

Juarez Lincoln Marti Project: an Example of International Co-operation in Statistics Education and Research

Jorge Luis Romeu

Research Professor, Syracuse University

P.O. Box 6134, Syracuse, NY 13217; USA

Email: jlromeu@syr.edu or romeu@cortland.edu

1. Introduction and problem statement

Modern world has shrunk: technology, communications, economics, everything brings us closer to each other now. Hence, modern statisticians, as all other scientists and professionals, need to work internationally. Many public and private organizations (including IASE) help to internationalize statistical work. But there are two main drawbacks: language barrier and lack of resources. To successfully address these problems in Iberoamerica, the Juarez Lincoln Marti International Education Project (<http://web.cortland.edu/matresearch/>) was created.

Our Project (which, for its educational goals could have also been named Sierra-Dewey-Luz Caballero) is completely dedicated to fulfilling four specific objectives. First, teaching faculty development workshops in science and statistics; second, finding scholarships for faculty; third, donating educational materials to universities; and fourth, maintaining an email list service to distribute news and information about Education and technology issues.

We have provided these (and other) programs, in Spanish, for nine years, mainly to small, public universities in remote provincial areas, where other international organizations have had difficulties providing these services, for lack of language skills or for lack of resources. In addition, our Project has successfully addressed their technical problems. For, having worked extensively under the same constrained material conditions of these institutions, we can suggest educational solutions that are both, affordable and feasible, for them to implement.

Through its work (<http://web.cortland.edu/matresearch/history.html>), our Project strives to build a better US-Ibero American understanding and to help forge stronger relations among their academic and research communities, as well as among their peoples. The Juarez Project also strives to promote and develop international professionals that will help consolidate such stronger links between peoples of different nations and cultures. The reasons behind our Project efforts are described in several newspaper articles (<http://web.cortland.edu/romeu/mexus.html>) written during our work abroad and published in the US, Mexico and Spain.

2. Project Main Programs

Our first and most successful program has been finding faculty scholarships. Seventeen Mexican professors (<http://web.cortland.edu/matresearch/becarios.html>) have participated in the SUNY Conference on Instructional Technology. In addition, a Venezuelan professor spent a month in an Internship at our SUNY Institution (<http://web.cortland.edu/matresearch/pasantia.html>), practicing new educational methods, modern technology and learning about American institutions.

Our second most successful program is teaching faculty development workshops to small, poorly endowed, provincial institutions that had difficulties finding instructors to provide them (<http://web.cortland.edu/matresearch/newprog.html>). We teach how to teach statistics and science using new technology and the pedagogical methods that accompany them. And we also teach how to survive the infusion of curriculum technology and how to administer a new course while

technology is being infused, so the instructor does not perish or give it up. Workshop support comes from Grants provided for a target institution abroad. We then take this opportunity to teach a second course, on our own, saving the cost of the airfare (our largest ticket item). Other times, cooperatives with several institutions are formed, that share the transportation and other costs. We then teach several workshops in the same trip. A list of institutions visited and of workshop topics covered is provided in (<http://web.cortland.edu/romeu/talks.html>).

Our third most successful program is donating materials and textbooks. Here, we have had to solve two problems: obtaining the textbooks and sending them abroad. We have had the solidarity of many colleagues from SUNY, the American Statistical Association and Isostat, among others, who have donated material. Then, we have taken them in our trips abroad as part of our luggage. Or the US Embassy in Mexico has allowed us to send them to Texas, and they transport them to their destination. Or the Juarez Project has simply absorbed the cost. To date, many boxes of statistics and science textbooks, with scores of books, have been sent to eight universities in Mexico, as well as institutions in Venezuela, Argentina, Spain and Brazil.

Our fourth most successful program is maintaining an email list for faculty and researchers in Latin America, Spain and Portugal (<http://web.syr.edu/~jlromeu/boletin.html>). Every month, the Project emails news about opportunities in research and study abroad, conferences, web pages with educational materials, work announcements, etc. The Project also maintains a Web Page with educational information and materials (<http://web.cortland.edu/matresearch/edsources.html>).

3. Educational and Research Materials Developed

The Juarez Project develops most of the educational materials it uses in its workshops. Some of these have found their way into scholarly journals (<http://web.cortland.edu/romeu/research.html>).

Our main courses are on the use of (GPSS) simulation as a tool for teaching intermediate and advanced statistics courses. Labs developed using GPSS, and modeling mid complexity systems, allow students to obtain “real” data for projects on regression, ANOVA, for designing experiments, etc. Several papers on these subjects (e.g. Romeu, 1986, 1997) have been published in RSS, ASA and other journals, and on the web (<http://web.syr.edu/~jlromeu/urlstats.html>).

Workshops on the uses of the Minitab statistical software, as a tool for the introductory and intermediate statistics course, are also taught. Labs developed in Minitab, using macros and lis files, provide practical examples that are then emailed to students, or are posted in the Web. A research paper on this topic appears in <http://www.minitab.com/resources/whitepapers/pizza.htm>.

Courses on the use of technology in teaching, research and administration have been taught in several countries. Our research on assessing the effects of technology in science teaching, via a method vs. control experimental design, appears in (<http://www.oswego.edu/cit96/proc/romeu.pdf>).

The use of Projects and Cooperative Learning methods has also been among our workshop topics. Projects, by groups of four to six students, allow greater student interaction and learning (<http://web.cortland.edu/romeu/groups.html>) and leave more time for faculty to dedicate to teaching the subject matter. Two papers on this topic were presented at two education conferences.

Course administration, one of the greatest problems of technology infusion, is a topic we have dealt with at length. When introducing so many new techniques we are taxing the instructor’s time. We must also provide them the means to survive this experience, so it takes a hold and flourishes. A paper on this topic (Romeu, 2002) was also recently published.

A complete MS in O.R. Curriculum was totally developed for the University of Comahue, in Argentina, via the Internet, by a group of international faculty. This extraordinary experience is the proof that international cooperation, via Internet, can achieve highly at a very low cost. This graduate program is currently in full operation in Neuquen, the Argentinian Patagonia.

A key goal of our Project is the development of International Professionals, who can get off an airplane and “hit the ground running”, when working abroad. We have described the necessary conditions in several international forums and in a journal article (Romeu, 2001).

Finally, our Project has also developed several research proposals (in Education and the ecology) submitted to the U.S. Depts. of Education and State, FIPSE and NSF, among other organizations. They are outlined in <http://web.cortland.edu/matresearch/proposals.html>.

4. Critical Assessment

The Juarez Lincoln Marti Project accomplishments, achieved in its nine years of existence, constitute its best assessment. Eighteen faculty have obtained scholarships through the Project, to attend conferences abroad. Many boxes, with scores of textbooks, have gone to institutions in Mexico, Venezuela, Argentina, Brasil and Spain. We have taught, under Fulbright, the US State Department grants, or cooperative arrangements between the institutions receiving it and the Juarez Project, a dozen faculty development workshops in Mexico, Venezuela and Spain.

An email list provides technology and educational information to over two hundred faculty in Latin America, Spain and Portugal. And all of this has been achieved with a shoestring budget, voluntary work of our Project personnel, donations from private and public institutions (e.g. Fulbright, Fulbright Alumnus, Comexus, SUNY FACT and UUP Union, ASA, US Embassy in Mexico, Mexican Consulate in NYC) as well as with private citizens donations.

In addition, several other parameters help us assess the quality of such achievements. Our Project receives more workshop requests than we can meet. Papers and materials developed from our work and research experiences are published in peer-reviewed journals. We are in the Fulbright Speakers Specialist Roster that will provide funds to deliver more workshops, etc.

But the ultimate assessment is in the genuine warmth with which our work is received and appreciated, by these institutions, and the feeling of accomplishments they provide us all.

5. Summary and Future work

The Juarez Lincoln Marti International Education Project is here to stay. We are constantly looking for new opportunities that allow us to make even more contributions to education in Iberoamerica. Some of these new opportunities include the following:

We seek to develop additional programs and workshops in the area of statistics, math and science education as well as in uses of technology. We are also starting to develop other areas, such as teaching in secondary education, where another Project member has already given short presentations during our workshops abroad.

We are looking into becoming a Non Profit Foundation, in order to be able to submit NSF proposals and to receive grants and donations from foundations and public organizations. With these additional moneys, we can support other instructors with different offerings, more travel and workshops abroad, and send more educational material to Iberoamerica.

Finally, the reader or anyone else wants to find out more about our Juarez Project, provide suggestions, make a donation of books or materials, or just let us know how you feel about our work, they can contact us via the email, postal address or web page given in this paper.

REFERENCES

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RESUMÉ

Le Project Éducationnel “Juarez Lincoln Marti” (<http://web.cortland.edu/matresearch>) est voué au développement de courses de formation professionnelle pour des professeurs des institutions provinciales ou de l'État, dans les pays de l'Amérique Latine et de l'Espagne, qui autrement, auraient de difficultés pour obtenir ce type de services. En outre, notre Project se propose de trouver des bourses pour que des professeurs de 'Amérique Latine puissent venir aux États Unis pour participer a des conférences sur l'éducation. Jusqu'à présent, des bourses ont été octroyées à dix-huit professeurs. Le Project envoie également des manuels aux universités de ces pays et a mis sur pied une liste électronique internationale pour l'échange d'information sur des programmes d'enseignement.