Authentic International Research Experience: Program Model in Cartagena, Colombia and Feira de Santana, Brazil

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Abstract- Integrating an International Experience in Undergraduate Education is increasingly seen as an important component of high impact undergraduate activities. These usually take the form of student exchanges, internships, service learning experiences and short-term faculty led study abroad programs. Students in these programs have a very wide range of international exposure and local interaction. The model was designed to incorporate Spanish and Portuguese language, culture, research, and service learning. Research focused on environmental monitoring using GIS/GPS tools in Cartagena, Colombia and a Comprehensive Transportation Survey in Feira de Santana, Brazil (the second largest city in the state of Bahia).
Keywords-International Research Experiences, High Impact, Undergraduate Experiences

Introduction

In 2008 an approach was implemented to allow LSAMP Scholars to integrate an International Experience into their undergraduate studies. The main objective was to create authentic international research models that links culture/language, research, and community engagement. It is well documented the importance and benefits of STEM students having some type of international experience[1-3].

Program Background

The city of Cartagena is located on the Caribbean coast of Colombia in the southern tip of South America. Cartagena is designated a Tourist area in the state of Bolivar and faces increasing housing pressures because of internal civil war (in 2008 with displaced populations) and the modernization of the central city for retail and tourism. Small communities in close proximity to the city are seen as areas for development. The program was centered in the communities of La Boquilla, which consists of five towns: La Boquilla, Manzanillo, Zapatero, Tierra Baja, and Puerto Rey. These communities have clear distinct histories and characteristics related to population size, major activity (agricultural/marine), transportation, income levels, access to potable water, and sanitation.

Previous research work by the University of San Buenaventura (USB) SYPRES, in collaboration with the Pro Boquilla Foundation, produced a Community Needs Assessment (CNA) for the five towns conducting over 1500 households and identified Health and the Environment as major challenges for the communities.

Feira de Santana is the second largest city in the state of Bahia with a population of 600,000 that is expected to increase to 1,000,000 by 2040. Feira de Santana is a major hub for commerce in the North East and one of the proposals to address the increase in population include development of a Bus Rapid Transit (BRT) system. BRT systems exist in other Latin American cities and surveys on passenger behavior from the southern states of Brazil may not be relevant to the North East.

Model

The NYC LSAMP International Summer Research (ISR) program in Cartagena and Feira de Santana, provides LSAMP Undergraduate Scholars students an international research experience and continues the development of general research skills such as, 1) connecting

coursework material to laboratory results, 2) literature review, 3) research report writing, and 4) data analysis.

In Cartagena, the ISR program used a cross-cultural approach to accomplish language exchange. This consisted of pairing a Colombian Spanish speaking student to a CUNY English speaking student for the duration of the program. Student research pairs differed in different components of the program, like lab, classroom activities, and cultural excursions. The community projects were created based on existing partnerships between the Non-Government Organization (NGO) and the international university.

Colombian students from the universities were selected to participate in the ISR program by their department with guidance from the LSAMP coordinator. Inclusion of local university students helped students familiarize with the community at a faster rate. It also acted as a component to increase cross-cultural exchange amongst the group.

In Feira de Santana, the ISR program was initiated via collaboration with the Universidade Estadual de Feira de Santana (UEFS) in the area of Biodiversity and Environmental Science with the one-on-one model. The Transportation study was again student initiated and a team of three Civil Engineering undergraduate students worked collaboratively with Faculty and students at UEFS to design a Comprehensive Transportation Survey for online deployment and in person at the bus terminals, the university (UEFS) and in communities across Feira de Santana. Areas included Demographics, Socio-Economic Status, Household Characteristics**,** Private Vehicle Information, Origin and Destination Locations, Mode of Transportation, Time of Travel, Work and School Flexibility, and Transportation Costs, and Travel Satisfaction.

Each student was paired with a 'buddy' selected by the International Office of UEFS and language instruction in Portuguese were held daily (five days per week, two hours each session), led by the Portal Language Program at UEFS. An on site coordinator (UEFS graduate student), served as the liaison to the International Office and the CUNY team. A team of twelve (12) UEFS students were selected to participate in the deployment surveys across Feira de Santana over a two month period and all surveys uploaded to a web-based system. The collected data sets will be available for review, analysis and curriculum integration.

The model utilized a standard REU model with a scientific theme, augmented with Professional Development (seminar series in Cartagena), Language and Culture and Civic Engagement (community service). This program format can be used as a template to increase the level of STEM students who are able to integrate the international research experience into their curriculum and develop global competencies.

References

[1] New York City Louis Stokes Alliance Impact Report 1992-2015 (2015).

[2] Institute of International Education. "Fields of Study of U.S. Study Abroad Students, 2000/01-2010/11." Open Doors Report on International Educational Exchange, (2012).

[3] National Academy of Engineering. "The Engineer of 2020: Visions of Engineering in the New Century", 35 (2004).