

Exploring the means and methods of technology-enhanced collaborative global classrooms through teacher voices

Najia Sabir, Curtis Bonk, Michael Karlin, Khendum Gyabak, Shuya Xu, & Pooja Saxena @Indiana University – Bloomington

Abstract

Recent educational trends call for globalized classrooms where students learn from their peers and collaboration is seamless across learning environments. The responsibility to meet these requirements falls on the instructors who interact daily with students. This multi-phased study explores the rationales, methods, and tools used by self-identified, global teachers to globalize their instructional practices by using questionnaires, interviews, and artifact analysis, across worldwide global learning networks. The study maps logistical preferences for successful globalized classrooms, and the motivating factors in globalizing educational practices. Another finding was that sustainable collaborations happened in classroom-to-classroom interactions and were student driven and supported by teacher intrinsic motivation.

Keywords: Global Education, Co-teacher collaboration, Instructional Design, Mixed Methods, k12 Technology Integration

Introduction & Literature

There has been a growing trend towards empowering students to solve real-world problems through the creation of globalized classrooms and technology-supported synchronous collaborative (TSC) learning. The main goal of incorporating globalized classrooms into the teaching context is to move away from traditional teaching and learning methods, to assist teachers in inspiring more responsible or participatory students, and to help instill a sense justice-oriented learning. School-based institutions are essential in promoting students' capacities for global awareness, while developing a sense of interconnectedness (Davies 2006; Westheimer & Kahne, 2004a, 2004b). The purpose of this research study was to investigate how teachers leveraged instructional technology to create global classrooms. Researchers explored the types, frequencies and logistics of interactions supported by the teachers. The study was driven by several impetuses: the needs for 21st century learning skills; global projects like the innovative teaching and learning initiative; notions of a flatter world and the consistent push to develop more globally aware and globally competitive student-citizens.

There has been a progressive global movement within classrooms to empower students with the ability to solve real-world problems and work towards a vision of multicultural, holistic education (Gordon, 2012; Hanvey, 1982; Higgins, Wolf & Torres, 2013; Kent & Moore, 2014; Merryfeild, 2003). Global education requires a harmonious classroom environment promoted through an understanding of others in the world (Gordon, 2012; Hossain & Aydin, 2011). These learning environments change student worldviews through critical analysis (Loughlin, 1996; Mezirow, 2003). Web 2.0 technologies can be utilized to "stimulate critical thinking and meaningful dialogue" through "systematic open-minded discussion and debates" (Gordon, 2012, p. 11).

Central to teachers' understanding of global education, its perspectives, and frameworks are the notions of interdependence, connectedness, and perspective taking. According to Doolittle and Hicks (2003), classrooms are the "perfect place to let students learn to critically explore their world through the use of interactive technologies" (p. 3). Hannafin and Land (1997) write that, "technology-enhanced, student-centered learning environment's organize interrelated themes into meaningful contexts" (p. 168), and allow learners to "organize and represent knowledge" (p. 192). Berson and Carano's (2007)

and Roberts' (2004) articles urge educators to utilize technology to provide students with authentic and quality global learning.

Tye and Tye (1992) write that global education involves "perspective taking" (p. 93), since then Csikszentmihalyi (1993), and Farr-Darling (1994) have expanded upon these notions; Kirkwood (2001) incorporate technological advancements. Using TSC allows teachers to extend the physical boundaries of their classrooms. International cross-cultural collaboration also allows learning to occur beyond textbooks (Klein, Pawson, Solem, & Ray, 2014; Larrison & Alterman 2009; Ray, Muñiz-Solari, Klein and Solem, 2012).

Research Questions & Methodology

This study inspected teacher rationales and methods for implementing TSC global education in their face-to-face classrooms, by using a multiphase mixed method design to collect, analyze, and integrate across both quantitative and qualitative data (Creswell, 2005; Tashakkori & Teddlie, 2003). The combination allows for a more robust understanding of teacher voices (Greene, Caracelli, & Graham, 1989). This research endeavor was driven by three primary lines of inquiry:

1. What do teachers identify as the main rationale(s) for globalizing their classroom?
2. What types of interactions do teachers set up to construct global education opportunities?
 - 2a. How many sites/classrooms are generally involved in collaborative learning?
 - 2b. What is the frequency, per year, of collaborations?
3. What do teachers hope to do in the future?
 - 3a. Do their plans require additional professional development on their part?

The instruments consisted of interviews, survey questionnaires, and teaching artifact analysis gathered from self-identified global teachers. Researchers maintained the emergent approaches to build the second phase off the initial quantitative data (Ivankova, Creswell, & Stick, 2006). By incorporating a multifaceted approach, the data provided a multi-layered understanding of instructional practices and motivation relationships. It is important to integrate teachers' voices, practices, and understandings to accurately reflect their current practices.

To preserve the integrity of teacher voice, all interviewed network administrators were also teachers with at least five years of experience. Elbaz (1991) claims that teacher voice is "central to the development of research on teachers' knowledge," skills and actions (p. 10), to better understand each participant's voice the individual context was captured (Hargreaves, 1996). Thus the original teacher narratives were retained, with interpretive analysis provided to supplement the data.

The study was conducted in two distinct phases, as visualized in Figure 1. Between 2014 and 2015 Phase I data was collected, analyzed and presented to external researchers in the field of global education to develop Phase II instruments. The data was analyzed to ensure convergence; follow up correspondence was used as needed. Both unstructured interviews and extended questionnaires were analyzed using a thematic analysis approach (Carspecken, 1996). Phase II began in January 2015. As a more completed data set was reexamined, the thematic analysis was consolidated and refined. Thematic coding was used throughout, researchers began with an open coding scheme (Merriam, 2014) to ensure that teacher voice, interpretations, and understandings were accurately captured. As Glaser and Strauss (1967) suggested, the researchers attempted to create categories of best fit rather than respecification.

Bounded Context

Phase I data consisted of a lengthy survey administered to teachers (n=13) at schools with established Global Education directives, and unstructured interviews with formalized global education network administrators (n=4). Phase I participants were recruited via convenient sampling of Round Square Schools, World Leadership Schools, and TakingITGlobal members. The 54-item survey, incorporated close-ended and open-ended items to explore rationales and processes associated with creating a TSC global classroom. Questionnaire respondents were: 4, pre-K-5 standard; 4, 10-14

standard; and 5, 6-9 standard teachers. Teachers were represented from: the US (n=2), Kenya (n=2), Botswana (n=1), Canada (n=5), South Africa (n=1), India (n=2), and Australia (n=1). All teachers were either “comfortable using technology” (n=2), or “very comfortable using technology” (n=11).

Network administrators represented The Centre for Global Education, Digital Human Library, and TakingITGlobal. The interviews were conducted online via video conference, lasting approximately one hour. After Phase I data collection, researchers engaged in a member check with four external researchers to ensure that themes were aligned to emergent research findings and accurately captured participant responses.

After Phase I data analysis, a second, more targeted questionnaire was constructed. This survey had 13 open-ended, short-response and 32 close-ended questions. These participants were all self-identified, self-promoted global educators, recruited via convenient, snowball sampling of newsletters and webmasters for global educator communities including iEARN, epals, and the Global Education Conference. 212 users accessed the survey but only 26 completed teacher responses were selected for data analysis. An item based filter selected for respondents who met desired participant characteristics. Except for one teacher with less than 2 years of experience, participants (n=25/26) had more than 5 years of teaching experience. Table 1 represents the grade levels that questionnaire participants taught. The word cloud in Figure 2, generated using Nvivo, represents the variety of disciplines as noted by the teachers.

Most participants indicated a strong comfort level in using technology (“very comfortable” n=10; “comfortable” n=7). The rest indicated that they were “somewhat comfortable” (n=7/26) or “not very comfortable using technology in my classroom for global connections” (n=2).

Phase II questionnaire participants were worldwide: US, Taiwan, Indonesia, Bangladesh, Kenya, Chile, Pakistan, Uganda, & Brazil. Three teachers were interviewed via Skype between 45-75 minutes. Interviews were used to clarify misconceptions and reaffirm convergent themes.

This approach provided information about participants’ experience, comfort using technology, and like-mindedness in using global education in their classrooms. A case based approach was selected because of the importance of detailing the bounded context of the case (Ellinger, Watkins & Marsick, 2005; Stake, 2005), as not all teachers using technology incorporate global education practices.

Educator Rationales for TSC Global Education

The teachers detailed responses did not contain readily apparent common themes. An Indian, upper secondary teacher focused on incorporating case studies about real people’s experiences to “connect students to the topic.” A Canadian 9/10 standard instructor used collaborative global education to “try and connect lessons to current events/issues.” This teacher described one instance where a science lesson about sexual reproduction led to a discussion about equality, and “genital mutilation and why people do it.”

While complex and meaningful discussions resulted from the Canadian classroom, primary teachers are also using TSC global education to support “real world learning,” as noted by one lower secondary International Baccalaureate teacher in Canada during Phase I. When asked why use TSC global education, this third grade teacher responded that it was to facilitate “inquiry learning and critical thinking to make learning meaningful.” Mirroring the Canadian teachers’ rationale, is a primary teacher from Kenya said that “through Global Collaboration of classroom [are used] to maintain learning and sharing of the ideas on the global issues.”

To explore the motivating factor for incorporating technology based collaborative global education instruction. The Phase II teacher questionnaire included items that aided in understanding this trend. The question was constructed post-Phase I analysis: “What were the key reasons that you decided to create global classroom activities and experiences?” (n=26). This item specifically explored many of the external driving forces, for global education, as identified by the literature search and Phase I data analysis. The response choices included general intrinsic motivating factors such as a teacher’s

“prior experiences” or “personal desire or passion.” Teachers were able to select as many of the options as they viewed relevant, the results are compiled in Table 2.

A majority of teachers (n=21/24) noted that “learning about global issues from different points of view” was a main student learning goal. Convergent to this point, 81% of the teachers identified “teaching about global issues from different points of view” as a main teaching objective (n=17/21). Along with students learning from multiple perspectives, and instructors teaching remote learners about global issues from multiple perspectives, teachers identified teaching about their culture (n=15/21) as a major teaching goal. A complete list of student learning goals and teaching goals can be found in Tables 3 and 4.

Collaborative Global Education Logistics & Methods

During Phase I, the researchers focused several questions regarding the logistics of global education for Phase II questionnaire distribution. One of the question items asked: “Does your global online collaboration involve?” 11, out of 21, teachers indicated that they only involved “one other school” or classroom. Three teachers noted that they typically interact with “more than 10 schools.” The remaining seven teachers noted that they generally involved 2-4 schools in their collaborations.

A core research question driving this study is: What types of interactions do teachers set up to construct global education opportunities? To best answer this the researchers aggregated data from both Phases, consolidated and refined emergent themes, and conducted a member check. Figure 3 is a hierarchical diagram outline a few of the collaborative global activities teachers have engaged in. Three main streams of interactions emerged. Teachers used classroom-to-classroom interactions, virtual visits, and also reached out to community experts/native speakers/professionals. These three streams were derived from the questionnaire data, interview transcripts, and artifact analysis.

Discussion & Conclusion

Teachers also collaborate worldwide to develop instructional practices that help establish global classrooms through critical dialogues. Teacher practices influence how classroom resources are used, and certain web-enhanced technologies can allow classes to facilitate learning across the globe (De Meyer, 2012; FitzGerald, 2012; Higgins, Wolf & Torres, 2013). Instructors are essential in promoting transformative norms, developing the students’ capacities for effective global awareness, and ensuring world citizenship (Davies 2006; Westheimer & Kahne, 2004a, 2004b). This study found that teachers’ mode of global education is synchronous and student driven.

Researchers found that teachers preferred synchronous collaborations to capture authentic student learning. In one case, a teacher claimed, “I started introducing my kids to videoconferencing because I wanted to connect them with other kids...instead of teaching this curriculum that I didn’t know much about, I wanted to give my kids the opportunity to work in more [of] an inquiry-based learning environment and actually engage with kids in other learning communities, and ask questions.” Adapting Koschmann’s (1994; 1996) discussion on computer-supported collaborative learning Bonk and Cunningham (1998) expand the notion to include authentic learning where “primary data and human resources” are easily accessible (p. 33). Other empirical studies on collaboration such as Wang, Zou, Wang, and Xing (2013), Chen, Caropreso, Hsu, and Yang (2012), and Brantley, Henry, Sabo, and Young (2014) have found similar successes as teachers engaged students in authentic learning through TSC instruction.

Montero-Sieburth and Gray (2005) found greater power should be allocated to student investigations. One teacher in remote, rural Canada states that, “It’s really the kids’ line of questioning that takes us everywhere, so it’s a very different way of teaching and learning. My role, the buzz word now, is to activate student learning...I’m there to provide resources and support based on their interests.” The rationale to shift towards this frame of collaborative learning is to have students actively engaged in the learning process where, “kids aren’t just talking and listening, but they’re showing and sharing and doing.”

Works Cited

- Berson, M.J., & Carano, K.T. (2007). Breaking stereotypes: constructing geographic literacy and cultural awareness through technology. *The Social Studies*, 98(2), 65-70.
- Bonk, C., & Cunningham, D. (1998). Searching for learner-centered, constructivist, and sociocultural components of collaborative educational learning tools. In C. Bonk & K. King (Eds.), *Electronic collaborators* (pp. 25-50). Mahwah, NJ: Lawrence Erlbaum Associates.
- Brantley, H., Henry, M., Sabo, S., & Young, N. (2015). Promoting Globalization: Cross-Cultural Teaching and 21st Century Learning Experiences. In J. Keengwe, J. Mbae, & S. Ngigi (Eds.), *Promoting Global Literacy Skills through Technology-Infused Teaching and Learning*, (pp. 147-165). Hershey, PA: IGI Global.
- Carspecken, P. F. (1996). *Critical ethnography in educational research: A theoretical and practical guide*. New York, NY: Routledge & Psychology Press.
- Chen, S. J., Caropreso, E. J., Hsu, C. L., & Yang, J. (2012). Cross-Cultural Collaborative Online Learning: If You Build it, Will They Come?. *Global Partners in Education Journal*, 2(1), 25-41.
- Creswell, J.W. (2005). *Educational research: Planning, conducting, and evaluating quantitative and qualitative approaches to research*. Upper Saddle River, NJ: Merrill & Pearson Education
- Csikszentmihalyi, M. (1993). *The evolving self: A psychology for the third millennium*. New York, NY: Harper Collins publishers.
- Davies, P. (2006). Educating citizens for changing economies. *Journal of Curriculum Studies*, 38(1), 15-30.
- De Meyer, A. (2012). Reflections on the globalization of management education. *Journal of Management Development*, 31(4), 336-345.
- Doolittle, P. E., & Hicks, D. (2003). Constructivism as a theoretical foundation for the use of technology in social studies. *Theory & Research in Social Education*, 31(1), 72-104.
- Elbaz, F. (1991). Research on teacher's knowledge: The evolution of a discourse. *Journal of Curriculum Studies*, 23(1), 1-19.
- Ellinger, A. D., Watkins, K. E., & Marsick, V. J. (2005). Case study research methods. In R. A. Swanson & E. F. Holton (Eds.), *Research in Organizations: Foundations and Methods in Inquiry* (1st ed., pp. 327-350). San Francisco, CA: Berrett-Koehler Publishers Inc.
- Farr-Darling, L. (1994). *Global education as moral education: Building a community of concern* (Doctoral dissertation, University of British Columbia).
- FitzGerald, E. (2012). Creating user-generated content for location-based learning: an authoring framework. *Journal of Computer Assisted Learning*, 28(3), 195-207.
- Glaser, B. S., & Strauss, A. (1967). *The discovery of grounded theory*. Chicago, IL: Aldine.
- Gordon, C. (2012). Across the globe: Promoting intercultural understandings in the classroom through sharing stories. *Journal of Student Engagement: Education Matters*, 2(1), 10-16.
- Greene, J. C., Caracelli, V. J., & Graham, W. F. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Educational evaluation and policy analysis*, 11(3), 255-274.
- Hannafin, M. J., & Land, S. M. (1997). The foundations and assumptions of technology-enhanced student-centered learning environments. *Instructional science*, 25(3), 167-202.
- Hanvey, R. G. (1982). An attainable global perspective. *Theory into practice*, 21(3), 162-167.
- Hargreaves, A. (1996). Revisiting voice. *Educational researcher*, 25(1), 12-19.
- Higgins, L., Wolf, M. M., & Torres, A. (2013). Opening the Doors to a Global Classroom: An International Social Media Collaboration. *North American Colleges & Teachers of Agriculture, Special Issue: Globalization: Implications for Teaching and Learning in Post-secondary Agricultural Education*, 53(3a), 40-44.
- Hossain, M. M., & Aydin, H. (2011). A Web 2.0-based collaborative model for multicultural education. *Multicultural Education & Technology Journal*, 5(2), 116-128.
- Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using mixed-methods sequential explanatory design: From theory to practice. *Field Methods*, 18(1), 3-20.
- Kent, A. M., & Moore, C. D. (2014). Critical Thinking and Problem Solving: Can Technology be a Tool? It's as Simple as IVC!. *International Journal of Learning, Teaching and Educational Research*, 8(1), 177-186.
- Kirkwood, T. F. (2001). Our global age requires global education: Clarifying definitional ambiguities. *The Social Studies*, 92(1), 10-15.

- Klein, P., Pawson, E., Solem, M., & Ray, W. (2014). Geography Education for "An Attainable Global Perspective". *Journal of Geography in Higher Education*, 38(1), 17-27.
- Koschmann, T. D. (1994). *Toward a theory of computer support for collaborative learning*. *Journal of the Learning Sciences*, 3(3), 219-225.
- Koschmann, T. D. (1996). *CSCI: Theory and practice of an emerging paradigm*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Larruson, J. A., & Alterman, R. (2009). Wikis to support the "collaborative" part of collaborative learning. *Computer Supported Collaborative Learning*, 4, 371-402.
- Loughlin, K. (1996). Learning to Change: New Dimensions. *Australian Journal of Adult and Community Education*, 36(1), 54-62.
- Merriam, S. B. (2014). *Qualitative research: A guide to design and implementation*. San Francisco, CA: John Wiley & Sons.
- Merryfield, M. (2003). Like a veil: Cross-cultural experiential learning online. *Contemporary issues in technology and teacher education*, 3(2), 146-171.
- Mezirow, J. (2003). Transformative learning as discourse. *Journal of Transformative Education*, 1(1), 58-63.
- Ray, W., Muñiz-Solari, O., Klein, P., & Solem, M. (2012). Effective online practices for international learning collaborations. *Review of International Geographical Education Online*, 2(1), 26-44.
- Roberts, L. (2004). Harnessing information technology for international education. *Phi Delta Kappan*, 86 (3), 225-228
- Tashakkori, A., & Teddlie, C. (2003). *Handbook on mixed methods in the behavioral and social sciences*. Thousand Oaks, CA: Sage
- Tye, B. B., & Tye, K. A. (1992). *Global education: A study of school change*. Albany, NY: Suny Press.
- Wang, J., Zou, B., Wang, D., & Xing, M. (2013). Students' perception of a wiki platform and the impact of wiki engagement on intercultural communication. *System*, 41(2), 245-256.
- Westheimer, J., & Kahne, J. (2004a). What kind of citizen? The politics of educating for democracy. *American Educational Research Journal*, 41(2), 237-269.
- Westheimer, J., & Kahne, J. (2004b). Educating the "good" citizen: Political choices and pedagogical goals. *Democratic Dialogues*, 38(2), 57-61.

Appendix I: Figures

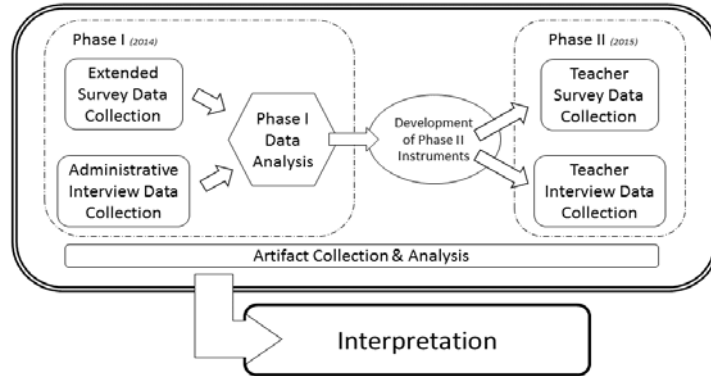


Figure 1. Research design outlining multiphase research process



Figure 2. Word cloud displaying the frequency of subjects taught by teacher respondents in Phase II questionnaire

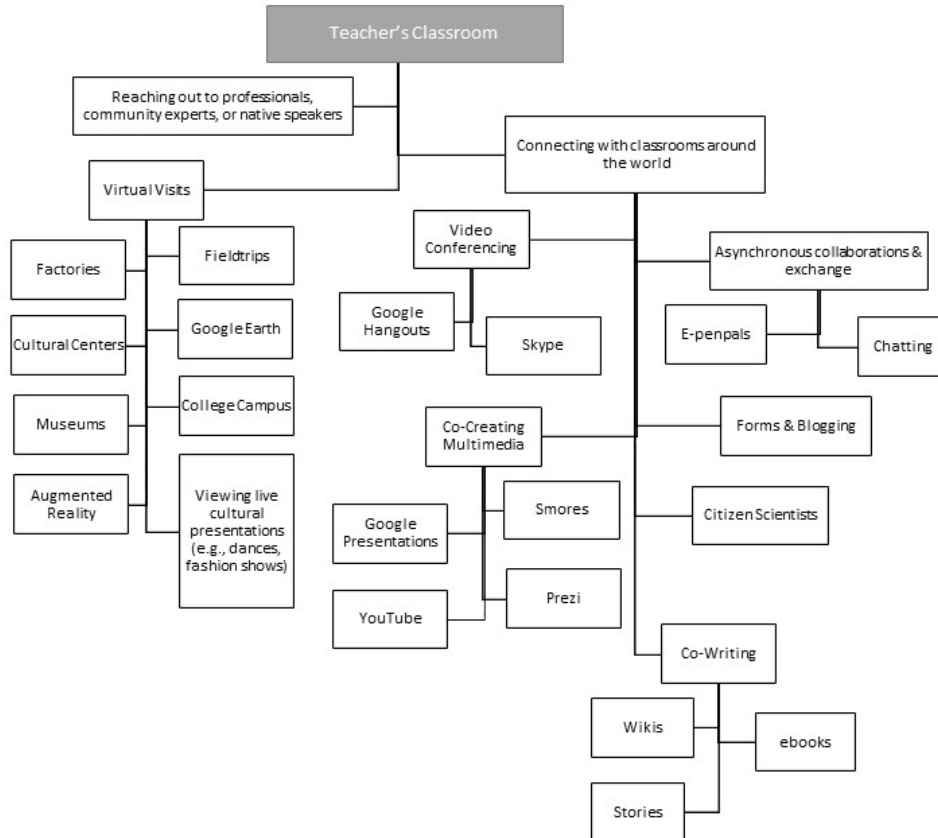


Figure 3. Hierarchical map of how teachers are globalizing their classrooms using collaborative technologies

Appendix II: Tables

Table 1

Teacher Representation Across Standards

Standards/Grades	# Responses	Response %
Preschool or Kindergarten	1	3.85%
Late Elementary/Late primary (i.e., Grades 4-6)	4	15.38%
Middle School/Junior High School (i.e., Grades 7-9)	13	50.00%
Secondary/High School (i.e., Grades 10-12)	20	76.92%

Table 2

Reasons for Creating Global Classroom Activities & Experiences

Standards/Grades	# Responses	Response %
Administrative support	5	19.23%
Collaboration with personal colleague(s)	7	26.92%
Collaboration with people you never met	11	42.31%
Conference or summit attendance	9	34.62%
Experimentation or pilot test	5	19.23%
Existence of school or district partnerships	5	19.23%
Grant funding	4	15.38%
Mentor or role model encouragement	6	23.08%
Networking with like-minded colleagues	10	38.46%
Personal desire or passion	21	80.77%
Prior experiences	10	38.46%
Reading/Literature	9	34.62%

Recommendations from friends or colleagues	5	19.23%
Research	11	42.31%
School requirements	5	19.23%
Societal changes	14	53.85%
Student needs	17	65.38%
Technology availability	13	50.00%
Training or professional development	10	38.46%

Table 3
Student Learning Goals for Global Education

Standards/Grades	# Responses
Learning about an environmental issue	14
Learning about a foreign language	9
Learning about global issues from different points of view	21
Learning about an historical event	8
Learning about a piece of literature, music, art, sports, etc.	5
Learning about a specific culture	12
Other	2

Table 4
Teacher Teaching Goals for Global Education

Standards/Grades	# Responses
Teaching about your culture	15
Teaching about an environmental issue	9
Teaching about global issues from different points of view	17
Teaching about an historical event	3
Teaching about your native language	5
Teaching about a piece of literature, music, art, sports, etc.	7
Other	1