ISLPNewsletter

Newsletter of the International Statistical Literacy Project

1(8) January 2015

Editorial

Dear member of the ISLP cooperation network,

Another year is over and what's even better is that many good projects that promote statistical literacy have been furthered all over the world. Thanks to you all for that! Our network has now over **120** Country Coordinators.

Currently 32 countries have announced that they will participate in the **ISLP poster competition**. Fabulous! If your country has not participated in the competition yet, there is still time. The posters should be submitted by 14 March 2015. For more information about the competition contact your Country Coordinator or go to the ISLP page http://iase-web.org/islp/

Did you know that ISLP has its own **Facebook** page https://www.facebook.com/islp.project? On the page, you can read about events and get information on related topical issues.

ISI2015 is approaching. I hope we will meet there. As usual, ISLP will organise an open meeting for its friends.

A warm thank you for all your cooperation in 2014 and let's hope for an energetic 2015 - the year of statistical literacy!

Reija Helenius, Pedro Campos and Steve MacFeely

ISLPNewsletter is the newsletter of the International Statistical Literacy Project of the IASE – the International Association for Statistical Education.

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visit us at: http://iase-web.org/islp/

Welcome to Brazil 2015

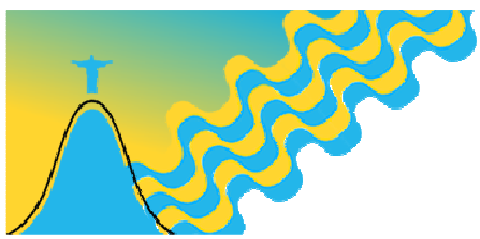
ISI2015 and IASE Satellite are waiting for you!

This year you will have several opportunities to join other members of the statistical community to present, discuss, promote and disseminate research and best practice in every field of Statistics and its applications. The Scientific Programme of the ISI2015 (26-31 July) will include a wealth of activities that will cover stimulating topics and will offer delegates innovative and well-balanced presentations, as well as plenty of opportunities for discussion and exchange.

The 60th World Statistics Congress is the flagship conference of the International Statistical Institute (ISI) and its seven associations. It is a biennial conference with a rich tradition, and IBGE (the Brazilian Statistical Office) is pleased to host and organize ISI2015 in Brazil.

Short courses, satellite meetings and other pre-conferences are going to take place near Rio just before the 60th World Statistics Congress.

The IASE 2015 Satellite Conference will also be held in Rio de Janeiro between 22 and 24 July. The Satellite will bring together a group of experts, scholars, practitioners, and researchers, representing as many different countries as possible, to discuss views and approaches related to the Conference theme: Advances in statistics education - developments, experiences, and assessments. Four topics are the focus of the conference : (1) Motivating teachers and students; (2) Big data, official statistics and statistics education; (3) Advancing Statistical education using technology and mobile devices, (4) and Statistics education in the age of social networking and distance education. We invite you to present your work at the Conference (poster or oral communication), until 6 February via the submission page at http://iase-web.org/conference/satellite15/



ISLP in brief...

Introducing Two Campaigns to Raise Awareness of Statistical Science

*By Ronald L. Wasserstein**

Here at the American Statistical Association (ASA) we actively are engaged in two endeavors to increase awareness of statistics and the importance of statistical literacy. Those are The World of Statistics network and the "This is Statistics" campaign. The World of Statistics—the successor to the highly successful International Year of Statistics campaign celebrated in 2013—is a global network of more 2,350 organizations worldwide. The ASA administers this network.

The primary goals of The World of Statistics are focused on increasing awareness of statistics and the importance statistical literacy among the world's population and nurturing statistics as a career option among young people. Most people do not know the science of statistics has powerful and far-reaching effects. They also are unaware of their connection to statistics and how it improves their everyday lives.

The World of Statistics website promotes these public-focused goals by providing regular blogs on applications of statistics that are bettering the global society, information about the many interesting and rewarding careers in statistics, and up-to-date information about statistical events and activities worldwide. Participating organizations in The World of Statistics include national and international professional statistical societies, colleges and universities, primary and secondary schools, businesses, government and national statistical agencies, and research institutes. These organizations are located in nearly 130 countries spanning the globe.

The World of Statistics is a big tent, meaning your organization's participation is encouraged. I invite your organization to join us today. Click here to join now.

The ASA also recently launched a public awareness campaign—called This is Statistics—to encourage secondary-school and college-undergraduate students to take statistics courses in college or major in the field. As the proliferation of data increases, today's students will need a solid understanding of statistics and its myriad applications no matter the field of work they will pursue once completing their college degree.

The campaign website provides information about statistics and career opportunities to students and to those individuals who influence their college-related decisions. These secondary audiences are parents, statistics instructors in secondary schools and colleges, and counselors at both levels.
This campaign, which launched in August 2014 and will continue throughout 2015, will help students and parents gain a better understanding of a scientific field that is often unknown or misunderstood. Its key message is: "Statistics is so much more than you imagine. It's an exciting—even fun—way of looking at the world and gaining insights through a scientific approach that rewards creative thinking."

I invite you to go to the website and tell us know what you think of this ASA awareness campaign. Email your feedback to ASA Public Relations Coordinator Jeff Myers at jeffrey@amstat.org.

** Executive Director, American Statistical Association*

Event Report of National Statistical Literacy Poster Competition 2014-15

By Rahul Pratap Singh Kaurav and D. S. Hooda***

"Education is the most powerful weapon which you can use to change the world ....as it is rightly said that an investment in knowledge pays the best interest".

The event was organised under the collaborative banner of ISLP (a project of IASE - International Association of Statistical Education), Auckland and Prestige Institute of Management, Gwalior. It was held on October 16, 2014 as a part of National Mega Fest of PIM named "Spandan-2014".

In total 27 teams participated; 17 junior teams and 10 senior teams. Geographically, there were 16 national teams and 11 teams from Gwalior, the local region. Specifically 5 states were represented in the event: Rajasthan; Madhya Pradesh; Uttar Pradesh; West Bengal; and Telangana. Technically, 4 electronic posters and 23 handmade posters (with the physical presence of students) were presented at the event.

The jury members for the event were:

- Dr. J. P. Verma, Professor (Statistics), Lakshmibai National Institute of Physical Education, Gwalior.
- Dr. S. S. Bhakar, Professor (Data Analytics) and Director, Prestige Institute of Management, Gwalior.
- Dr. Vinay Singh, Assistant Professor (Marketing Research), ABV-Indian Institute of Information Technology and Management, Gwalior.

Following the jury visit, a valedictory and award ceremony was organized. Special guests of the ceremony were:

- Chief Guest: Dr. J. P. Verma, Professor (Statistics), Lakshmibai National Institute of Physical Education, Gwalior.
- Guest of Honour: Dr. Dev Vaish, Head-Quality Assurance, UNICEF, Copenhegen.

The winners and runners-up were:

Senior category:

1. Gwalior Glory School, Gwalior
2. Carmel Convent School, Gwalior
3. Shanti International Public School, Datia

Junior Category:

1. Gwalior Glory School, Gwalior
2. Woodstock Public School, Gwalior
3. Gayatri Public School, Agra

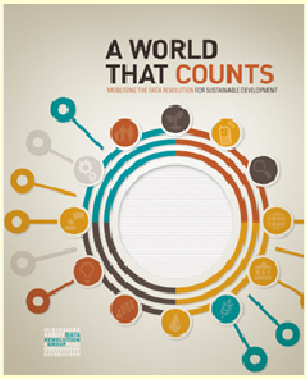
The students of both categories were awarded monetary prizes: INR 5000, INR 3000 and INR 2000 for first, second and third position respectively. These prizes were generously sponsored by Dr. DS Hooda, Professor and Dean (Research), Jaypee University of Engineering and Technology, Guna.

With the note of thanks, I present the event report. Thank you very much.

** ISLP Country Coordinator, India. Assistant Professor, Jiwaji University, Gwalior, Management department*

*** ISLP Country Coordinator, India. Professor, Jaypee Institute of Engineering and Technology.*

Mobilising the Data Revolution for Sustainable Development and Statistical Literacy



*by Irena Krizman**

On 6 November, 2014 the UN Secretary-General's Independent Expert Advisory Group on the Data Revolution for Sustainable Development launched their report entitled 'A World that Counts'. In the publication the need for a data revolution for sustainable development is summarised:
"*New technologies are leading to an exponential increase in the volume and types of data available, creating unprecedented possibilities for informing and transforming society and protecting the environment. Governments, companies, researchers and citizen groups are in a ferment of experimentation, innovation and adaptation to the new world of data, a world in which data are bigger, faster and more detailed than ever before. Some are already living in this new world. But too many people, organisations and governments are excluded because of lack of resources, knowledge, capacity or opportunity. There are huge and growing inequalities in access to data and information and in the ability to use it.*"
The report highlights two big global challenges: The challenge of 'invisibility' (gaps in what we know from data and when we find out) and the challenge of 'inequality' (gaps between those with and without information and what they need to know to make decisions).

This report calls on governments and the UN to act to enable data to play its full role in the realisation of sustainable development by closing key gaps in access and use of data and to mitigate the risks of harm and abuses of human rights.

The Post-2015 Development Agenda requires that nobody should be left behind. Countries are encouraged to build the capacity to produce good quality and comparable data - social, economic and environmental information to internationally comparable standards. 'A World that Counts' stresses the need for increased funding and resources, necessary to develop both national capacity and **global data literacy**. The report also highlights the potential for public-private partnerships to leverage private sector resources and knowledge.

The ISI mission is to link institutions and professionals working in statistics worldwide. This framework of people and organisations can be utilised to improve statistics in all countries but particularly in the developing world. ISI and Associations, especially the International Association for Statistical Education (IASE), have been very successful in improving statistical literacy - one important activity is the International Statistical Literacy project (ISLP). At country level, there are many players who can contribute to the improvement of statistical literacy. The continuous cooperation among NSO's, statistical societies and ministries responsible for education and labour market is needed to review school curricula at all levels. New partnerships with employers from the public and private sector can also help to design educational and training programs to address the challenges of the data revolution. Data producers and media can contribute to improving the statistical literacy of citizens.

To ensure that the data revolution serves the Post-2015 development agenda, PARIS21 has launched the "Informing a Data Revolution" project (IDR). IDR focuses on national statistical systems in developing countries. IDR's draft Road Map focuses on capacity building, leadership but also technology and financing in 139 developing countries.

In the above mentioned context the ISLP Project is more relevant than ever. I would like to thank everyone who has dedicated their time to make these projects a success. My Best Wishes for the future.

** ISI Vice-President*

Report from Japan

The 62nd national statistics graph competition

by Michiko Watanabe*

Okinawa Prefectural Gushikawa Commercial High School Students won the special prize by Minister of Internal Affairs and Communications with their work titled as "Eating" is “Living”. We have to thank the source of livestock for their "lives”

National statistics graph competition

National Statistics graph competition has been implemented since 1953 organized by Ministry of Internal Affairs and Communications, Statistics Research and Development Center, under the auspices and sponsorship of related organizations such as the Ministry of Education. the purpose of that is to deepen the people’s understanding of the statistical survey, those that, it is being implemented (public goods) as well as to get to know the usefulness of making use of the statistics in daily life, through the creation of statistics graph.

The process of Review

This year, which marks the 62nd round, in all six categories, from elementary and junior high school students across Japan to adults, there are many applicants that span a total of 25,094 pieces. For them the first round of review serves as a statistics graph competiton of each prefecture in Japan, then a second-order review is by the Ministry of Internal Affairs and Communications staff, etc., and last the review committee of the national statistics graph competition (Jury President: Professor Michiko Watanabe, Graduate School of Keio University) performs a final review, to determine the specialties work and Selected Works of each part with, from among the specialties 6 work, especially as excellent work, "the Minister of Internal Affairs and Communications special Award", "Minister of Education, Culture, Sports Award" was selected by one piece.

Ceremony of Awards

Commendation of various winners including the "Minister of Internal Affairs and Communications Special Award" took place on the occasion of the 64th workshop for celebration to the national statistics day on November 19, 2014, at Arts Building Great Hall in Tokyo National Olympics Memorial Youth Center where the posters of the awards were exhibited also in venue.

* *ISLP Country Coordinator, Japan and Professor of Statistics at Faculty of Economics in Toyo*

Fig. 1. Minister of Internal Affairs and Communications Special Award

Fig. 2. "Eating" is “Living” ; we have to thank the source of livestock for their "lives"
Authors; Okinawa Prefecture Gushikawa Commercial High School
Kisaki Nagamine, Hikari Arakaki, Nanami Miyagi

沖縄からの受賞者の皆さん

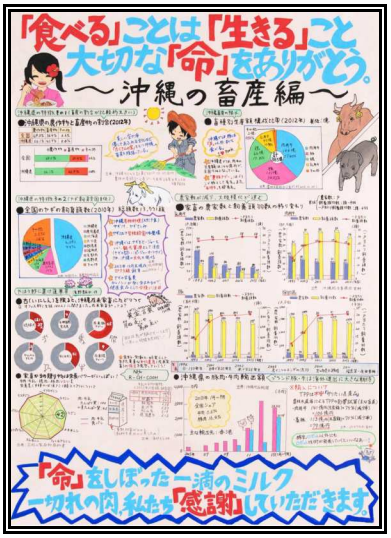


Fig. 3. Minister of Education, Culture, Sports Award

Report from Japan
(cont. From previous page)

Fig. 4 Yeast cells are alive" Authors; Kyoto Prefecture Kyoto City Otoha Elementary school, Risa Inanami (Grade 2)

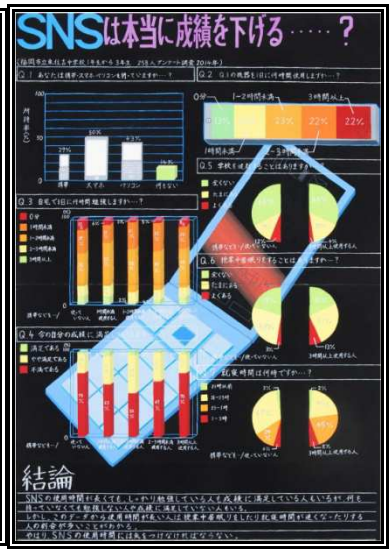
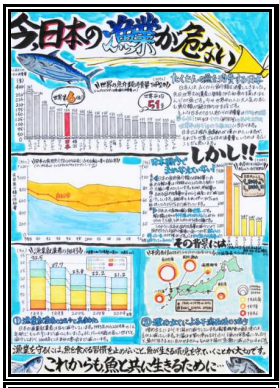
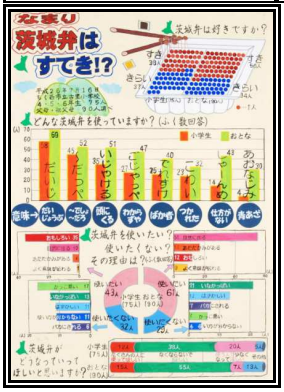


Fig. 5. Other special awards





Other Exhibition Event

Awarded posters, as part of the related events of "National Statistics Day", was exhibited in the "Statistical data graph Fair" which was held October 18 to 19 at Shinjuku Station West Square events Corner was.

Also awarded posters in statistics graph contest of each prefecture, were exhibited at the exhibition places of each prefecture.

Fig. 6. At Shinjuku JR Station in Japan

How Can We Prepare Students For An Ever-Changing World of Data & Statistics?

By Helen MacGillivray*

Educators at all levels and in all disciplines know their students will follow many paths and be involved in future challenges whose nature is not yet envisaged, and this uncertainty is of particular relevance in to Statistics teachers. There are many reasons for this, including the escalating pervasiveness and importance of Statistics across disciplines and societies that comes with the ever-increasing access to raw data, technological capacity and demand for quantitative information. But these are simply aspects of the nature of Statistics, which is variously described in terms which include reference to the science of data, or information, or variation, or uncertainty, or combinations of these. It is the nature of Statistics, as the science of variation and uncertainty, as well as its pervasiveness, importance and responsiveness to changes, which makes it both challenging and everlastingly interesting to teach. And this applies across all stages and contexts of education, be it in regard to statistical literacy, statistical application or statistical training. It is little wonder that those who teach Statistics in all its forms may sometimes feel beset by the extent and diversity of needs of their audiences.

There is no question that Statistics has and continues to develop alongside the growth in information technologies, in acquiring, handling and analysing data, and in statistical teaching, research and 'service'. Amidst the current focus on 'Big Data', Wikipedia notes that "The world's technological per-capita capacity to store information has roughly doubled every 40 months since the 1980s" (http://en.wikipedia.org/wiki/Big_data). But we must remember that Statistics is not merely use of technologies – indeed, whether we are dealing with small or extraordinarily large datasets, it is statistically essential to know and report how the data were obtained, and to understand the importance of this process. Much of the progress in Statistics education in the past three decades links with the advocacy of statistical practice, including the full statistical investigation cycle which has been described in various terms, but always with emphasis on the interplay between the planning, obtaining, handling, interpreting and reporting components of an investigation. Statisticians and statistics educators again and again emphasize that "it is important to take part in the collection of data, or at least have the opportunity to watch data being collected or generated." (Kenett and Thyregod, 2006).

The ISLP poster competition is just one example of contributing to this important facet of developing statistical thinking. Visualisation and simulation are also vital technology-facilitated aspects of Statistics, but, no matter how little or great our students' access to technology, the fundamental learning lies in seeing and experiencing data and variation. Even if only the teacher has significant access to technology, clever pedagogical use can provide lasting foundational benefits for students, no matter what their future learning or career paths. As students gradually experience the different types of datasets, moving from categorical to quantitative and from one to two to many variables, the focus should be on looking at graphical representations, and on as many different datasets as

Emphasis placed on exploring the appropriateness of various graphs for specific types of data, and on discovering the pluses and minuses of different graphical displays across diverse and engaging datasets are important for experiential learning in Statistics. Examples include: how to make best use of bar graphs for two categorical variables; how much the 'picture' provided by a histogram can vary with choice of location and bin width for anything but large datasets; and how the usefulness of boxplots must be tempered by understanding what they cannot reveal. Ekstrom (2014) provides a wonderful example of this with his 'Wally plots' in the context of looking at residuals in regression, emphasizing also that students should become accustomed to querying assumptions as soon as they are introduced to a statistical method no matter how simple.

It seems to be human nature to be averse to uncertainty and imprecision, and both individuals and disciplines tend to develop their own statistical frameworks - customs, jargon and even rules. We need to be careful not to substitute new 'rules' for old, and to ensure that habits and terms which may have outlived their usefulness do not inhibit development of statistical understanding. There is no need these days to restrict attention to just one or two variables – even when introducing simple concepts, graphs or methods, using part of a rich many-variabled dataset is invaluable for students' long-term authentic foundations. It is also essential to link with raw data – for example, we estimate proportions by collecting and averaging Bernoulli data. It is time to put the binomial in its teaching place – in terms of what binomial data are and in encouraging students to query binomial assumptions. Other classic examples of causing student misconceptions come from excessive or inappropriate use of the word 'population' (Lu and Henning, 2013) and from probability jargon such as 'experimental', 'theoretical', 'subjective' instead of explaining that probabilities are assigned by estimation, modelling or both. By introducing the concepts of parameters through thinking about what data-based numerical quantities are estimating in general, we also lay foundations for notions of models and assumptions as well as always keeping in mind how and why the data were collected. And do students really need to see theoretical aspects of 'sampling distributions' to start seeing and observing how samples vary, and thence how quantities calculated from samples vary?

It is no accident that the writings of practising statisticians are invaluable support and illumination for teachers. The late Victor Barnett (see Davies and MacGillivray, 2014) commented (Barnett, 1986) that statistical consulting is the basis for teaching and research, a sentiment echoed by Joiner's (2005) inclusion of being a good teacher on his list of twenty-two skills for effective statistical consulting. Joiner also listed, "Be able to listen carefully and to ask probing questions". A similar saying both precious and comforting for all teachers of Statistics could be, "Be able to listen carefully to your students and to ask questions of your peers".

Barnett, V. (1986) Statistical consultancy - a basis for teaching and research. In Davidson, R. (ed) The Proceedings IASE/ISI 2nd International Conference on Teaching Statistics, Vancouver: ISI, Voorburg, The Netherlands. http://iase-web.org/documents/papers/icots2/Barnett.pdf

Davies, N. and MacGillivray, H. (2014) Obituary. Teaching Statistics, 36 (3), 97-98.

Ekstrom, C (2014) Teaching 'Instant Experience' with Graphical Model Validation Techniques. Teaching Statistics, 36 (1), 23-26

Joiner, B. (2005) Statistical consulting. In Kotz, S., Balakrishnan, N., Read, C. and Vidakovic, D. (ed) Encyclopedia of Statistical Sciences (2nd edn) Wiley.

Kenett, R. and Thyregod, P. (2006). Aspects of statistical consulting not taught by academia. Statistica Neerlandica, 60(3), 396-411.

Lu, Y. And Henning, K. (2013) Are statisticians cold-blooded bosses? a new perspective on the 'old' concept of statistical population. Teaching Statistics 35 (1), 66-71

*ISI Vice-President

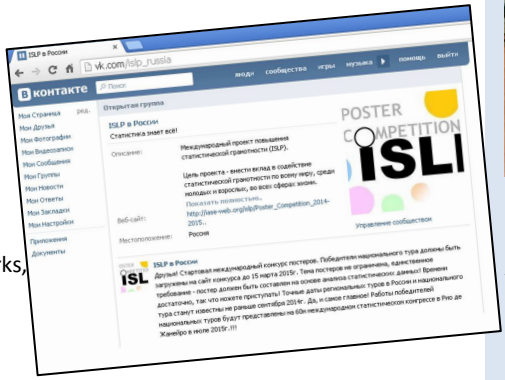
Improving Statistical Literacy of Citizens is the Main Goal of the Russian Association of Statisticians

*By M. Ju. Balakhnev **

The inaugural Congress of the Russian Association of Statisticians (RAS) was held at the 'XV April' International Conference Centre on April 2, 2014 in Moscow. The theme of the congress was Economic and Social Development and representatives of 45 regions of the Russian Federation took part.

A decision to create a Russian public organization "Russian Association of Statisticians" was made at the congress. Irina Eliseeva, Doctor of Economics, Professor, Corresponding Member of the Russian Academy of Sciences, Honoured Scientist of Russia and Director of the Sociological Institute of Russian Academy of Sciences was elected Scientific director of the RAS; Alexei Ponomarenko, Director of the International Institute for Vocational Education Statistics of the National Research University "Higher School of Economics" was elected Chairman of the Board. Alexander Surinov, Head of Rosstat; Chairman of the Interstate Statistical Vladimir Sokolin, Committee of the CIS; Ada van Krimpen, Director of the International Statistical Institute (ISI); Toshinari Kamakura, Executive Director of the Japanese Statistical Society and the Japanese Federation of Statistical Scientific Associations; John Pullinger, President of the Royal Statistical Society (United Kingdom) and Rohn Wasserstein, Executive Director of American Statistical Association were all present to address and congratulate the inaugural congress.

The priorities of the association were identified as: promoting the popularization of statistics in the Russian Federation;promoting statistical literacy among all levels of society; intensifying efforts to conduct statistical research and scientific training; development of comprehensive cooperation with the media and among statisticians of different regions and countries, promoting linkages between statistical science, education and practice; promoting peace, friendship, trust and understanding between peoples, consolidating with national, regional and international organizations, the statistical community. With the support of the RAS, some active employees of the regional Rosstat offices, acting as ISLP coordinators, have organized a statistical poster competition for schools. Close communication between coordinators and students via social networks, as well as cooperation with the regional department of education, has made it possible to coordinate the timing of the regional rounds and undertake the necessary consultations with all those interested. More than 100 students (37 teams) from different schools around Russia registered before December 1, 2014. Regional juries will make their decisions before February 10, 2015. Winning regional posters will then be sent to the competition commission of Rosstat. The national jury will adjudicate before February 15, 2015.



* ISLP coordinator in Orel region, Russia,
Head of the Department of summary statistical works, regional accounts and balance sheets of Rosstat regional office

The ISLP Poster Competition and… IN-SERVICE Teachers Training???

*By Hugo Hernándes Trevethan**

Perhaps my headline seems a little bit odd? It may lead readers to think that students participating in the competition are now providing in-service teacher training…well, in a way they are!

The 2014-2015 Poster Competition has been sponsored by the National University, through a seminar in Mathematics Education, known as SUMEM. The National University and SUMEM are very interested in the ISLP and are keen to support and promote the Competition.

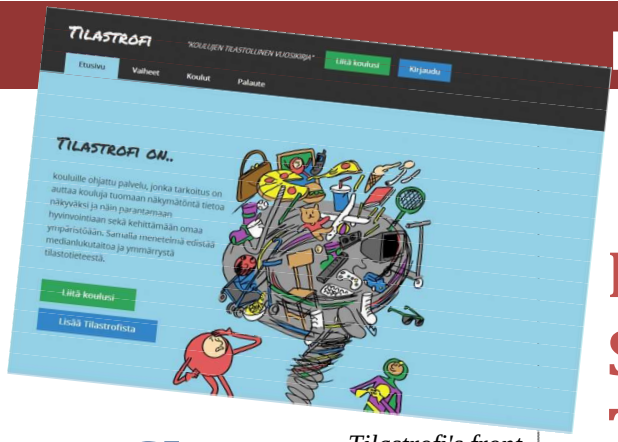
In Mexico statistics and mathematics are not integrated but separate subjects. So interest in the ISLP has had unexpected consequences. When groups of students began asking their teachers to register them for the Competition and to give them advice or assistance on designing statistical posters, teachers realised they needed to improve their knowledge on the subject. Teachers were saying "I'm a Math teacher - I don't know anything about Statistics".

So, through SUMEM, statistics workshops were offered to teachers, mainly dealing with sampling, statistical literacy and informal inference. Resources on the use of technologies in statistics, the ISLP, datasets and guidance on the responsible use of images were also made available via the Web. It is hoped that teachers will share this information with all their students, and not just those participating in the Competition.

So, can the ISLP Poster Competition be a tool for in-service teachers' training? YES, IT CERTANLY CAN!

* *ISLP Country Coordinator, Mexico - Universidad Nacional Autónoma de México*

What is Tilastrofi?



Tilastrofi's front page

*By Reija Helenius**

In recent years, Statistics Finland has invested in cooperation with young people and students.That is great, because this investments carries long into the future. Young people are our future data suppliers, decision makers and data users. A key objective of this cooperation has been to ensure that statistics are not a scary monster or a source of boredom for young people but rather something that promotes curiosity and excitement. Statistics can also be a good tool in the everyday life of schools - this is the philosophy of the 'Statistical Yearbook for Children' project. The project is carried out in cooperation between Statistics Finland, Forum Virium, City of Helsinki Urban Facts, Mathland, Summamutikka and Aalto University. The Statistical Yearbook for children project has developed the 'Tilastrofi' operating model, where the objective is to encourage children to examine their own life and produce information about issues that matter to them through statistical methods. Tilastrofi contains various tools for children to define their research questions, collect data and visualise data. These tools, like statistics and data visualisations produced by the students are published on the Tilastro.fi page.

The work guides children towards cooperation, and developing and influencing their own operating environment. For schools 'Tilastrofi' offers a participative way to carry out the education curriculum and produce new data on, for example, students' wellbeing. Statistics Finland has, from the start, been part of the project as an expert guide, both when it comes to the correct use of statistics and as a reliable source of data. The e-learning materials of the eCourse in statistics (Tilastokoulu) are also used as support material in school projects.
At the end of November, 100 primary school students with their teachers from the Helsinki region visited Statistics Finland. They presented their research projects and experts from Statistics Finland gave them feedback on the work they had carried out. The event gathered a lot of positive media attention. Some of the children and teachers involved in the project were interviewed on breakfast television. In addition, several reporters who attended the event wrote about it; one article was headlined: 'We need more of this'.

I concur: yes, we do.

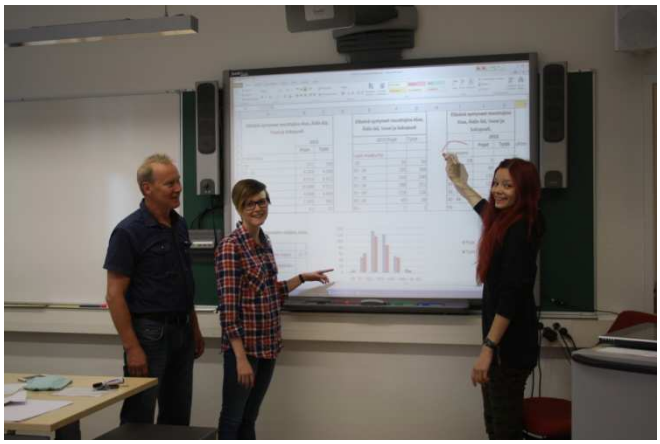
** ISLP Director. Head of Development, Statistics Finland.*

How and Why Should Statistics Be Taught in Upper Secondary Schools?

*By Raimo Huhtala**

Statistical research data are needed to make and justify social decisions. Furthermore, I would argue that statistical literacy is essential in order to understand those decisions. We know from experience that statistics presented in the media are often confusing for those who are statistically "illiterate". A basic knowledge of statistics, will allow you to understand and follow social development more objectively.

In Finland, upper secondary schools offer only one, half course of mandatory statistics as part of the course on probability calculus. In my opinion this is not enough, so I wrote a school-specific statistics course to supplement the general upper secondary school syllabus. This optional course offers a better opportunity to study the acquisition, presentation and analyses of statistical data through self-selected research topics. No textbook is needed for this course, partially thanks to Statistics Finland's eCourse in statistics, which is available online. I divide the students on the course into groups of two or three people; these groups study the eCourse in statistics on laptops. I circulate through the groups and monitor their progress to ensure that they are learning.



At the end of the statistics course the students present their research to one another.

The eCourse in statistics helps us to get started quickly and in a way that is interesting to the students. We also practice Excel skills by using statistical functions and by making graphs, for example, on population and economic statistics, which are easily available on Statistics Finland's webpage. For the final part of the course, students compile their own survey questionnaire. Depending on their interests these may cover topics like school dinners, lifestyle issues or hobbies. The students present their findings to each other using PowerPoint, posters or Excel worksheets. Every year a small but enthusiastic group of students take part in the course.

** teacher of mathematics, Rovaniemen Lyseonpuiston lukio*

Spreading Statistical Literacy in Spain

by Ana Serrado Bayes

Although Spain has been participating in the local, national and international phases of the ISLP Competitions since 2008, it has been difficult to spread the information about the ISLP Poster Competition. Nevertheless, some national inititatives have emerged in the last three years, namely: the competitions "Incubadora de Sondeos de Experimentos" y "Olimpiada Estadística".

The Statistical and Operative Investigation Society (SEIO) in coordination with INE (the Spanish National Statistical Agency) and local universtities organize both competitions. These competitions share a common mission with the ISLP - to promote students curiosity and interest about statistics and encourage teachers to use real data with the aim of helping students to appreciate the utility of statistics in the 21st century and the value of studying statistics at university.

In both competitions, the same categories are used in the ISLP "Poster Competition", encouraging students from grades 7 to 12 (ages 12-18) to participate.

In particular, the competition "Incubadora de Sondeos y Experimentos" is organized on two levels: local and national. Individual students or teams selected by local organizations can participate in the national phase of the competition. At the local level, despite quite a diversity of organising committees (Statistical Deparments of Universities, local SEIO teams, or local Statistical Offices) the same rules are applied. Students, individually or in teams of five, are asked to prepare a report on a survey or an experiment they have conducted where they have used statistical techniques or where they have used data provided by the Statistical Offices.
Meanwhile, the "Olimpiada Estadística" has two phases, in which students, individually or in teams, have to prove their statistical knowledge by discussing the correct use and interpretation of statistical data and how to properly develop a statistical inquiry.

I think there is potential for these competitions to form the basis for the local and national phases of the ISLP posters competition in the future.

** ISLP Country Coordinator, Spain and Researcher, Universidad de Cádiz*

ISLP Poster Competition 2014-2015

ISLP is pleased to announce the International Poster Competition for 2014-2015. The competition invites school students from around the world to design a statistical poster. The poster can be about any topic. However, the posters should reflect or illustrate usage analysis, interpretation and communication of statistics or statistical information. Visit us at: http://iase-web.org/islp/Poster_Competition_2014-2015.php

Italy

Playing… statistics
A project for promoting statistical literacy (8 to 12 years old children)

By Cristiana Conti, Francesco Michele Mortati, Marina Peci

Promoting statistical literacy in Italy is a strategic goal for Istat, the National Statistical Institute in Italy. Part of our long standing mission is to make data easy and understandable to reduce information asymmetries and contribute to equal opportunities among citizens.
Particular attention is given to young people. Helping them to experience the role and function of statistics, with appropriate techniques, is seen as an investment in the future.
Working with (very) young people requires some particular operational modalities: simplicity, communicativeness, a playful atmosphere and dynamism. Letting the children learn through a jocular contest seems to us the best way to make them really comprehend statistical concepts and procedures. Obviously, before the games, children must study some statistics with their teachers in the classroom. The alliance and collaboration between teachers and Istat is fundamental; agreeing definitions and techniques and arranging the topics to be taught.
To achieve our purpose we looked towards tradition; in the traditional Italian children's board game "Goose Game" two or more players confront each other. Each player must accomplish a path illustrated on a board, going ahead according to the steps decided with a die. Along the path players face dangers, obstacles and skill tests they must overcome to reach the finish line. We designed a statistical game that follows the structure of this "Goose Game". Players follow a path in which there are simple statistical questions, classical obstacles (go backward one or two boxes), facilitations (move forward one or two boxes) and 'collective performances', such as for example, perform a "living histogram" based on the height of the players in the team. The difference with the classic game and the statistical game is that the former is based on a little table board whereas in the latter players are using real boxes, arranged in a real space. So children must physically move from one box to another.
The game was designed by Istat as an experiment to celebrate the 4th Italian Statistical Day (21st of October 2014). The game will be run throughout 2015. New "sessions" of the game are being considered as further "experiments" - in order to analyse teachers and students feedback. The aim of this experimental phase is to develop a final version of this didactic activity to be rolled out at a more local level, with the collaboration of Istat regional offices.
It is also planned to conduct a study to test the feasibility of developing an online version of the game that could make it available to a wider public.

** All authors work in Istat. In addition to the authors Tiziana Carrino and Concetta Ferruzzi (Istat) have contributed to design, planning and realisation the described initiative.*
Francesco and Marina are ISLP Coordinators of Italy

The Importance of Training in a National Statistical Institute

*By Susana Portillo**

The demand for timely, up to date statistics has turned national statistical institutes into fast paced offices where staff are pushed to their limits in order to fulfil customer requirements. All aspects of the lifecycle of generating statistical information are affected: from the early stages of survey planning through the data collection and cleaning process, to the production of statistical reports.

This demand often involves the recruitment of new staff into the offices who, in many cases, arrive with an economics, computer science or business background. Although these careers by nature include a considerable amount of statistical knowledge, for many entrants with previous work experience the statistical nature of the job is a new field that requires certain amounts of training to be able to perform adequately.

In a similar fashion, existing staff are often asked to deliver more outputs in less time, thus achieving cost savings to the institute. This leads to a need to keep up to date with new techniques and technologies and, in turn, the requirement to upgrade their skills on a continuous basis.

And so training plays one of the most important roles in an institute. But training needs to be approached in a structured manner. There are many different roles and degrees of skill needed to perform the varied tasks in an NSI, and it would be neither appropriate nor efficient to expect all staff members to be proficient in every single product or stage of the statistical production process.

One particular approach that can be used to implement a training program in an NSI is to create a tailor made suite of training courses specific to single identified roles within the NSI. For the programmes to be effective, a thorough analysis of the different roles needs to be carried out in order to identify the specific needs of each role. This analysis can be delivered in the form of a skills matrix, which will clearly define each role and the knowledge necessary to fulfil it at an adequate level. For example, a staff member in a data collection unit does not necessarily need to have the same skills as someone in an analysis and dissemination unit.

When a skills matrix is in place, courses can be identified that will allow staff in specific roles to complete focused training, which will aid them in delivering quality outputs in a timely manner, thus minimising the risk of errors and eliminating unnecessary stress. The open nature of the skills matrix will also allow staff members to plan their career progression, as they will be able to identify the skills necessary to perform at the next level, and pursue the necessary courses to be eligible for either promotion or transfer to a specific area within the office.

But generating a skills matrix should not be a once off exercise. The arrival of new techniques and technologies highlights the need for staff to constantly review and upgrade their skills, and so the skills matrix and the suite of courses accompanying it should be revised accordingly, otherwise training becomes obsolete and stops delivering the appropriate solutions

In all, the combination of skills matrix with tailored training might just be the natural tool that empowers Human Resource departments in an organisation to utilise staff at their maximum level of ability, while at the same time empowering employees to take charge of their own careers.

**CSO, Central Statistical Office - Ireland*

Many Hands Make Light Work

*By Steve MacFeely**

For many, the prospect of organising a national poster competition or getting involved in improving statistical literacy is a daunting prospect. In Ireland, the country I am most familiar with, the Central Statistics Office (CSO) overcame its' initial trepidation about getting involved, by seeking out and collaborating with qualified partners.

CSO has developed a suite of projects that all contribute to the improvement of statistical literacy for school children. The two main pillars to this educational programme are the CensusAtSchools and the John Hooper Statistical Poster Competition. To successfully design, launch, run and promote these literacy projects, CSO collaborates with a number of very important, skilled and committed partners:

1. The Department of Education and Skills in Ireland;
2. The Department of Education Northern Ireland;
3. Project Maths – A project team dedicated to revising the post primary mathematics curriculum, changing what students learn in mathematics, how students learn mathematics and how students mathematics skills are assessed;
4. The Professional Development Service for Teachers (PDST);
5. The PDST Technology in Education - promotes the role of technology in mathematics and statistical literacy;
6. National Council for Curriculum and Assessment;
7. CensusAtSchool and the Royal Statistical Society Centre for Statistical Education in the UK who helped CSO to set up the Irish CensusAtSchool website (www.censusatschool.ie);
8. HEAnet Ireland's National Education and Research Network who host the Irish CensusAtSchool data
9. CoderDojo - an open source, volunteer led movement of free coding clubs for young people.

The proof of the pudding is in the eating. So are these projects working? Well, it will be many years before we can properly assess whether we have contributed to improving statistical literacy in Ireland or not. But early indications are promising. Since the CSO launched the CensusAtSchools in 2009, almost 407,000 datasets have been downloaded by students. Furthermore, some of the data compiled by the CensusAtSchools surveys has been used in the Irish Junior Certificate - Higher Mathematics, State examinations. Watch the testimonial video on www.censusatschool.ie and see whether you are convinced? Since launching the John Hooper Poster Competition on World Statistics Day, 2010 in conjunction with the International Statistical Literacy Project (ISLP) Poster Competition, the national competition has gone from strength to strength. In 2013, Ireland placed 2nd and 3rd (Senior and Junior sections) at the ISLP. More importantly, we have increasingly more schools and children participating in the national competition. In 2014, 388 posters were submitted compared with 256 in 2011 - a percentage increase of __ (you work it out!).

By harnessing the good will and enthusiasm of many professionals and experts, a successful educational programme has been developed. The CSO could not have done this alone, but only with the cooperation, passion and expertise of many partners. Many hands have made light work!

** ISLP Deputy Director, Chief of Statistics and Information, UNCTAD, Adjunct Professor, Centre for Policy Studies, University College Cork, Ireland.*

PDST Professional Development Service for Teachers | An tSeirbhís um Fhorbairt Ghairmiúil do Mhúinteoirí

HEAnet Ireland's National Education & Research Network

Census AtSchool

ROYAL STATISTICAL SOCIETY Centre for Statistical Education

Best Cooperative Project Award 2015

The Best Cooperative Project Award in Statistical Literacy is awarded every two years, in recognition of outstanding, innovative, and influential statistical literacy projects that affect a broad segment of the general public and are fruit of the cooperation of different types of institutions (national statistical offices, schools, statistical societies, media, libraries etc.).

Submitted projects should have at least some of the following characteristics:

-Be current and have the potential to remain so in the future.
-Have free access to the project resources and membership.
-Educate on concepts of statistical theory and data analysis, their use in the development of information about countries and societies, and their application in a broad spectrum of disciplines and areas of society.
-Have pedagogically sound contents suitable for a general audience.
-Involve two or more institutions that would usually not work closely together. Examples are projects that involve cooperation between: a National Statistical Office, a school and a government education office, like the ALEA project, winner of the 2007 award; a National Statistics Office and a Network of Academics like one of the 2011 co-winners , or across country initiatives like the other 2011 co-winner, or across country initiatives like the other 2011 co-winner. Other examples are cooperation among universities and schools, or schools and statistical societies or media experts, statistical societies, national statistical offices, schools, and combinations thereof.
-Be attractive to a wide audience, have "fun" appeal, invite participation. Characteristics that make it such are: Easy to find material, dynamism, variety, sound pedagogy, updated and contemporary subject matter.
-Have archives that are widely available. For example, if there is a contest regularly run, past winners should be known.
-Have international outreach and make creative use of available resources. For example, a web page in English would help the dissemination of the resources to many countries.

Timetable: Proposals should be sent to the ISLP Deputy Director, Steve MacFeely by the end of April 2015.

Prizes: The winning project will get 1000 euros. Judging panel (2015): ISLP Deputy Director, Steve MacFeely (chair), Associate Professor, John Harraway Dept of Math and Statistics, University of Otago (NZ),

Statistical Literacy Activities in Aotearoa New Zealand

*By Emma Mawby**

The past 12 months have been a rich and diverse year for statistical literacy activities for students, teachers and Statistics Educators in Aotearoa New Zealand.

Activities for students

The New Zealand leg of the ISLP poster competition is sponsored by Harmonic Analytics, a New Zealand data science company and the New Zealand Statistics Association (NZSA). Several schools from different parts of the country have already entered and we are hoping for an excellent response by the closing date.

Statistics New Zealand and NZSA supported the New Zealand 2014 Science Fairs for Intermediate and Secondary students (aged 11-18) by providing prizes for use of statistics. The judges looked for evidence of statistical literacy when awarding the prizes.

Activities for teachers

Several Statistics Days for teachers have been held in 2014. At the University of Auckland, 300 teachers attended a Statistics Day which included sessions on Interpreting Statistics, improving students' PPDAC written responses, and an opportunity to enrol on the "Data to iNZight"MOOC . At the University of Canterbury, 120 teachers attended sessions that covered topic such as Developing Statistical Literacy and Statistical Insight using Big Data and the use of iNZight, a data analysis system designed for New Zealand schools. A similar day was organised and well attended at the University of Otago in Dunedin.

Teachers were also invited to the final day of the joint New Zealand Statistical Association/Operations Research Society of New Zealand Conference in November, where they were able to attend sessions from the main conference in the morning and special sessions on Statistics Education in the afternoon, including an open discussion on the New Zealand's current Statistics Education needs.

Teachers, Statisticans, and Statistics Educators at the joint New Zealand Statistics Association/Operations Research Society of New Zealand Conference (photo Harold Henderson)

Activities of the NZSA Education Committee

The NZSA Education committee meets bi-monthly. The committee has 24 members including practising teachers, statisticians in industry, and statistical educators form several universities. The focus of this group is on teaching, learning, and assessment for statistics in schools. The group was well represented at ICOTS9 in July 2014.

Feedback on Statistical Literacy in the national qualifications system

This year we have given feedback on the statistics assessments that form part of the national qualification system, including a standard that requires students to evaluate a statistically based report.

Doing research that matters: A success story from statistics education

In August this year, the New Zealand Council for Educational Research published a report by Rose Hipkins, titled as above. It analyses 2 major recent projects that involved several members of the committee and others from the statistical education community:

. *Building students' inferential reasoning: Statistics curriculum levels 5 and 6 Statistics: It's reasoning, not calculating;* see http://www.tlri.org.nz/tlri-research/research-completed/school-sector/building-students-inferential-reasoning-statistics

. *'Bootstrapping' students' understanding of statistical inference;* see http://www.tlri.org.nz/tlri-research/research-completed/post-school-sector/bootstrapping-statistical-inferential-reasoning.

These projects used the 'scholarship in practice' approach not only to research how students think, but to advance teaching methods and software tools to help them think. The report is at http://www.tlri.org.nz/about-tlri/news-archive/doing-research-matters.

Guidelines for teachers and students

Several issues have arisen due to the increased inclusion of statistical literacy in the curriculum and the national qualification system. We are in the process of forming guidelines for teachers and students about the appropriate use of background context information in assessments, suitable datasets for use in assessments, sampling from existing datasets, and about ethical issues in existing surveys and experiments. The work on ethical issues is available via CensusatSchool: http://new.censusatschool.org.nz/2014/09/19/values-ethics-and-statistical-experiments/

Free software

Free software that encourages Statistical Literacy which has been developed in in Aotearoa New Zealand includes:

. iNZight and VIT (Visual Inference Tools) from the University of Auckland University (https://www.stat.auckland.ac.nz/~wild/iNZight/, https://www.stat.auckland.ac.nz/~wild/VIT/index.html);

.Genstat for teaching and learning, with supporting 'lessons', coming via the University of Otago (http://www.maths.otago.ac.nz/video/statistics/GenStatLessons/) ;

.CAST from Doug Stirling at Massey University(http://cast.massey.ac.nz/collection_public.html);

.Jake Wills, with NZGrapher: http://www.jake4maths.com/grapher/

Future work

The education committee is considering how to promote statistical literacy more in intermediate and primary schools (age 5-12 years) and how to integrate the use of software that promotes statistical literacy with the move towards "bring your own device" (BYOD) in New Zealand schools.

** ISLP Country Coordinator, New Zealand. Statistical Analyst*

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