Quest for GLOBE and 2005-2010 Partner Survey Data Analysis

SRI International led GLOBE community evaluations for the GLOBE Program Office (GPO) from 1995-2005. During this time, U.S. and International Partners received a 20-page hard copy survey in the mail and were asked to complete it by hand and return it to SRI. Many partners did not respond due to the time involved in completing the survey, and those that did complete the survey reported significant complaints, including the fact that they were left without a record of their responses for their own reporting purposes.

Therefore, in 2005, the hard copy survey previously distributed by SRI was replaced with an online survey submission form located in the Administrative section of the GLOBE Web site. Dr. William Penuel, and several members from his evaluation team at SRI International, assisted with the overall creation of the online survey to ensure that the survey continued to gather data in line with baseline data previously assembled by SRI International. In addition, Partners from all GLOBE countries and U.S. states provided input into the development of the survey instrument working with Dr. Teresa Kennedy, the Director of the International Division of the GLOBE Program Office.

The Annual GLOBE Partner Survey gathers information regarding partnership funding and sustainability, programmatic implementation and capacity building, trainers and trainer support, teachers and teacher support, communication and administrative support, as well as education and environmental issues relevant to their respective state and/or country. These data include how many schools have joined the program, how many trainers have been trained, the number of data entered by each Partner's collaborating schools into the GLOBE database, as well as information regarding funding levels and implementation patterns, and the teachers they work with. Since some of these data submitted by GLOBE Partners (both U.S. and International) are considered confidential due to funding levels and sponsor names disclosed, and are intended for use for their own

in-country reporting, the GLOBE Program Office does not report individual country information. However, regional trends are analyzed in order to better understand the state of GLOBE around the world, and focus on general analyses that can assist the GPO to continue to facilitate Program implementation, sustainability and growth.

Final survey submission provides Partners with an electronic file that can be used for their own reporting purposes. The information gathered, including implementation metrics imported into the survey from the GLOBE database, are not to be confused with overall program evaluation or student outcome data as they do not report school or student academic success, nor do they report activities that are occurring at the school level; rather these data summarize overall growth statistics, funding patterns and leadership activities.

In 2007, Dr. Steven McGee and his team from The Learning Partnership, a consulting firm specializing in the development and evaluation of science education outreach initiatives, both formal and informal, conducted an extensive review of the survey instrument. The Learning Partnership was selected due to having extensive NASA evaluation experience, and having successfully served as an outside advisor to support NASA Headquarters implementation of OMB's PART evaluation process, and contributed to NASA's current Education and Strategic Coordination Framework. Minor adjustments were made to the survey according to the Learning Partnership report.

The GLOBE Annual Partner Survey is administered between June and February of each year. In order to reduce the reporting burden of survey respondents, the survey completion occurs over a nine-month period, beginning in June and ending in February each year. Therefore, the 2009 GLOBE Partner Survey was made available in June 2009, closed in February 2010 and data for 2009 Partner implementation were compiled and analyzed by the GLOBE Program Office between March – June 2010. These results were reported to the GLOBE International Advisory Committee in July 2010. The 2010 GLOBE Partner Survey was made available in June 2010 and will close in February 2011, gathering information for all GLOBE community activities that occurred during 2010. Partners are also provided with a report of the survey results at their annual partner meetings each year.

Implementation Summary and Findings, 2005-2009

In 2010, data from GLOBE Partner Surveys spanning from 2005-2009 were extensively examined. Of specific interest, and further showing how GLOBE is truly an international program funded by all GLOBE countries around the world, funding levels reported to date by Country Coordinators and U.S. Partners reported more than $28 million has been used to fund U.S. Partners activities and over $9 million to fund international activities since 2005 (a total of $37,888,068). These funds were raised exclusively by Partners, Teachers, and Countries independent of the federal agency funding provided to the GPO (see Figure 1). Of particular interest, was the funding level required in each region to sustain GLOBE as these data demonstrate why some programs are more successful than others. Figure 2 shows reported funding levels by region. These data show that GLOBE Partners in North America obtained the most external funding to support GLOBE implementation than any other region, followed by the Asia-Pacific region, and then the Near East, Europe, Latin America-Caribbean, and Africa regions.

Figure 1. Documented Leveraged GLOBE Funding (2005-2009)

Implementation Summary and Funding

U.S. Partners and International Country Coordinators are essentially "volunteers" who recruit, train, and mentor GLOBE teachers and students.

1995-2009 Regional Metrics

111 GLOBE Countries	Africa 22 Countries		Asia-Pacific 16 Countries		Europe-Eurasia 40 Countries		Latin Am.-Caribbean 18 Countries		Near East-North Africa 13 Countries		North America 2 Countries	
	Africa Total	ACTIVE Region	Asia Total	ACTIVE Region	Europe Total	ACTIVE Region	Latin Am. Total	ACTIVE Region	NE-NA Total	ACTIVE Region	North Am. Total	ACTIVE Region
Schools	651	*628	2,231	*2,206	3,654	*3,390	581	*563	246	*241	16,431	*16,080
Teachers	1,111	1,111	2,840	*2,836	5,416	*5,377	959	*948	433	*425	43,214	*42,994
Trainers	206	206	327	327	294	294	249	249	46	46	1,863	*1,007
Master Trainers	18	18	12	12	12	12	22	22	18	18	42	*41
Total Active Schools: 23,108 -- Total Active Teachers: 53,691 -- Total Active Trainers: 2,129 -- Total Active Master Trainers: 123												
	African Countries contributing	Region Total submitted	Asian Countries contributing	Region Total submitted	European Countries contributing	Region Total submitted	Latin Am. Countries contributing	Region Total submitted	NE-NA Countries contributing	Region Total submitted	North Am. Countries contributing	Region Total submitted
Student Projects	6	13	4	9	18	65	3	5	3	12	1 (U.S.)	71
Honor Roll	8	2,321	8	820	31	13,790	10	372	4	523	1 (U.S.)	3,288
Data Reported	15	1,082,000	12	1,117,619	37	10,405,613	17	536,962	9	420,672	2	6,787,499
Total Student Projects: 175 -- Total Honor Roll: 21,115 -- Total Data: 20,350,365												

*Active numbers for schools, teachers, trainers and masters trainers in each region do not contain inactive participants.

Estimated Leveraged Funding: 1995-2004
U.S. Partners and International:
Estimate made by former GLOBE Director Dixon Butler
Total: $120,496,500 ESTIMATE—10 Years

Documented Leveraged Funding: 2005-2009
U.S. Partners: $28,406,604
International: $ 9,481,464
Total: $37,888,068 DOCUMENTED—5 Years

TOTAL: $158,384,568—15 years

Figure 2. GLOBE Funding by Region.

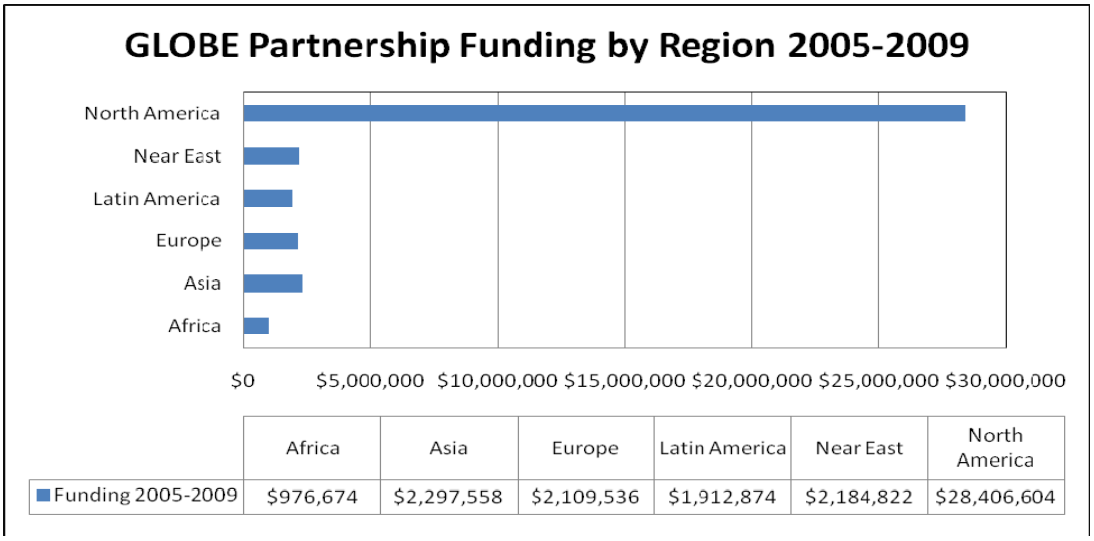

Figure 3, on the next page, describes U.S. agency funding to U.S. Partners in support of GLOBE implementation. Again, these funds are not related to funding provided to the GPO, but represent independent efforts by U.S. Partners to generate GLOBE support from a variety of different U.S. agencies.

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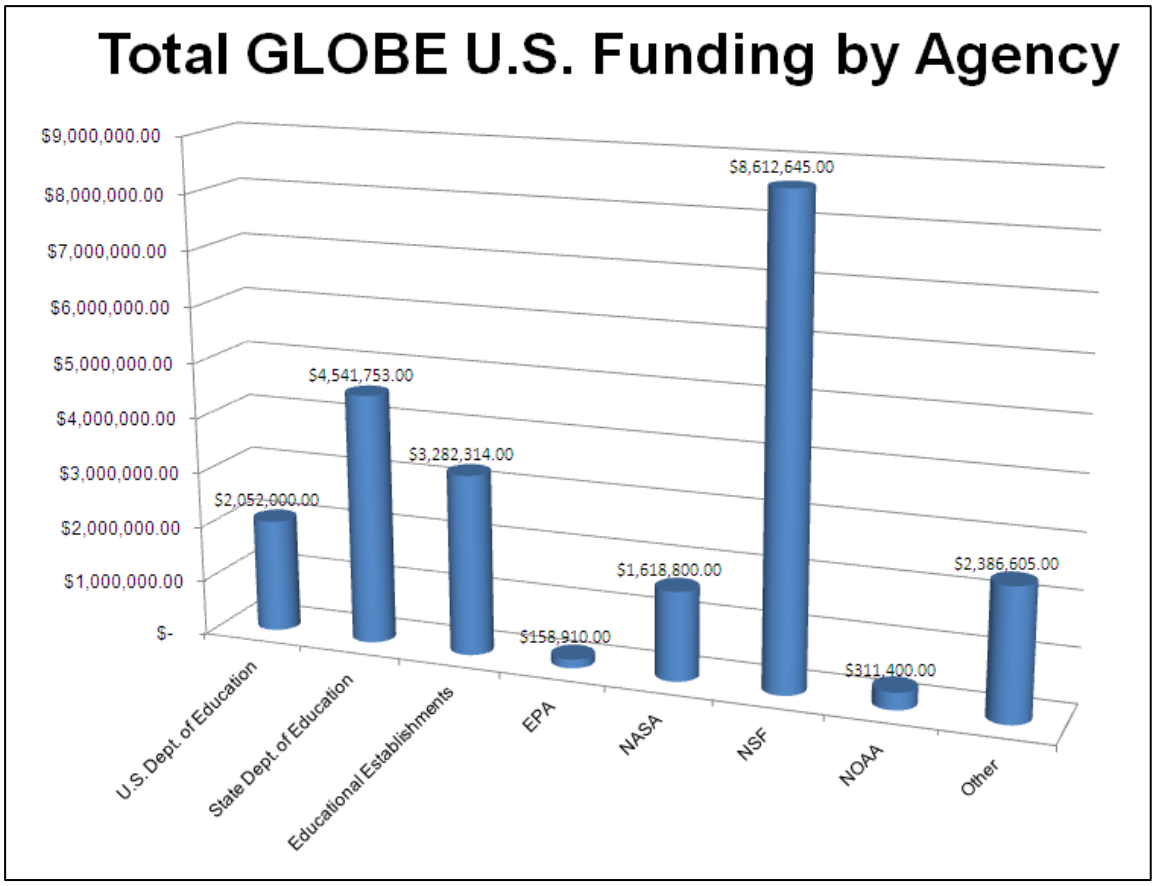
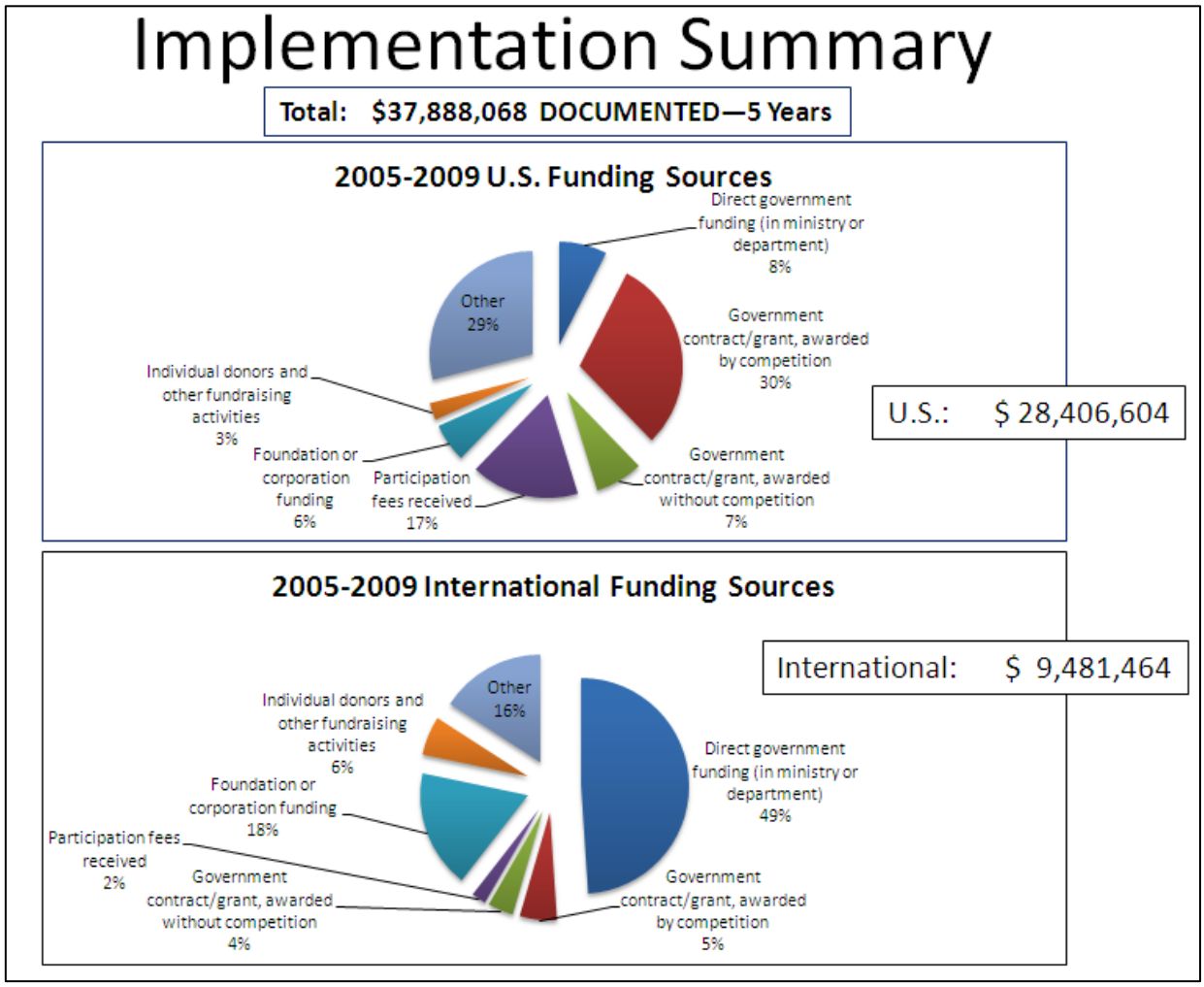
Figure 3. U.S. Agency funding to U.S. Partners



These data show a significant investment from U.S. Agency sponsors of the GLOBE Program. Of particular note, since 2005, NSF has provided more than $8 million to U.S. Partners to plan and implement GLOBE activities. In order to further understand the documented financial trends from 2005-2009 in regard to international and U.S. funding sources, Partner Survey data from section B3 were analyzed. Partners were asked, "How is the management and operation of GLOBE funded in your partnership/country?"

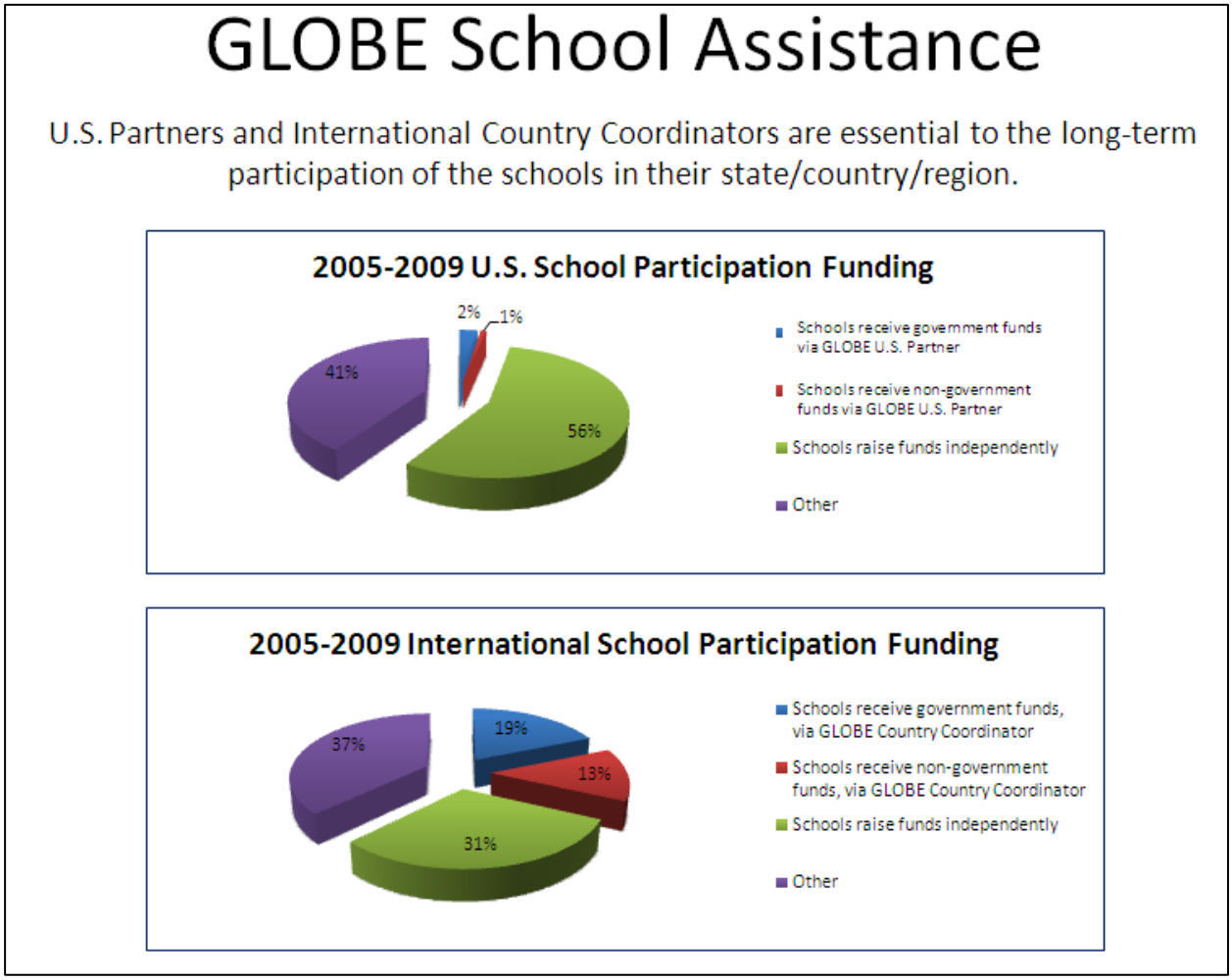
Since some country's GLOBE budgets are naturally larger than others, and since almost all country level funding fluctuates from year to year, the percentages in the charts below cannot be assumed to reflect on-going funding levels received by each source. While, the data in Figure 4, found on the next page, do reflect where Partners received funding, these data underestimate the total amount received since a significant number of Partners did not report their total annual funding budget (B1) or the source (B3) of their funding.

Figure 4. U.S. and International Funding Sources



GLOBE Partner funding in the U.S. is strongly dependant on competitive government grant awards. In contrast, International Partners received the majority of their funding (49%) directly from ministries or other agencies without the need to write competitive proposals. U.S. Partners report only 8% of their funding came directly from state or federal sources (e.g. from the U.S. Department of Education). Also interesting to note is that the second largest source of funding internationally, a reported 18%, comes from Foundations or Corporations, while U.S. Partners reported only 3% of their funding from these sources. A trend in the manner in which Partners conduct their training events can also be gleaned from these data since only 2% of International Partners charge teachers a participation fee for attendance at their professional development workshops in contrast to 17% of the U.S. Partner funding gained from this source. Partners also report that their schools regularly leverage sponsorship dollars in support of their GLOBE implementation. 19% of International Partners assisted their schools to receive governmental funds, while only 2% of the U.S. Partners reported this activity. In addition, 13% of the Country Coordinators reported assisting their schools to obtain non-government funding (see Figure 5 on the next page). These data suggest that GLOBE schools tend to raise funds independently and also receive a large amount of funding from other community sources such as business donations and sponsorships.

Figure 5. U.S. and International School-level Funding Trends



The role of the U.S. and International Partners, to recruit, train, and mentor GLOBE teachers, is essential to sustaining GLOBE in the long-term. Past SRI reports suggested that teachers are more likely to continue their activities in their school when they have a mentor actively working with them and assisting them to implement GLOBE research activities with their students.

This task is a constant challenge for Partners around the world due to increasing administrative costs and lack of external funding to support their Programs. Figure 6 shows that 64% of U.S. Partners employ staff that spend less than half of their work day devoted to GLOBE, with only 28% having full-time positions dedicated to GLOBE. In contrast, International Partners reported 52% of their staff devoted to full-time GLOBE implementation, with 24% spending less than half-time.

Figure 6. U.S. and International Partner Staffing Levels

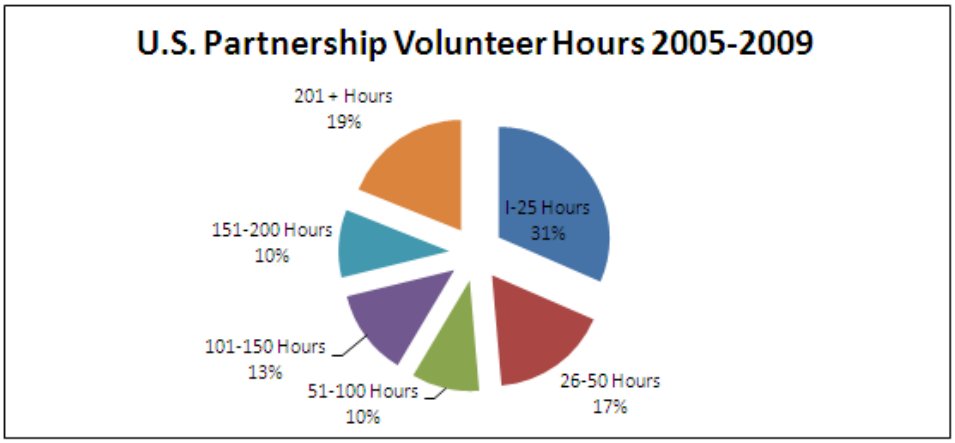
International Partners reported a significant amount of volunteer time spent on GLOBE, citing 60% of their Partnership staff serving as volunteers for more than 201 hours annually, while in the U.S., only 19% reported volunteers exceeding 201 hours assisting with GLOBE each year. Overall, Figure 7, on the next page, suggests that both U.S. and International Partners do heavily depend on volunteers to support their GLOBE implementation activities in the schools, since many community members volunteer significant amounts of time devoted to supporting GLOBE Program activities.

Partners reported that maintaining high quality GLOBE implementation in schools requires providing training as well as on-going professional development opportunities for teachers that include follow-up mentoring and assistance with linking students to scientists, as well as providing opportunities to showcase GLOBE student research findings through local, regional and international venues.

Figure 8, also on the next page, suggests that less U.S. students are offered opportunities to participate in research events involving GLOBE than international students, and Figure 9 further suggests that GLOBE implementation in the U.S. is conducted on a supplemental level, with less time spent outside the classroom participating in GLOBE activities than reported internationally.

The GLOBE Program Office, working closely with the elected governance structure in each region, and in consultation with the GLOBE International Advisory Committee (GIAC) serving as the community voice of GLOBE, utilizes these important data to continually improve services provided and to ensure that the development and ongoing support of GLOBE's 110 Partner Countries, and 140+ U.S. Partners, are fully integrated with GLOBE education, science, technology, and evaluation activities.

Figure 7. U.S. and International Volunteer Hours Reported



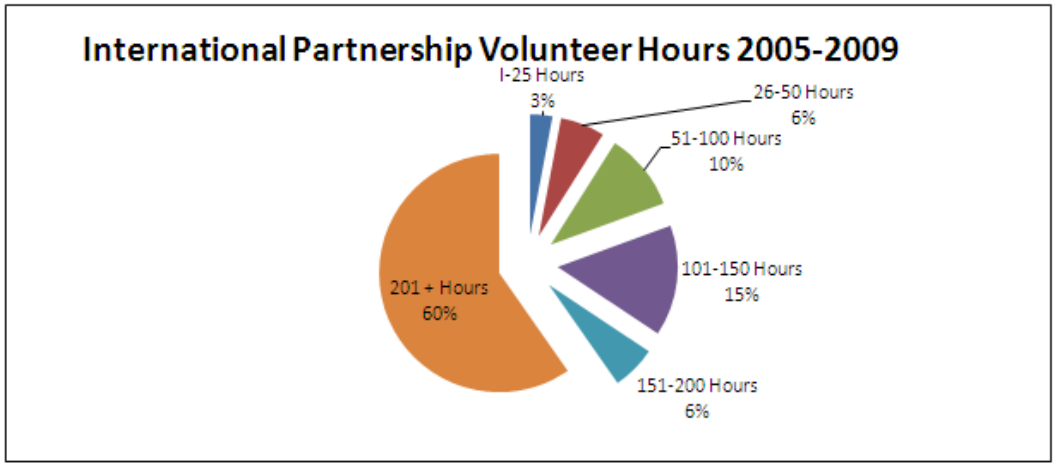
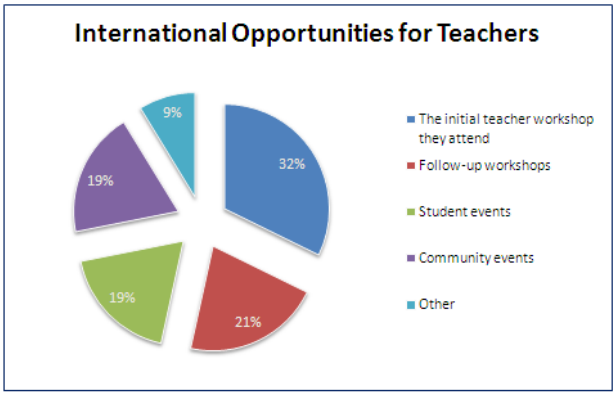


Figure 8. Teacher Opportunities



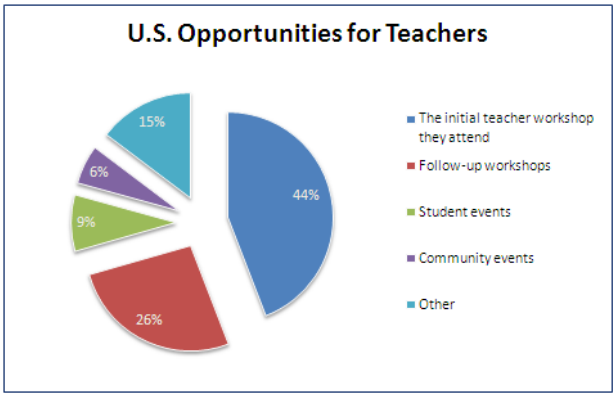
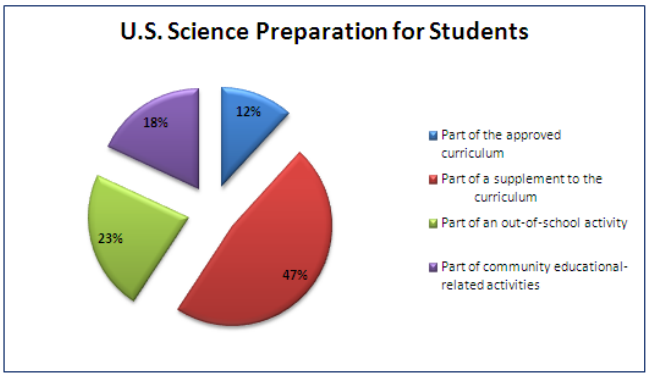
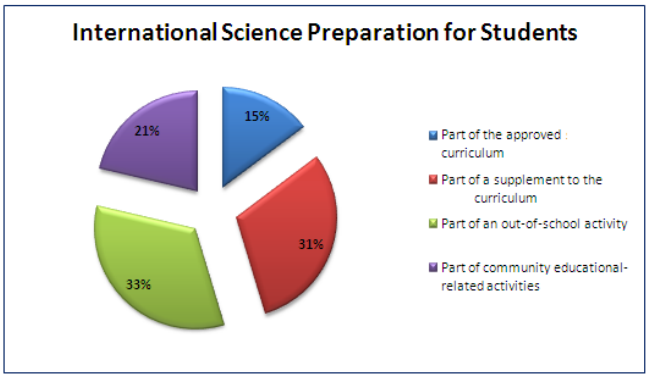



Figure 9. Student Preparation