

THE NEED OF STATISTICS EDUCATION JOURNALS IN SPANISH-SPEAKING COUNTRIES: THE CASE OF ‘HIPOTESIS ALTERNATIVA’ (ALTERNATIVE HYPOTHESIS)

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Statistics Education (SE) is a relatively new field of knowledge production that has rapidly evolved during the last decade. An indication of this development is the large amount of information available in the proceedings of professional meetings such as ICOTS. However, it is also a fact that only a small part of Statistics Education activities are disseminated in the Spanish language. This reduces the possibilities for Spanish speaking professors and researchers to be informed about results and advances in the field. Hipotesis Alternativa (HA), or Alternative Hypothesis, an electronic bulletin established in 2000, has been created to try to fulfill that need. The bulletin has been of great help for statistics educators in Spanish-Speaking countries. This paper presents an overview of HA accomplishments and some ideas as to the changes that could be made to improve this bulletin.

INTRODUCTION

The number of publications about research and development in Statistics Education has grown significantly in the last decade, however, most of the publications in the field come from English speaking countries or are written in that language. The majority of books, proceedings of the most important academic events and academic journals are written in English. This fact nonetheless means that there is no academic activity in SE in non-English speaking countries but that English has become the dominant language in international academic communication. The almost exclusive use of English makes it difficult for Spanish speaking teachers, statistics educators, and related professionals to have access to most SE literature.

Taking into account the above situation, in this paper I discuss the need to promote Spanish language Statistic Education publications in Spanish-speaking countries. The lack of these publications may have so far hindered the development of Statistics Education research and development in such countries. So, the importance of a bulletin such as *Hipótesis Alternativa* (HA) is emphasized by examining the role HA has played so far and presenting some ideas for further development in this regard.

ENGLISH AS A PREDOMINANT LANGUAGE IN STATISTICS EDUCATION

For people interested in Statistics Education (SE) it is hardly a secret that most of the publications in this field are published in English. As a result, any Internet search will render huge amounts of relevant academic information but written in English. For example, in the following table, results of WWW searches using *Google*, one of the most popular research tools worldwide, are shown for the two languages considered:

<i>Key terms</i>	<i>English</i>	<i>Spanish</i>
Statistics	207,000,000	1,500,000
Statistics Education	68,100	1,780
Statistics Teaching	11,400	562
Statistics Learning	7,210	287

The figures above show the number of pages found via *Google*. The searches were done by writing the key terms between quotation marks in order to get documents about the whole expression. When writing “statistic education,” with quotation marks, the results shown contain this expression, both words in that same order. Without making judgments about the quality of the pages found, the figures are very suggestive, with a significant difference between both languages. While the results show that 68. 100 pages were in English only 1,780 were in Spanish.

These figures seem to indicate a preference for the English language to communicate in the Web about Statistics Education academic activities.

Estepa (2003) reports a variety of SE research activities SE in either Portuguese or Spanish, and six research groups, two in Argentina (Universidad Nacional de Rio Cuarto y Universidad de Rosario), two in Spain (Universidad de Granada y Grupo de Trabajo: Didáctica de la Estadística, Probabilidad y Combinatoria de la Sociedad Española de Investigación en Educación Matemática), one in Colombia (Universidad Distrital Francisco José de Caldas) and another in Mexico (perteneciente al Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional). However, he mentions only two publications: 'Educación Matemática' and 'Hipótesis Alternativa.' Although that same author states that his review is by no means exhaustive, it presents an overview of the range of SE activities in Latin America, particularly as regards the predominance of English as the *lingua franca* to communicate advancements and findings. He says that papers on SE issues originally written in Spanish or Portuguese tend to remain unknown perhaps due to the fact that such papers need to be translated into English in order to gain access to better-known journals. But also it may be due to lack of academic publications devoted to SE in languages other than English.

Now, when thinking about specialized SE publications *Teaching Statistics*, *Journal of Statistics Education*, and *Statistics Education Research Journal* (SERJ) immediately come to our minds. All of them have English as their official language, but SERJ does publish papers written in Spanish. To my knowledge, no academic SE journals are published in Spanish or Portuguese. Journals like UNO (from Spain) and Quadrante (from Portugal), both from the field of mathematics education (ME), have published special issues devoted to the teaching of probability and statistics. It seems reasonable to think that the lack of academic publications specialized in SE in the Spanish or Portuguese languages may lead SE researchers to submit their papers to mathematics education journals.

The language problem described may also have had an influence on Spanish-speaking researchers' participation, particularly those from Latin America, in the meetings of the *International Conference on Teaching of Statistics* (ICOTS). According to Ottaviani (2002), at several ICOTS meetings, Latin-American researchers have authored only 3.4 per cent of the total of presentations. The reason for this may be that having to write and deliver a presentation in English may seem discouraging for Latin American colleagues.

According to what has been said above, it might seem obvious that a prerequisite to be able to become acquainted with recent SE developments is at least to be able to read in English. This, in general, could not be a problem for a number of Latin-American university professors, but, what about those who do not read well in English? What about beginning university professors who want to start a career in SE? What about Latin-American elementary and high school teachers who want to help improve the teaching of statistics and probability but who cannot read in English? What a university professor facing this situation can do?

THE CASE OF 'HIPOTESIS ALTERNATIVA'

The bulletin *Hipótesis Alternativa* (HA) has been devised to try to solve the language problem mentioned. The bulletin is devoted to the dissemination of SE information. Its first issue was published in July 2000 and its initial aim was to present useful information to the SE community in Venezuela. Since its beginnings, HA was supported by Dr. Brian Phillips (at that time President of IASE) and Dr. Carmen Batanero (then elected President of IASE). At that time the bulletin was distributed only via e-mail to Venezuelan university professors and High School teachers interested in improving the teaching and learning of statistics and probability. Since 2001, HA is found in the web, thanks to a site donated by Dra. Batanero of the Grupo de Investigación sobre Educación Estadística de la Universidad de Granada (www.ugr.es/~iase/Hipotesis.htm) in Spain. Being in the web allowed us to change our strategy of distribution and now we only send interested people a message announcing that a new issue is available in the web page. In this way we avoid to overload e-mails with large files. Statistics educators from Mexico and Spain began contributing to HA since its N° 3 volume (2002) and during Dr. Chris Wild's presidency of IASE, there was a link on IASE's web page to HA.

HA target population includes statistics university teachers (statisticians, sociologists, mathematicians, and so on), mathematics professors, and psychologists, among others; in sum all professionals with a common interest in SE. The main objective has been to help HA to become a means of communication for the broader community interested in SE. In HA book reviews and articles, news about professional meetings, translations of relevant papers written in languages other from Spanish and Portuguese, and information about a variety of resources available in the Internet are published.

Although HA is not a refereed publication, a team of editors and collaborators help assure that contributions received meet a necessary standard of quality in order to be published. In six years of uninterrupted activity we have published eleven issues which have included:

- Translations of papers
- Reviews of SE books
- Information about ICOTS-6 and ICOTS-7
- Original papers in Spanish and Portuguese
- Commentaries about professional meetings
- Information about various professional SE events
- Comments on articles published in issues of the *Statistics Education Research Journal (SERJ)*
- Reviews of web page sites with contents relevant to SE

A permanent HA section is *Agenda de Actividades*, in which information about activities related with mathematics education is published. The purpose of this section is to provide members of the SE community with information about upcoming events so they may participate.

After all these years of publishing HA some positive results can be noticed:

- It has been continuously published since 2000
- It has made available information about international meetings and other professional activities in SE that once were only available in English
- It has published translations into Spanish and Portuguese of important documents.
- A number of authors from Colombia, Cuba, Spain and Mexico have sent their contributions to HA
- Although HA is not an official IASE publication it has received its support
- Being an electronic bulletin allows us to maintain costs of publication and distribution low.

Among the less positive aspects we can mention the following:

- It has been published on a rather irregular basis. For instance, only one issue in one given year and three issues in another year
- We are yet to catch and keep the attention of all members of the Latin-American SE community
- HA has a limited distribution.

Although the balance may be considered positive, certainly the less positive aspects do have an important impact. Although HA does offer important support to statistics educators, it still has plenty of room for improvement.

CHANGES NEEDED IN 'HIPOTESIS ALTERNATIVA'

One thing that must be improved is coverage. Knowledge about HA is limited even within Latin-American countries where most authors come from. It is important for HA to be better known by a higher number of people, particularly in Latin-American countries. This might help provide school teachers and university professors with opportunities to become better acquainted with SE activities. Consequently, HA could interchange more information and be read by more people. Additionally, to broaden readership could also help promote Statistics Education in our countries and therefore contribute to the improvement of statistics education.

HA is edited by a group of only three people and this could mean a problem in the near future. The bulletin's growth and development may mean better ways to fulfill the need of an increasing number of readers which in turn may contribute to more growth and also to the

generation of new perspectives. In this regard, it is important for Latin-American SE researchers to join efforts in order to keep the bulletin going.

In our countries, most statistics educators are interested in improving the teaching of the discipline, an undoubtedly difficult task. However, the more we share experiences, interchange ideas, know the work of others and have access to resources in the internet the less difficult the task will be. Sharing all this information will allow us to develop both a global and a local perspective of SE in our countries, a goal that can be achieved by means of this bulletin. HA can be of great help to statistics educators in both communicating and cooperating with each other, in promoting organization and cohesion among researchers from different Latin-American countries having in mind the improvement of the teaching and learning of statistics and probability in our countries.

Cooperative work is one of the driving forces in statistics education. Is it possible to teach our students to work cooperatively when we are not able to cooperate between ourselves? Cooperative work is certainly nothing new among SE teachers and researchers, but it is particularly important nowadays. In a highly competitive society, statistics educators must emphasize on cooperation in order to achieve the growth of our community and the resolution of the many problems we face.

The idea of working cooperatively to achieve the goal of a consolidated HA bulletin, one that provides real support to the SE Spanish-speaking community must be strongly emphasized. The active participation of all is necessary to achieve such a goal and the commitment to participate may become reality through the following actions: (a) working as a link between HA and your community, (b) contributing with information about SE activities in your country and (c) promoting it in your area of action. Given that the bulletin has its main area of influence Latin-America, it is also necessary to publish papers and information in Portuguese. Statistics educators from Spanish and Portuguese speaking countries working together can help move statistical thinking ahead at all levels in our countries' school systems.

However, it is also necessary to create an organization that helps promote the further development of this project. It seems necessary to establish two Councils, an Advising and an Editorial one respectively. It is also necessary to have an Editor-in-Chief, an Adjunct Editor, and a team of Associate Editors. The duties to be performed by each of these bodies are described below:

Advising Council

The Advising Council would be a consulting body to the Editor Council. It would be integrated by three statistics educators, members of IASE, and of international and national renown. Among their duties will be:

- To advise the Editorial Council on editorial policy, strategies for bulletin development, and so on.
- To advise the Editorial Council on relevant matters.
- To supervise the general organization of HA
- To oversee the Editorial Council's activities and the accomplishment of regulations

Editorial Council

The Editorial Council will be integrated by seven (7) statistics educators whose native languages are either Spanish or Portuguese. This is so to try to assure the soundness of both theoretical and methodological perspectives, and also of institutional and geographical plurality. It will be a body aimed at conducting decision-making processes, mainly by consensus. Members will be democratically elected by an assembly of statistics educators in each ICOTS event and will remain in charge for a four-year term. The Editor and the Adjunct Editor will be elected from the members of the Editorial Council. Among their duties there are, among others:

- To devise an editorial policy and to seek its fulfillment
- To establish the duties to the Editor, the Adjunct Editor and the Associate Editors
- To plan the annual publication of HA
- To promote the quality and periodicity of the bulletin

- To read and peer-review the contributions received. To contact other statistics educators for help in the process of evaluating manuscripts (using the double blind system) and to decide on publication or rejection by taking into account referee's suggestions.
- To stimulate the participation of colleagues in the processes of promoting and distributing HA
- To help improve the organization among statistics educators in the Spanish and Portuguese-speaking countries.

Editor and Adjunct Editor

The Editor and Adjunct Editor will be responsible for the publication of HA and will be elected from among the members of the Editorial Council. The Editor will act as coordinator of this Council. He or she should work in the best interest of the bulletin, trying to guarantee its quality, and promoting cooperative work among statistics educators from Spanish and Portuguese-speaking countries. This editor will remain two years in office and could be reelected for another term. The duties for both the Editor and the Adjunct Editor will be established by the Editorial Council.

Associate Editors

The group of Associate Editors is built around a number of statistics educators, at least one for each of the participating Spanish or Portuguese-speaking countries. They may self-postulate as an associate editor, but it will be the Editorial Council the one to appoint them. Among their duties there will be: to act as a link between HA and his or her community, to promote the bulletin in his or her country, and to record and send relevant information for the SE community to be published at HA. Associate Editors will remain three years in office and could be reelected for one more term.

The team responsible for publishing HA can make use of the Internet in order to save the geographical distances and to work at a distance due to the fact that this kind of communication is low-cost and time-effective for people located in different countries. It is accepted that cooperative work will help HA become a means of information that is more representative of the diverse range of activities taking place in Statistics Education all over Latin-America and consequently will reach an even larger group of colleagues.

Heading to that end, the work plan proposed here could lay down the bases for making HA a more ambitious publication in both Spanish and Portuguese languages, and exclusively devoted to statistics education matters. The bulletin could be a journal concerned with problems in the teaching and learning of statistics and probability which could be used at its maximum by teachers of different levels of our school systems. Also, HA could be the first of a series of joint accomplishments made by Spanish or Portuguese-speaking statistics educators.

CONCLUSION

English is the predominant language of communication among statistics educators around the world. There are very few publications about Statistics Education in Spanish or Portuguese languages. 'Hipótesis Alternativa' is the only publication in Spanish devoted to Statistics Education. HA has uninterruptedly published a wealth of interesting information for statistics teachers, professors, and researchers during six. HA should be kept as an electronic bulletin of an informative type whose main objective is to serve as a link between the community of Portuguese or Spanish-speaking statistics educators in the region. To attain this objective it is important that: (a) the bulletin is published regularly at given dates during each year, (b) continuity and periodicity of the bulletin is guaranteed, and (c) involvement of as many people as possible in knowing about and promoting the bulleting is achieved. It must be emphasized that cooperative work among statistics educators in Spanish or Portuguese-speaking countries, specially from Latin-America, is fundamental for reaching the above mentioned goals.

It must also be emphasized that only a common effort on the part of all statistics educators in the region can help develop a bulletin that really portraits what is going on in our Statistics Education community. Participation of an even larger number of statistics educators in

the project *Hipótesis Alternativa* will increase the possibility to have an organized and united professional community interested in statistics education in our Spanish and Portuguese-speaking countries.

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