

STATISTICAL LITERACY HATCHING

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ABSTRACT

In Mexico there are 22 million children and teenagers around 6 and 15 years old, who represent 29% of its population. The National Institute of Statistics and Geography in Mexico (INEGI) is looking forward to increase the use of statistic and geographic data in all society sectors. To achieve this goal, specially in people in the referred age, INEGI has established an agreement with the Ministry of Education, in charge of National Education for elementary and high school students, in order to include statistical and geographical information in all the available channels as text books, computer programs and videos. At the same time, INEGI offers a dedicated section in the institutional INEGI website. To close the circle, INEGI together with Aguascalientes' Universty, developed a Statistical course, made specifically for elementary school teachers, to teach them on the large variety of information INEGI produces and how to link it with their syllabus.

Key words: INEGI, Ministry of Education, synergy, children and teenagers, statistics, dissemination, learning objects.

INTRODUCTION

INEGI, as other statistical Institutions around the world, has decided to improve the way to disseminate statistics using diverse channels and strategies. INEGI looks forward to evolve constantly and deliver statistics closer to the general population; this in order to make them see that statistics are useful to know and become a solution to better understand different situations, and become easy to use data to compare and analyze. INEGI is working to break the paradigm that statistics are exclusively for specialists, that are difficult or even boring. It is of utmost importance for INEGI to emphasize that when speaking about statistical and geographical information about Mexico, there is nothing to be afraid of, and that everybody uses statistics in the daily life, that also it can be used at work, either for planning, analysis or evaluation.

Under the slogan, Knowing Mexico (*'Conociendo México'*), INEGI encourage people to identify statistics as tools to learn about the country through data, for instance about its population, its economics, its national security, geography and environment.

Children and teenagers between 6 and 15 years old become a strategic target because it involves 22 million students directly and in addition, their teachers and indirectly their parents. That's why INEGI looks for a renovated agreement with the Ministry of Education, and through this, to establish a Committee and special task force to implement a workprogram with clear commitment dates and people in charge.

In order to ensure an effective dissemination and understanding of statistics in this target, INEGI measures the quantity of information, uses a familiar language, creates short stories, generalizations, images, comparisons, and other didactic activities. Also uses statistical georeferencing as a way to improve statistical value.

TAKING STATISTICS CLOSE TO CHILDREN AND TEENAGERS TEXT BOOKS

In Mexico the Ministry of Education edits 52 books about 14 subjects, and delivers all over the country, each school period at no cost for students, to all elementary schools, including public and private. Each of every 15.5 million students of elementary school receive a hole package. Also to note, it is remarkable to consider that in many houses these books become the only family library available, so it gives INEGI a chance to be closer to lowest income people.

INEGI has worked together with developers of these books since 2007 and has contributed in conjunction with specialized committees in many ways, for instance: taking care of the last updates, delivering information that can be suitable to enrich themes or identifying contents to suggest links to the website '*Tell me about México*' at INEGI's web page.

In 2012, INEGI handed 60 contents, using as preference different kind of graphics and thematic cartography instead of simple text.

Considering that children can reply messages to their parents at home and in order to reinforce people's responses to census and surveys, INEGI produced 6 short text stories about interviewee's work, those were reviewed by the Education Ministry and were included in the reading books of all elementary school levels (14.5 millions books).

COMPUTER PROGRAMS

There are huge differences between school infrastructures all over the country, in one hand there are schools equipped with media classrooms, or even media facilities in every classroom, but in the other hand, there are rural schools with limited technology. For the first group, the Mexican Education Ministry developed computer programs as learning objects, in order to improve students retention and comprehension. All of them are available in a specific url where this information is clearly clasified by subject and grade.

INEGI has adapted 34 computer programs as learning objects to be part of these resources.

INEGI together with Mexican Education Ministry, also developed a Geography Consulting System that shows selective statistic information such as: total population, men and women percentage, data breakdown as population between 6 and 11 years old, school level, percentage of native language speakers, Gross Domestic Product (GDP), main economic activity, and others. All this data is georeferenciated from rural towns up to the 32 states of the country. Thematic information is organized by layers with visual cartography.

In addition, Mexico's President Enrique Peña Nieto, committed to deliver laptops to fifth and sixth grade students in elementary public schools from 2013- 2014. Since not all the schools have internet connection, the computers will be already installed with built in programs and learning objects, included those INEGI has adapted but also a local version of the site *Tell me about México*.

VIDEOS

Video is an educational technology tool of extended use and because of its efficacy, it can be used either in presential or online education. Allows to count with the best instructor in an specific subject and also with the best selection of didactic materials for a better concept comprehension.

In this way, the Mexican Education Ministry also develops educational videos, as the main learning object in rural highschool program known as 'Telesecundaria', as a way to improve quality education in those areas. Telesecundaria attends 20.7 % of students in highschool.

As part of the agreement with the Mexican Education Ministry, INEGI created last year, four videos- three minutes long- for Telesecundaria; they have been watched between their approved programing. They have also been shown during formal teacher training programs. One of them is about INEGI; another is about statistics used in ordinary life showing examples of soccer statistics and grade averages at school; one more about economic statistics needed to built a town and finally, statistics georeferentiation.

INTERNET SITE: Tell me about México

This site is online since 2005 its target are elementary school students and teachers, and also non specialized persons. From then to now, a significative increase in visits has been registered, receiving up to 3.5 million visits per year.

The site *Tell me about México section* receive the 30% of visits at institutional site (11.5 million). Many of the contents of this site, were adapted to learning objectives in order to be used in some programs of the Mexican Education Ministry. In addition, a local version, will be part of

the contents of laptops to be distributed in September to all fifth and sixth grade public school students.

In this site, INEGI measures the quantity of data, and always offers a link to the complete information. Familiar language is used, easy to understand, and set in easy to grasp technical terms including an explanation. INEGI also uses short stories, as the created for text books, generalizations, to get simple data, without decimals. Also presents images, when it is pertinent, comparisons and analogies, and other didactic activities to reinforce the teaching-learning process. Also uses statistical georeferencing as a way to improve statistical value.

STATISTICAL COURSE FOR ELEMENTARY SCHOOL TEACHERS

Teachers in Mexico are under continuous training, therefore they must take some kind of training along the school period but also during vacation time. Ministry of Education extends each year an invitation to Universities around the country, to develop courses, from courses to graduate programs, specially created for elementary school teachers. After a careful review, courses that fulfill all established requirements are validated and a punctuation is assigned to each option.

Before 2012, there were no available course or seminar on this subject; this is the reason, why, INEGI, together with Aguascalientes' University, developed a 40 hours course *Conociendo México en el Camino de la Estadística* (Knowing Mexico in the Way of Statistics) in presential modality.

The course includes the following themes: Official statistics generation (Statistics in my daily life, Official statistics recruitment methods and Official statistics in Mexico), Statistics dissemination (Official information in Media, Ways to summarize statistics and Ways to present statistics), Consulting tools at INEGI's web page (Information centers, INEGI's web site) and My community in numbers

CONCLUSION

INEGI looks for synergies with different institutions, to improve statistics dissemination and comprehension, in order to increase its use and benefits as much as possible. Together with the Mexican Ministry of Education, INEGI has established a win-win situation, where INEGI uses the channels of the Ministry to get into children and teenagers and the Ministry has an enriching channel to get information from and to give better teaching elements to their students and staff.