ISLP Newsletter
Newsletter of the International Statistical Literacy Project
1 (11) December 2019

Data Literacy is no longer optional

In the era of the 4th Industrial Revolution, data is a key factor for development and advance.

When we think of data, we immediately think of institutes of statistics, databases and official registers. But it also involves data from social media, governments, and international agencies. In the era of the 4th Industrial Revolution data is a key factor for development and advance. Access to good information can help all of us to take better decisions in our day to day lives. But for that purpose, we need data! A true data revolution has a direct impact on human development. As Homi Kharas states in a World Bank blog, "The data revolution is a call for transparency and accountability. If taken seriously, this could transform development (…)"

This is no longer an option. It is part of the culture of countries that regard development as an important imperative.

Some initiatives have been created in the last years to improve this culture in students and managers: ProCivicStat has developed a set of features that can be used in classrooms focusing on the analysis of evidence relevant to understanding and addressing issues of public concern such as human migration, poverty and inequality. It lies at the intersection of politics, social science, statistics, and education. Another important initiative is the African Maths Initiative (AMI). It is a Kenyan NGO formed by mathematicians and mathematics educators who are working to create a stronger mathematical community and culture of mathematics across Africa in all academic levels. Open Data Watch is an international, non-profit organization of data experts working to bring change to organizations that produce and manage official statistical data. Open Data Watch supports the efforts of national statistical offices (NSOs) to improve their data systems and harness the advancements of the data revolution. ISLP, in turn, has been supporting several initiatives, such as, the poster competition for more than one decade, with very good contributions from almost all the parts of the world. Country coordinators are central actors in this process, as they facilitate the preparation and contacts with the ISLP.

In this new issue of the ISLP Newsletter, you may read about these and other topics. Thank you for your efforts in 2019. We will continue our mission in promoting statistical literacy all around the world. With your help. Until the 5th revolution!

Seasonal greetings from the ISLP team!

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ISLP Newsletter is the newsletter of the International Statistical Literacy Project of the IASE – the International Association for Statistical Education.
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ISLP Newsletter 1/2019 in brief.. ▶▶

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International Statistical Poster Competition 2019–2020

The Poster Competition will start in February 2020. Lower, upper secondary, and bachelor-level university students around the world are invited to create statistical posters in teams. Great prizes included! For more information visit the ISLP website.

The Best Cooperative Project Award

The award in recognition of outstanding, innovative, and influential statistical literacy projects is on. Proposals should be sent to the ISLP Deputy Director, Steve MacFeely by the end of December 2020. The winning project will receive 1000 euros! For more information visit the ISLP website.

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NIGERIA

Introduction of the new country coordinator of Nigeria

Olusanya Elisa Olubusoye*

Olusanya Elisa Olubusoye is a Professor in the Department of Statistics, University of Ibadan (U.I.) and a Senior Research Fellow with the Centre for Econometric and Allied Research (CEAR), University of Ibadan, Nigeria. He has been coordinating the University of Ibadan Laboratory for Interdisciplinary Statistical Analysis (UI-LISA) since inception in 2015. He was a visiting scholar to the International Monetary Fund (IMF) in 2006 and served as a Nigerian Technical Expert to Ethiopia under the Nigeria Technical Aid Corps scheme between 2006 and 2008. During this period, he was deployed to the Department of Statistics, Addis Ababa University, Ethiopia as an Assistant Professor.

He was an Associate Lecturer with the Pan African University, Institute for Basic Sciences, Technology and Innovation (PAUISTI), Nairobi, Kenya. He served as a consultant to the African Union on Education Management Information System and development of indicators for monitoring the Plan of Action for the second decade of education for Africa. As a team player, he had collaborated with other researchers in several research projects undertaken for local and international organizations, including the African Econometric Research Consortium based in Nairobi, Kenya, MacArthur Foundation and World Bank funded projects.

He was a modeler in the Federal Government of Nigeria project on Assets Decision Support System implemented by Adam Smith International and funded by UK Department for International Development. He is a member of the Royal Statistical Society (RSS), London; American Statistical Association (ASA); and The Nigerian Statistical Association (NSA). He holds the highest professional award of Chartered Statistician by the Royal Statistical Society, London. He served as the 2nd Vice President of the NSA and Chair of the National Organizing Committee (NOC) of the first international statistical conference held in September 2017 in Lagos, Nigeria.

Among others, some of his works include: *Modelling Inflation Process in Nigeria*, funded by the African Econometric Research Consortium (AERC), Nairobi, Kenya; *Spatio-Temporal Information Systems Modelling and Econometric Analysis of Revenue Allocation in Nigeria (1999–2008)* funded by the MacArthur Foundation and *Statistical literacy and empirical modelling for national transformation*, a Faculty Lecture delivered in October 2014. He is currently the principal investigator (PI) in a USAID funded project on *Enhancing Election Participation in Nigeria*.

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SOUTH SUDAN

Introduction of the new country coordinator of South Sudan

John Alier*

I hold BSc in mathematics. My interest is in statistics & operation research and data science. I have been teaching as a teaching assistant at Dr. John Garang Memorial University of Science and Technology, one of the public Universities in South Sudan, and where I graduated from. I teach first and second year statistics and operation research/qualitative mathematics in different colleges that include College of Agriculture, College of Science and Technology, College of Education and College of Environmental Science.

With my passion for writing, I became a journalist in 2008, even before I finished by mathematics degree. In 2017, I applied and was accepted for MA in journalism and media studies at Uganda Christian University. I am now about to finish my academic research.

It's my pleasure to be part of the ISLP, as an ambassador in South Sudan, where literacy rates are very low compared with other countries in the world. In South Sudan, many students (from high school and University) fear to take mathematics seriously as they perceive it as a complicated and difficult subject; a subject one can easily fail. Students who make it to University, arrive with a negative mindset towards the mathematical sciences. including statistics. There is work to be done in this country.

With Your support, I will work hard to change that perception. A serious campaign needs to be conducted in this country to encourage children to take mathematics and statistics and inform them of the benefits of being good statisticians. As many look forward to becoming economists or financial experts, one cannot make feasible and optimal decision without sufficient statistical knowledge.

I write for different newspapers and websites in and outside South Sudan. I also contribute to a London based Ethical Journalism Network magazine (under the byline: Gai Alier John or John Actually).

Best regards

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Improving statistical literacy in Asia and the Pacific

Gemma Van Halderen*

Asia and the Pacific is home to nearly two thirds of the worlds population and over 2000 languages. UN ESCAP, the Economic and Social Commission for Asia and the Pacific, is based in the region in Bangkok, Thailand, and is the largest of five UN Regional Commissions. Its membership stretches far west to Turkey through to the Pacific Islands in the East, the Russian Federation in the North and New Zealand in the South. Fortunately for Asia and the Pacific, statistical literacy is well supported through ESCAP and its Regional Institute, the Statistical Institute for Asia and the Pacific based in Chiba, Japan.

In 2016, the ESCAP Committee on Statistics adopted a Collective Vision and Framework for Action to Advance Official Statistics for the 2030 Agenda[1]. Our vision is that by 2030, national statistical systems are enabled and empowered to lead development of and to deliver innovative, trusted and timely products and services for urgently needed and evolving statistical requirements of Agenda 2030. Five action areas were agreed including engaging users and investing in statistics (Action Area A) and having requisite skills set (Action Area E).

Considerable efforts are underway in both action areas. Engaging users and investing in statistics requires improving the statistical literacy of both data users and data producers and a tool called EPIC or Every Policy is Connected has been developed to do just this. EPIC provides a framework for a structured, participatory and principle-based dialogue between policy and data stakeholders. EPIC has been successfully trialed by several countries including Samoa and the Philippines, improving the literacy of policy makers and data producers whilst strengthening statistical systems. More information about EPIC can be found on ESCAP's blog at https://www.unescap.org/blog/connecting-policymakers-and-data-producers

Having requisite skill sets is an important action area for improving statistical literacy. Asia and the Pacific has a dedicated training institute, SIAP, to develop statistical skills. In 2019 alone, SIAP has delivered 15 face-to-face training courses and 4 e-learning courses to about 1300 participants from across Asia and the Pacific as well as Africa and West Asia. SIAP has a highly regarded reputation for building skills in official statistics, SDG indicators, data visualization, statistical leadership, amongst other topics and will celebrate its 50th year in 2020. For more information about SIAP, please visit its website at http://www.unsiap.or.jp/.

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1 https://www.unescap.org/sites/default/files/E.ESCAP_.CST%285%29.1.Rev_.1.Collective_Vision.English.pdf

MALESIA

Introduction of the new coordinator of Malaysia

Yong Zulina Zubairi*

As a staff member at the Centre for Foundation Studies in Science (PASUM), University of Malaya, I believe it is important that students have an appreciation of the statistical knowledge they gained during their school years and can effectively apply those skills in analyzing real world phenomena. With more than 30 years as an academic, I meet users at all levels of education with varied statistical literacy and I note that much work to be done to raise the level of competence with regard to numbers and figures. In short, there is a strong need for an overall strategy to develop a greater level of competence in statistical literacy for learners at all levels.

As a member of the Institute Statistics Malaysia (ISM) since 2009, a non-governmental organization that gathers together academics and practitioners, I am committed to promoting the proper practice, propagation, and dissemination of statistical knowledge for the benefit of society. In 2010, as part of the World Statistics Day celebrations, the ISM organized a successful nationwide poster and oral competition that included schools, matriculation centers and universities. It was well-received with a record number of entries. The ISM has also organized workshops at universities over the years to promote the ISM vision. Nevertheless, much can still be done, especially propagating goals of the ISM.

As for my academic background, I graduated from the University of Kansas, USA with a BSc in Mathematics, and a MSc from the Wichita State University in Mathematics. My interest in statistics began when I worked on my PhD in Medical Statistics at the University of Bradford, United Kingdom. I really became aware of the different learning experiences students have had when I did my postgraduate Diploma in Education at the University of Kebangsaan in Malaysia.

As a statistician, I note that I can work with virtually anyone from diverse fields and this has led me to hold several administrative positions at the university. My previous administrative posts include Deputy Director of PASUM, Director of the Center for Community Engagement, Deputy Director of the International & Corporate Relations Office and Director of International Relations Office. I am currently the Associate Vice-Chancellor (International) at the University of Malaya.

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PHILIPPINES

Introduction to the new country coordinator of the Philippines

Eduardo C. Dulay Jr.*

My name is Eduardo C. Dulay Jr. I am from the Philippines. I believe that every human is a statistician at some level. Statistics plays an important role in every field of human endeavor. We need to understand the world, full of information, around us. By correctly applying statistics, we can gather the relevant information, organize it, and then use it as a reference for decision making. I have loved the science and art of Statistics since my college years. My work experience has further nurtured this love–I embrace the beauty of it.

I began teaching Statistics in 1997, but only began really applying those techniques when I joined the Philippine National Statistics Office (PNSO now Philippine Statistics Authority) as a statistician in 2004. At the PNSO, I was actively involved in the Philippine Statistics Quiz as a member of the Technical Committee. The primary objectives of this quiz are to assess the competency of college freshmen on statistics; and to foster public awareness and appreciation of statistics.

Currently, I am teaching mathematics and statistics at the University of St. Tomas where I believe I can mold my students as future statistically literate professionals. Beyond this, I am also consulting for the Asian Development Bank, for whom I assist some Asian countries to produce statistically robust economic indicators.

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INDONESIA

Introduction of the new coordinator of Indonesia

Adi Cilik Pierewan*

My name is Adi Cilik Pierewan. I am a lecturer in Social Statistics at Universitas Negeri Yogyakarta Indonesia. I have obtained my PhD from the University of Manchester in Social Change with a focus on Quantitative Methods. I am an R user and I have been using large datasets in Europe and Asia to understand society. I have published some works using statistical modelling, ranging from the multilevel model to spatial analysis. I am passionate about spreading the statistical way of thinking to understand the social world by helping and training young people, especially in Indonesia to apply some statistical methods.

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The International Association for Statistical Education (IASE) is pleased to announce its 2020 Roundtable Conference that will take place on July 6-10, 2020 in Nanjing, China, just before the 14th International Congress of Mathematics Education (ICME-14; July 12-19, 2020 in Shanghai). IASE Roundtables are working conferences with participation by invitation only with the aim to bring 40-50 educators from around the world and the host country to share their passion, expertise and experiences in statistics education.

Introduction

The five-day Roundtable will be held at Nanjing University of Aeronautics and Astronautics under the unique theme "New Skills in the Changing World of Statistics Education". Given the rapid developments in the ways of interacting with data enabled by digital technologies, this conference aims to discuss development of foundations for statistical literacy from early school years in moving towards big data and "new" skills in relation to data science and analytics, the role of different types of digital tools, and curricular issues in statistics education. The conference also intends to inspire collaborative efforts with various related disciplines and to build bridges between statisticians, statistics educators, software designers, data scientists and data providers.

Through a mixture of formats including extensive discussions in small groups, the meeting will advance current knowledge about conceptual frameworks, teaching methods, technology solutions, and curricular materials that can support and promote students' learning and understanding of statistics in this changing world of statistics education. All submissions will be peer-refereed. A main outcome of the Roundtable will be a monograph containing a set of high-standard updated papers and concrete teaching materials, reflecting the discussions and work during the Roundtable. All papers and posters as well as teaching resources based on the Roundtable will be published in the IASE online Proceedings and future Resources webpage. It is possible to participate in the Roundtable in one of four invited roles: Paper presenter, Workshop organizer, Poster presenter, or Discussant leader.

Call for papers

The IASE 2020 Roundtable will soon be accepting applications for contributions in the form of papers, workshops and posters that fit the theme "New Skills in the Changing World of Statistics Education" and that address one of the following topics:

1. The use of real and meaningful data in teaching and learning statistics
2. The emerging role of multivariate thinking in inferential reasoning
3. The influence of data science on the school curriculum and introductory statistics courses
4. Increasing power of technology and its use for doing statistics and for enhancing learning and understanding of key statistical concepts
5. The changing nature of data visualization and implications for the curriculum.
6. Collaboration with other disciplines to enhance students' statistical understanding

Contacts

- Questions about the scientific program and submissions can be sent to the Chair of the International Program Committee, Sibel Kazak.
- Questions about logistics and registration can be sent to the Chair of the Local Organizing Committee, Gaofeng Da.
- https://iase-web.org/conference/roundtable20/

GREAT BRITAIN

Data Literacy

Jim Ridgway*

Statistical literacy commonly refers to the ability to function effectively in a society where reasoning with data and understanding arguments based on data are needed. Here, I want to advocate data literacy – an extension of statistical literacy that encompasses ideas around the generation and social uses of data in both public and private domains.

Data science has facilitated a number of disruptive technologies including: social media, on-line banking; the internet of things; identification of individuals (via face, voice, gait…); deep fakes (notably video); and autonomous weapons systems. New sorts of data are being gathered (voice, video, personal and remote sensors). Disruptive technologies will continue to be invented, and it will be impossible to un-invent them once they have been invented. Data literacy in citizens is essential if we are to maximise their benefits and minimise the harm that disruptive technologies do and might do.

At the simplest level, data literacy focusses on personal safety. For example, knowing that: apps use operant conditioning techniques to maintain and increase engagement; it is foolish to post images of family members on-line; scammers can fool phone systems that recognise phone numbers (e.g. from a bank); everyone creates a digital trail (accessible to a number of agencies) whenever they go on-line, and that the size and scope of this digital trail can be modified by appropriate choices of browser settings. Awareness of the extent of data collection is part of data literacy; everyone should know that fitness trackers, voice operated devices, and devices connected via the internet of things routinely collect personal information that can be used nefariously. Data-literate citizens will reflect on potential uses of new sorts of data collection that emerge, will know the extent of their digital footprint, and who has access to it.

A second level relates to information sources. Data literacy requires some factual knowledge about the existence of authoritative data sources (such as national statistics offices and OECD); of highly politicised data sources; of resources designed to deceive (such as deep fake videos); and of fact-checking organisations such as Full Fact, Africa Check, Truco and Politifact. Beyond factual knowledge, data literacy requires a sophisticated understanding of the ways that knowledge is created

and used. Data are never neutral; decisions about what information to collect, choice of measures, cleaning process, analysis and presentation all involve choices, and theories about the world. Data literacy involves skills in deconstructing the world views that underpin the data encountered. This applies to carefully curated data from trustworthy sources as much as it does to deep fakes. Power is knowing how to use knowledge; data literacy involves both an awareness of targeted advertising using personal profiling for political purposes facilitated by modern technologies, and of rhetorical devices that have been used in political speeches for millennia. It might lead to demands for opening commercial data vaults to public scrutiny, and their use for public good.

The third level of data literacy requires engagement with the technological processes that are shaping our world. Data literacy involves understanding enough about data science to see how tools and procedures are shaping, and might shape our worlds. Technologies are never neutral (e.g. cars are not used by the poor, but the poor suffer direct negative effects); it is important to explore the potential impact of new technologies on different citizen groups, and then to make decisions about use based on values that are negotiated politically. Machine learning provides a vivid example; a variety of black-box tools are available that facilitate pattern recognition (e.g. for voice recognition). Pattern recognition is good for detecting 'what is', but cannot determine 'what ought', yet these techniques have been applied in contexts such as decisions about hiring and prison sentencing. If the training data used for pattern recognition includes sex, age, residence, family name and prior education, then sexist and racist biases are likely to be found in the decisions made. Data literate people are likely to demand that data on the decisions made about people with diverse biographies are open to public scrutiny, so that the social implications of their uses are explored before these decision 'aids' go live.

This third level of the hierarchy can also encompass ideas about the processes of explaining, predicting and modelling, and the functions that models perform in modern societies. Models underpin decision making – e.g. discourses about 'economics' dominate discourses about the progress of societies in Western countries (discussions about equity, health and happiness, or ecology seemingly have to be couched in economic terms). A particular challenge to be faced is the modelling of macrosystemic change – modelling systems that are themselves undergoing change. Some systems metamorphose in predictable ways – such as the changes undergone by butterflies from egg to caterpillar to pupa to butterfly. However, major global challenges – war, famine, ecological destruction, climate change – involve unstable macrosystemic change, and we need to acknowledge the limits to formal modelling. Given our dependence on models, data literacy involves a sophisticated understanding of the processes of model creation and model validation. This requires an ability to deconstruct world views inherent in the use of particular models. It requires an understanding of the ways that models can go wrong (for example, inappropriate calibration data, poor assumptions, overfitting, and – most important – that the actual system being modelled has changed since model formulation).

Data literacy is not simply a matter of cognition – understanding new data resources, new styles of modelling, awareness of the politics of data – it is primarily a disposition to engage with and explore the potentials of disruptive technologies for good and ill, and to push for human actions that have very positive effects on individuals, societies and environments.

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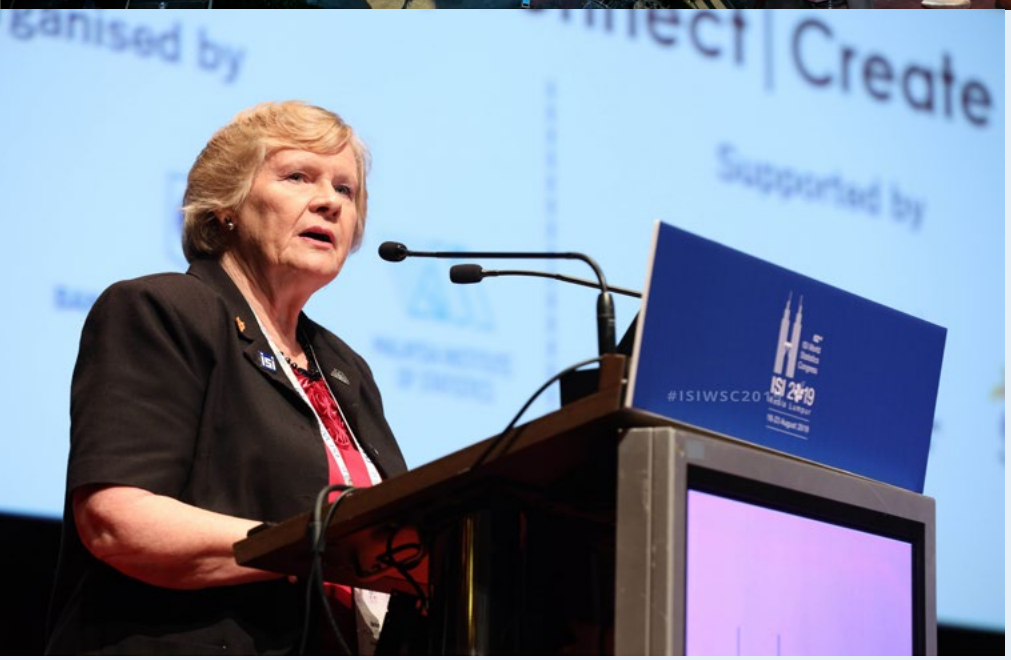
Statistical Systems
Statistical Techniques
Policy Issues
Political Economy

Memories from the WSC2019



GERMANY

Enhancing early statistical reasoning – Primary school students´ first data projects

Daniel Frischemeier*

The ISLP Poster Competition serves as a brilliant example of how students can get a first sense of being a statistician and learn to investigate real questions using real data and document their findings in a poster. Relevant components in this process are: *posing statistical questions; preparing the data collection; collecting data; cleaning the data; analyzing the data; and interpreting and communicating the statistical results of the analysis.* First elements of these components can already be realized with young students (age 8-11) at elementary school.

To bring these elements together, using real and meaningful data, and introduce them to elementary schools in Germany, we have implemented several teaching units in which young students (age 8-11) were given the possibility to work on real data projects and to use software to explore large and meaningful datasets. Themes of the data projects were: (1) Our school in numbers; (2) How we get to school; (3) Nutrition of our schoolmates; (4) Media use of our schoolmates; or (5) Leisure time activities of primary school students. In some projects (1-4) young learners had to organize data collections on their own–set up a survey, collect and clean the data. In other projects (5) the data were taken from a larger survey on the leisure time activities of 807 primary school students in North Rhine-Westphalia (a federal state of Germany). The main objective for all projects was that young learners investigate important questions and use real and meaningful data, work collaboratively in teams and use software to help them explore large datasets. In our case, we used the software 'TinkerPlots' (www.tinkerplots.com) which allows young learners to analyze large datasets and to create their statistical displays stepwise by using data operations like, separate, stack or order. Furthermore, the software also supports young learners to make their first investigations in identifying relationships between variables and in comparing groups. See Figures 1 and 2.

Figure 1: Student demonstrates her data exploration in TinkerPlots on the interactive whiteboard

Figure 2: Students explore data in peers with TinkerPlots

Young students elaborated sophisticated statistical activities like group comparisons using pre-stages, such as, modal clumps and hatplots to compare two groups concerning center and spread – see for example the snapshot of a poster in Figure 3. Here the students compared the heights of male and female students using modal clumps and hatplots and described their findings with the headline "Survey on heights – Big boys, little girls?".

Figure 3: Snapshot of the poster "Survey on heights – Big boys, little girls?"

Figure 4: Presentations of findings of data projects in class (left) and in school (right)

The posters of all data projects were first presented in class (Figure 4, left) and then finally presented for all schoolmates (Figure 4, right).

Since 2013 we have completed 14 data analysis projects in several elementary schools in the federal state of North Rhine-Westphalia (Germany) in which approximately 290 elementary school students (age 8-11) participated. In conclusion, we can say that 'TinkerPlots' supports the data analysis process of young learners and enables them to explore large datasets and to create meaningful diagrams for their posters. Data posters also offer young learners a fantastic opportunity to document and report their findings and the results of their investigations.

Furthermore, our primary school students were very engaged and motivated when working on their data projects and some of them have already conducted sophisticated statistical activities like group comparisons.

The ideas and experiences of the primary school students´ projects were presented in a poster presentation at the IASE Satellite Conference 2019 in Kuala Lumpur.

For further information on my data projects in elementary school, please contact me: dafr@math.upb.de

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Intoroduction of the new country coordinator of Germany

Tanja Ihden*

Tanja Ihden studied Business Administration (B.Sc.) and Professional Public Decision Making (M.A.) at the University of Bremen, where she also received her doctorate in social sciences in 2017. Her doctoral thesis was "The significance of statistical methods in jurisprudence and potential implications for legal education".

Her research focuses on statistical methods in law, didactics for statistics and graphical representations in didactics. She is interested in statistical literacy, as she noticed, how poorly equipped, even highly educated people such as, are to understand basic statistical concepts and the consequences this can have.

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FINLAND

Hi all! My name is Elisa. Many of you might have received some e-mails from me this summer. I was an at Statistics Finland between June and September 2019. I study Social Sciences at the University of Helsinki. I hope to complete my Bachelors' thesis on Social Psychology in the near future. After that, I hope to take a Master's–also in Social Psychology. I started studying properly a bit later than many people do–I am now 26 years old. This is why I already have a background in communications, translation and a bit of IT.

Statistics Finland is the official Statistics Bureau of Finland, and therefore my employer this summer was the Government of Finland – something that looks pretty cool on a CV! I really enjoyed my internship; my duties ranged from customer relations management to organising conferences. Each day was different, which kept the "daily grind" interesting. However, my favourite part of the job was assisting management, in particular Reija Helenius. You know her as the Director of the ISLP Project – however, she is also a hard-working Head of Development in Statistics Finland. Together, we did a lot of things, such as, maintaining the ISLP project, contacting people, organising sessions and brainstorming a lot of ideas for the future ISLP. You'll see!

I learned so many things during my internship. I had an excellent position to observe both the customs of local governance and international co-operation. Because Reija and my other colleagues gave me a lot of responsibility, I feel my confidence in my career and professional skills has grown massively. I also learned a lot about project management – and a whole lot about different countries. The ISLP network is something to be very proud of. You are a community of nearly 150 people, from 75 countries! It is very rare for such a big community to come together towards a common cause. Please keep up the good work. And who knows, maybe our paths will cross in the future…

OZCOTS 2020

As the chair of the OZCOTS Program Committee, I invite you to participate in OZCOTS 2020, the 10th Australian Conference on Teaching Statistics. OZCOTS 2020 will run from Thursday 9th to Friday 10th July, 2020 and will consider the many challenges of teaching Statistics for future statisticians, statistical users and consumers under the theme of "Statistics education in today's world". OZCOTS 2020 is again building on the success of the timing and format of OZCOTS 2008, 2010, 2012 and 2016 as a conjoint event with the Australian and New Zealand Statistical Conference (ANZSC), to be held at the Gold Coast Convention and Exhibition Centre, Queensland, Australia, with an overlap on Thursday 9th July. Join us to advance statistics education, and to learn from the work and thoughts of esteemed colleagues. Every day the teaching and learning of statistics is becoming more important than ever to industry, government, business and for everyone in the society from cradle to nursing home. The roles of statistical understanding and statistical thinking are vital in all disciplines, increasingly driven by big data, evidence-based agendas, and technological advances which generate data as well as enabling more complex problem-solving, data visualisation and analysis. To avoid "lies, lies, big lies and statistics" we need to reach further in the society so that "lies" can be separated from "statistics".

The OZCOTS program plans to include keynote and contributed papers, and forum discussion on issues across the statistical education spectrum of interest to the whole statistical profession. The program aims to address challenges of the intersection of data science and statistics across different disciplines and learning strategies. It will include topics ranging across the curricula and technology for teaching introductory and undergraduate statistics; resources and online learning; statistics learning for postgraduates, researchers and workers; and research in the teaching of statistics.

I am looking forward to seeing many of you in Down Under in 2020.

Best regards

Ayse

6 - 10 JULY 2020
anzsc 2020
GOLD COAST CONVENTION CENTRE

Welcome to the 2020 Australian and New Zealand Statistical Conference (ANZSC 2020). This conference brings together the four leading societies in the Australasian Region tackling the many challenges in statistics - the Statistical Society of Australia (SSA), the New Zealand Statistical Association (NZSA), the Australian Conference on Teaching Statistics (OZCOTS), and the Special Interest Group for Business Analytics (from the International Institute of Business Analysis).

This multi-faceted conference will have elements for long-term experts in statistics, colleagues in other fields who seek to broaden their statistical connections, and research students and recent graduates just entering the field of statistics - and all at the beautiful location of the Gold Coast.

Mark Griffin, Co-Chair of ANZSC 2020

KEY DATES

6 February 2019	Abstract submission open
6 February 2019	Early bird registration open
20 January 2020	Abstract submission close
27 March 2020	Early bird registration close
28 March 2020	Standard registration open
6-10 July 2020	Conference dates

Conference Managers – Arinex Pty Ltd
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The New Zealand Statistical Association · Statistical Society of Australia · OZCOTS · IIBA International Institute of Business Analysis · DESTINATION GOLDCOAST.

IRELAND

Competition and collaboration

Eoin MacCuirc*

In 2007, the Central Statistics Office (CSO) realised it had a role to play in advancing statistical literacy in Ireland and began tentatively dipping its toes into the waters of educational outreach. Throughout the last decade this realisation has led to a sea change in the statistical products and services produced by CSO and a wave of student and citizen friendly initiatives. CSO organises competitions as a vehicle to engage students.

John Hooper Medal for Statistics

The first World Statistics Day in 2010 was a catalyst for the CSO to embark on its first education competition the John Hooper Medal for Statistics Poster Competition.

In devising the John Hooper Medal for Statistics we built on the experience gleaned from CSO launching the CensusAtSchool website and collaborated with the same partners. Several key decisions were made:

1. Engage schools and teachers, hook in students – Students come and go, but teachers and schools remain so it important to build the relationship with teachers and schools. Students won the prizes, but teachers and schools got certificates to recognise the achievement of their students. The bulk of the prize money went to the schools too. Students whose poster won first prize each got an engraved silver medal in recognition of their achievement.

Winners (1st place) of the national competition will be awarded the CSO John Hooper Medal for Statistics. In addition, the following prize money will be awarded:

1st Place–€1,600 (of which €1,000 is awarded to the school and €600 is awarded to the team)

2nd Place–€1,000 (of which €650 is awarded to the school and €350 is awarded to the team)

3rd Place–€600 (of which €400 is awarded to the school and €200 is awarded to the team)

ISLP Senior Winners Aisling Barry Katrin Birk and Stephen McLaughlin Bandon Grammar.

ISLP Junior Winners Kate Bagnall Bobbi Beattie and Síle Jio Kings Hospital Dublin.

Extract from webpage John Hooper Medal for Statistics Competition: https://www.cso.ie/en/interactivezone/johnhoopermedalforstatisticscompetition/johnhoopermedalforstatisticscompetition2020/

2. Promote teamwork – Creating a poster was to be a team effort. Only teams could enter a poster. Fostering teamwork was a goal of the competition, besides all the other good stuff students would learn.

Taking part in this poster competition will encourage students to:

- *work as a team;*
- *investigate real questions using data;*
- *use their analytical and graphical skills;*
- *interpret statistical results;*
- *develop skills in written communication.*

….The national competition is open to teams of 2 to 3 students

John Hooper and CSO Open Data Winners 2019.

Open Data 2017.

3. No subject limit – Students could research any topic.

4. Everybody is a winner – Everybody who enters a poster receives a certificate of achievement.

5. Consistent and independent judging – Judges apply consistent criteria to judge posters. The final judging panel is mostly made up of external experts and is chaired by a statistician from CSO.

6. Celebration – During Maths Week in October every year an awards ceremony is arranged in Dublin. Students, teachers, parents and friends are invited to attend the celebration. Students an opportunity to present their research on the day. It is amazing how confident and composed these young people are as they present their findings to a packed auditorium. Framed certificates are presented to students and teachers. An official photographer records the event and photos are sent to all. Students and teachers are encouraged to mingle after the event and finger food is provided.

These decisions have contributed to the success of the competition. The John Hooper Medal for Statistics Poster Competition is a feeder competition for the ISLP poster competition.

CSO Open Data Award at the BT Young Scientist and Technology Exhibition

The BT Young Scientist and Technology Exhibition is a national institution in Ireland, now in its fifty-sixth year. Thousands of students enter the competition each year. The entrants are shortlisted, and 550 projects are exhibited for final judging. Over 60,000 visitors attend the exhibition. The winning project goes on to represent Ireland at other international science and technology competitions. Besides the main prize, there are several institutions that sponsor special awards. CSO offers an award for the best use of open data in a project. The award is to encourage young people to use open data. The award is for the most innovative use, or potential use, of CSO data. An engraved silver medal and a framed certificate goes to the winning project.

The Central Statistic Office (CSO) Open Data Award

https://btyoungscientist.com/special-awards/

The Central Statistics Office is delighted to sponsor an award that will encourage young people to use open data. Exploring the potential value of growing access to open data is one of the challenges of our information society. This award is for the most innovative use, or potential use, of CSO data. The application of open data may be varied: Statistical analyses, statistical processes or statistical outputs, be they scientific or mathematical, a piece of research, a visualisation or a data map, the development of a device, a software application or the use of CSO data in any other innovative way. Whatever way students use our data, the CSO is excited to see your open data projects.

Criteria: The Central Statistics Office is delighted to sponsor an award that will encourage young people to use open data. Exploring the potential value of growing access to open data is one of the challenges of our information society. This award is for the most innovative use, or potential use, of CSO data. The application of open data may be varied; Statistical analyses, statistical processes or statistical outputs, be they scientific or mathematical, a piece of research, a visualisation or a data map, the development of a device, a software application or the use of CSO data in any other innovative way. Whatever way students use our data, the CSO is excited to see your open data projects. The Central Statistics Office is delighted to sponsor an award that will encourage young people to use open data. This award is for the most innovative use, or potential use, of CSO data. Be it in statistical analyses, statistical processes or statistical outputs, be they scientific or mathematical, a piece of research, a visualisation or a data map, the development of a device, a software application or the use of CSO data in any other innovative way. Whatever way students use our data, the CSO is excited to see your open data projects.

By Collaborating with the very successful BT Young Scientist and Technology Exhibitions CSO reaches a wider audience.

Alice Perry Open Data Hackathon

The Alice Perry Open Data Hackathon awards the Alice Perry Trophy to the winner of this annual hackathon. The goal of the competition is to allow participants the opportunity to identify and code new app concepts using data from data.gov.ie and other data portals. The concepts will provide a societal benefit and have a positive impact on citizens. There is a theme for the hackathon, the theme this year is 'Climate Action and Circular Economy.' CSO partners with the Centre for Data Analytics in the National University of Galway to run this competition. www.aliceperryhackathon.ie

This competition is open to third level students in Ireland. Teams of a maximum of 4 from any discipline or background can apply. Prizes of €500, €300 and €200 go to the first three teams. Team members get a certificate of participation and a free t-shirt. The hackathon is fuelled by free pizza on the day. The event is registered on Eventbrite https://www.eventbrite.ie/e/alice-perry-open-data-hackathon-galway-tickets-77114636955

Conclusion

Competitions are a very successful part of the CSO education outreach strategy. Through competitions CSO engages with thousands of students at secondary and third level education each year. Organising these competitions builds capacity and skills in young people particularly in terms of statistical and numerical literacy. Young people are the future policy makers and leaders of our country. Promoting data savvy citizens is an investment in our future.

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PORTUGAL

Introduction of the new country coordinator of Portugal

José Pinto Martins*

José Pinto Martins has a degree in Electrical Engineering (Instituto Superior Técnico–University of Lisbon) and has a postgraduate degree in Science and Information Management (LNETI / University of Sheffield).

He joined Statistics Portugal (INE) in 1991 as head of the dissemination unit, where he stayed from 1991 to 2004. During the period 2004-2007, he was the executive secretary for the 56th biennial session of the International Statistical Institute (ISI 2007), which took place in Portugal. Thereafter he resumed his duties of as Director of Dissemination at Statistics Portugal; the position he still holds.

He has been the executive editor of the REVSTAT–Statistical Journal since 2016.

He has been a teacher of informatics and information management at the Higher Institute of Languages and Administration (ISLA) from 1988 to 2002 and at the NOVA Information Management School (NOVA IMS), both in Lisbon, from 1992 to 2010. He has been a co-trainer for the dissemination of official statistical data course, held annually under the European Statistical Training Program, by the European Statistical System.

He has been a member of the Steering Committee of the International Marketing and Output Database Conference (IMAODBC) since 2009 and of the Steering Group DIGICOM (Digital Communication, User analytics and Innovative products under the European Statistical System program) since 2016.

He has coordinated and implemented several actions to promote statistical literacy among teachers and students of different grades – elementary, secondary and university – in close collaboration with teachers and the Ministry of Education, including the dissemination and promotion of ALEA (Local Action on Applied Statistics–www.alea.pt), which in 2007 received the International Statistical Literacy Project "Best Cooperative Project Award".

In the scope of activities at Statistics Portugal and DIGICOM, he participated in the organization and the promotion of the European Statistics Competition (2016/17 and 2017/18 editions) in Portugal and on the monitoring of its organization at European level.

José Pinto Martins é licenciado em Engenharia Eletrotécnica (Instituto Superior Técnico – Universidade de Lisboa) e fez pós-graduação em Ciência e Gestão de Informação (LNETI / Universidade de Sheffield).

Ingressou no Instituto Nacional de Estatística (INE) em 1991 exercendo aí as funções de responsável pela área de difusão entre 1991 e 2004. No período de 2004 a 2007, foi o secretário executivo para a organização da 56.ª sessão bienal do International Statistical Institute (ISI 2007), que teve lugar em Portugal, retomando em seguida as funções de Diretor do Serviço de Difusão do Instituto Nacional de Estatística, que ainda exerce.

É o editor executivo da REVSTAT – Statistical Journal, desde 2016.

Exerceu funções de docência na área da informática e gestão de informação no Instituto Superior de Línguas e Administração de Lisboa, de 1988 a 2002, e no Instituto Superior de Estatística e Gestão de Informação, de 1992 a 2010. Tem sido co-formador no curso sobre difusão de dados estatísticos oficiais, realizado anualmente no âmbito do European Statistical Training Program, promovido pelo Sistema Estatístico Europeu.

É membro do "Steering Committee" do IMAODBC– International Marketing and Output DataBase Conference, desde 2009, e do "Steering Group" DIGICOM (Digital communication, User analytics and Innovative products, desde 2016.

Tem coordenado e implementado várias ações de promoção da literacia estatística junto de professores e alunos de diferentes graus de ensino – básico, secundário e universitário – em estreita colaboração com os professores e com o Ministério da Educação, dos quais se destacam a dinamização e promoção do ALEA (Ação Local de Estatística Aplicada – www.alea.pt), que em 2007 recebeu o prémio "Best Cooperative Project Award" – atribuído pela primeira vez – no quadro do International Statistical Literacy Project (ISLP).

No âmbito das atividades no INE e do DIGICOM, participou na organização e dinamização das edições de 2016/17 e 2017/18 da Competição Europeia de Estatística em Portugal e acompanhou a sua organização a nível europeu.

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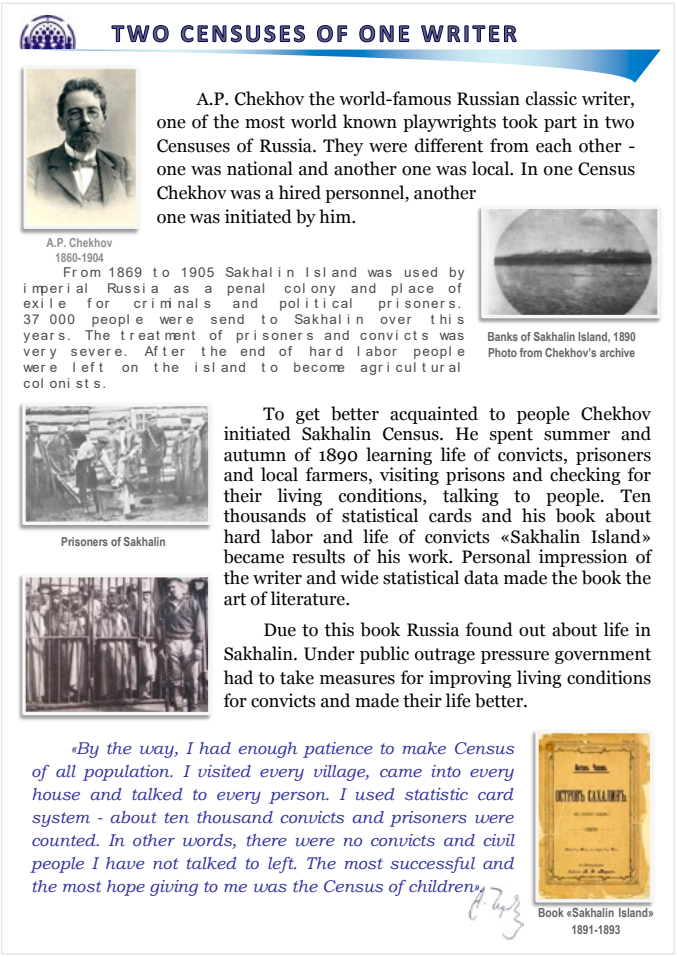
RUSSIA



TWO CENSUSES OF ONE WRITER

A.P. Chekhov the world-famous Russian classic writer, one of the most world known playwrights took part in two Censuses of Russia. They were different from each other - one was national and another one was local. In one Census Chekhov was a hired personnel, another one was initiated by him.

A.P. Chekhov 1860-1904

From 1869 to 1905 Sakhalin Island was used by imperial Russia as a penal colony and place of exile for criminals and political prisoners. 37 000 people were send to Sakhalin over this years. The treatment of prisoners and convicts was very severe. After the end of hard labor people were left on the island to become agricultural colonists.

Banks of Sakhalin Island, 1890
Photo from Chekhov's archive

Prisoners of Sakhalin

To get better acquainted to people Chekhov initiated Sakhalin Census. He spent summer and autumn of 1890 learning life of convicts, prisoners and local farmers, visiting prisons and checking for their living conditions, talking to people. Ten thousands of statistical cards and his book about hard labor and life of convicts «Sakhalin Island» became results of his work. Personal impression of the writer and wide statistical data made the book the art of literature.

Due to this book Russia found out about life in Sakhalin. Under public outrage pressure government had to take measures for improving living conditions for convicts and made their life better.

«By the way, I had enough patience to make Census of all population. I visited every village, came into every house and talked to every person. I used statistic card system - about ten thousand convicts and prisoners were counted. In other words, there were no convicts and civil people I have not talked to left. The most successful and the most hope giving to me was the Census of children»

Book «Sakhalin Island» 1891-1893

Photo 1: Two censuses of one writer.

Kuzbass is getting ready for the 2020 Census

Irina Karataeva*

We are glad to inform you that Kemerovostat (Kemerovo Department of Federal Statistic Service of Russian Federation) continues to improve statistical literacy in Kuzbass and is finding new ways to do this.

The main vehicle for promoting statistical literacy in Russia for the next few years will be the Census of Population of the Russian Federation in 2020

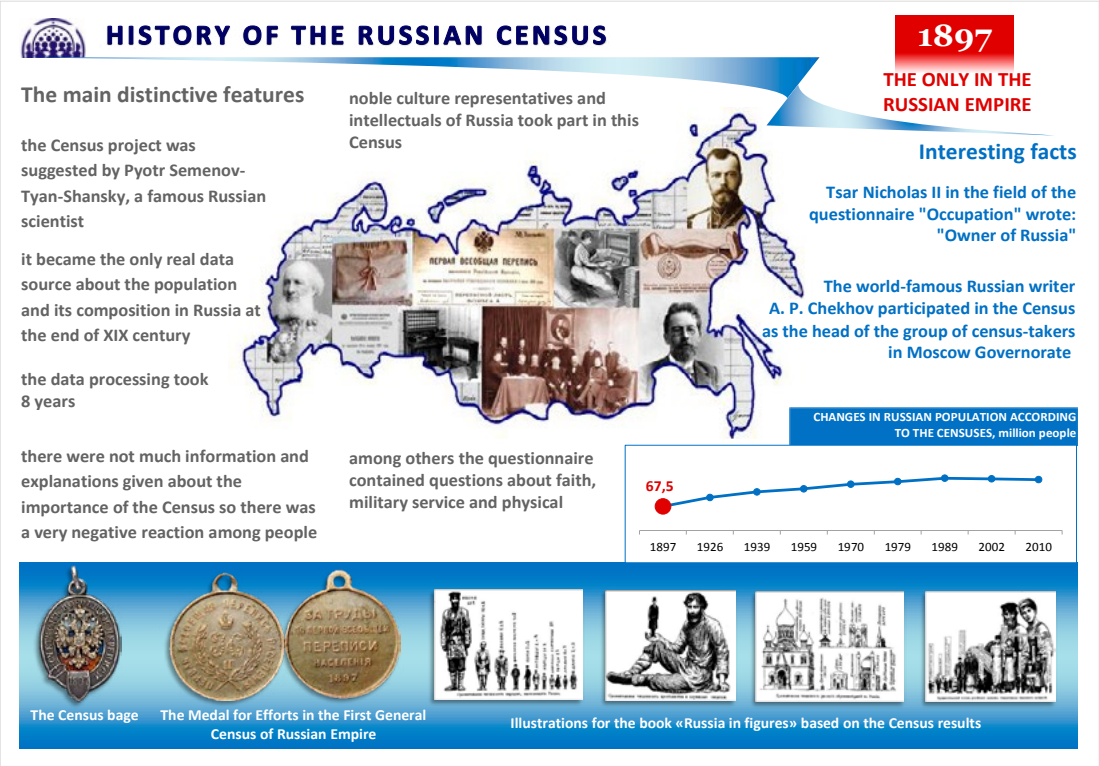


Photo 2: History of the Russian Census.

(Census-2020). Despite the fact that Census-2020 will be held only next year, Kemerovostat, as part of their planning and preparation for the Census, is already using presenting information and raises activities to inform people in the Kemerovo region about the importance of collecting such data.

The main project "Census-2020 today" that will run for the period 2019-2021, includes promotion activities. The main focus of this project is to visualize text and digital information, so that the demonstration materials can be easily understood by, and interest, people. The second important goal is to promote the census with younger people who are not familiar, or hardly remember, the last Census (2010) so that they understand Census-2020 as a significant and meaningful event of national importance.

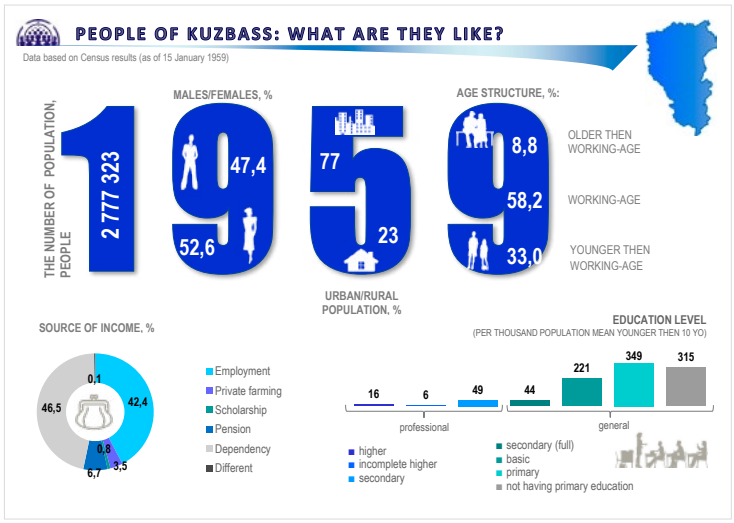
In the second half of 2020, a poster contest for schoolchildren, and an infographic contest for students, will be hosted based on the results of the previous Census. It is important for children, teenagers and young people to learn about the Census and to understand its significance for the country and for each of them. Participants will learn how to use Census data, their homeland, and how to analyze statistical information and present it using computer graphics.

We have also developed a special survey for students who come to Kemerovostat on excursions or take part in seminars and round tables. This survey helps us to understand which method of participation in the Census is preferable for students – internet or paper questionnaire. It also helps us to understand whether students use the Census results as part of their studies and research. This helps to promoting the Census in the most effective way.

The media is actively used to draw attention to the Census. Kemerovostat publishes articles and interviews in mass media outlets, showcasing population statistics taken from the 2010 Census. These publications are accompanied by announcements regarding the forthcoming Census-2020.

There have been 9 population Censuses taken in Russia. Each of them was undertaken in a different historical time and each have their own distinctive features. Kemerovstat often uses infographics to present statistical information, but text visualization was first used to explain the history of the Census to the people of Kuzbass. A poster for each Census, starting with the very first one in 1897, was prepared, including unique historical photos. (See Photo 2–History of the Russian Census).

There is photographic record of the Census of 1939, held at the Statistics Department in the corporate Museum of Kemerovostat. This 80 year old document can be seen by visitors to the museum. We have used this material in Kemerovostat publications on the history of Censuses.



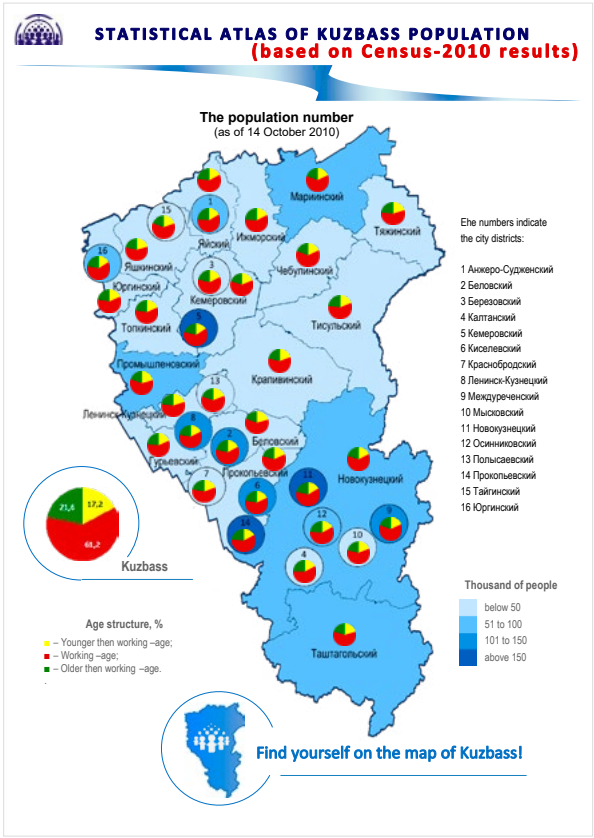


Photo 3: People of Kuzbass what are they like?
Photo 4: Statistical Atlas of Kuzbass population.

It may seem surprising, but Censuses feature in Russian literature. World-famous Russian classics by A. P. Chekhov and L. N. Tolstoy participated in these statistical surveys. They wanted to understand better people's lives and use this information in their work. We prepared brief material based on historical photos and quotations from Chekhov and Tolstoy, explaining their involvement in Census.

What were the lives of the people of Kuzbass like in the last century and how have they changed over the time? We can answer these questions with the help of infographics–"People of Kuzbass: what are they?". Since the formation of the Kemerovo region, 6 censuses have been taken. Using results from each, we prepared infographics on the number and composition of the population, their levels of education, and their occupations sources. (Photo 4–Statistical Atlas of Kuzbass population).

"Find yourself on the map of Kuzbass!"- the slogan of the statistical atlas of the population of the Kemerovo region, based on the results of Census-2010. The Atlas will be supplemented with new maps after the results of the 2020 Census have been published. These maps will highlight changes in the population over the past 10 years.

All materials on Census-2020 will be published on the Internet portal of Kemerovostat in the section "What is interesting in statistics?"

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USA

Introduction of the new country coordinator of the USA

Anushka Karkelanova*

I was born in Plovdiv, Bulgaria and lived there for 25 years. I have a Master's in Electrical Engineering and Computer Science from the Technical University of Sofia branch Plovdiv (1998). I have lived in Lexington, Kentucky for the past, almost, 20 years. I have two kids: Eric, my son who is 12 years old and Petya, my daughter who is 20 years old. I speak Bulgarian, Russian and English fluently. I enjoy reading, hiking, riding bikes and traveling to explore different cultures, traditions and food.

I hold a Masters in Statistics from the University of Kentucky (2004) and I am currently working on my PhD with majors in Mathematics and Statistics education.

I have been a Lecturer at the University of Kentucky since 2013, teaching I teach about 900 students each year. From 2017, I have been a Faculty Fellow Leadership Team Member at the University of Kentucky and since last year, I am also the Statistics Coordinator for Undergraduate level course STA 210.

My goal as an educator is to inspire my students to realize their potential and help them find their voice. My research interests include teaching and learning statistics while incorporating technology that facilitate students' learning. I concentrate on innovating teaching styles in order to provide the best learning opportunities for my students. One of my goals as a USA country coordinator is to extend this and work with educators around the world. I hope to contribute my knowledge and experience to help strengthen the teaching and use of Statistics around the world.

I am a member of the International Statistical Institute (ISI) and the International Association for Statistical Education (IASE). Before coming to University of Kentucky I was a middle school and high school level mathematics and statistics teacher for 6 years. I will obtain my PhD from the University of Kentucky, where my dissertation topic is: Improving Undergraduate Statistics Education: Educational Lessons from two Pedagogical Experiments. My recent research work has explored different and innovative methods of teaching statistics at college undergraduate level courses.

We live in a world where we are surrounded by data every day. We see numbers, percentages, rates, probabilities and ratings everywhere. Understanding the data is critical to understand society. Unfortunately, the reality is that not many people are equipped with adequate knowledge to really understand the numbers and critically evaluate the data. Statistical literacy–the ability to understand and comprehend statistics, is becoming even more important. Part of my motivation to become a country coordinator for the ISLP is to share my knowledge, and search for solutions with professionals from all over the world.

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Quantitative Literacy Should not be Optional*

Gail Burrill**

Today's world is awash with data. Understanding this world is associated with many names such as statistical reasoning/thinking, quantitative reasoning/literacy, numeracy, data fluency (Burrill, 2019). Whatever the name, the desired outcome is people able to make informed decisions about their lives, their work and the world based on data.

Quantitative literacy skills are central in managing and processing information in many professions and careers, for example, education. The state of Michigan mathematics achievement scores rose from 264 in 1990 to 280 in 2017, but the standard deviations (a measure not typically published with the scores) also increased, from 34 to 39 (National Assessment of Educational Progress Data (NAEP) Explorer), suggesting gaps in performance could be growing as well, which has implications for policy decisions. Student placement in Michigan is informed by reports on student achievement (figure 1), identifying students as not proficient, partially proficient, proficient or above proficient with respect to a content area (Michigan M-Step Final Reports Webcast 2016). The segment above the vertical mark indicating the individual student's score shows the "margin of error". Note this interval actually places some students in two levels and in case of student B, in three levels. Educators should be aware that all of these are plausible descriptions of students' understanding and seek other information before making decisions about what the students know and are able to do.

Figure 1: Michigan student mathematics achievement levels.

The words "significantly different (p<.05) from 2017)" are used to describe a drop in the US eighth grade mathematics scores on the NAEP. What does this mean? What questions should educators be asking? As another example, the media is full of statements that suggest strategies to boost learning but confuse correlation with causation: e.g., eighth grade algebra is key indicator in college success (Hein & Smerdon, 2013); "Looping' With Students Boosts Learning, Especially for Kids of Color, Study Says (Isevoli, 2018)"; "students who are not reading by the fourth grade most likely will grow up to be essentially non-readers (Lubell, 2017)".

Many disciplines require competency with statistical ideas. Consider medicine. A report in the Wall Street Journal (Morgan, 2018) noted the inability of many in the medical field to correctly interpret percentages and conditional probabilities in measuring risks

- In one study, gynecologists estimated that a woman whose mammogram was positive had a higher than 80 percent chance of having breast cancer, when the reality was that her chance was less than 10 percent.
- Researchers found after a battery of exams, about 5 of every 1,000 women will have a false-positive result and told they have breast cancer when they do not.
- Nearly 90 percent of the patients received at least one unnecessary test and that, overall, nearly one-third of all the tests were unnecessary.
- Nearly 80 percent of the doctors in the study overestimated the benefits of a treatment. (Morgan, 2018)

These examples are not unique; similar ones can be found illustrating how core statistical/ quantitative literacy understandings are employed in many other fields.

Making Sense of the World

Quantitative literacy/statistical reasoning is fundamental to making sense of the world in which we live. "An enlightened citizenry that is empowered to study evidence-based facts and that has the capacity to manage, analyze and think critically about data is the best remedy for a world that is guided by fake news or oblivious towards facts." (Engle, 2017) For example, knowing that data are often reported as absolute numbers is useful for understanding that while New Hampshire, population about 1.36 million, has one of the lowest numbers of opioid deaths in the United States, they have one of the highest death rates (www.kff.org/other/state-indicator/opioid-overdose-deaths) (figure 2). Recently, areas of the world have seen tremendous flooding, often termed "100 year" floods. A 100-year flood is flood with a one percent chance of happening in any particular year. The chance of four 100-year floods in 100 years is nearly 2%. The public struggles with such interpretations of probability, often thinking that once such a flood occurs, it will be 99 years before another such flood and it is safe to live in the area. (Lansing State Journal, 2019). Understanding measures of center enables people to interpret statements such as "The average salary is £24,000, but most people earn less." Or "Productivity in the UK is below average for the G7 group of leading economies." (Blastland, 2016).

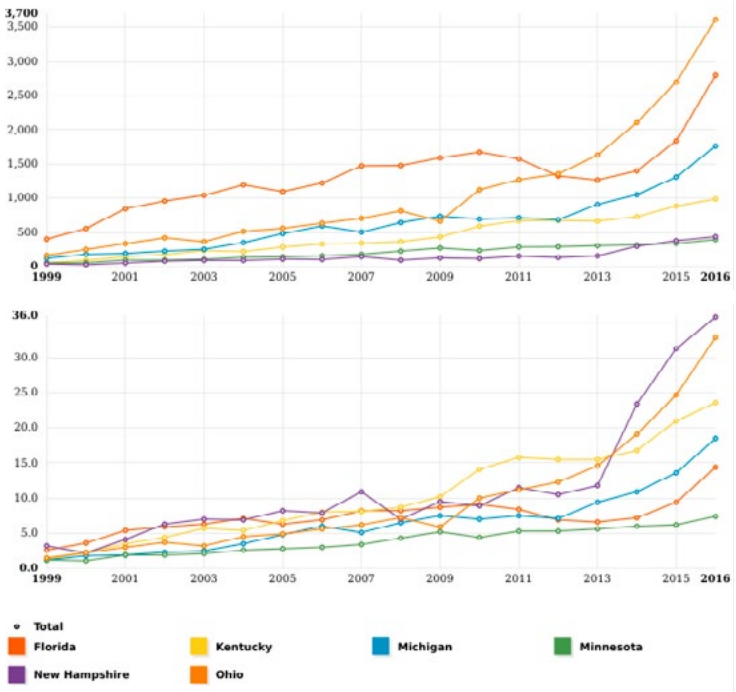

Figure 2 Opioid deaths

Examples of data literacy in the media and online sources range from the foolish to the serious. The graph in figure 3 seems to have been constructed based not on data about cookie sales but on the length of the name of the cookie.

Figure 3 Bar graphs (Bolton, 2015)

Personal decisions about life style and life choices are often based on reports or data from the media. For example, worldwide, the number of reported cases of measles jumped 300% in the first three months of 2019 compared to the same time period in 2018 (Koenig, 2019). This jump is partially attributed to reports describing the dangers of the vaccine, which make parents reluctant to subject their children to the possible side effects. Asking "worry questions" questions about such reports (Gal, 2002) such as who sponsored the reports and the research and why, exactly what evidence was found, how many children were affected over what time period, or what other factors might have contributed to the effects, can enable parents to make informed decisions about their children's health.

The Role of IASE and ISLP

OECD's 2017 Action Plan calls for boosting statistical capacity and data literacy to enable policy makers and citizens across the world to make informed choices on policies and priorities. The International Association for Statistical Literacy (IASE) can help: its members are a source of advice and research on how to give people the right tools to make informed decisions based on data. (Note that the recommendations that follow are based on papers (available at https://iase-web.org/Conference_Proceedings.php?p=2019_Decision_Making_Based_on_Data) presented at the IASE 2019 Satellite Meeting held in Kuala Lumpur, Malaysia on August 13-16, 2019.) The papers discuss how statistical learning can be enhanced when instruction

- gives students real and relevant problems with genuine complexity from the start;
- provides learning experiences that involve conceptual understanding not just procedures;
- takes place in supportive environments recognizing that students bring individual strengths as well as areas that need strengthening;
- and curriculum are designed understanding that many students will be critical consumers of data while a few will need to be capable and responsible producers of statistical information;

when the curriculum engages students in experiences focused on the development of critical attitudes where they

- communicate and assess statistical thinking, using data in their reasoning and justifications,
- make sense of and reason with data in two-way tables,
- attend to critical evaluation and methodology in areas related to official statistics, civic knowledge, and social policy in framing documents such as the Guidelines for Assessment and Instruction on Statistical Education,
- work to ensure that assessments measure what is important;

when the relevance of statistics is made visible, capturing students' imaginations and letting them experience statistics as fascinating and useful.

The goal of IASE can be summarized in a statement adapted from Ernst (2010):

"Students should be able to identify, interpret, evaluate, and critique the information embedded in social, scientific, commercial, and political systems, as well as the claims made in the private and public sectors and in public interest group pronouncements." Students should leave our educational institutions with the ability to reason and make sense of information, know what questions to ask when confronted with data and conclusions from data, understand what "evidence" is and why it is important, and know how to deal with alternate truths as well as inconvenient facts. IASE is supported and enhanced by the work of ISLP. whose focus is on promoting statistical literacy across the world, among young and adults, in all walks of life.

* This paper is based on the closing keynote talk given at the IASE 2019 Satellite Conference in Kuala Lumpur, Malaysia, August 16, 2019.

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ARGENTINA

Pasado presente y futuro de la Explotación de Datos en Argentina

Ana Silvia Ahedo*

Hacia el año 2000 un grupo de docentes de las Facultades de Ciencias Exactas y Naturales (FCEN) y de Ingeniería (FI) de la Universidad de Buenos Aires (UBA) comenzamos a trabajar en forma conjunta para crear una Carrera de postgrado en Mineria de Datos (Data MINING) objetivo que logramos concretando una carrera que denominamos Explotación de Datos y Descubrimiento del Conocimiento. Se fijó la sede Administrativa de la carrera en la FCEN. Los cursos comenzaron en 2003 en clases teóricas y prácticas de laboratorio.

Desde ese entonces la Maestría tiene la misión de formar profesionales capaces de descubrir y detectar patrones, relaciones y formular modelos a partir de gigantescas bases de datos con una vocación altamente interdisciplinaria.

Sus graduados aprenden técnicas y herramientas innovadoras que les permiten resolver diversos problemas, para los que no se disponía de suficiente know how, tanto en el ámbito académico como en el sector productivo.

En el primer año de dictan cursos de Aprendizaje Automático (Machine Learning), Minería de datos (Data Mining) y Métodos Exploratorios y Multivariados (AID) Aplicaciones de Data Mining a la Ciencia y la Tecnología y a la Economía y Finanzas y Modelos de regresión y predictivos y estadística Bayesiana

En el Segundo año cursos de metodología y optativas entre las que se ofrecían, Visualización Minería de texto, Redes Neuronales , Data Warehousing

Al finalizar el primer año los alumnos obtienen el título de Especialista y al final el segundo año el de Magister una vez defendida la tesis.

La carrera tuvo y continua teniendo una numerosa convocatoria con inscriptos de la Capital Federal, el interior del País y un número de extranjeros que fue aumentando con el pasar de los años dado que era la única carrera de este tipo en América.

Su perfil profesional resulta sumamente demandado por la industria de software y los servicios informáticos, especialmente en áreas de vanguardia como Big Data, Analytics y Business Intelligence. De hecho, la mayoría de los graduados de Argentina y Latinoamérica trabajan en áreas relacionadas con Data Mining en importantes organizaciones mientras que otros especialistas optan por ser consultores especializados desarrollando productos propios. Al mismo tiempo, la Maestría cuenta con un prestigioso comité académico y un plantel de profesores de excelencia, siendo Partner Académico del Erasmus Mundus Master in Data Mining and Knowledge Management, Máster creado en 1999 por un Consorcio formado por seis universidades europeas, en el marco de ese convenio profesores de Barcelona , Lyon participaron de las Jornadas y tutoriales y docentes de nuestro programa realizaron pasantías en Europa.

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Con la formación de numerosos graduados en Data Mining y se consolidó el liderazgo de la Maestría a nivel regional. En 2013 la CESSI (empresas de Software) distinguió a la Maestría con el Premio Sadosky en la Categoría Recursos Humanos, Calidad e Innovación Educativa.

Alumnos participaron de competencias nacionales e internacionales en las que obtuvieron premios y menciones

Fui Docente y miembro del Comité académico de la Misma hasta ocupar el cargo de Directora de la misma.

Ocupé ese cargos con entusiasmo, organicé Jornadas en las que docentes e investigadores presentaban exposiciones sobre temas relacionados con la carrera y también los alumnos y egresados exponían comunicaciones breves .

Algunas las dedicamos a un tema específico y acorde al éxito de las mismas aumentamos la oferta brindando tutoriales relacionados

El interés del programa favoreció la firma de convenios con empresas de software que lo instalaron gratuitamente en los laboratorios.

Data Mining, Ciencia de datos, Big Data se ocupan de extraer información interesante de gigantescas bases de de Datos, involucra cada vez más diversos métodos científicos dadas sus aplicaciones diversas con aspectos descriptivos, y predictivos como estadística e informática y visualización , lo que impone el trabajo interdisciplinario.

La estadística contribuye notablemente a comprender analizar y resolver los problemas que plantea la Ciencia de Datos

En 2014 fui desvinculada del programa de la UBA pero fui convocada por una Universidad del Interior del país , la facultad Regional Paraná de la Universidad Tecnológica Nacional en la que contribuí a crear un programa similar que comenzó en 2018 en el que se inscribieron 25 alumnos

Asimismo Organizamos una Jornada, la primera en el interior del país a la que asistieron más de 120 profesionales, esto muestra de la necesidad de formar profesionales en el tema.

Programas de diplomatura se están implementando en Córdoba y Mendoza.

Esto debe comprometer a los estadísticos a Involucrarse en el tema.

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CHILE

La Ciencia de los Datos

Soledad Estrella* Hugo Alvarado**

Valorar el significado y potencial de los datos ha tardado cientos de años. Algunos autores han señalado que, a fines del siglo XVI, el asistente de Tycho Brahe – Johannes Kepler— al estudiar el registro sistemático de las observaciones astronómicas realizadas por Brahe, descubre las leyes del movimiento planetario; dicha experiencia permitió distinguir entre la exploración y análisis de datos experimentales, de la formulación de teorías. Otros autores han relacionado la valoración de una mayor cantidad de datos desde las significativas propuestas de Bayes y Bernoulli; el primero, proponía que una nueva evidencia desde los datos proporcionaba mayor información, y el segundo, requería más datos para determinar una convergencia.

Todo lo relacionado con la ciencia está cambiando debido al impacto de las tecnologías de la información y la avalancha de datos. Jim Gray (2007) señalaba que en este siglo XXI, es muy factible que la mayor parte del continuo volumen de datos (big data) capturados por nuevos instrumentos de manera ininterrumpida, junto con la información generada con inteligencia artificial, sean protegidos para efectos de su continuo análisis y tengan un amplio acceso público. Sin duda, ello conducirá al desarrollo de nuevas teorías, a nuevo conocimiento de acceso abierto.

La ciencia de datos como campo interdisciplinario, involucra métodos científicos, procesos y sistemas para extraer conocimiento o una mejor comprensión de los datos en sus diferentes formas, ya sea estructurados o no estructurados, lo cual es una evolución de algunos campos de análisis de datos como la estadística, la minería de datos, el aprendizaje automático de máquinas y el análisis predictivo estadístico; todos ellos permiten comprender y analizar los fenómenos reales, empleando técnicas y teorías extraídas de otros campos dentro del contexto de la matemática, la estadística, la ciencia de la información y la informática.

Tanto de la Ciencia de los Datos como de la Estadística, el análisis de datos incluye el uso de bases de datos, el análisis, modelado y visualización de datos. ¿Cómo desarrollar este nuevo pensamiento en la escuela? ¿Cómo desarrollar el pensamiento estadístico en nuestros estudiantes?

Desarrollar el pensamiento estadístico en la escuela de hoy, involucra comprender por qué y cómo se llevan a cabo las investigaciones, comprendiendo los conceptos estadísticos esenciales en tales investigaciones, como la variabilidad, la incertidumbre y la inferencia informal sobre los datos, entre otros.

El pensamiento estadístico permite desarrollar conocimiento y saber hacer, necesarios para comprender, analizar críticamente y actuar en un espacio fuertemente influenciado por la accesibilidad a los datos y las tecnologías digitales. El desarrollo de este pensamiento requiere de experiencias reales con:

a) el ciclo investigativo tradicional, PPDAC, que se inicia con un problema o pregunta en un contexto, sigue con la planificación para abordar tal problema, la recolección y limpieza de datos, el análisis e interpretación de los datos, y la conclusión que da respuesta al problema inicial con evidencia en los datos y cierta certeza;

b) nuevos ciclos investigativos, por ejemplo, DAPAC, que se inicia con los datos (big data) en un contexto (no desde una pregunta y obviando el proceso de recolección de datos), su análisis y limpieza, el levantamiento de un problema o pregunta, un posterior nuevo análisis e interpretación de los datos, y la conclusión que da respuesta al problema con evidencia en los datos y cierta certeza.

Promover el desarrollo del pensamiento estadístico, implica la búsqueda y exploración de respuestas cuantitativas a un fenómeno real en un contexto, comparar distintas representaciones de los datos y modelos que permitan comunicar a otros la interpretación del análisis del comportamiento de los datos, inferir y aproximarse a una mejor respuesta a tal fenómeno.

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MEXICO

A Mexican MOOC in basic statistics for high school

Hugo Hernández*

Having high school students failing statistics is regrettably very common. As a high school Statistics teacher, I unfortunately know this first-hand.

Some years ago, our old scholar program in statistics was merely arithmetic; just operations to obtain statistics or probability measures, without any context. Today, the new program is focused on statistical literacy; putting data in context, probability reasoning and using new technologies. We, as an educational institution, are convinced that it should be this way. But our students continued to fail statistics.

So, something else had to be done. That 'something' is a MOOC (Massive Open Online Course). The idea was to offer some resources to help pupils to prepare an extraordinary assessment in case they had failed Statistics. Later we realized that the MOOC may also help students avoid failing. So, the next step was to launch it, using COURSERA as the most suitable option.

Now the resource is open to anyone interested. It is expected to help those interested in improving their basic statistical knowledge and skills, preparing them for descriptive statistics, regression and correlation, and basic Probability. A second MOOC about distribution, sampling distributions and basic inference will be launched in the future.

The MOOC is in Spanish at: https://www.coursera.org/learn/estadistica-probabilidad.

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Call for papers

Better Lives 2030: mobilising the power of data for Africa and the world

The International Association for Official Statistics (IAOS), the International Statistical Institute (ISI) and the Republic of Zambia Central Statistical Office are pleased to announce the call for papers for the 2020 Conference

Better Lives 2030: mobilising the power of data for Africa and the world.

Bringing together statisticians and all those in government, universities and education who care about the value of statistics to society

We have selected seven themes:

1. Future of Statistics for Africa: statistics that leave no one behind
2. Skills for Africa in the era of data
3. Official statistics in society: they matter to all of us
4. Big data. Opportunities arising from the new data ecosystem.
5. Statistics making a difference: public health, prevent and cure
6. Statistics making a difference: environment and climate
7. Statistics making a difference: from data to progress

The conference programme has been designed to deliver:

- A forward looking prospectus for statistics to help improve decision making over the next 10 years
- An opportunity to bring together diverse communities to foster innovation and partnership
- A focus on Africa through Agenda 2063 and the SDGs
- Capacity building in Zambia and across the region

Session and Paper proposals

You are invited to submit any of the following:

- Proposal for a session, lasting 90 minutes in total and including three or four speakers plus a discussant. Please indicate the strand chosen, the title of the proposed session, a half-a-page abstract, the list of speakers with affiliation and link to web page (if possible).
- Contributed individual paper, which will be organised in special topic sessions. Please indicate the strand, the title of the proposed paper and a half-a-page abstract.
- Contributed individual poster. Please indicate the strand, the title of the proposed poster and a half-a-page abstract.

In all cases please indicate your own name, your affiliation, your email address, your phone number and your web-page, if available.

Proposals should be sent to zambiastats2020@gmail.com by 31 December 2019.

Please send a single file (pdf, word, text, etc) with the required information. The Scientific Programme Committee will consider the proposals and inform you of the outcome (acceptance or not) by end January 2020. If selected, final materials for the conference proceedings need to be submitted by end April 2020.

Pre and Post conference workshops, side events or meetings

The main programme will run over three full days. There is also potential for side events, relevant to the themes, before or after the main event.

Suggestions for pre-and post-conference workshops, events or meetings should be also send to zambiastats2020@gmail.com by 31 December 2019, with a clear description of the proposed content and organisation of the event.

Please indicate your own name, your affiliation, your email address, your phone number and your web-page, if available.

The Scientific Programme Committee will consider the proposals and inform you of the outcome (acceptance or not) by end of January 2020. The Scientific Programme Committee reserves the right to combine events.

More information

Contact the organisers at zambiastats2020@gmail.com.