, what is you favourite part of this celebration?

Your friend,
Tania.



Buffalo.Student

Dear Tania,

Im glad you enjoyed the information. I agree that it's important to know other peoples celebrations from around the world. I enjoy the food and water balloon fights. Thank you for replying and I am wondering what are some of your favorite festivals or celebrations in your community?

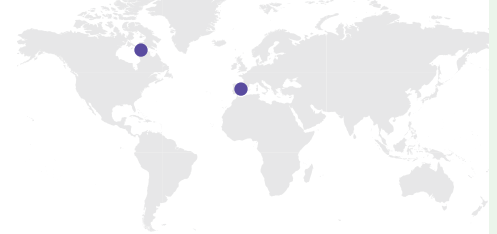
Your friend,
Jerikah

“It’s important to know other peoples celebrations from around the world.”

Students in Buffalo and Madrid appreciate diversity as they exchange observations about water festivals in their cities. They provide their international peers with primary texts that spark curiosity about life in cities around the world.

BUFFALO, NY, U.S.

MADRID, SPAIN



From Nature to Faucet



Hawaii.Student
From Nature to Faucet

Dear peers,

I learned about Waikoloa's water system by researching about how my city uses water and the challenges of Waikoloa's water systems.

Waikoloa accesses its water from wells that pump water from an underground aquifer.

I was surprised to learn that Waikoloa doesn't recycle water for potable use because we recycle used water for irrigation uses for the resorts and golf courses. At our water treatment plan, only one step is missing to change used water to potable water.

I can help my local water supply stay safe and clean by picking up trash around my city so trash and garbage doesn't get into Waikoloa's water source.

Sincerely,
Caitlyn



Warsaw.Student
Dear Caitlynn

Thank you for teaching me about the water system in Waikoloa

The water system in my city is similar because my city also has access to groundwater

However, our systems are different because we get water mostly from Vistula and not from the well

I think geography affects our water system because The Vistula flows through Warsaw and we take water from it.

Do you know what is the river near your place of residence?

Something I learned from your post that I can use in my city is that wasted water can be used again

Sincerely,
Julka



Hawaii.Student
Dear Julia,

Thank you for your question! In Waikoloa we don't have any rivers near the residences. However, we do have a river in Waipio Valley but not many people use it as a water source because the valley is so steep to get into. The people that live there use water for their daily use, but mostly to grow Taro. One question I have for you is, is your river, Vistula, your only water source in Warsaw?

Sincerely,
Caitlyn

"I can help my local water supply stay safe and clean."

Students from Warsaw and Hawaii describe how the geography of their cities impacts their access to water. They find that both cities missed opportunities to recycle water.

HAWAII, U.S.

WARSAW, POLAND



A Changing Planet



Taipei.Student
A Changing Planet

Dear Peers,

We analyzed the news article like “Coral Bleaching”, “Greenhouse Effect” and “Impact of Climate Change” in Liberty Times or by Dai Changfeng.

The articles taught us that climate change impact our city by sea level rises and global temperature rise.

Another impact of climate change in our city that we have observe is the temperature of the sea rises and causes the coral bleaching. In the other hand, the power of typhoons have increased year by year, and it caused the economic losses.

Some ideas we have are we can ride bikes or take public transportation to school or to work, set the temperature of the air conditioners at 28 degrees, and don't create too much trash.

Sincerely,
Sean



Jacksonville.Student 1

Hey I learned alot about your post but I mainly noticed your city has sea rises which also causes lots of horrible things to happen with sea life and plants such as coral bleaching and also economic losses. Which by the way sea rising is also in our city and also affects sea life. I also think that if I survey people about these problems in our cities people will get really concerned about this. I very much hope that I learn people in our cities will do something about this stuff.



Jacksonville.Student 2

Thanks for posting! Climate change impacts our cities in similar ways. We both have rising sea levels and temperature, which can destroy many ecosystems. However, I never thought about how typhoons hurt the environment. Florida is famous for its yearly hurricanes, but I never realized that it has the ability to harm my water security. On the contrary, I believe that many people would be concerned about the effects of climate change. Climate change has a huge impact on the environment, so it's only normal to be concerned about it.



Taipei.Student
Dear Kylie,

Thanks for your reply! But what I mean about typhoons is that the power of typhoons is a phenomenon of climate change we have observed. The power increasing of typhoons means the climate of the Earth is getting more and more extreme. On the other hand, the scouring of the typhoon will also harm our water security, too.

“I believe that many people would be concerned about the effects of climate change.”

Students from Taipei and Jacksonville share how climate change impacts their cities. They learn that global problems are borderless and require global cooperation.

TAIPEI, TAIWAN

JACKSONVILLE, FL, U.S.



C: Sample Codebook Pages

Appreciation for Diversity

Cultural Understanding

Global Knowledge

Global Engagement

INDICATOR	DEFINITION	DEVELOPMENTAL COMPETENCY AREA
15-AD	Interacting with people of different backgrounds positively and respectfully	Behavior

CODING INSTRUCTIONS

Responding in respectful and positive ways to peers from different places. This should be applied only where there is an interaction between students on the discussion board or when a student mentions having an interaction with someone else outside of the discussion board. An interaction on the discussion boards would be either a reply to a post or a post that references another post/reply. The content of the response may focus on differences (which would also demonstrate 12-AD Responding to differences with openness and positivity, not fear) or on commonalities (e.g., shared interests or experiences). This may include encouragement in response to other students' posts as well as signing off posts with "your friend/s" or other similarly positive sign-offs. Note that identifying something as "interesting" counts as positivity. Be alert to and consider stylistic choices (e.g., all caps, emoticons, exclamation points, etc.) in addition to positive and respectful content. Use a broad definition of positivity to be sensitive to cultural differences in how people express positivity. However, positivity does not include very basic politeness like simply saying thank you.

EXAMPLE(S) OBSERVED IN DISCUSSION BOARD

✓✓✓ Strong ✓✓ Average ✓ Minimum

✓✓✓ Hello Mariam R., Lucas, and Manuel!! I liked your post about Aranjuez's water system! My question for you guys is, "What else importantly can you do to help your local water supply in your city?" Good job on your post! I hope to hear from you guys again!! ~Kayla :))) (Medford - From Nature to Faucet - GC Thread ID 39355652 - Post 509)

✓✓ I really appreciated the PPT you did together. Really clearly showed some interesting facts I don't know, how the water is leaking and how to repair it, most importantly how to conserve it. I would like to share a documentary I think worth watching: cowspiracy the sustainability secret It shows how stock farming impacts the environment. But maybe a few facts in it may be exaggerated. (Taipei - GC Thread ID 39021773 - Post 356)

✓ nice. what kind of food do you have in you country? (Jacksonville - GC Thread ID 37951833 - Post 7)

Appreciation for Diversity	Cultural Understanding	Global Knowledge	Global Engagement
INDICATOR	DEFINITION	DEVELOPMENTAL COMPETENCY AREA	
26-CU	Positive attitude towards other cultures	Attitudinal	

CODING INSTRUCTIONS

Expressing positive attitudes towards other cultures at any point (including in an initial discussion board post or in responding to the post of another student). This includes a positive, warm or interested response to another student sharing facets of their culture. It does not include giving a warm, positive or interested response to a student's post that is not related to culture (e.g., physical characteristics of a city or an individual student's personal interest). Making a positive general comment about another city would be coded here.

EXAMPLE(S) OBSERVED IN DISCUSSION BOARD ✓✓✓ Strong ✓✓ Average ✓ Minimum

- ✓✓✓ Dear Buenos Aires, I truly love all the amazing gardens you have around your school and city. We don't have any gardens outside of our school, so it was really cool to see all the plants, fruits and vegetables you grow. You truly are the "Escuela de naturaleza" the school of nature. I also love the amazing art and murals you have around your school. You have many talented artists! I love the buildings you showed us that are around your city, they are so colorful. You will not find a building like that around our city. Overall, I think you have a truly amazing city and school! -Bella (Medford - GC Thread ID 38538533 - Post 155, also an example for 12-AD and 42-GE)
- ✓✓ Hi fellow peers, I really enjoyed your video mostly because you showed lots of pictures of historical monuments around you and also shared lots of information about them and I learned a lot about them. I learned that your school was founded in 1994 and was named after a saint. I also learned that your city is the city capital of your country and that you are surrounded by lots of historical monuments. One thing I found similar about each other is that we also have lots of beautiful things in our city like our parks and beaches. One thing i found unfamiliar is that they have lots of other rooms and other stuff in their schools like swimming pools, and other unfamiliar rooms. **I would like to learn more about your traditions and beliefs, about your city,** and about other monuments you might have. Thank you for the video. From, Juliette in Miami. (Miami - GC Thread ID 38435287 - Post 132)
- ✓ Hello Pedro I am Eduardo and your city is very nice, and i have tried Fortnite once (Everett - GC Thread ID 38015245 - Post 28)

Appreciation for Diversity

Cultural Understanding

Global Knowledge

Global Engagement

INDICATOR	DEFINITION	DEVELOPMENTAL COMPETENCY AREA
27-GK	Knowledge of local and world geography	Knowledge

CODING INSTRUCTIONS

Sharing facts and information about and/or showing one's understanding of local and world geography; naming new learning about local and world geography. Note that geography only includes natural, physical features (lakes, rivers, islands, etc.) and national/international geography (states, capitals, borders, etc.); it does not include local infrastructure or cultural markers. Code geographic facts even if they do not show an awareness of student's relative place (e.g., "We get our water from the Wanaque Reservoir").

EXAMPLE(S) OBSERVED IN DISCUSSION BOARD

✓✓✓ Strong ✓✓ Average ✓ Minimum

✓✓✓ Hi! Your information is very interesting! And now I want to tell you about my local waterway. My local waterway is river Ishim. The river originates in the low mountain massif Niyaz of the Kazakh Upland and flows for 775 km to the north-west. The river freezes in early November, opens in April - May. In the summer, you can swim on ishim, and when it freezes in winter, you can skate. The cities of Astana, Esil, Derzhavinsk, Sergeevka and Petropavlovsk are located on the territory of Kazakhstan on Ishim, and the city of Ishim is on the territory of Russia. That's all. Thank you! Goodbye! (Astana (Nur-Sultan) - GC Thread ID 39832502 - Post 633)

✓✓ Hi Laura! My name is Isabella and I was wondering, how close are you to the Zhuoshui River? I live in Coconut Creek, FL and although we don't have many popular rivers, we have a swamp called the Everglades where many of Florida's alligators live. (Broward - GC Thread ID 37953010 - Post 11)

✓ Dear Jacob, The solution we thought helping with community clean ups were the best solution because it helps our community be clean and we basically clean up objects that can affect our healthy environment. **The geography and culture influenced our decision because many lakes in our city are being trashed and polluted which can affect our drinking water supply.** A question we have about your solution is where specifically on the rooftop did you plant your plants an what plants are you using. The reason we throw trash in the trash can in our city because if we don't do it, we can be fined or arrested. Sincerely David V. (Broward - World of Water - GC Thread ID 39535611 - Post 536)

Appreciation for Diversity		Cultural Understanding	Global Knowledge	Global Engagement
INDICATOR	DEFINITION	DEVELOPMENTAL COMPETENCY AREA		
43-GE	Interest in global issues	Attitudinal		

CODING INSTRUCTIONS

Expressing curiosity and wanting to know more about global issues. This includes asking questions related to a global issue, even if they appear technical (e.g., “A question we have for your group is: how do the subway trains work?” or “What types of faucets do you think will be water wise?”). If the student explicitly expresses interest or surprise about a global issue, then it should be coded (e.g., “I was amazed at how much electricity I used per day.”). Questions eliciting information about global issues are coded here, not in 49-GE Seeking opportunities to communicate with people in other cities and cultures, as well as one’s own. Positive replies that specifically refer to a global issue and convey enjoyment or positivity towards learning about that global issue are to be coded (e.g., “The amount of food you save is great!!!”). More general posts about the overarching global issue (e.g., water in the World of Water curriculum) — e.g., “tell me about water” — would be coded as 43-GE instead of 42-GE Interest in the larger world, particularly unfamiliar people and places because presumably they are interested in water supply or water cleanliness and do not just have a general interest in the water in their peer’s city. However, more general positive replies such as “good job” or “could you tell us more about your video” should not be coded here. Discussions of the importance of learning about global issues should be coded in 39-GK Recognition of the importance of learning about global issues that affect us all, not here.

EXAMPLE(S) OBSERVED IN DISCUSSION BOARD

✓✓✓ Strong ✓✓ Average ✓ Minimum

✓✓✓ I read an article by the title” NASA’s Greenland Mission Still Surprises in Year Four”, written by By Carol Rasmussen, of NASA’s Earth Science News Team **which showed me how climate change effects the earth such as melting glaciers and they can take away animal habitats and raising sea level. THAT is kind of scary! What if the sea level continues to rise!?!? Folks on the beach are going to have to move farther up, whole neighbor hoods destroyed, and LOTS OF DESTRUCTION TO THE ENVIORMENT!!!!** (Jacksonville - A Changing Planet - GC Thread ID 40525365 - Post 810)

✓✓ I really enjoyed that you had somethinggoing on in the background of some of your scenes like in the library. I’d bet that it stinks that you can’t drink tap water though. We also have a track and a school library at our school as well. **I would like to know why you aren’t able to drink tap water in Shanghai. Is it pollution or is something wrong with tap water in general?** From, Nate (Medford - GC Thread ID 38467263 - Post 148)

✓ Dear international peers, My name is Anthony, and I am a student in Shanghai, China. I like to learn about science related subjects, and I also like to play games. There are a lot of things that make my city special. Shanghai is the center of economy in China (and possibly the world). It is also the city second in size in terms of population in the whole world. There are a lot of extremely tall buildings in Shanghai such as the Shanghai World Financial Center and the Jin Mao tower. Transportation is also very advanced in Shanghai, Shanghai has the world’s busiest container port. I am not very sure about whether there are water problems in Shanghai. In comparison to Chinese cities in the north, water is not a problem in Shanghai, and everyone can use as much water as they want. **Can you tell me anything about your city and whether it has water problems?** Anthony (Shanghai - GC Thread ID 38171995 - Post 86)

D: Indicators by Global Learning Outcome

	Appreciation for Diversity	Cultural Understanding
Developmental Competency Area		
Knowledge Indicators	Awareness of how one's life and the lives of others are influenced by broader cultural and historical contexts 1-AD	Understanding how one's life and the lives of others are influenced by broader cultural and historical contexts 18-CU
	Awareness of one's culture (behaviors, identity, beliefs) 2-AD	Understanding of one's culture (behaviors, identity, beliefs) 19-CU
	Awareness of one's city and how it relates to other cities around the world 3-AD	Understanding of one's city and how it relates to other cities around the world 20-CU
	Awareness of different cultures within one's school, city, region, country and world 4-AD	Understanding of different cultures within one's school, city, region, country and world 21-CU
	Awareness of one's identity as a citizen of one's city 5-AD	Understanding that problems may be solved differently depending on cultural factors 22-CU
Skill Indicators	Ability to identify and critically reflect on stereotypes in thinking about others 6-AD	Ability to adapt language and content of writing to meet the needs of diverse audiences 23-CU
	Ability to listen to others and discuss issues in a respectful and unbiased way 7-AD	Ability to recognize different perspectives on specific global issues 24-CU
	Ability to ask questions when encountering different perspectives 8-AD	
	Ability to identify and critically reflect on bullying behavior online and in-person 9-AD	
Attitudinal Indicators	Positive attitude towards one's own culture 10-AD	Recognition of different perspectives as legitimate 25-CU
	Tolerance of differences 11-AD	Positive attitude towards other cultures 26-CU
	Responding to differences with openness and positivity, not fear 12-AD	
	Willingness to interact with peers and adults of different backgrounds respectfully 13-AD	
Behavioral Indicators	Willingness to work collaboratively with peers and adults of different backgrounds to achieve shared goals 14-AD	
	Interacting with people of different backgrounds positively and respectfully 15-AD	
	Working collaboratively with people of different backgrounds to achieve shared goals 16-AD	
	Intervening against intolerant behavior online and in-person 17-AD	



 A PROGRAM OF BLOOMBERG PHILANTHROPIES

Based on Tiven, M.B., Fuchs, E.R., Bazari, A. & MacQuarrie, A. (2018). *Evaluating Global Digital Education: Student Outcomes Framework*, New York, NY: Global Cities, Inc., a Program of Bloomberg Philanthropies.

	Global Knowledge	Global Engagement
Developmental Competency Area		
Knowledge Indicators	<p>Knowledge of local and world geography 27-GK</p> <p>Knowledge of global issues and their local impact 28-GK</p> <p>Knowledge of economics and politics and their impact 29-GK</p> <p>Knowledge of one’s city government and differences between city governments around the world 30-GK</p> <p>Understanding that global issues are borderless and affect everyone 31-GK</p> <p>Understanding that global issues are complex 32-GK</p> <p>Understanding that differences in access to information, technology, and resources affect quality of life and perspectives 33-GK</p> <p>Understanding that problems may be solved differently depending on socioeconomic status, natural resources, government policy and political differences 34-GK</p>	
Skill Indicators	<p>Ability to apply research skills (finding, selecting, and applying information from multiple sources) to global issues 35-GK</p> <p>Ability to find information about global issues using credible sources from around the world 36-GK</p> <p>Ability to synthesize different perspectives on the same topic to draw conclusions about global issues 37-GK</p>	<p>Ability to engage in inclusive problem solving 41-GE</p>
Attitudinal Indicators	<p>Recognition of the importance of learning about other cities and countries 38-GK</p> <p>Recognition of the importance of learning about global issues that affect us all 39-GK</p> <p>Recognition of the importance of analyzing multiple perspectives 40-GK</p>	<p>Interest in the larger world, particularly unfamiliar people and places 42-GE</p> <p>Interest in global issues 43-GE</p> <p>Recognition of the value of inclusive problem-solving 44-GE</p> <p>Recognition of one’s capacity to advocate for and contribute to local, regional, or global improvement 45-GE</p> <p>Appreciation of language learning as a means of communicating and collaborating with people around the world 46-GE</p> <p>Willingness to take action to address global issues 47-GE</p>
Behavioral Indicators	 <p>A PROGRAM OF BLOOMBERG PHILANTHROPIES</p>	<p>Using digital tools to learn from and communicate with students from cities around the world 48-GE</p> <p>Seeking opportunities to communicate with people in other cities and cultures, as well as one’s own 49-GE</p> <p>Seeking opportunities to interact and collaborate with people of different cultures and backgrounds 50-GE</p> <p>Gathering and interpreting information from people in one’s own city and culture 51-GE</p> <p>Gathering and interpreting information from people in other cities and cultures 52-GE</p> <p>Presenting information, formally and informally, to people in one’s own city and culture 53-GE</p> <p>Presenting information, formally and informally, to people in other cities and cultures 54-GE</p> <p>Working to contribute to local, regional, or global improvement 55-GE</p>

E: Indicator Prevalence

Rank	Outcome	Indicator	Count of Posts Coded	% of Sample Coded
1	GE	43-GE Interest in global issues	483	41%
2	AD	15-AD Interacting with people of different backgrounds positively and respectfully	459	39%
3	GE	45-GE Recognition of one's capacity to advocate for and contribute to local, regional, or global improvement	300	26%
4	AD	7-AD Ability to listen to others and discuss issues in a respectful and unbiased way	295	25%
5	GE	48-GE Using digital tools to learn from and communicate with students from cities around the world	227	19%
6	GK	27-GK Knowledge of local and world geography	194	17%
7	AD	13-AD Willingness to interact with peers and adults of different backgrounds respectfully	178	15%
8	GE	42-GE Interest in the larger world, particularly unfamiliar people and places	159	14%
9	AD	8-AD Ability to ask questions when encountering different perspectives	158	14%
10	CU	26-CU Positive attitude towards other cultures	141	12%
11	AD	2-AD Awareness of one's culture (behaviors, identity, beliefs)	140	12%
12	GK	28-GK Knowledge of global issues and their local impact	131	11%
13	GE	47-GE Willingness to take action to address global issues	123	11%
14	GK	39-GK Recognition of the importance of learning about global issues that affect us all	118	10%
15	AD	3-AD Awareness of one's city and how it relates to other cities around the world	109	9%
16	GE	55-GE Working to contribute to local, regional, or global improvement	100	9%
17	GE	44-GE Recognition of the value of inclusive problem-solving	99	8%
18	GK	35-GK Ability to apply research skills (finding, selecting, and applying information from multiple sources) to global issues	98	8%
19	GK	31-GK Understanding that global issues are borderless and affect everyone	96	8%
20	GE	54-GE Presenting information, formally and informally, to people in other cities and cultures	93	8%
21	AD	16-AD Working collaboratively with people of different backgrounds to achieve shared goals	90	8%

Rank	Outcome	Indicator	Count of Posts Coded	% of Sample Coded
22	AD	10-AD Positive attitude towards one's own culture	81	7%
23	AD	11-AD Tolerance of differences	79	7%
24	GE	51-GE Gathering and interpreting information from people in one's own city and culture	72	6%
25	AD	14-AD Willingness to work collaboratively with peers and adults of different backgrounds to achieve shared goals	61	5%
26	GK	32-GK Understanding that global issues are complex	60	5%
27	GE	53-GE Presenting information, formally and informally, to people in one's own city and culture	59	5%
28	CU	19-CU Understanding of one's culture (behaviors, identity, beliefs)	52	4%
29	CU	23-CU Ability to adapt language and content of writing to meet the needs of diverse audiences	46	4%
30	GK	29-GK Knowledge of economics and politics and their impact	45	4%
31	GK	34-GK Understanding that problems may be solved differently depending on socioeconomic status, natural resources, government policy and political differences	45	4%
32	CU	24-CU Ability to recognize different perspectives on specific global issues	37	3%
33	GE	41-GE Ability to engage in inclusive problem solving	37	3%
34	CU	22-CU Understanding that problems may be solved differently depending on cultural factors	34	3%
35	AD	5-AD Awareness of one's identity as a citizen of one's city	32	3%
36	AD	12-AD Responding to differences with openness and positivity, not fear	21	2%
37	AD	1-AD Awareness of how one's life and the lives of others are influenced by broader cultural and historical contexts	19	2%
38	GE	50-GE Seeking opportunities to interact and collaborate with people of different cultures and backgrounds	18	2%
39	GK	30-GK Knowledge of one's city government and differences between city governments around the world	17	1%
40	GK	33-GK Understanding that differences in access to information, technology, and resources affect quality of life and perspectives	15	1%
41	CU	18-CU Understanding how one's life and the lives of others are influenced by broader cultural and historical contexts	13	1%

Rank	Outcome	Indicator	Count of Posts Coded	% of Sample Coded
42	CU	20-CU Understanding of one's city and how it relates to other cities around the world	10	1%
43	AD	4-AD Awareness of different cultures within one's school, city, region, country and world	8	1%
44	CU	25-CU Recognition of different perspectives as legitimate	8	1%
45	CU	21-CU Understanding of different cultures within one's school, city, region, country and world	7	1%
46	GK	37-GK Ability to synthesize different perspectives on the same topic to draw conclusions about global issues	6	1%
47	GE	46-GE Appreciation of language learning as a means of communicating and collaborating with people around the world	6	1%
48	GK	38-GK Recognition of the importance of learning about other cities and countries	5	0%
49	GK	36-GK Ability to find information about global issues using credible sources from around the world	3	0%
50	GK	40-GK Recognition of the importance of analyzing multiple perspectives	2	0%
51	AD	9-AD Ability to identify and critically reflect on bullying behavior online and in-person	1	0%
52	GE	49-GE Seeking opportunities to communicate with people in other cities and cultures, as well as one's own	1	0%
53	AD	6-AD Ability to identify and critically reflect on stereotypes in thinking about others	0	0%
54	AD	17-AD Intervening against intolerant behavior online and in-person	0	0%
55	GE	52-GE Gathering and interpreting information from people in other cities and cultures	0	0%

All data are from archived Internal Report, Harvard Graduate School of Education's Out of Eden Learn (OOEL), May 27, 2021.

F: World of Water Curriculum, 2018–19



2018–19 Curriculum: World of Water

The 2018–19 Global Scholars curriculum explores the role of water in our lives, cities, and world. Students discover the importance of water to the unique culture, commerce, and daily life of their own cities and cities around the world. At the same time, students learn from one another as they investigate some of today's most pressing environmental issues: water pollution, the impact of climate change, and the challenge of providing equal access to clean, safe drinking water.

There are no fees to participate.
For more information, visit www.globalcities.org.



Unit 1: Introduction to Global Scholars

Students are oriented to Global Scholars and the e-classroom. They begin to develop the global and digital citizenship skills they will use throughout the year. They write their first discussion posts to meet their international peers and discuss favorite water-related activities. Each class creates a short video introducing their school, city, and what it means to be a Global Scholar.



Unit 2: Water Every Day

Students examine water through a personal lens to discover the essential role it plays in their daily lives, culture, and traditions. They learn the importance of water to individual and public health, and calculate their water footprints to evaluate the impact of individual choices. Students develop creative strategies to raise awareness of water use and promote conservation in their schools.



Unit 3: Water in Our Cities

Students investigate their city's water system—where water comes from, how it is processed, and the challenges of providing clean water. Students identify how local waterways contribute to the economy, transportation, and recreation in their cities, and compare innovations for improving water environments.



Unit 4: Water Connects Us

Students analyze the water cycle and identify how local actions impact the global environment. They learn about the effects of water contamination and discuss creative new technologies to counter these effects. They research how climate change is shaping water environments and assess potential impacts on city life and landscapes.



Unit 5: Community Action Project

Students reflect on what they have learned about water access, conservation, and pollution, and design a project that addresses one of these topics. Together with their classmates, they look to cities around the world for inspiration as they implement solutions within their communities.

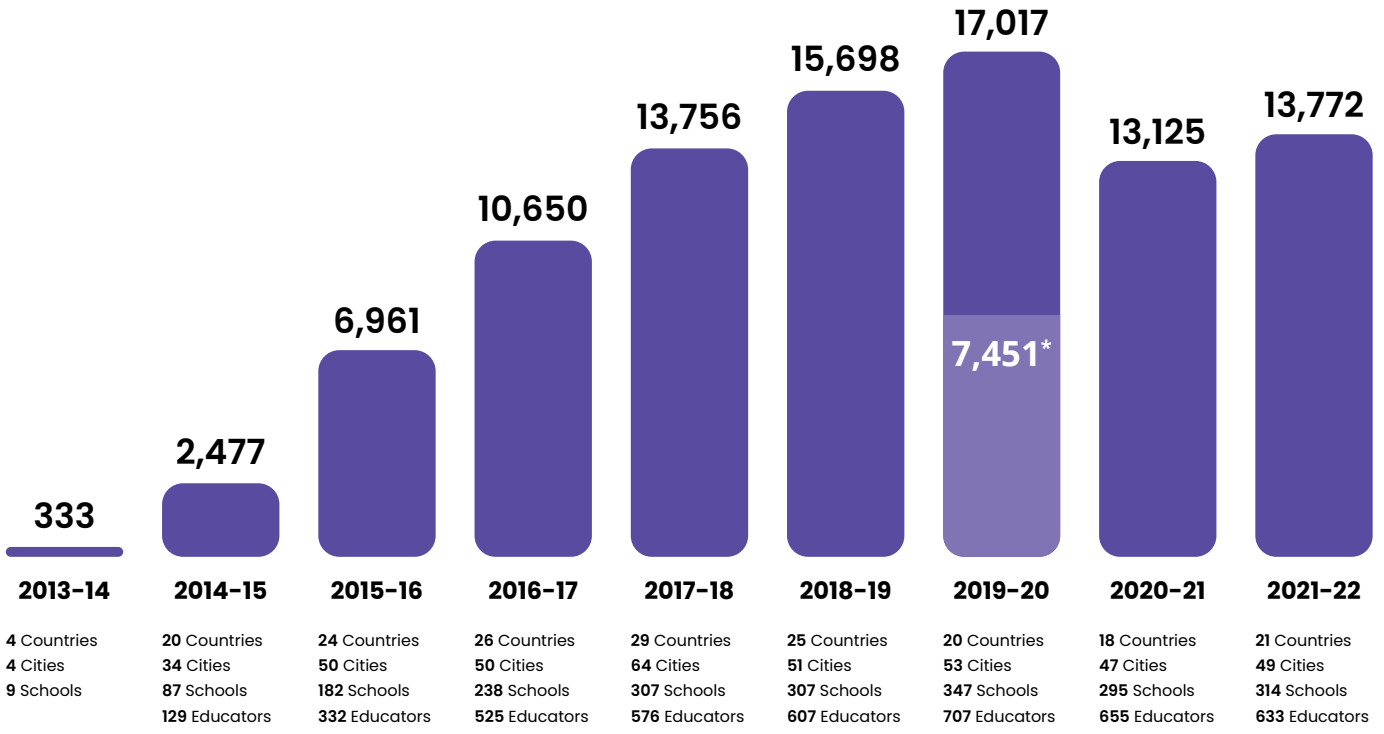
What Is Global Scholars?

Global Scholars is an international digital exchange program that connects students ages 10 to 13 in cities around the world. Guided by their teachers, students participate in a project-based curriculum and engage with international peers in an interactive e-classroom. Students broaden their perspectives by discovering common experiences and exploring issues through personal, local, and global lenses. They develop global competency skills needed in today's world, such as cultural understanding, appreciation for diversity, digital literacy, and critical thinking.

Global Cities, Inc. provides the curriculum, access to the password-protected e-classroom, and year-long professional development. The program is conducted in English, and students with a variety of English-language fluency levels can successfully participate. **Schools** provide at least one computer or tablet with a reliable internet connection for every two students, two hours per week for program activities, and an enthusiastic educator to lead activities and participate in required professional development. There are no fees to participate.

G: Enrollment by Year

CUMULATIVELY
93,789



Enrollment Data as of January 6, 2022

* Post-pandemic student return as of May 29–June 26, 2020.

H: Enrollment by City, 2018–19

15,698
ENROLLED STUDENTS

307
SCHOOLS

51
CITIES

25
COUNTRIES

U.S.

6,626

CITY	STUDENTS	CITY	STUDENTS
Boston, City of	315	Hawaii	341
Boston/Chelsea	41	Houston	106
Boston/Everett	544	Jacksonville	1,311
Boston/Medford	283	Miami-Dade	382
Buffalo	825	New York City	1,058
Detroit	62	Oakland	19
Flint	63	Philadelphia	21
Fort Lauderdale/Broward	1,168	San Diego	87

International

9,072

CITY	STUDENTS	CITY	STUDENTS	CITY	STUDENTS
Abu Dhabi	80	Krasnoyarsk	25	Semey	18
Barcelona/Catalonia	1,548	Liverpool	124	Seoul	222
Beijing	107	London	297	Shanghai	118
Buenos Aires	261	Madrid	1,892	Singapore	143
Craiova	61	Manchester	33	Taipei	1,144
Genoa	63	Medellín	126	Taldykorgan City	13
Gorzow	22	Moscow	16	Tbilisi	33
Hyderabad	28	Mumbai	297	Tel Aviv	227
Istanbul	34	Nanchang	25	Tokyo	93
Jakarta	548	Nur-Sultan	404	Toronto	279
Johannesburg	41	Paris	257	Volgograd	22
Karaganda	78	Petropavlovsk	21	Warsaw	339
Kokshetau City	20	Recife	13		

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