ISLP Newsletter
Newsletter of the International Statistical Literacy Project
1 (15) July 2023

The power of statistical literacy: empowering minds, shaping decisions

Sir David Spiegelhalter*

During the Covid pandemic we have been inundated with data – the news was full of numbers. I spent a lot of time trying to explain what these meant, and didn't mean, and this made me realise that statistical literacy has become an essential skill for navigating the complexities of modern society. As well as health, everything from finance to public policy and climate change requires statistical insights, which can inform crucial decisions that that we make ourselves, or are made by others and that influence us.

The approaching World Statistics Congress 2023 provides a great opportunity to emphasise the significance of statistical literacy to both individuals and societies, and I hope the conference becomes a catalyst for positive change that has the potential to shape our future for the better.

WSC 2023 SPECIAL EDITION

OTTAWA 2023
64TH WORLD STATISTICS CONGRESS

If people are more statistically literate, it should empower them to engage critically with data, make informed choices, and raise the level of public discourse. By equipping people with the skills to interpret and understand the numbers presented to them, it will help ensure they can evaluate claims, assess risks, and draw reasoned conclusions. Polarized mainstream and social media, combined with the rise in AI tools, will mean there will be even more mis- and disinformation. But statistical literacy should help people separate fact from fiction, and hopefully make them less susceptible to misinformation and manipulation.

The coming World Statistics Congress 2023 conference provides a wonderful opportunity for statisticians, researchers, policymakers, and educators to come together, and look at new strategies to help improve statistical literacy across the world. By sharing best practices, exchanging ideas, and discussing the latest developments in statistical education, participants can be part of a collaborative community with a fine common goal.

In my long career as a statistician, I have experienced the remarkable benefits for individuals when they are equipped with the tools to understand and interpret data, whether it's about vaccines, energy, or the Eurovision Song Contest. By championing statistical literacy at the World Statistics Congress 2023, we lay the foundation for a more informed and enlightened society. Let's use statistical science to make a better world!

* Emeritus Professor and Fellow of Churchill College
Chair, Winton Centre for Risk and Evidence Communication
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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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UPCOMING EVENTS

ISLP news

Elisa Falck* and Reija Helenius**

The ISLP is represented in two major statistics conferences that are still upcoming this year: The World Statistics Congress (WSC2023), in Ottawa, and in the 2023 Joint Statistical Meetings, in Toronto.

Please find below the descriptions of ISLP related events in the conferences, as well as a few words about our fundseeking.

Upcoming events

WSC2023: 16 – 19 July, 2023

Session IPS 439 – *Partnering for statistically literate societies*
Tuesday 18 July, 10 a.m. – noon (Canada/Eastern)
- Organiser: Ms Vibeke Nielsen
- Chair: Ms Reija Helenius
- Speakers: Ms Vibeke Nielsen, Dr Pedro Campos, Dr Bianca Walsh, Dr Delia North
- Discussant: Dr Elena Proden.

ISLP session IPS 274 – *Statistics and data in the decision-making process – how can statistical offices promote the usage and application of data?*
Wednesday 19 July 10 a.m.- noon (Canada/Eastern)
- Organiser: Ms Reija Helenius
- Chair: Dr Markus Sovala
- Speakers: Mr Ville Vertanen, Dr Stephen MacFeely, DRS Ola Awad-Shakhshir, Dr David Stern
- Discussant: Dr Gaby Umbach.

ISLP Open Meeting
Wednesday 19th July 12:10 – 13: 50, Room 202

JSM 2023: 5 – 10 August, 2023

Invited Paper Session – *Statistics, Finding its Place in a Data Science World*
Wednesday 9 August, 10 a.m.- 12:20 p.m.
Room 1468
- Organiser: Ms Reija Helenius
- Chair: Dr Marjorie Bond
- Speakers: Dr Juana Sanchez, Dr Milo Schield, TBA
- Discussant: Dr Wesley Burr

Fundseeking efforts

The International Statistical Literacy Project has been increasing its fund-seeking efforts since 2022. The project has exponentially grown in size in recent years. The project Executive and Advisory Board consider sufficient funds allocated for the project operations to be an important step as we continue to support our country coordinators around the world. We are determined in our fund-seeking efforts and keep searching for new sources for funding.

ISLP: Strenghtening our Administration

We are happy to announce that we have appointed two new Deputy Directors to our Executive team. They are:

Saleha Naghmi Habibullah is a Professor of Statistics in the Kinnaird College For Women, as well as an Honorary Executive Director in PISTAR, The Pak Institute of Statistical Training and Research. She leaves her role in the ISLP Advisory Board for her new role as a Deputy Director.

Irena Ograjensek is a Professor of Statistics in University of Ljubljana's School of Economics and Business (SEB). She has joined the Executive Team as a Deputy Director.

We are also excited to announce three Special Advisors for the ISLP Project.

Ben Kiregyera: Special Consultant for Africa
International Statistical Consultant, Former Director, African Centre for Statistics at UNECA, Elected Member of the International Statistical Institute

Jo Roislien: New Media Special Consultant
Visiting Professor, King's College, UK & Creative Communication Professional

In addition that *Milo Schield* is a new ISLP Advisory Board member, he is also a Special Consultant for Fundraising. Professor Emeritus, Augsburg University

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** Reija Helenius
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Group Leader, Statistics Finland
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ARGENTINA

Statistics in my life

Teresita Evelina Terán*

Since my very first years I have loved Mathematics and I even used to teach it to my dolls in my childhood games. I studied at the Escuela Normal Nacional en Lenguas Vivas in Rosario, from kindergarten to my High School degree as Bachelor with pedagogical orientation. I always had good grades and helped my classmates a lot, especially in Mathematics.

Right after my Graduation Ceremony, I went to a school that was halfway between my house and the School, where I had studied, and spoke with the Headmisstress to find out whether there was a vacancy to work as a teacher. There happened to be an opening for a substitution and due to my graduation with honors at the High School the Headmistress trusted me with the position; so at 18 I started working at a night school as a technical education teacher. Thus, I was able to help at home since we were going through a difficult economic situation.

Teaching in a night school was a great experience, which was complemented with by the adequate information my father, as a criminal lawyer, could supply me with. At the same time I became very interested in Statistics and enrolled in the School of Economics and Statistics of Universidad Nacional de Rosario (UNR).

I attended my classes there during the hard years of the military dictatorship, of which I would rather not recall the unpleasant moments I was forced to go through just because my name appeared in the phone book of one of my brother's friends.

Once the hard times passed, I focused on my night school teaching and my University studies, and while doing so, one of my professors invited me to be one of his direct assistants in Mathematics I and II. I advanced subjects and I was able to graduate at the age of 22.

What an immense joy to receive my Bachelor of Statistics diploma! I won a contest and entered the chair of Biostatistics of the Veterinary Sciences School of Casilda (UNR) where I continued to win all the contests since 1977 until I got the tenure of the chair. I worked there until 2018, when I stopped traveling daily from Rosario to Casilda, to dedicate myself to the Center for Interdisciplinary Studies of the UNR to be a full professor in methodological advice and statistics for Master and Doctoral theses, a position in which I continue to work together with Lectures on Doctorates in Statistics applied to education.

Alongside I continued teaching Mathematics I and II at the School of Economics and Statistics and sitting for one contest after another until I finally got Chair Tenure.

As always I have been passionate about teaching. My next challenge was a 'Postgraduate Degree in Mathematics and Statistics and then I enrolled in the School of Humanities and Arts to study Statistics Teaching and since I graduated, I have been in charge of the Curriculum and Didactics in Statistics and Residency subjects in said School.

As for the school where I had started at night, over time the number of students grew and the secondary school was opened. There, I got tenure for Mathematics and I became first, Deputy, then Headmistress and Supervisor of Schools as well as Headmistress of the Rosario Institute 14 for Teacher Training dependent on the Ministry of Education of the Province of Santa Fe and Ministerial Advisor for the drafting of the new curriculum, where I advocated for the incorporation of Statistics in all educational levels.

All that time elapsed allowed me to delve into the less importance given to Statistics at the initial, primary

and secondary levels, which motivated me to look for tools for teachers to value Statistics. From this arose the need to teach Statistics as a subject to the Mathematics teachers since, although when the programs had been modified, a Statistics and Probability axis had been introduced in the initial, primary and secondary level curricula, teachers and professors were not properly prepared, and consequently, they tended to leave this part of the syllabus as the last topic to be dealt with, finally ignoring it completely as they ran out of time at the end of the school year.

This fact motivated me to strengthen how the teaching of Statistics should be approached, in order to achieve significant learning, fostering a critical spirit.

I taught Statistics courses from kindergarten to adults, encouraging them to discover the importance of Statistics in our lives.

My dream was to pursue the study of a Doctorate but for economic reasons I could never fulfill it until the UNR approved an Academic Consolidation Program giving teachers the possibility of their Doctorate free of charge if they obtained the academic credits that were regulated and luckily because of my career I complied with them, which allowed me to take the corresponding subjects to finish my thesis; "The meaning of confidence intervals for university students", always linked to improving the teaching of Statistics.

My family had to make a great effort while I attended the Doctorate Subjects. I would also teach at school and at the University and, in the evenings I would study to complete my Thesis. I recall the evening, my son approached me as I bent upon my books and told me that he didn't want to come across a Tombstone that read that some Doctor lay there, he stated that he wanted his mother then and there. We wept together, but he later backed me fully. I defended my Thesis in 2006 and got full marks and a recommendation for its publication.

As Headmisstress of a Secondary School, I won a Fulbright exchange grant with Navarro Academy in 2008 in San Antonio Texas, where the school population was very similar to the night school where I always worked. There I had the opportunity to teach Statistics in Math classes, where the students' attention was caught by the upcoming elections in USA. They worked preparing surveys, collecting the information, representing them in tables and graphs and interpreting them, getting to see the results when Obama won the election while I was teaching them.

I was Vice President of the IASE from 2017 to 2021. I have participated in the ICOTS since 1986, in the ISI conferences since 1997 and in the IASE Satellite Conference since 2001. Each participation allowed me to realize that I had chosen the right path when I chose to teach Statistics. In all of them, I have presented research papers and methodological proposals applied in my classes at different levels.

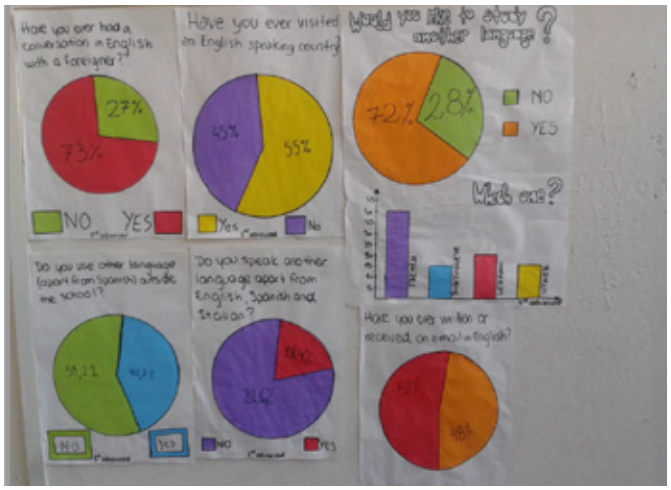
I wrote 8 books on Descriptive Statistics and Probability and Inference applied to Veterinary Sciences, and Biological Sciences, among them: Statistical inference with applications in Biological Sciences. Terán; Craveri.(2014) and Basic Elements of Applied Statistics and Probability Terán; Craveri, (2015)

I was Appointed Member of the Organizing and Evaluating Commission of "A voz dos professores" of C&T Encontro Internacional, Vila Real, Portugal. 2018 and in successive meetings as an evaluator.

I have received the Award for the best International Statistical Educator. 2020.JLM Project Award. https://web.cortland.edu/matresearch/premioanualproyjlm.pdf. and the recognition of this award from the CEI (Center for Interdisciplinary Studies). https://cei.unr.edu.ar/?s=Teran

As IASE Vice President I proposed to hold ICOTS 11 in Rosario, with the support of the UNR, which was accepted and carried out after many vicissitudes and obstacles since the pandemic modified teaching and the economy, but it was possible to hold a hybrid conference that won the JLM project Award for the best collaborative organizer of a hybrid Conference where ISI participated; IASE, UNR and other local organizers, I being in charge of the latter. It was hard work, but it paid off, many exchanges, many talks and debates in pursuit of improving the teaching of Statistics.

Photo 1. Memories from ICOTS 10.



Photos 2–3. Statistical literacy for children.

This entire journey meant effort and a lot of dedication and this is what I cherish from my life as an educator in Statistics:

- Seeing the 3-year-old children in the garden sticking colored candies in successive columns representing histograms, and playing which color was the most repeated;
- trying to teach the intuitive concept of how to do 4 double-entry tables with children after visiting a farm with little animals and types of fur;
- teaching possibilities to begin with the concept of probability to children already in first grade, and
- moving forward in primary school with games to understand chance, the variability of the world we are immersed in; already in secondary school
- applying the project method to motivate them in the topics that interest them by applying in a spiral way the basic concepts of descriptive statistics and probability,
- awakening their critical spirit,
- achieving what in Argentina is called *glass of milk*, at night school, thanks to the project presented on the need for a snack before starting classes,

And at university level, I cherish the times when I taught my students, through examples in context, the importance of each subject in the curricula, in order to prevent them from wondering, at any time, about the supposed inadequacy of any topic which, in their view might not be related to their final degree and to see how many of them already graduated seek nowadays me for support in their research work. In the postgraduates, the interests of young Mathematics teachers to improve and delve into how to better teach Statistics so that it is a meaningful learning for their students. In postgraduates, the need to implement a mostly multi-method methodology, to analyze the results in statistical terms and in context, motivates me to continue learning so that I can teach better every day.

And those who dazzled me were the over 70- year- old students, in the statistical literacy courses for senior citizens, who showed me their need to be able to interpret the information to show their children how they became proud of their progress and of their critical spirit.

Everyone from kindergarten to older adults have left traces in my life that make me understand that Statistics teaching was, is and will be the dream of my life until the end, which is only an ephemeral moment since I believe I have sown and am still sowing the seed so that, in the future, others continue my path.

Teaching Statistics has given me the best in life, the respect and affection of my students and my family who have always been at par to reach my goal. Statistics in my life!!!!

And belonging to the ISLP Advisory Board who has appointed me this year is an indescribable honor, as well as belonging to PISTAR, representing Latin America.

From the ISLP I have proposed to promote the teaching of Statistics in all areas within my reach, both regionally, nationally and internationally, in the poster contest, of projects. I have in mind preparing talks to interest colleagues from countries where they do not have coordinators to join this ambitious initiative,

This is my life as a Statistician trying to be able to attend and learn in all the congresses, conferences, conversations in what my economic possibilities and scholarships allow me to be able to awaken the critical spirit to be able to interpret the dizzying information that comes into our lives daily, and as very dear colleagues mention the need to value and teach civic statistics for all the inhabitants of the world.

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ARGENTINA

Estadística en mi vida

Teresita Evelina Terán*

Desde muy chica comencé amando matemática y jugaba a enseñar a mis muñecas. Estudié en la Escuela Normal Nacional en Lenguas Vivas en Rosario, desde el kindergarten hasta terminar la escuela secundaria recibiéndome con el titulo de Bachiller con orientacicon pedagógica. Siempre tuve buenas notas y ayudaba mucho a mis compañeras de curso , en especial en Matemática.

El día de mi graduación, al terminar el acto me acerqué a una escuela que quedaba mitad camino entre mi casa y la Escuela Normal y solicité hablar con la directora para pedir si había una vacante para enseñar como maestra y justo había una suplencia,y como fui la abanderada de la escuela tanto en primaria como secundaria, la directora confió en mi, por lo que empecé a dar clases desde mis 18 años en esa escuela a la noche como maestra de enseñanza técnica. De esa manera pude ayudar en mi casa ya que estábamos atravesando un difícil momento económico.

Como daba clase a la noche, amaba enseñar y me encantaba todo lo que mi padre me contaba como abogado penalista que era necesario saber sobre la información, comencé a pensar en la estadística y me anoté en la Facultad de Ciencias Económicas y Estadística de la Universidad Nacional de Rosario. (UNR),

Allí hice toda mi carrera , pasando por ingratos momentos durante la dictadura militar, de los que no quiero recordar sólo por estar en la libreta de teléfonos de un amigo de mi hermano.

Los malos momentos terminaron, la escuela me estaba esperando y la facultad también. Un profesor consideró que podía aprender mucho junto a él y me invitó a ser ayudante alumno en la cátedra de Matemática I y II .Adelanté materias y me pude recibir a los 22 años.

Que alegría inmensa recibir mi diploma de Licenciada en Estadística.!!! Rendí concurso y entré en la catedra de Bioestadística de la Facultad de Ciencias Veterinarias de Casila UNR donde fui rindiendo desde 1977 todos los concursos hasta ser titular de cátedra , hasta el año 2018 que dejé de viajar para dedicarme en el Centro de Estudios Interdisciplinarios de la UNR a ser profesor titular en asesoramiento metodológico y estadística de Tesis de maestrías y doctorados, cargo en el que continúo desempeñándome junto con el dictado en Doctorados de Estadistica aplicada a la educación .

En forma paralela, seguí dictando Matemática I y II en la Facultad de Ciencias Económicas y rindiendo los concursos hasta llegar a ser profesor tiular.

Como siempre me apasionó la enseñanza. mi siguiente desafío fue un ´Postitulo en Matemática y Estadística y luego me anoté en el Profesorado en Estadística en la Facultad de Humanidades y Artes y desde que me gradué estoy a cargo de las asignaturas Curriculum y Didáctica en Estadística y Residencia en dicha Facultad

En cuanto a la escuela donde comencé con el tiempo fue creciendo el número de alumnos y comenzó a

Foto 1. Recuerdos de ICOTS 10.

abrirse la escuela secundaria y en los concursos pasé a profesora de Matemática, vicedirectora, directora y supervisora de escuelas, como asi también Directora de Perfecccionamiento Docente del Instituto 14 de Rosario dependiente del Ministerio de Educación de la Provincia de Santa Fe y Asesora Ministerial para la redacción de la nueva curricula, donde abogué para la incorporación de la Estadística en todos los niveles educativos.

Todo ese tiempo transcurrido me permitió profundizar en la poca importancia que se le daba a la Estadistica en los niveles inicial, primario y secundario, lo que me motivó a buscar herramientas para que los docentes valorizaran la Estadística . De aquí surgió la necesidad de enseñar a los profesores de Matemática la asignatura Estadística ya que cuando se modificaron los programas se introdujo un eje de Estadística y Probabilidad en las currículas de nivel inicial, primaria y secundaria, pero no se preparó a los maestros y profesores, por lo que tanto maestros como profesores los dejaban como último tema y luego lo obviaban por no llegar.

Este hecho me motivó ha fortalecer como se debía plantear la enseñanza de la Estadística, para lograr un aprendizaje significativo, fomentando el espíritu crítico.

Dicté cursos de estadística desde kindergarten hasta adultos mayores incentivando a descubrir la importancia de la Estadística en nuestras vidas.

Mi sueño fue realizar el doctorado pero por motivos económicos nunca lo pude cumplir hasta que la UNR aprobó un Programa de Consolidación Académica dando a los docentes la posilibidad de su doctorado en forma gratuita si lograban los créditos académicos que se reglamentaban y por suerte por mi trayectoria los cumplía lo que me prmitió cursar las asignaturas correspondientes para finalizar con mi tesis ; “ El significado de los intervalos de confianza para estudiantes universitarios”., siempre ligado con mejorar la enseñanza de la Estadística.

Mi familia debió hacer un gran esfuerzo ya que cursaba las materias del doctorado, daba clase en la escuela y facultades y de noche estudiaba y preparaba mi tesis. Recuerdo un día que mi hijo se acercó muy de noche adonde yo estaba estudiando y me dijo yo no quiero encontrar pronto una lápida donde diga aquí yace una doctora, yo quiero a mi mamá; nos pusimos a llorar y me dio todo su apoyo. Cumplimenté mi Tesis en el año 2006 con el máximo puntaje 10 (diez) y la recomendación de su publicación.

Siendo Directora de la escuela en el nivel secundario gané una Beca Fulbright de intercambio con Navarro Academy en el año 2008 en San Antonio Texas, donde la población escolar era muy similar a la de la escuela nocturna donde yo siempre trabajé y allí tuve la oportunidad de enseñar estadística en clases de matemática , donde los alumnos prestaban atención y se sintieron muy motivados por las próximas elecciones en EEUU, preparando encuestas , recopilando la información, representándolas en tablas y gráficos e interpretándolas, llegando a ver los resultados cuando ganó Obama las elecciones mientras permanecía dándoles clase.

En el año 1996 comencé a asistir siempre con becas a veces brindadas por la Universidad, otras por el ISI , otras el IASE, a los distintos congresos del ISI, del IASE Satellite Conference y de las Conferencias sobre Enseñanza de la Estadística Icots que eran y son mi interés supremo ya que son espaciosde aprendizaje Allí compartí muchísimas experiencias e intercambios con colegas de todas las partes del mundo, lo que me permitió tener una amplia posibilidad de aprendizajes colaborativos , las que espero seguir cocmpartiendo y además he forjado una hermosa amistad con muchos de mis colegas asistentes a los congresos de todas partes del mundo.Este hecho me permite intercambiar ideas , realizar charlas, publicar artículos en forma conjunta , lo que hace que mi aprendizaje sea superadora con estos mutuos aportes.

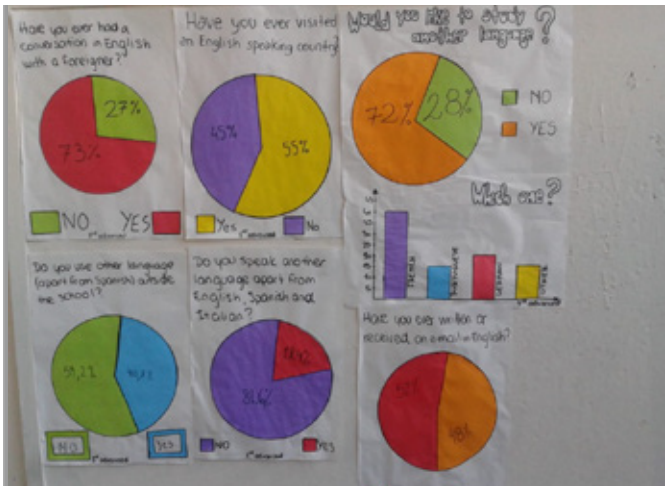
Fui vicepresidenta del IASE desde el 2017 al 2021. Participé en los ICOTS desde 1986, de las conferencias del ISI desde el año 1997 y de los Satellite Conference del IASE desde 2001. Cada participación me permitió

darme cuenta de que había elegido el camino correcto de enseñar estadística. En todas ellas he presentado trabajos de investigacióny propuestas metodológicas aplicadas en mis clases en los distintos niveles.

Escribí 8 libros sobre estadística descriptiva y probabilidad e inferencia aplicads a las ciencias veterinarias,y ciencias bilógicas, entre ellos: Inferencia estadística con aplicaciones en las Ciencias Biológicas. Teresita Terán; Ana Craveri.(2014) y Elementos básicos de Estadística Aplicada y Probabilidad Teresita; Terán; Craveri, Ana (2015)

Fui Designada Miembro de la Comisión Organizadora y evaluadora de "A voz dos professores de C&T Encontro Internacional , Vila Real, Portugal. 2018 y en los sucesivos encontros como evaluadora.

He recibido el Premio a la mejor Educadora Internacional en Estadística. 2020.Premio Proyecto JLM. https://web.cortland.edu/matresearch/premioanualproyjlm.pdf. y el reconocimiento a esta premiación del CEI(Centro de Estudios Interdisciplinarios).https://cei.unr.edu.ar/?s=Teran. Propuse al IASE, siendo viceprseidenta realizar el ICOTS 11 en Rosario, con el apoyo de la UNR que fue aceptado y llevado a cabo luego de muchas vicisitudes y obstáculos ya que la pandemia modificó la enseñanza y la economía , pero se pudo hacer una Conferencia híbrida la que ganó el Premio del proyecto JLM al mejor colaborativo organizador de una Conferencia híbrida donde participó ISI; IASE, UNR y otros organizadores locales, estando yo a cargo de estos últimos. Fue un arduo trabajo pero dio sus frutos, muchos intercambios, muchas charlas y debates en pos del mejoramiento de la enseñanza de la Estadística.



Fotos 2–3. Alfabetización estadística con niños.

Todo este trayecto significó esfuerzo y mucha dedicación y que me llevo de mi vida cono educadora en Estadística. Ver a los niños de 3 años en el jardín pegando caramelos de colores en sucesivas columnas representando histogramas, y jugando que color estuvo más veces intentando enseñar el concepto intuitivo de modo, hacer con los niños de 4 tablas de doble entrada luego de visitar una granja con animalitos y tipo de pelaje , enseñar posibilidades para comenzar con el concepto de probabilidad a niños ya de primer grado, e ir avanzando en primaria con juegos para entender el azar, la variabilidad en el mundo que estamos inmersos, ya en la secundaria aplicando el método de proyectos para motivarlos en los temas que les interesaba aplicando en forma espiralada los conceptos básicos de estadistica descriptiva y probabilidad , despertando su espíritu critico, logrando en la escuela nocturna gracias al proyecto presentado sobre la necesidad de una merienda antes de comenzar las clases, lo que se denomina en Argentina copa de leche.

Ya en la universidad enseñando con ejemplos en contexto la importancia de cada tema para evitar el para que me enseña esto si seré veterinario, y ver como muchos de ellos ya recibidos me buscan para el apoyo en sus trabajos de investsigación

En los postitulos el interés de los jóvenes profesores de matemática para perfeccionarse y ahondar en como enseñar mejor estadística para que sea un aprendizaje significativo para sus alaumnos. En los posgrados la necesidad de posicionarse en una metodología plurimetódica en su mayoría, analizar los resultados en términos estadísticos y en contexto, me motivan para seguir aprendiendo para poder cada día enseñar mejor.

Y quienes me deslumbraron fueron los alumnos mayores de 70 años , en los cursos de alfabetización estadística dictado para adultos mayores la necesidad de poder interpretar la información para poder decirle a sus hijos que su espíritu critico los hace orgullosos de este avance.

Todos desde kindergarten hasta adultos mayores han dejado huellas en mi vida que me hacen comprender que enseñar estadística fue , es y será el sueño de mi

vida hasta el fin, que sólo es un momento efímerro ya que creo he y estoy sembrando la semilla para que en el futuro otros continúen mi camino

Enseñar estadística me ha dado lo mejor de la vida, el respeto , cariño de mis alumnos y de mi familia quien siempre ha estado a la par para llegar siempre a mi meta. Estadística en mi vida ¡!!!!

Y pertenecer al Advisory Board del ISLP quien me ha nombrado este año es un honor indescriptible, como así también pertenecer al PISTAR, representando a América latina .

Desde el ISLP me he propuesto promocionar la enseñanza de la estadística en todo ámbito a mi alcance tanto regional , nacional e internacional, en el concurso de pósters, de proyectos. Tengo en mente peparar charlas para interesar a colegas de países donde no tienen coordinadores sumarse a esta ambiciosa iniciativa,

Así es mi vida como Estadística tratando de poder asistir y aprender en todos los congresos, conferncias, conversatorios en lo que mis posibilidades económicas y becas me lo permitan para lograr despertar el espíritu crítico paraa poder interpretar la vertiginosa información que a diario llega a nuestras vidas, y como mencionan colegas muy queridos la necesidad de valorizar y enseñar la estadística cívica para todos los habitantes del mundo.

* Prof. Titular en funciones de asesoramiento metodológico y estadístico. Centro de Estudios Interdisciplinarios (CEI), con extensión de funciones en la Facultad de Humanidades y Artes. Universidad Nacional de Rosario (UNR)- Argentina
Elected Member of the International Statistical Institute (ISI) 2022 y continúa
Elected Member of the Advisory Board of Ethics (ISI) 2022 y continúa
Elected Member of the Advisory Board of the International Statistical Literacy (ISLP) 2022 y continúa
Presidente del Comité Internacional ICOTS 11 Argentina. Rosario .(2022). UNR
Premio a la Mejor Organización de Conferencia Híbrida Internacional ICOTS 11. 2022. Rosario. Argentina. Proyecto JLM. Universidad de Cortland. (EEUU).
Delegada por Argentina ante PISTAR. Paquistán (2022) y continúa
Premio al Mejor Educador Internacional en Estadística (2020). Proyecto JLM.Universidad de Cortland (EEUU).
Vicepresident of IASE (International Association for Statistical Education (2017-2021)
Delegada por Argentina ante la Comisión de la Mujer del Instituto Internacional de Estadística (ISI) desde 2017 y continúa.
Coordinadora VPCT Portugal (Encontro Internacional de Ciencia Y Tecnología (2018-2019)
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UGANDA

My statistical journey

Ben Kiregyera*

1. My training and academic experience

Before independence, most statisticians in Africa were trained in Europe, especially in the United Kingdom and France. In 1961, the Second Conference of African Statisticians recommended an intensive training programme to overcome the shortage of statistical personnel at National Statistical Offices (NSOs) in Africa. Following the above recommendation, the United Nations and national governments established statistical training centres first in Francophone countries and then in Anglophone countries. Initially, the emphasis at these training centres was placed on middle-level (sub-professional) training but later, centres were established to train statistical personnel at the professional level. One such training centre was the Institute of Statistics and Applied Economics (ISAE) which was established in 1968 as an autonomous institute within the legal framework of Makerere University, Uganda, to provide facilities for high-level professional training of personnel in statistics and applied economics to meet the needs of Uganda, as well as those of other English-speaking African countries.

I had done my advanced level (A-level) in mathematics, physics and chemistry in the hope of joining the University to train as a chemical engineer. In the event, I was not selected for engineering training but was offered a statistics and applied economics course. So in October 1969, I entered the ISAE which had been carved out of the Mathematics Department of the University to train professional statisticians. The ISAE teaches "official statistics" and produces "turnkey" graduates that are able to start work on day one of employment without much induction and learning on the job. I graduated in March 1972 with a B.Sc. honours degree in statistics and applied economics. By studying with students from other African countries, I was able to get to know better and early on the state of statistics across Africa. Upon graduation, I was retained by the ISAE as a teaching assistant. In August 1972, I was sent on a course at the Indian Statistical Institute based in Calcutta, India. This institute had been started by Professor P.C. Mahalanobis in 1931 and it attracted students from all over the world.

From Calcutta, I proceeded to Iowa State University in the USA where in 1975, I got my M.Sc. degree in statistics. At Iowa State, I was supervised by Prof. B.V. Sukhatme, a leading authority in sampling. I returned to Uganda in 1975 and joined the teaching staff of the ISAE as a lecturer teaching and doing research mainly in survey sampling, and agricultural statistics. In 1978, I attended a Summer Training Course in Sampling for Foreign Students at the University of Michigan, U.S.A. During this training, I was able to know and interact with Prof. Leslie Kish, who was a prominent leader in sampling science. In 1982, I attended Essex Summer School in Social Science Data Analysis, University of Essex, U.K. The course was conducted by, among others, Prof. Denise Lievesley, a prominent leader in various international professional associations. I have since worked with her on various statistical activities including organizing the ISI Congress in South Africa in 2019. In 1983, I participated in Professional Education and Advanced Training at the Federal Statistical Office of Germany and in 1987, I underwent Professional Education and Advanced Training at Statistics Sweden. In 1981, I started my Ph.D. course at the University of Essex in the U.K. which I completed in 1984. In the meantime, I rose through the ranks, becoming a Senior Lecturer in 1978, Associate Professor in 1984 and Full Professor of Makerere University in 1989.

Other academic experiences included being a visiting lecturer and external examiner at a number of training institutions in Africa.

2. From an "academic" to an "official" statistician

There is increasing concern about insufficient contact between academic and official statisticians across the globe. In fact at the International Association of Official Statistics (IAOS)/International Statistical Institute (ISI) Regional Conference for Africa held in Livingstone, Zambia in April 2023, a dedicated session was held on this very subject. While at University, I worked closely with the NSO in Uganda on various statistical projects, my grounding in official statistics started in 1989 when I joined the Food and Agricultural Organization of the United Nations (FAO) and managed a project titled: Census of Agriculture and Early Warning System for Zambia. The project provided support to NSO (statistics), the Ministry of Agriculture (crop monitoring and measurement) and the Department of Meteorology

Photo 1. Prof. Ben Kiregyera receiving the Prof. P.C. Mahalanobis International Prize for Statistics from Hon. Shri Oscar Fernandes, the Indian Minister of State for Statistics and Programme Implementation on 11 April, 2005 during the 55th Session of the International Statistical Institute (ISI) held in Sydney, Australia.

Photo 2. NSDS consultative meeting with Members of Parliament of Mauritius facilitated by the author in 2006. In the middle (front row) is the Deputy Prime Minister and Minister of Finance and Economic Development.

(weather forecasting). I participated in many NSO activities including the National Population Census of 1990, annual agricultural surveys and provision of statistical information to policy and decision-makers on crop forecasts and the national food security situation. The project provided a great opportunity to integrate survey data (from the NSO) and administrative data (from the Ministry of Agriculture and the Department of Meteorology) to produce quarterly food security reports in the country. These reports were discussed at a high level in government and used to formulate responses to food security situations. In addition to providing technical assistance, the project supported many staff from the NSO, the Ministry of Agriculture and the Department of Meteorology to train up to a Master's degree level in their specialized areas. During the country's 1990 Population and Housing Census, we successfully piggybacked an agricultural module onto the census, very much against advice from relevant UN institutions and other international agencies. It is now recommended to collect some information about agriculture during the Population and Housing Census and our pioneering work on this subject in the 1990 census could have contributed to this recommendation. The work in Zambia enabled me to engage with a cross-section of stakeholders in statistics including high-level policy and decision-makers in government, Parliamentarians, teaching and research centres, the private sector, civil society sector and development partners.

Up to 1998, the NSO in Uganda was a mainstream department in the Ministry of Finance, Planning and Economic Development. With much advocacy from the Uganda Statistical Society (I was among the leaders of the society), the ISAE and development partners, the Uganda government undertook statistical reforms in 1998. The reforms included revising the National Statistics Act to transform the NSO into a Uganda Bureau of Statistics (UBOS) as an autonomous (self-governing) agency of government to enhance the integrity and transparency of official statistics and to make their production more effective and efficient. I was appointed in 1999 as the first Chairperson of the Board of Directors (governing and policy-making body) for the new agency. This was a heavy responsibility and unfortunately, there were no regional models to pick lessons from. So we embarked on statistical engineering that included, inter alia, the establishment of appropriate structures, selection of all staff through a competitive process, negotiating fairly good funding from the government for supporting attractive remuneration for staff and statistical activities including periodic surveys, creating productive multi-stakeholder partnerships and ensuring that timely data and statistics were brought to the doorstep of data users. Under my leadership, highly qualified staff were recruited and remunerated, and a new and state-of-the-art home for the Bureau was built in a strategic part of the city and a sector-inclusive National Strategy for the Development of Statistics (NSDS) was designed and implemented. My leadership of the Bureau was tested when the poverty statistics that we produced in 2013 and which showed a rising trend in poverty levels in the country, were rejected by the Minister of Finance and Planning. We stood our ground as an autonomous agency of government and had the statistics not only published but also subsequently used by the government. Before my second term as Chair of the Board of UBOS ended, however, I was appointed by the United Nations in 2007 as the first Director of the newly established African Centre for Statistics (ACS) at the UN Economic Commission for Africa.

It is never easy to start a new institution even at the best of times. I took up my appointment at the UN in the middle of the UN budget cycle and had to look for extra-budgetary resources to implement the Centre's programmes and activities. During my two-year tenure in office, I chose to focus on three areas: mainstream-

Photo 3. Chief Economist and Vice President of the African Development Bank lunched the book at the bank in Abidjan, Cote d'Ivoire.

Photo 4. Author with Hon. Trevor Manuel, Former Minister of Finance and later Minister of Planning in the Presidency of South Africa. He wrote the Foreword to the book.

ing gender statistics, mobilizing the continent for the 2010 round of the Population and Housing Census (PHS), and improving civil registration and vital statistics. At the time, the inadequate availability of gender-responsive statistics was constraining the addressing of gender issues in national policies, development plans and national budgets in Africa. So the ACS took gender statistics head-on. Regional workshops were organized, guidelines on gender statistics were prepared and country missions were undertaken to support countries to appreciate and mainstream gender into their statistical programmes and activities, etc. In particular, a high-level policy dialogue on gender statistics was held in Kampala, Uganda in 2008; and the Second Global Forum on Gender Statistics and the first meeting of the Kampala City Group on Gender Statistics were both held in Ghana in January 2009. In the 2000 round of PHC, about 30% of African countries had not taken their census and it was crucial that we mobilize Africa to participate fully in the 2010 census round. Consequently, 47 out of 54 countries conducted censuses – this was 9 countries more than during the 2000 round. Our studies indicated that civil registration and vital statistics (CRVS) were very weak in Africa mainly on account of a lack of political will to improve CRVS. We took the unprecedented step of organizing the first-ever Conference of African Ministers responsible for civil registration in 2010. This conference approved an Africa Programme on Accelerated Improvement of Civil Registration and Vital Statistics Systems. The conference has since become a standing conference of the African Union and is held every two years. And because of these efforts, there have been great improvements in CRVS across Africa and other developing regions have been learning from the African experience in this matter.

To be able to do the above and more, we courted development partners and built strong partnerships to enable the procurement of resources needed to execute the work programme of the ACS. One of the many productive partnerships that were started was the Africa Statistical Coordination Committee (ASCC) which brought together pan-African institutions supporting statistical development in the continent, namely, the African Development Bank (which funded many regional statistical activities), the African Union (which brought on board political will and support) and the UN Economic Commission for Africa (which dealt with technical and operational issues). Under the ASCC, the three institutions shared their work programmes and coordinated their implementation to achieve synergy and effectiveness in supporting statistical development in Africa. The pan-African organizations also started a number of homegrown statistical initiatives and strategies, streamlined statistical governance in Africa and kick-started activities that had been neglected including some which have been mentioned above. One signature initiative was the African Charter on Statistics, endorsed by the Assembly of African Heads of State and Government in 2009. The Charter aims to work as a tool for statistical advocacy at the highest level of government and to commit African governments to scale up support to statistics. It also commits countries to develop statistics in a manner consistent with best practices and international standards, and to use statistics for policy development and management and for decision-making at all levels. All this led to a resurgence of statistical activities in African countries that included reforming and strengthening National Statistical Systems (NSSs), building competent NSOs, data development and management, and improvement of data dissemination and use. In 2009, I retired from the UN Economic Commission for Africa after clocking the UN retirement age at that time and after laying a firmer foundation for statistical development in Africa. This was the climax of my career.

2. Evaluation and development of statistical frameworks

Evaluations of development frameworks
Over the years, I have led or participated in the evaluation and development of various statistical frameworks including the following: Evaluation of statistical development in Africa in the context of the Addis Ababa Plan of Action for Statistical Development in Africa in the 1990s; Evaluation of the FAO Statistics Division and its programmes; Evaluation of NSDSs and Regional Strategies for the Development of Statistics; Conception and elaboration of the National Strategy for the Development of Statistics (NSDS). I also wrote the first guidelines on the design of NSDS which was published by PARIS21 in 2005. I have since assisted many countries in Africa to design their NSDSs (see below); and Design of the Reference Regional Strategic Framework for Statistical Capacity Building in Africa.

The evaluations enabled me to work with statisticians from across the world and to enrich my knowledge and experience in dealing with various statistical challenges and issues.

Development of statistical frameworks
I led a team of international consultants that prepared the Reference Regional Strategic Framework for Statistical Capacity Building in Africa (RRSF) (2006) and the Action Plan for Africa of the Global Strategy for Improving Agricultural and Rural Statistics (2011).

3. Technical assistance to countries and regional economic communities including statistical planning

Outside of the time I spent at the University and working as regular staff of the United Nations, I have spent a lot of time as a consultant with various organizations and agencies (UN agencies, World Bank, IMF, African Development Bank, DFID, SIDA, Regional Economic Communities, etc.) providing technical assistance to African countries to improve their statistical systems. The assistance has included establishing agricultural statistical systems mainly in Malawi, Tanzania, and Mozambique; strengthening NSSs in Malawi, South Africa, Zambia and Uganda; drafting new National Statistics Acts for countries including Rwanda, Kenya, Nigeria, Namibia and Zimbabwe; and assisting countries design their NSDS including Botswana, Egypt, Mauritius, Rwanda, Kenya, Namibia, Nigeria, Sierra Leone, Somalia, Tanzania, Uganda, Zimbabwe and Zambia; mentoring statistical leaders in many African countries; and designing Regional Strategies for the Development of Statistics for the East African Community and the Southern Africa Statistical Community.

4. Membership to and roles in various professional associations

I have found great pleasure in and benefited immensely from belonging to various statistical associations including at national, regional and international levels. I have also played different leadership roles in some of them as follows:

- Fellow, Uganda National Academy of Sciences (since 2006)
- Council Member, International Statistical Institute (2003–2007)
- Chartered Statistician (previously Fellow of the Institute of Statistics), the Royal Statistical Society (since 1993)
- Vice-President, International Association for Survey Statisticians (1991–93)
- Council Member, International Association for Survey Statisticians (1989–91)
- Chairman, Uganda Statistical Association (1988–92)
- Vice- President, African Statistical Association (1985–90)
- Member of the Programme Committee for International Association for Official Statistics (IAOS) for the 46th Session in Tokyo, Japan (1987); 1st Scientific Conference of IAOS in Italy, 1988 and IAOS/ISI Regional Conference for Africa (2023).
- Member of the Ethiopian Statistical Association (Since 2007); International Statistical Institute (ISI) (Since 1978) and Member of its Elections Committee (2007- 2009); International Association for Official Statistics (IAOS) (since 1986); International Association for Survey Statisticians (IASS) (since 1976); Indian Society of Agricultural Statistics (life member since 1992); African Statistical Association (1986-2000); International Association for Statistical Education (IASE) (Founder member 1992); South African Statistical Association (since 1992); and Uganda Statistical Society (Founder member since 1980);

5. Scholarly activities

Editor
I have been an editor for the following international journals/Newsletters: Founding Editor, African Statistical Newsletter (2007), published by the African Centre for Statistics at the UN Economic Commission for Africa; Founding Co-Chair, Editorial Board, The African Statistical Journal (since 2005), published by the African Development Bank; Associate Editor, International Statistical Review (1988–1991); Associate Editor, Journal of Official Statistics (1988-1990); and Regional Representative (Africa), Journal of Official Statistics (1991–2000).

Scientific papers
I have written and published scientific papers in many international journals including Statistical Journal of the IAOS, African Statistical Journal, Journal of Applied Sta-

tistics, International Journal for Theoretical and Applied Statistics, Demography India, African Journal of Ecology, The Statistician (*Journal of the Institute of Statisticians*), Sankhya (*Indian Journal of Statistics*), East African Journal of Rural Economy and Metrika (*International Journal for Theoretical and Applied Statistics*).

Reports and books

I have researched and consulted widely in survey design and execution as well as in data analysis in Uganda and other African countries, mainly in Eastern and Southern Africa. I was involved in the analysis and report writing on the Tanzania and Mozambique National Censuses of Agriculture and Livestock in 1996 and 2001 respectively. I also wrote two books: a) *Household Surveys of Agriculture in Africa: A Methodological Study* - published by the United Nations in 1991, b) *Sample Surveys with Special Reference to Africa* - published by PHIDAM Enterprises Ltd. (Uganda) in 1999. I wrote a booklet on *Statistical Reforms in Africa with an Emphasis on Making the NSOs Autonomous*. The booklet was published by the UN Economic Commission for Africa. I wrote a chapter on *Capacitating National Statistical Systems in Africa: Training African Statisticians* which was published in a Book to Commemorate the 8th African Population Conference in 2019.

I authored a major book in 2015, *Emerging Data Revolution in Africa: Strengthening Statistics, Policy and Decision-making Chain*. The book presents the first-ever nuanced narrative on statistical development in Africa. It presents challenges for statistical development in the continent, how these challenges are being met through various frameworks and initiatives (some homegrown) as well as the new statistical architecture for Africa, etc. It elaborates on the differences these are making in data scope, quantity, quality and timeliness as well as data use especially for public policy, planning and decision-making. The book shows how all this is heralding into Africa a data revolution that will demystify and democratize statistics to work for everybody. The book was published by Sun Media, Stellenbosch, South Africa in 2015.

6. Recognitions

My statistical journey has led to many recognitions including but by no means limited to the following:

- Joined the club of African Statistics Elders who are regularly consulted from time to time on a host of statistical issues and challenges by different stakeholders
- Keynote address on Securing the Future of Statistics in Africa presented at the IAOS/ISI Regional Conference for Africa, Zambia (2023)
- Member of the Advisory Board for African Young Statisticians Association (2023 –)
- Keynote address on Increasing Data Impact Through Modernization of National Statistical Systems in Africa during Africa Statistics Day Celebrations organized by the African Union, 2021
- Keynote address at The Young African Regional Statisticians Meeting organized by the UN Economic Commission for Africa, 5 July 2021
- Member of the Scientific Advisory Committee of the Global Strategy for Improving Agricultural Statistics (2012–2014)
- 1st Director, African Center for Statistics at the United Nations Economic Commission for Africa, Addis Ababa, Ethiopia (2007–2009)
- Chair, Management Board for the Study on Support to Statistical Capacity Building commissioned as part of the Evaluation of Paris Declaration on Aid Effectiveness (2008)
- Member of the Technical Advisory Panel of the Trust Fund for Statistical Capacity Building (TFSCB), established by the Development Data Group of the World Bank to strengthen the capacity of statistical systems in developing countries (2001–2003)
- Member of the International Executive Board of the 2005 round of the International Comparison Programme (2004–2005)
- Member of the Advisory Board on Statistics in Africa (ABSA) (2003–2005). The objectives of ABSA were to advise the ECA secretariat on emerging issues relating to statistical development in Africa, as well as the direction and content of its work programme
- 2nd Winner of the Prof. P.C. Mahalanobis International Award for Statistics in recognition of my lifetime achievement in statistics and promotion of best statistical practice in developing countries. The award was presented by the International Statistical Institute (2005).
- Member of the PARIS21 Interim Steering Committee representing Anglophone Africa (2000–2001)

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PANAMA

La competencia de póster estadístico en Panamá. Desde la experiencia de los estudiantes.

Elisa Mendoza*, Roberto Bula**, Daniel Sánchez*** y Milagros García****

La estadística es una ciencia que tiene la capacidad de ser integrada en todos los campos del saber a través de los datos, ya sea de fuentes secundarias o publicados, o que son recopilados de fuentes primarias a través de las diferentes metodologías de recolección de datos.

En el proceso de la enseñanza de la estadística se busca asociar el uso de las técnicas estadísticas con situaciones reales, propio del entorno de los estudiantes. Así que se les invita a que puedan determinar un problema a resolver mediante la metodología estadística, es decir, para ser abordado a través del proceso de recolección de datos, organización, presentación y el análisis estadístico para llegar a una conclusión basado en la evidencia.

Aunque este proceso es un ejercicio que se desarrolla desde las aulas limitado por los recursos y el tiempo, permite a los estudiantes conectar la teoría con la práctica y contextualizar a problemas que le afectan, para darle sentido a los conceptos aprendidos y a los resultados obtenidos.

La experiencia de este artículo se refiere a los estudiantes del curso de estadística de la Licenciatura en Registros Médicos y Estadísticas de Salud de la Universidad de Panamá quienes recibieron durante el segundo semestre de 2022 (agosto a noviembre de 2022) información y ejemplificaciones sobre distribuciones de probabilidad y pruebas de hipótesis para una y dos poblaciones, además de la oportunidad de realizar ejercicios prácticos para afianzar sus aprendizajes. Como proyecto final de curso se les invitó a desarrollar un proyecto grupal en el que a través de sus conocimientos pudieran poner en práctica lo aprendido contextualizado a un problema real y que además fuera presentado en un póster. De esta manera, los estudiantes fueron motivados a participar en la competencia de póster estadísticos – Panamá: 2022-2023. Esta competencia nacional se enmarca en el Proyecto Internacional de Alfabetización Estadística en el que Panamá participa por segunda vez consecutiva. En esta experiencia, se logró una mayor participación de estudiantes de educación superior en comparación con la primera versión.

La competición representó una oportunidad de afianzar conceptos, aplicar la metodología estadística y presentar datos incluyendo los análisis y conclusiones. Este proceso permitió a los estudiantes comprender mucho más la importancia y utilidad de la estadística para resolver problemas y/o darle sentido a los resultados estadísticos que se originan de los datos analizados.

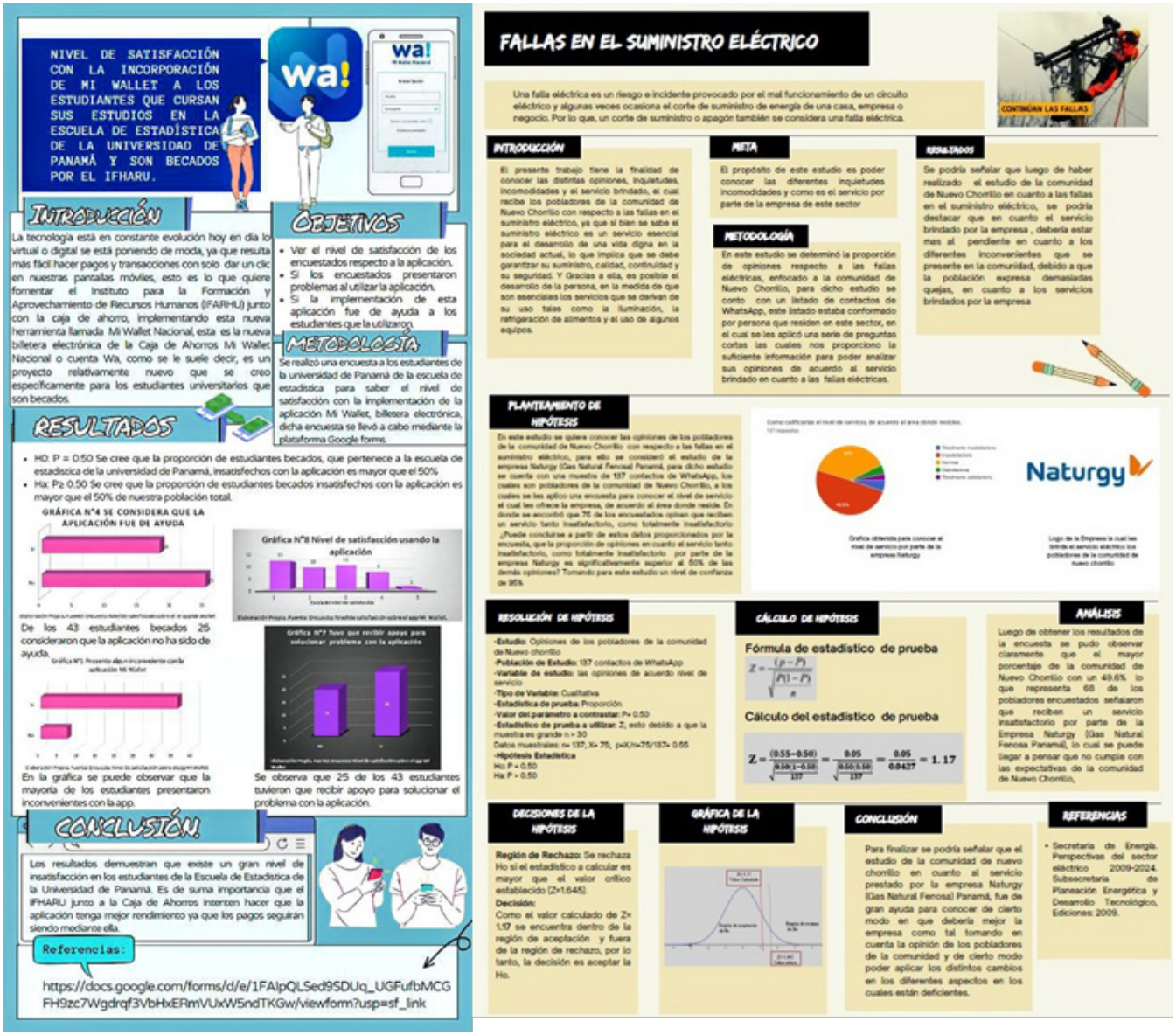

Foto 1. Pósteres elaborados por los estudiantes de los equipos 1 y 2.

Los resultados y la experiencia

El grupo de estudiantes del curso estuvo conformado por 22 estudiantes, quienes se organizaron en 5 equipos. Estos equipos completaron el proceso desarrollando los siguientes temas:

1. Nivel de satisfacción con la incorporación de mi Wallet de los estudiantes que cursan sus estudios en la escuela de Estadística de la Universidad de Panamá que son becados por el IFARHU.
2. Fallas en el suministro eléctrico
3. Conocimiento sobre la diabetes
4. Conocimiento sobre la diabetes en el corregimiento de Nuevo Emperador. 2022
5. Protección y cuidado a las mascotas.

En todos los proyectos los estudiantes escogieron de forma libre sus temas abordando los problemas identificados y que les resultaron interesantes resolver. Para ello, realizaron procesos de recolección de datos mediante encuestas basadas en muestreo no probabilístico. Lograron establecer el problema, objetivos y la hipótesis a comprobar. Los resultados fueron presentados tanto en un informe escrito en formato Word y como póster en formato PDF, sintetizando los principales aspectos del trabajo realizado y sus conclusiones.

Finalmente, los estudiantes decidieron inscribir sus proyectos y participar en la competencia nacional de póster estadísticos.

Foto 2. Pósteres realizados por los equipos 3, 4 y 5.

En términos generales, los estudiantes llegaron a manifestar su satisfacción respecto a la experiencia. Toda vez que pudieron aplicar los conocimientos aprendido en clases a situaciones reales, permitiéndoles comprender mucho más la importancia y la utilidad de la estadística, tal como lo expresó uno de los estudiantes.

“No solo fue participar en una competencia, sino el aprendizaje logrado al participar en el proceso de recolección de datos y el análisis de estos, logrando entender la utilidad de la estadística para generar información y conocimientos”

Por su parte, los estudiantes del equipo ganador en esta competencia expresaron su sentir y experiencia por haber sido motivados a participar, puesto que lograron poner en contexto sus ideas, sus inquietudes, desarrollar todo un proceso de investigación en el que además llegaron a obtener respuestas a sus preguntas y por lo tanto comprobar sus hipótesis.

Los estudiantes manifiestan que el tema elegido se debe a que observan en su entorno un aumento de personas con diabetes mellitus, lo que les motivó a indagar sobre el conocimiento que tienen las personas sobre este tema.

Foto 3. Equipo del póster ganador en la Competencia de Póster Estadístico- Panamá- 2022-2023.

La competencia de Póster Estadístico es una estrategia extraordinaria para impulsar y fortalecer la alfabetización estadística en nuestros países, puesto que estimula a los estudiantes a poner en contexto la estadística, a darle un sitio en sus vidas como una herramienta para ayudarles a comprender el fenómeno, hecho o situación que les afecta, a realizar procesos de recolección de datos, organizarlos y presentarlos, y por tanto darles sentido a los resultados obtenidos. Esta competencia representó para los estudiantes una experiencia enriquecedora en donde lograron plasmar sus conocimientos y darles sentido a sus aprendizajes.

La enseñanza de la estadística y los aprendizajes de esta por los estudiantes se vio evidenciada en los trabajos presentados. La enorme satisfacción de los estudiantes por ver sus resultados presentados en los pósteres y participar en una competencia de esta naturaleza llena de orgullo al equipo de profesores y tutores quienes se animaron a participar. Esperamos continuar con esta iniciativa e ir creciendo mucho más en las tres categorías de la competencia, pues la competencia de póster estadísticos representa un excelente vehículo para lograr la alfabetización estadística en todos los niveles educativos.

Finalmente, se agregó a esta experiencia la oportunidad de capacitarse en el uso del software JMP. Se invitó a todos los estudiantes, profesores y tutores participantes. El curso fue dictado por el profesor Daniel Sánchez. El programa estadístico JMP es una excelente herramienta tecnológica para el análisis estadístico de

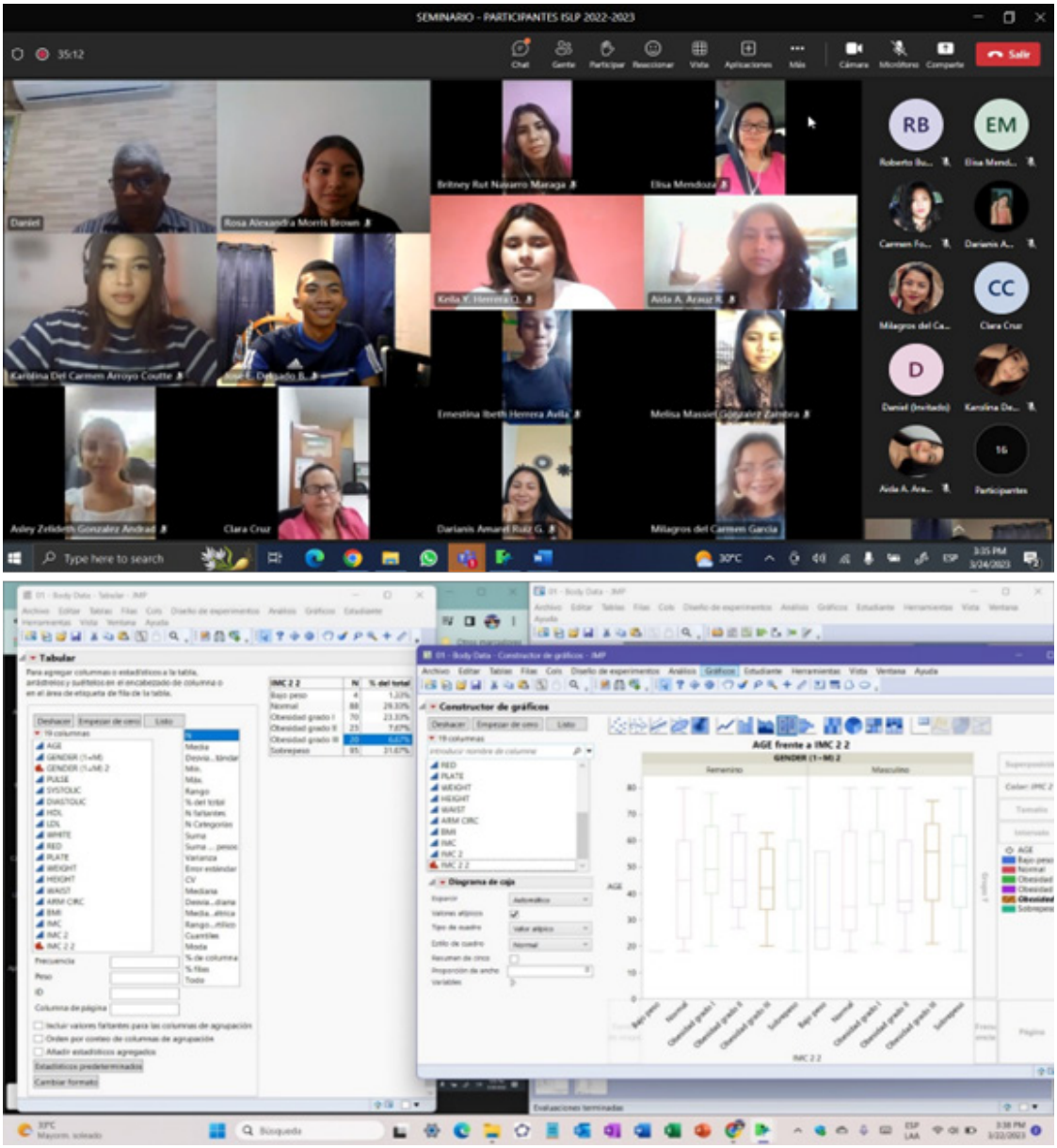

Foto 4. Curso JMP dirigido a estudiantes, profesores y tutores participante en la competencia de póster.

datos que ofrece múltiples opciones innovadoras para el análisis estadístico de datos que causó impresiones positivas en quienes tuvieron la oportunidad de conocerlo, principalmente los estudiantes quienes lograron afianzar sus conocimientos estadísticos.

Es importante destacar la participación del equipo de estudiantes, profesores tutores y evaluadores que apoyaron esta actividad. Agradecemos a todos su desinteresado apoyo, como también al equipo del proyecto Internacional para la Alfabetización Estadística (ISLP). Gracias a todos y continuaremos trabajando en pro de la enseñanza y el aprendizaje de la estadística.

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ITALY

An overview of current national projects on statistical literacy at Istat

Patrizia Collesi*

A lot of activities are currently being done at Istat- the National statistical Institute of Italy and, as it is customarily, we are drawing together the results since the end of the school year is quickly approaching and, after finishing current activities, we are planning for the new school year.

International competitions as well as longer national school projects have come to an end. Let's look at them together.

ISLP Poster Competition

For this edition the international competition did not prescribe a specific topic so at the national level we did not assign a specific topic for the lower secondary schools. However, given that the preliminary results of the 7th Agricultural Census were just released, we decided to study them. Consequently, we proposed agriculture as a topic for the high secondary school level and university level. To make the topic vaster and more attractive, we collaborated with CREA (Italian Council for the Research in the Agricultural Sector – The Research Agency of the Ministry of Agriculture) that made available other data on the same topic, specifically data concerning the economic results of agricultural firms.

Italian Statistical Olympiads

The competition of the Statistical Olympiads has recently finished its 13th year. It is jointly conducted by Istat and Italian Statistical Association (SIS). It is devoted to secondary school students during the first four years and constitutes the national phase of the European statistics competition. As in recent times, this year the results were quite goods in terms of participation, and Italian students were once more the largest group among European students, with a constant trend on the rise starting from 2018 with the only exception of 2021, a year marked by schools closure due to the Covid-19 pandemic.

EDITION	YEAR	SCHOOLS	PARTICIPANTS	FEMALES	MALES	I YEAR - M/F	II YEAR - M/F	III YEAR - M/F	IV YEAR - M/F
VIII	2018	76	**2377**						
IX	2019	101	**2810**						
X	2020	133	**3894**	1555	2339	809	1134	727	1224
XI	2021	113	**2827**	1199	1628	710	733	655	729
XII	2022	135	**4172**	1737	2435	1308	1436	666	762
XIII	2023	160	**4970**	2006	2964	1547	1576	944	903

Table 1. Italian Statistics Olympiads- years 2018–2023 (absolute values)

Beautiful numbers – Create your own infographic

The talent has released on the 17th of May the results of the second edition (https://www.istat.it/it/archivio/276200). Participants had to prepare an infographic dealing with one of the five macro areas of statistical data presented on the Istat corporate website; that is, economic, environment and territory, population and households, society and institution, or education and labour market data. The works can be seen in the page linked above. A social media campaign is being launched next week so please stay tuned!

At the School of Open Cohesion Project

Istat has been collaborating for five school years with the project in cooperation with the Department of Social Cohesion of the Italian presidency of the Council of Ministers and based on the monitoring of projects based on European social cohesion funds. Every year nearly 200 schools have been taking part in the project. Istat cooperates at a double level: on the one hand we prepare and broadcast training modules for teachers on statistical literacy aspects, such as how to better communicate data, how to better plan and write reports with statistical data, or how to carry on an official statistical survey. Webinars are live broadcast and then made available on the website. They are valid as continuous and accredited training for teachers (https://www.istat.it/it/informazioni-e-servizi/per-studenti-e-docenti/accordo-con-a-scuola-di-open-coesione).

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CHILE

ISLP Chile: Integrating statistical literacy with the sustainable development goals

Soledad Estrella* and Hugo Alvarado**

We report the design of secondary school posters 2023 that address sustainable development. The ISLP coordinators in Chile and their collaborating teams we were able to support face-to-face and online the 12 school teams and 85 university teams, from the center to the extreme south of the country, which brought together a total of 286 students.

The students and their teachers were able to capture their research problems using data and statistical analysis on posters. ISLP Chile promotes that all teachers and students become researchers through collaboration and mutual learning, in the roles of teacher and learner, and that through statistical literacy experienced in the investigative cycle, they practice civic engagement that deals with contextual phenomena by responding to problems of the territories themselves (see Figure 1).

Teachers and students: as researchers	ISLP establishes that professors and students carry out research as a team and use statistics and learn in their communities specific knowledge of statistical literacy, through collaborative work among peers, and members of the research team.
Statistical Education through the integration of theory and practice	ISLP involves combining knowledge of the issues in context and statistical knowledge. The teachers, members of the school team, contribute their theoretical and practical knowledge and the students begin their approach to the local problems of the territory.
Focus on learning statistics to exercise citizenship	ISLP is about statistical literacy and seeks to improve student learning and experiences to: use data to investigate real questions that affect aspects of citizenship; develop visualization skills; interpret graphs and statistical results; and develop written communication and its dissemination
Co-creation of knowledge	ISLP as collaborative work creates knowledge by studying the context, by analyzing data according to the research question or hypothesis, by evaluating whether the analysis is appropriate to the type of data, by concluding based on the evidence of the data. The collaborative work of the ISLP posters supports the co-creation of knowledge and dissemination of statistical literacy.
PPDAC cycle in the designed poster	Designing an ISLP poster requires the PPDAC investigative cycle that describes the procedures through which a statistician works and what the statistician thinks to learn from the context. The elaboration of graphics and communication allows the interaction between teachers and students and local and global contexts, therefore, of innovative teaching and learning processes.

Figure 1.Diagram about the collaborative work of teachers and students in Poster ISLP.

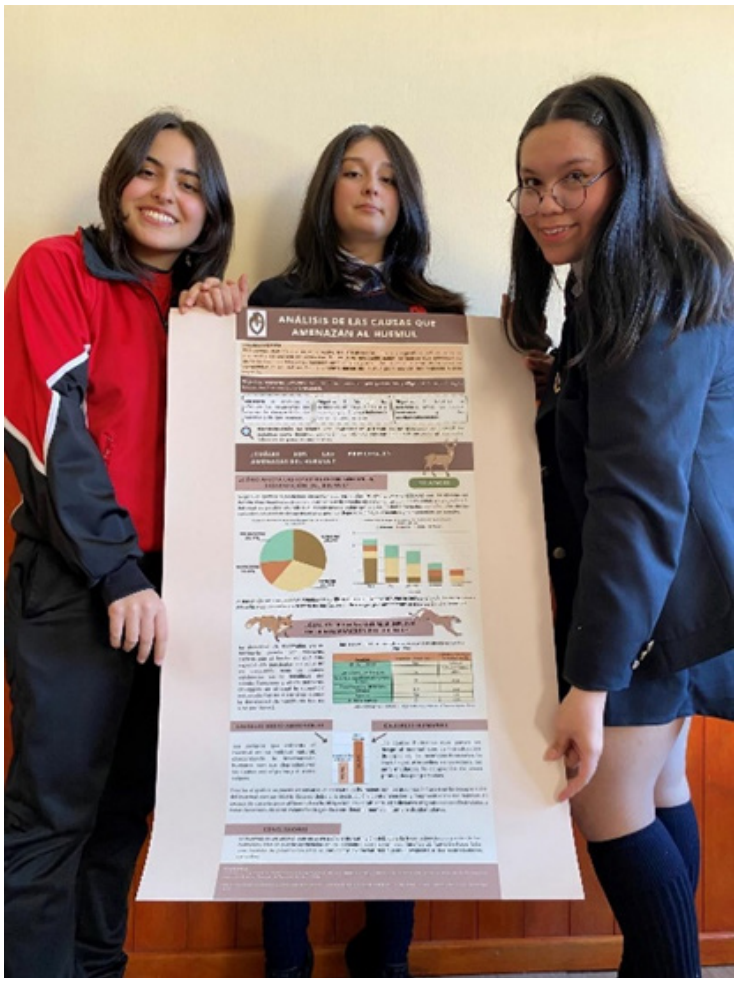

Photo 1. Students with their poster for ISLP (Punta Arenas, Chile).

Considering that UNESCO's Sustainable Development Goals (SDGs) are cross-cutting and interrelated, and since the success of one affects that of others; we highlight the experience of a school in the extreme south of Chile, which responded to SDG 15 called "Life on land ecosystems", when facing the management of our fragile natural resources. That objective implies adopting measures to conserve biological diversity, protecting threatened animal and plant species, and combating poaching and animal trafficking.

The huemul, the southernmost deer on the planet, is one of the 20 species of large mammals whose population strengthening can help restore the largest areas and eco-regions on the planet, according to studies in the scientific journal *Ecography*.

Thus, within the framework of the collaborative work of teachers and students in Poster ISLP, four students and two teachers studied and analyzed the data of this southern Andean deer, which lives in the Andes Mountain range, and is currently an endangered mammal Chilean extinction (see Figure 2).

The secondary school ISLP poster assumes the goal of SDG 15, which considers the adoption of urgent measures such as ending the poaching of animals, and the research carried out by the students and teachers reports with data on the problem that threatens the existence of the huemul, elucidating its causes, including the human ones.

The conclusions of the work are based on the analysis of the data obtained on illegal poaching. In the projections of their study and integrating the knowledge acquired from the problem in context, the students infer that it will also be necessary to consider as a preventive measure the study of its natural predators to face-apparently- the imminent extinction of the Chilean huemul.

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PERU

Actividades para el concurso nacional de posters del ISLP en Perú

Yheni Farfán*

En el Perú, se realizó por primera vez el concurso de posters 2022 – 2023, organizado por la coordinadora del país del Proyecto Internacional de Alfabetización Estadística (ISLP), el evento está dirigido a los estudiantes de los colegios, institutos y universidades del Perú, cuya temática de los posters era libre.

Se presentaron estudiantes de colegios secundarios y universidades, quienes junto a sus asesores lograron construir posters en diversos temas, estos son: salud, turismo y control de calidad. Para la construcción de los posters, la mayoría de los estudiantes utilizaron cuestionarios como instrumento de su investigación y la técnica para la obtención de la data fue la encuesta, las cuales fueron realizadas en forma presencial.

Cabe mencionar que los asesores de los posters a nivel de universidades tuvieron un papel muy importante para la preparación de los posters, en mérito a sus conocimientos y su apoyo incondicional hacia los estudiantes, así como los estudiantes participaron en forma grupal y muy activa hasta la conclusión de sus posters.

Para el cumplimiento de este objetivo, el cual fue la participación de los estudiantes del Perú, se cursó invitaciones a las diferentes instituciones educativas y universidades, así mismo se motivaron a los estudiantes y asesores con un premio y certificados por su participación. Lográndose tener ganadores en las categorías de nivel secundario y a nivel universitario.

Los ganadores en el nivel secundario fueron los estudiantes: Flores, G.; Moreno, D.; Quispe, R.; Serrudo, J.; Ramos, V y a nivel de universidades los estudiantes: Katerine Aqquepucho Ancca, Victoria Alejo Villegas, Wuido F. Cutipa Escobar, Eloisa D. Quispe Siccos, Sandra L. Nina Huamani.

De esta forma el Perú se hace presente por primera vez en la competencia de posters del ISLP, así mismo se logró construir una página web para promover el concurso de posters para las siguientes competiciones dentro del país, cuyo enlace es: islp-peru.com

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INDIA

National level poster competition in India

Prajamitra Bhuyan*, Rahul Pratap Singh Kaurav** and Rituparna Sen***

The “National-level statistical poster competition 2023” was a remarkable event organized by the International Statistical Literacy Project (ISLP) in February. This competition aimed to showcase the talents and creativity of students from various parts of India. A total of 76 students hailing from diverse regions such as Karnataka, West Bengal, Tamil Nadu, Telangana, Bihar, Delhi, Maharashtra, and Kerala actively participated in this prestigious event.

The competition received an overwhelming response with the submission of 22 exceptional posters. Among these, 21 posters were categorized as senior entries, representing the outstanding work of the experienced participants. The remaining poster was a shining example from the junior category, highlighting the budding talent and potential of young statisticians. The posters submitted by the participants were a testament to their dedication and expertise in the field of statistics. Each entry showcased a unique perspective, using creative visuals and data-driven narratives to present their findings. The posters covered a wide range of statistical topics, including but not limited to population demographics, economic indicators, social trends, and environmental analysis.

The jury panel, comprising esteemed statisticians and subject matter experts, faced the arduous task of

evaluating the posters based on their content, statistical rigor, visual appeal, and overall presentation. The judging process was meticulous and thorough, ensuring fairness and objectivity in selecting the winners. The National-level statistical poster competition provided a platform for students to not only display their statistical prowess but also fostered an environment of healthy competition and knowledge-sharing. The event facilitated the exchange of ideas and insights among participants from different states and backgrounds, encouraging a deeper understanding and appreciation of statistics as a vital discipline in today's data-driven world.

The National-level statistical poster competition 2023 organized by ISLP successfully celebrated the skills and achievements of talented students from across India. By promoting statistical literacy and encouraging innovative thinking, this event played a significant role in nurturing the future generation of statisticians and data analysts, making valuable contributions to the field of statistics and its practical applications.

The jury members for the event were:

- Dr. Srabashi Basu, Great Learning, Kolkata
- Dr. Sourish Das, Chennai Mathematical Institute, Chennai
- Dr. Bhaswati Ganguli, University of Calcutta, Kolkata
- Dr. Amita Pal, Indian Statistical Institute, Kolkata

The winners and runners-up are:

Senior category:

1. Ishan Paul, Ramkrishna Jyoti Samanta, Samprit Chakraborty, Sanchayan Bhowal
   Indian Statistical Institute

2. Rajarshi Biswas, Arunsoumya Basu, Ritam Dey
   Indian Statistical Institute

3. Honnale Sujatha, Aaishah Sheikh, Zamoya Muskan
   St. Ann's College for Women

Junior Category:
Souradip Guchhait, Raunak Das, Indrayudh Saha, Soumajit Sarkar, Riyan Das
Chandernagore Sri Aurobindo Vidyamandir

Posters are on display in the link below.

https://sites.google.com/view/islp-india/home

Future Activities

Team India has got a dedicated team and form this year onwards; we have a plan to organise the following activities:

- Webinars for Teachers (specially for school level educators)
- Some socializing activities for the teachers, parents, and students together
- A dedicated YouTube channel for enhancing the reach of ISLP
- LinkedIn page for announcements of the events

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TURKEY

The importance of biostatistics – student's view

Defne Türcan*

Statistics can be described differently by associations and statisticians. Such as "The science of learning, and of measuring, controlling and communicating uncertainty." by the American Statistical Association or Edward N. Dubois's definition as "Statistics is a body of methods for obtaining and analyzing numerical data to make better decisions in an uncertain world.". In such a field with various definitions, the one main argument agreed on is the aspect of this science's importance to the developing century. Statistics are known to play a key role in our daily lives, as a contribution to its interdisciplinarity, and to be an inalienable field in STEM. In particular, among many science fields, statistics is a prevailing source in biology and health sciences.

Significantly, for measurements and learnings in health sciences, a new subfield for statistics has been established. Biostatistics, the application of statistics in biology, medicine, and health, is being used as the predominant method for the data of related fields. As a whole, the mechanism of biostatistics relies on concluding the population from which the samples were taken and analyzing the samples. For instance, in public health, biostatistics is applied mainly for the diagnosis of diseases and the reason for a disease's occurrence. It is used in the organization of clinical trials and testing of a drug's efficiency. Furthermore, biostatistics is highly involved in developing statistical methods for medical and clinical research, which require data from epidemiological studies, genomics, etc. It is mostly used in improving the acknowledgment of disease and developing new methods of gaining insights into clinical research or diagnosis.

In addition, biostatistics, apart from public health, is constitutively used in biological experiments. General principles of biostatistics include 4 steps: data collection, data organization and visualization, calculation, and lastly interpretation.

Biostatistics is known to provide a selection of adequate sample size and trials, as choosing the correct sample from a large population to obtain an accurate collection of data is essential at the beginning of biological experiments. Hereupon, hypothesis testing should be done according to the mechanism of a biological experiment and the principles of statistics. A hypothesis can be defined as a declaration of the researcher's expectation or prediction regarding the correlation between study variables. A statistical hypothesis, however, is the claim of a value of a parameter of a population. In this respect, biostatistics test these statistical hypotheses, especially in largely selected samples to get sufficient and accurate results, by basing it on the comparison, and consisting of the "p" value, null hypothesis, Type 1 and Type 2 errors. The hypothesis testing process and several other methods of calculation make the required data prepared for interpretation. From the data obtained from the experiment, a conclusion must be made after its determination of statistical significance at the end of the experiment. Biostatistics provides an expanded set of data to compare recent results with previously acquired data from the experiments, also assisting with the formation of a conclusion.

On the whole, it can be stated that biostatistics have a vital role in health sciences and it is predicted to continue so. Not only can it ensure attainability to sets of data regarding the diagnosis of a disease, but also can provide development in the pharmaceutical industry by assisting new clinical trials. With the usage of programming, distinctive coding systems, and software, biostatistics will efficiently proceed to be beneficial in health sciences.

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EUROPEAN UNION

Statistical literacy: the Education corner

Giorgia Macchia* and Romina Brondino**

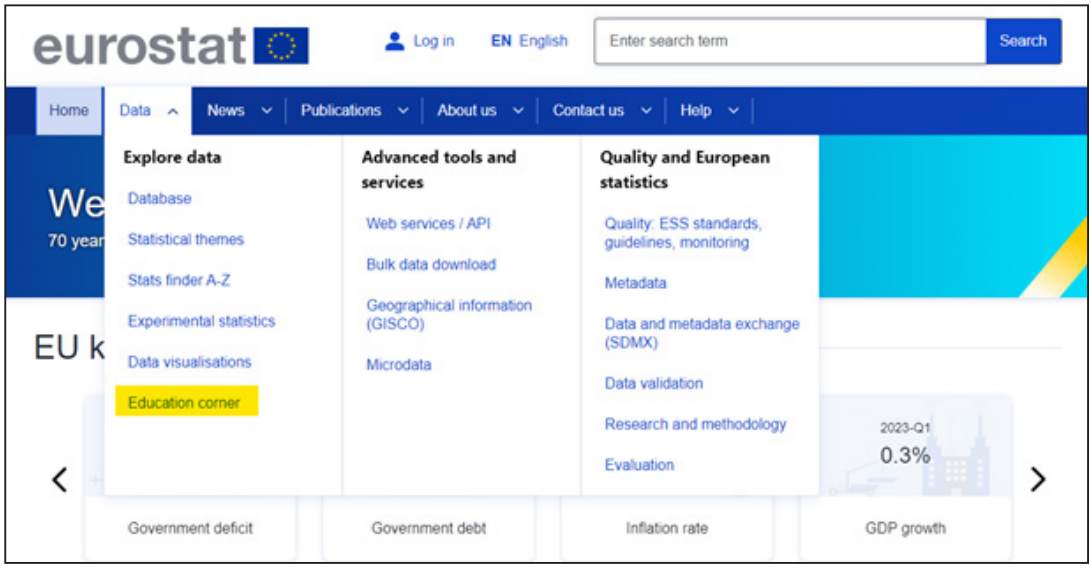
As the production of data grows, their use becomes relevant to new audiences who do not have prior statistical knowledge. In this context, statistical institutions are increasingly confronted with the need to find new ways of disseminating and making data accessible to a broader public. Eurostat, in addition to producing accurate and reliable statistical data, is creating and promoting new tools to enhance the understanding of statistics by a diverse audience. By increasing statistical literacy among users, we can enable them to turn data into knowledge and improve their autonomy in the use and interpretation of data.

Eurostat has developed various statistical literacy products, specifically able to meet different needs and literacy levels. With the recent revamp of the Eurostat website, the Education corner has now been entirely dedicated to statistical literacy, collecting in one single location all the relevant products and tools targeted at not only to students and teachers, but at anyone willing to learn more about the world of statistics.

The Education corner

The Education corner is available on the Eurostat website and can be easily reached from the homepage menu under the label “Data” or by entering “Education corner” in the search bar on the top-right corner.

Following these links, users will land on a page that offers an overview of the products and other resources designed to be easy to grasp, interactive and up to date. An automatic translation tool allows the translation of all pages on the website into all EU languages.



Education corner overview

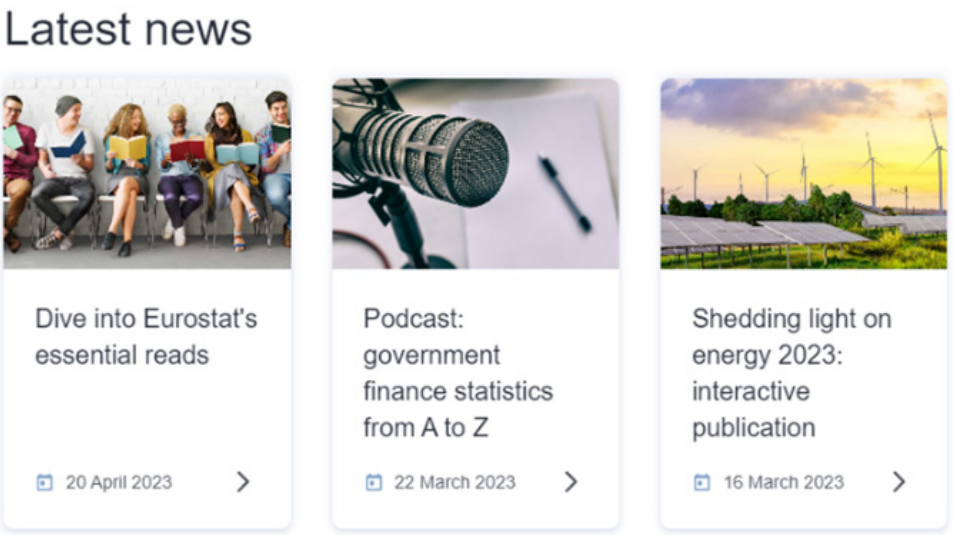
First, the section **"Latest News"** provides a direct link to selected News articles linked to products that improve statistical literacy. In this way, users will not only have access to newly published information but can also get acquainted with the general News section that appears on the homepage, where they will be able to find more complex statistical information once they feel familiar with these tools and the main statistical concepts.

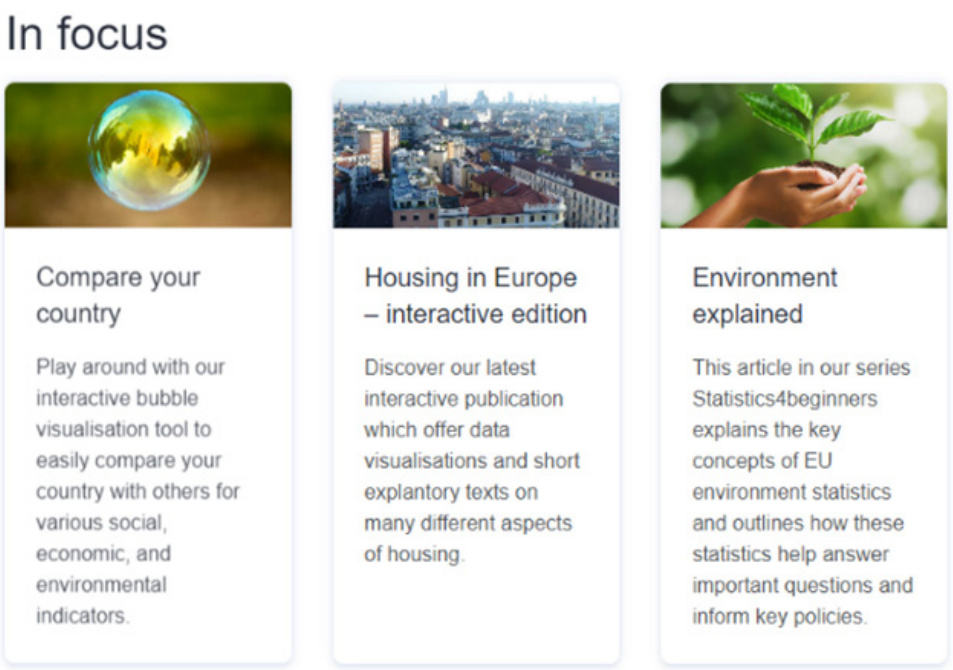
Then, some interactive tools and relevant visualisations are highlighted under the header **"In focus"**. This section is regularly updated to give space in the spotlight to different products where non-experts can find useful material and resources to get data on different topics and learn about various indicators, for instance environmental statistics.

At the bottom of the page, under **"Explore Further"**, the banners introduce websites of other relevant projects involving the promotion of statistics at various levels, from Master's level (European Masters in official statistics) to secondary schools (European Statistics Competition). Furthermore, the EU Learning corner website, mentioned among these sources, provides a collection of teaching materials beyond statistics in all EU languages, which can be used for primary and secondary school students, touching various topics related to the EU and EU policies.

News section

Browsing the menu on the left of the page, it is possible to access different sections and different products for statistical literacy. In the menu, below the Overview page (which is the default page), the News section provides the full list of all the news items relevant to statistical literacy selected as mentioned above.





Statistics4Beginners

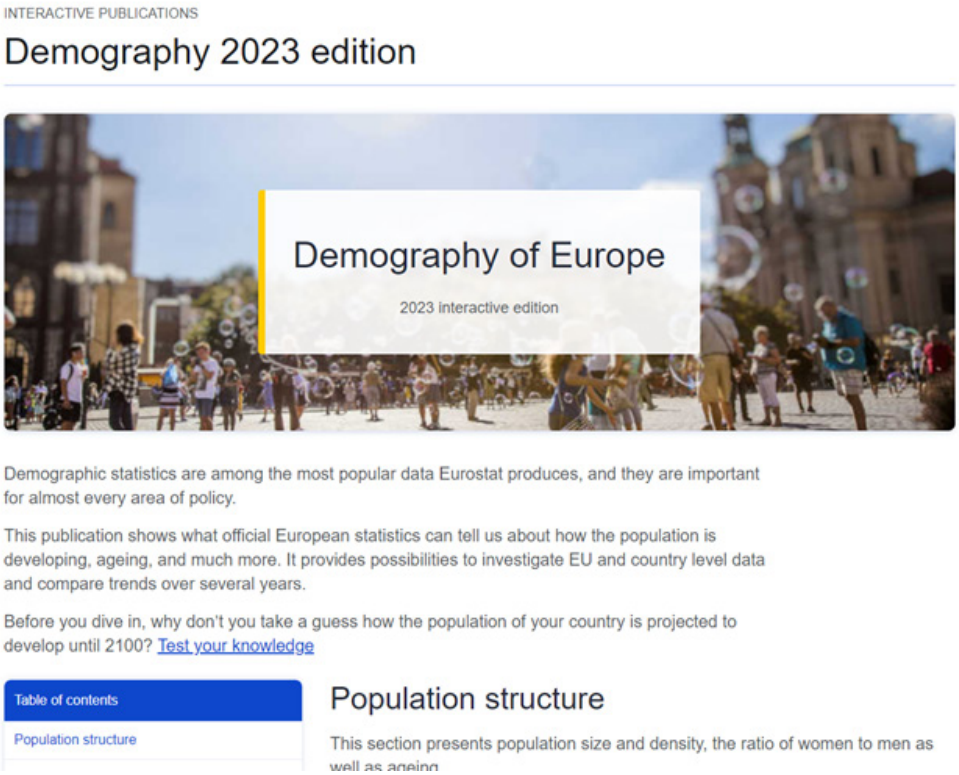
The following entry redirects to Statistics 4 Beginners website, one of the main Eurostat's programmes for literacy, where statistical concepts and topics are explained in detail. Articles are grouped in 11 different workbooks, according to statistical themes.

Each article explains essential concepts such as GDP and inflation, to build up the necessary knowledge to understand how complex data records are made, what is the meaning of the different figures and how they can inform key policies (for example, how environmental indicators serve and monitor the implementation of the European Green Deal).

In the workbook dedicated to "Statistical concepts" it is also possible to find some methodological information and technical explanations related to statistics and data processing.

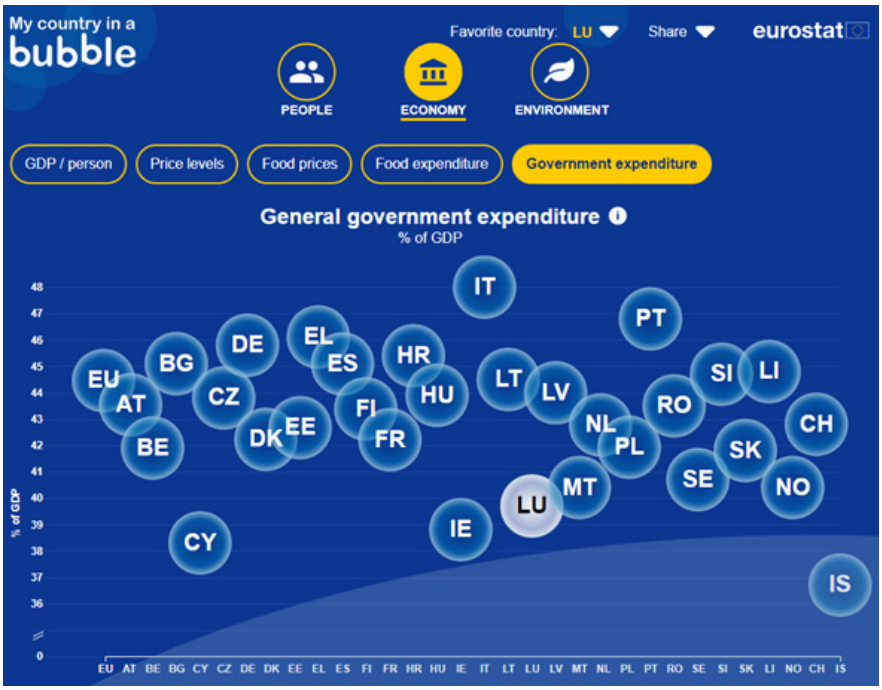
Interactive publications

From the Education corner menu, it is also possible to access the page of interactive publications. The products available in this section provide a comprehensive overview of a specific topic (Housing in Europe, for instance) using simple language and very short text. To make people engage with the contents, all the visualisations used in the publications are interactive, allowing the readers to select their country and compare the data with data for the EU or other countries. They are designed to be intuitive and accessible, and Eurostat is piloting a project with national statistical offices to make them available in every EU language.



Data visualisations

The section dedicated to Data visualisation collects different products focused on making the access to data as intuitive and interactive as possible. It is built around the idea of making fact-checking easy for everyone, allowing them to have a quick but meaningful look at the data. For example, “My country in a bubble” makes it possible to rapidly get comparative information and data on EU countries on a variety of topics ranging from economic to environment indicators.



Videos

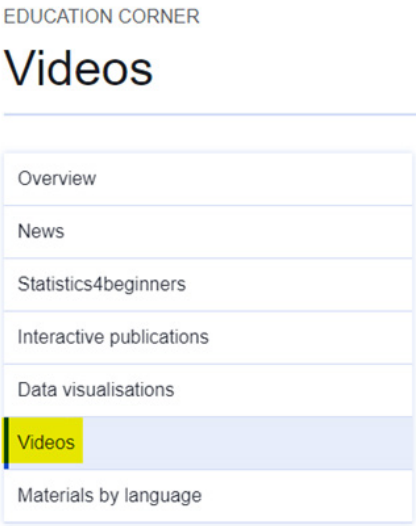
Videos provide additional materials for teachers, where statistical concepts are explained, in English, in the framework of the “Statistics in the classroom” project. Designed to support the work in the classroom, each video is accompanied by an exercise sheet that can be used with students to practice the topics presented.

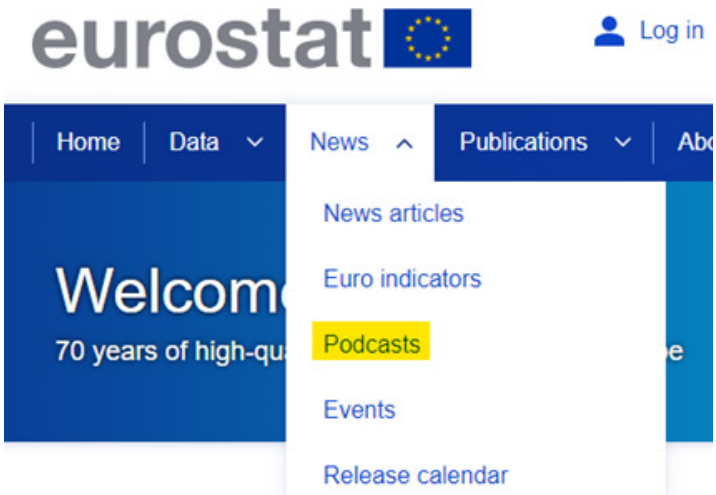
Materials by language

This section brings together literacy materials for teachers and students in the national languages. This Eurostat initiative is aimed at putting a spotlight on the work done by national statistical offices and give teachers the opportunity to access more material in languages other than English. The content promoted here is produced by national statistical offices and hosted on their websites. Often, the national statistical institutes can also provide support to teachers.

Podcast

While not a literacy product as such, the podcast contributes to promoting statistics to new audiences outside the pool of traditional data users. It was launched in April 2022 and has proven to be a valuable tool in informing the public not only about data on different themes, but also about how statistics are produced and what makes them reliable.





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MEXICO

De los dolores de cabeza al gusto por el análisis estadístico

Javier Alonso Trujillo*

Introducción

El presente ensayo trata acerca de los profesores que enseñamos Estadística y de las alternativas que tenemos para promover la alfabetización estadística entre nuestros estudiantes. Con frecuencia nos encontramos con el problema de que resulta difícil a los alumnos su comprensión teórica y quizás eso provoca que se desarrolle poca afinidad por la actividad práctica. Pero quizás solo sea cuestión de poner en marcha nuestra vocación docente y encontrar las formas y los modelos para iniciar una transición, desde los dolores de cabeza hasta el gusto por realizar análisis estadísticos relacionados con la futura práctica profesional de los estudiantes.

Desarrollo

Muchos de nosotros hemos sido testigos de problemas en la enseñanza de la Estadística en diversos niveles educativos. En este caso me voy a referir a la enseñanza universitaria en la carrera de Enfermería en México, no sin antes comentar algunas experiencias de algunos de nuestros colegas a lo largo de los años. Pulido (2009) ha señalado que la Estadística ha constituido un dolor de cabeza para el estudiantado, tanto en el pregrado como en el posgrado. También se ha mencionado que en el área de las ingenierías no es fácil la comprensión de la lógica que subyace a los métodos de inferencia estadística e interpretación de sus resultados y se plantea que probablemente esto se explica por la dificultad que existe al vincular los conceptos que intervienen en la unidad dialéctica teórico-práctica (Sebastiani y Viali, 2011). Posiblemente la dificultad para comprender los fundamentos y procedimientos estadísticos radica en la diversidad de conceptos abstractos que se relacionan entre si al momento de realizar dichas actividades (Chance et al., 2004). Se plantea también que la difícil comprensión de conceptos estadísticos se asocia a una enseñanza deficiente de conceptos teóricos como por ejemplo población, muestra, estadístico de prueba, distribución del estadístico de prueba, nivel de significancia, hipótesis nula, hipótesis alterna, valor “p”, regiones de rechazo y no rechazo, entre otros. En este sentido, se plantea que es muy importante que el profesorado sea competente (Inzunza y Jiménez, 2013).

No obstante, para lograr una agradable alfabetización estadística en los jóvenes, un buen desarrollo de la cultura estadística en los ciudadanos y un adecuado aprendizaje de la Estadística en los universitarios, las oportunidades podrían encontrarse en la aplicación práctica de los conceptos. Me refiero a que en la actualidad podemos incorporar a nuestra práctica docente una serie de ejercicios para resolverlos utilizando el software estadístico disponible en nuestras escuelas e incluso obtener los que se encuentran de forma gratuita en internet. Cuando la disciplina en la cual se imparte la docencia no requiere de las demostraciones matemáticas que fundamentan pruebas de hipótesis, como es el caso de la Enfermería, podemos incorporar una multitud de situaciones relacionadas con la práctica de esta disciplina para que el estudiantado desarrolle los algoritmos que el software estadístico nos proporciona y obtenga fácilmente resultados para interpretarse dentro del contexto de la Enfermería. Vamos a poner un ejemplo.

Supóngase le siguiente planteamiento. Una investigación realizada por Enfermeras del Hospital General de México pretende demostrar que su programa de Mejoramiento del estilo de vida ha logrado disminuir la prevalencia de obesidad al menos el 20% respecto a la prevalencia que se reporta en los boletines anuales del ministerio de salud Estatal. Suponga que a nivel Estatal la prevalencia fue del 56%. Para resolver el ejercicio se proporciona a los alumnos un conjunto de 40 datos que representaría a una muestra probabilística. Se pide a los estudiantes que realice una captura de los datos con exactitud y precisión, esto último requerirá de la máxima atención que deberá estar exenta de errores. Las preguntas de investigación son: ¿Existe diferencia estadísticamente significativa entre la prevalencia de la muestra y la prevalencia estatal? Y ¿El programa de mejoramiento del estilo de vida ha logrado disminuir al menos el 20% la prevalencia en la muestra respecto a la prevalencia reportada a nivel estatal?

Actividades de cálculo y razonamiento estadístico de los estudiantes.
Realice las siguientes acciones:
Obtenga la prevalencia de obesidad observada en la muestra asi como sus Intervalos de Confianza al 95%. Utilice el software estadístico disponible.
Aplique la prueba de hipótesis denominada Chi cuadrada para una sola muestra para comparar la prevalencia obtenida en la muestra con respecto a la prevalencia reportada por el ministerio de salud y descubra si existen diferencias estadísticamente significativas.
Para aplicar la prueba de hipótesis realice los cinco pasos del ritual de la significancia estadística.

ID	Obesidad	ID	Obesidad	ID	Obesidad	ID	Obesidad
1	2	11	2	21	1	31	1
2	1	12	2	22	2	32	2
3	2	13	2	23	2	33	2
4	2	14	1	24	1	34	1
5	2	15	2	25	1	35	2
6	2	16	2	26	2	36	2
7	1	17	1	27	2	37	1
8	2	18	2	28	2	38	1
9	2	19	1	29	1	39	2
10	1	20	2	30	2	40	1

Tabla1. Datos obtenidos de una muestra representativa para la resolución del ejercicio.
Nota: Código 1 = Casos Código 2 = No casos

Paso 1. Planteamiento de la hipótesis nula y la hipótesis de investigación
Paso 2. Establecimiento del nivel de significancia
Paso 3. Prueba de hipótesis seleccionada para responder la primera pregunta de investigación
Paso 4. Escribir el valor "p" arrojado por la prueba de hipótesis
Paso 5. Decisión que se toma (aceptar o rechazar la hipótesis nula) en función del valor "p" obtenido en la prueba de hipótesis.
Ahora, con la información contextual, responda a la segunda pregunta de investigación y escriba una interpretación que permita sugerir si el programa de mejoramiento del estilo de vida fue efectivo o no lo fue según los datos obtenidos durante el ejercicio.
Considere el valor del parámetro reportado por el ministerio de salud y observe si se encuentra dentro o fuera de los intervalos de confianza al 95% que calculó.
Si se analiza con detenimiento el ejercicio, se puede observar que en su desarrollo se han aplicado conceptos teóricos como los siguientes: Estadístico, parámetro, tamaño de la muestra, técnica de muestreo, prueba de hipótesis, planteamiento de hipótesis estadísticas, nivel de significancia, prueba de hipótesis, valor "p", toma de decisiones, comparación de prevalencias, intervalos de confianza al 95%, error estándar, nivel de confianza.

Conclusión

Se puede pensar que tanto la alfabetización estadística como la enseñanza de esta disciplina en los diferentes niveles educativos, puede hacerse más amena y divertida si agregamos escenarios que permitan a los estudiantes, en este caso de Enfermería, vislumbrarse e imaginarse en situaciones de su práctica profesional en donde sus intervenciones pueden resultar en beneficios para su formación académica y para la sociedad dentro de la cual pronto se desenvolverán profesionalmente.

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NEW ZEALAND

New resource from the University of Otago

John Harraway*

https://www.stats.otago.ac.nz/research/Statistics-in-Research/

This resource is available freely for any workforce and for teaching statistics in large first-year classes. All data are from current case studies with the data presented in EXCEL. So any statistical package could be used, although free-to-use R is used in all the lessons with the latest additions to R to help students learn to code. Printouts are also given for the outputs of the R lessons.

The reason for using R is reported in one of the references in the ICOTS presentation; the expansion of R in many research areas is discussed with a consequential request by our consumer departments for us to start teaching R. Usage in published research has risen in the last five years from 5% of the research to around 65% of the research. An individual teacher or training programme can decide what lessons they would like to use.

It is also possible to use this resource online which is likely to be beneficial during a pandemic like covid when in-person teaching is restricted. The videos and the lessons are all freely available online and, of course, R is open-source.

Several groups have expressed interest or are now using this resource. This includes so far:

1/ The statistics training programs for staff in the New Zealand Department of Conservation;

2/ The Government of India through the Indian Statistics Institute in Kolkata for training workers in the Public Services of developing countries who are taken to India for statistics training as an Indian Government Foreign Aid Project;

3/ The United Nations in Geneva may supplement its own training modules for United Nations Staff;

4/ University large first-year statistics classes and some more advanced statistics classes depending on the difficulty of an individual set of lessons based on that case study.

The original videos with lessons have been used in 54 countries with about 400 individual hits. With the new important software and restructured lessons now in place this is likely to increase.

I believe this resource can be of great help to learning statistics relevance at many levels in University classes and the workforce. The lead researcher in this project is Associate Professor Matthew Schofield of the Department of Mathematics and Statistics at the University of Otago, an excellent teacher of Statistics in large classes. Also involved are a statistics honors student, Jessica Allen, with employment at the University of Otago in the holidays, and myself.

We acknowledge the support of the University of Otago who awarded us a CALT Grant to carry out this work.

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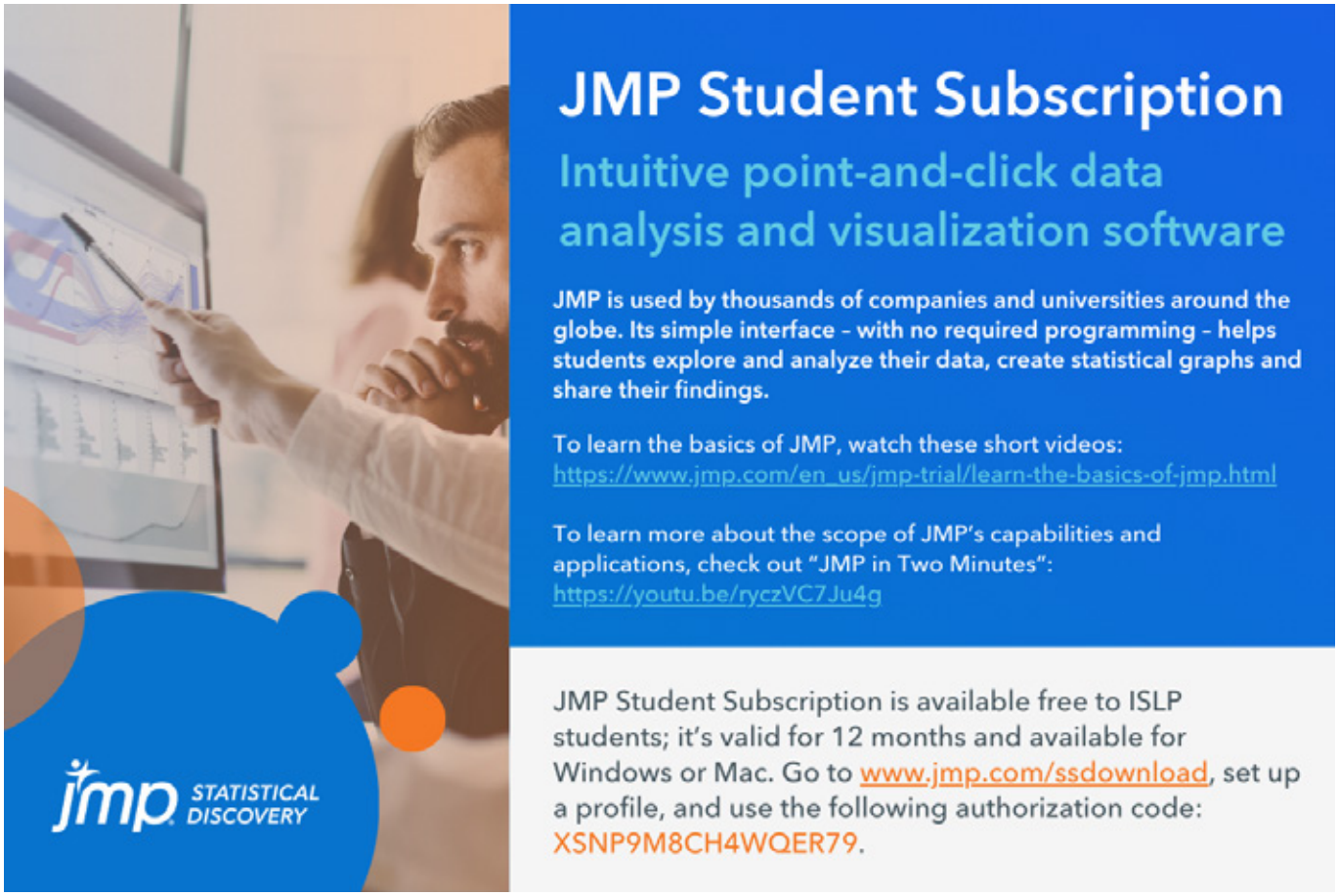

GERMANY

JMP student subscription: Announcing the next generation of free JMP software for ISLP students

Volker Kraft*

Since 2018, JMP Student Edition has been made freely available for ISLP poster participants to empower students creating powerful graphics and data analytics without any line of code. This article announces the next generation of free student licenses, JMP Student Subscription, providing more and enhanced capabilities and new resources to get students started using their own data within less than an hour.

JMP Student Subscription will continue to be available for all ISLP students, but with more analytical capabilities and better built-in learning resources for students than before. An enhanced landing page and new download process with built-in student authorization will be launched for the Fall [1]. The licenses are valid for twelve months and available for Windows and Mac.

Note: For now, ISLP students can go to www.jmp.com/ssdownload, set up a profile and use the following authorization code: **XSNP9M8CH4WQER79**.

Have you seen JMP in action? Watch this two-minute video [2] and you will understand what JMP can do for you.

Enhanced capabilities for students

JMP's intuitive point-and-click data analytics and visual exploration help students to make sense of their data and share their findings. While JMP's powerful analytical capabilities [3] make the software a leading toolset for data-driven problem solving in thousands of companies and many industries, it's simple interface with no required programming allows users to focus on exploring and analyzing data from many perspectives.

Here are some highlights you can expect from our new student license:

- Easy means to import and prepare your own data, from a variety of file formats like CSV data, Excel, databases or websites
- Easy and accessible exploratory tools to uncover information in your data
- Ability to cCreate and export of high-quality statistical reports and graphics for posters, papers, PowerPoint presentations or online publishing
- A student menu with learning applets to help see and understand basic statistical concepts

New learning resources to get started

Getting ready to use JMP with your own data has never been easier: Click "Learn the Basics" at [4] to become familiar with JMP statistical discovery software. In less than 30 minutes, nine short videos guide you through some of the most commonly used steps in the data analysis process. A 25-minute YouTube video dedicated to students who want to create stunning visuals for posters is still available at [5].

Additional resources, including the JMP Learning Library and a digital short course "Getting Started with JMP: On Demand" can be found at the JMP Student Subscription page [1] and in the JMP user community [4].

In case of any questions about getting or using JMP Student Subscription, do not hesitate to contact us by clicking the "Contact us" button at [1].

Links:

[1] JMP Student Subscription:
www.jmp.com/studentsubscription
(will be updated for Fall 2023)

[2] "JMP in 2 Minutes" (YouTube):
https://youtu.be/ryczVC7Ju4g

[3] JMP capabilities:
www.jmp.com/capabilities

[4] Learn JMP: https://community.jmp.com/t5/Learn-JMP/ct-p/learn-jmp

[5] JMP Tutorial for Posters:
https://youtu.be/a6InleTaIEg

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PANAMA

JMP/SAS. Herramienta innovadora para el aprendizaje de la Estadística

Elisa Mendoza G.*

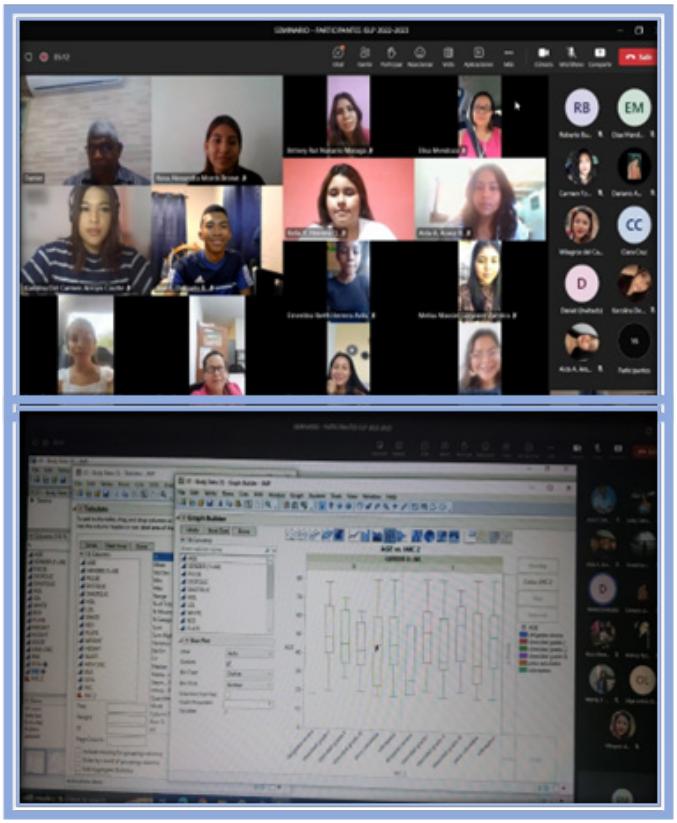
El programa JMP de la compañía SAS es utilizado por millones de personas para el análisis estadístico de datos, según la información que encontramos en la página web jmp.com, este poderoso software fue desarrollado desde 1989 por John Sall, haciendo de este programa un producto dinámico con múltiples funciones y características innovadoras, pensado para facilitar el trabajo de sus usuarios.

JMP llegó a Panamá, como patrocinador oficial del Proyecto Internacional de Alfabetización Estadística (ISLP), al cual nos suscribimos a partir de 2020, coincidiendo con la crisis pandémica debido al COVID-19. Este evento de gran trascendencia mundial no fue impedimento para nuestra participación en la competición internacional. Por el contrario, aceleró mucho más el uso de la tecnología y los encuentros permanentes en cual se acortaron las distancias mediante las plataformas virtuales, las que fueron aprovechadas al máximo.

El equipo de colaboradores organizó la competición nacional en sus versiones que hemos denominado de forma abreviada ISLP-Panamá 2020 – 2021 y la correspondiente competencia ISLP-Panamá 2022-2023, y en cada una se realizó una serie de actividades entre ellas la promoción del uso del programa JMP.

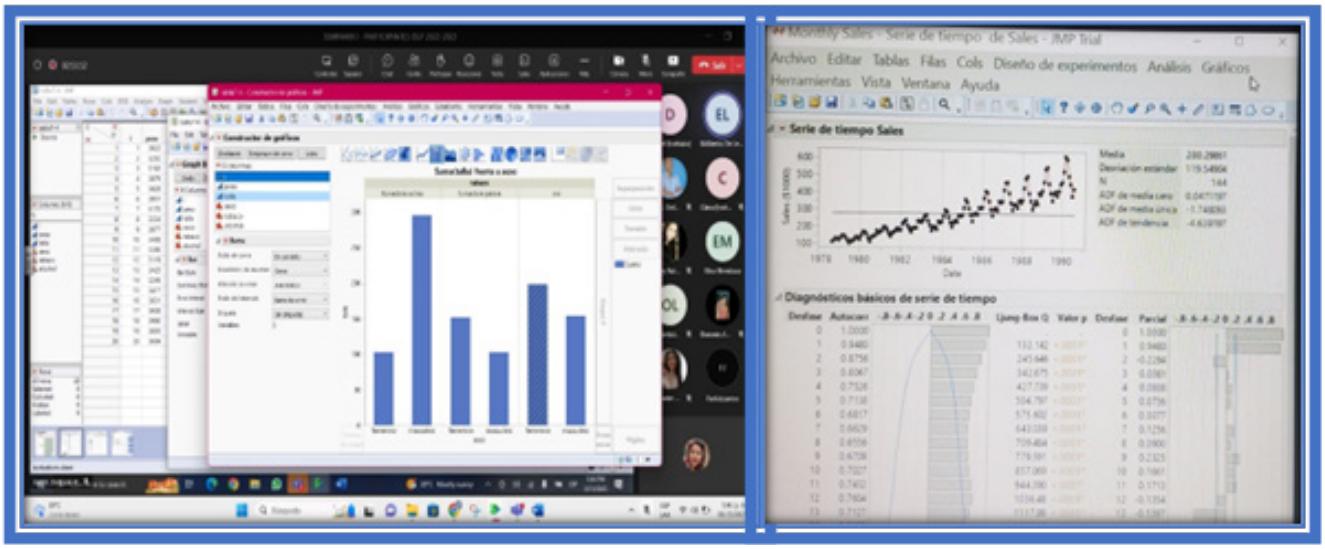
A cada uno de los equipos se les facilitó la licencia gratuita del software JMP con el compromiso de no compartir sin autorización a terceros, es decir, entendiendo la exclusividad del uso solo a quienes participan de la competencia. Como parte del cierre de la competencia, se invita a todos profesores tutores, evaluadores nacionales e internacionales, coordinadores y a los estudiantes, a participar de la capacitación básica del software.

Esta capacitación se brinda en modalidad virtual, con una duración de 40 horas de las cuales 20 horas son sincrónicas y 20 asincrónicas (para desarrollar actividades). Esta, es desarrollada por el profesor Daniel



Sánchez, catedrático de la Universidad de Panamá quien de forma autodidacta y entusiasta prepara el material y ejercicios para la capacitación. A él le acompaña la profesora Milagros del Carmen García, quien le brinda un gran apoyo técnico en este proceso.

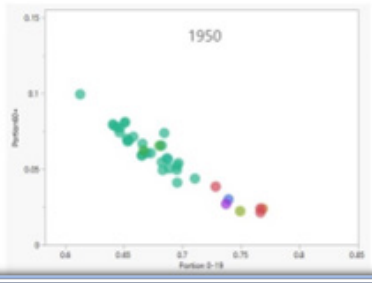
El plan de capacitación por lo general incluye 4 módulos, en primer lugar, la introducción al JMP que incluye la instalación del software y el reconocimiento de sus principales características. Seguido por el módulo de estadísticas descriptivas, medidas estadísticas y graficación, un módulo más sobre pruebas de hipótesis



Experiencia curso JMP – Estudiante: José Delgado B.

Me pareció una experiencia realmente enriquecedora y gratificante para mí ya que pude aprender mucho a cerca de este software que la verdad desconocía y como aplicarlo en mi carrera y que además que me ayudara mucho para la vida laboral al terminar la misma. Este Software me ayudó a ver cómo puedo plantear estadísticas recopilando, analizando y visualizando datos de situaciones reales y de forma profesional, a la vez de como esos resultados los puedo explicar de manera correcta.

Además, que el trabajo en equipo que se vivió fue algo muy bonito poder compartir ideas entre los que recibíamos el curso viendo así puntos de vistas que enriquecen el conocimiento del estudiante considero que esto va muy de la mano de los profesores que estuvieron ahí para resolver cualquier duda o inquietud.



Como resultado el curso de JMP puedo decir que me proporcionó habilidades valiosas que serán útiles en mi futuro, como la capacidad de analizar datos de manera efectiva y comunicar mis hallazgos de manera clara y concisa. Me siento agradecido por haber tenido la oportunidad de tomar este curso y estoy emocionado de aplicar lo que he aprendido en mi carrera y en mi vida personal.

y análisis de tablas de contingencias; es decir, se trata de desarrollar aplicaciones estadísticas básicas en que los participantes puedan comprender los procesos e interpretar los resultados.

La primera versión de esta capacitación denominada Curso Básico de JMP contó con participantes internacionales de Argentina, Colombia y México, además de los nacionales totalizando 31 participantes.

La segunda versión de esta capacitación se denominó Seminario "Aplicaciones estadísticas para el análisis de datos con JMP (software estadístico)" desarrollada en marzo de 2023. Las novedades en esta versión correspondieron a la visualización dinámica de las gráficas, los análisis básicos de correlaciones, de series de tiempo y los formatos de reportes de los resultados que gustó mucho a los participantes. El número de participantes fue similar a la versión anterior.

No cabe duda de que, este curso fue muy positivo, tal como lo señalan nuestros propios estudiantes.

A nombre de todo el equipo de profesores, estudiantes y colaboradores expresamos nuestro agradecimiento a la compañía SAS en particular por el patrocinio del software JMP, a la Universidad de Panamá por el auspicio del seminario y al profesor Daniel Sánchez por su contribución como profesor tutor del seminario, el cual ha sido aprovechado gratamente por todos los participantes en la Competencia Nacional de Póster Estadístico en Panamá, en las versiones 2020-21 y 2022-23.

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GERMANY

How to create a global “Standard for data & AI literacy”

Katharina Schüller* and Henning Koch**

Together with numerous partners, the Stifterverband and Katharina Schüller initiated the Data Literacy Charter in January 2021. The charter is in line with the German government’s data strategy and the Berlin Declaration on the Digital Society. It formulates a common understanding of data literacy and its importance for educational processes. Since then, the charter has encouraged the topic of data literacy to be considered in all educational processes. The fact that the many initial signatories include prominent institutions and very well-known personalities speaks for the topicality of the issue and for the urgency to push it forward.

This has now been happening for about one and a half years in an IEEE working group (https://standards.ieee.org/ieee/7015/10688/). The IEEE Standards Association is considered the most renowned organization for technical standards. Here we are working in an international team to develop a global standard for DATA AND AI LITERACY, SKILLS, AND READINESS. This standard will help ensure that data and AI skills and competencies can be acquired as transdisciplinary competencies across all subjects, taught from three perspectives (applied, technical-methodological, and sociocultural). This is to ensure that every individual and our society as a whole is empowered to deal with data and AI in a conscious and ethical way.

In their talk at the 2023 University Future Festival (U:FF), Katharina Schüller and Henning Koch presented the current state of work on the standard for DATA AND AI LITERACY, SKILLS, AND READINESS at the U:FF mainstage in Berlin. In doing so, they provided exciting insights into how an international standard is being created and thus demonstrated an unusual way to contribute to the strategic topic setting and quality assurance of university teaching.

The talk (in German) can be found on Youtube: https://www.youtube.com/watch?v=0DYgvKbbUyI&list=PLDE-3NyZgHoK71zPBjRs1iPd1L9cUp_A3M&index=8

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KENYA

Targeting sustainable statistical literacy in Kenya through the National Statistical Office

Dorcas Kareithi*, Karen Bett** and Jonesmus Mutua***

Statistical literacy in Kenya

Statistical literacy in Kenya is a critical aspect of development, enabling informed decision-making, evidence-based policymaking, and effective resource allocation. However, only 42% of the adult population in Kenya demonstrated a basic understanding of statistical concepts and data interpretation, according to a 2022 survey by the Kenya National Bureau of Statistics (KNBS). To address this, efforts are underway to enhance statistical literacy. Statistics is now a mandatory subject in secondary schools, and initiatives like the Statistical Literacy for Empowerment (STALE) program, supported by the United Nations Development Programme (UNDP), provide training and resources to educators and policymakers. Despite these efforts, further investment and commitment are needed to ensure widespread statistical literacy, empowering Kenyan citizens to actively engage in data-driven decision-making.

ISLP in Kenya and NSO initiative

The International Statistical Literacy Program (ISLP) creates an opportunity to democratize data skills among students. Kenya has been an active ISLP chapter and has run 2 national competitions, in 2021 and in 2023. Undergraduate students have been the most active participants in the competition, with Maseno University students (led by Dr Thomas Mawora and Dr Joyce Otiano) coming first in the 2021 competition and Garrisa University students (led by Mr Etyang Isaac) coming first in the 2023 competition.

Photo 1. 2023 ISLP Kenya National Competition winners (Timothy Kimulu, Haransa Mwanaidi, Jackson Karanja,Joyce Wamaitha, and Lenista Kinanjui) from Garissa University, Kenya.

Photo 2. ISLP Kenya Country Coordinators (Dorcas Kareithi, Karen Bett) with a representative from KNBS (John Bore) and the ISLP team at the 2023 IAOS-ISI Conference.

Challenges faced in ISLP activities in Kenya

ISLP Kenya chapter has been in existence for several years but with limited activities and achievements. One of the biggest challenges in coordinating ISLP is competing priorities between their daily work and coordinating ISLP activities. The coordinators sought to find a sustainable way forward through involvement and collaboration with KNBS.

Another key challenge has been the lack of resources to mobilize participants in the ISLP Country competitions and other ISLP activities. At the moment, the coordinators invest their time and resources in ISLP activities. This hampered their abilities to mobilize and motivate participants during competitions.

Sustainable way forward

Having run the 2023 competition, there was a high interest by students to participate because the competition creates:

- An opportunity to find purpose
- An opportunity to interact with peers & learn
- An opportunity to challenge themselves

The ISLP model promotes interaction between students and teachers which ensures rigor, credibility & skill building. KNBS is now keen to play an active role in leading and coordinating the ISLP work in the country, guided and supported by the country coordinators to expand the reach of ISLP and bring in other collaborators and stakeholders. This will be the first initiative in Africa to have a National Statistics Office take on ISLP activities.

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Photo 1. Chikoloma Nakazwe, Karen Bett, David Stern, Delia North, Elisa Falck and Reija Helenius.

The ISLP Project in the IAOS/ISI conference in Zambia

Elisa Falck*

The ISI/IAOS Zambia 2023, 17th International Association for Official Statistics Conference and 3rd International Statistical Institute Regional Statistics Conference, was held in Livingstone, Zambia, on 4-6 April 2023. The theme of the conference was "Better lives in 2030: Mobilising the Power of Data for Africa and the World".

The ISLP Project, in co-operation with Statistics Finland, organized a session in the scientific programme. The session was titled "Statistics shapes society". The session engaged listeners and included fantastic stories from the ISLP network in Africa. We look forward to a hopeful future with multiple ways to engage current and future statisticians!

Statistics shapes society

Speakers

Elisa Falck
Project Coordinator, International Statistical Literacy Project. *'Challenges and opportunities to promote statistical literacy'*.

Karen Bett
Policy Manager, Global Partnership for Sustainable Development Data. *'Democratizing data skills in the continent'.*

Delia North
Professor, University of KwaZulu-Natal. *'Capacity building for the data era: The story of UKZN (South Africa)'*

Chikoloma Nakazwe
Program Project Manager, National Public Health Institute. *'Zambia's experience in the ISLP school competition'*

Chair

Reija Helenius
ISLP Director and Group Leader, Statistics Finland.

Discussant

David Stern
Dr., Mathematical Scientist, Founding Director of IDEMS International.

The ISLP, represented by Project Coordinator Elisa Falck, was also interviewed by the News Central TV. The interview can be found here: https://www.youtube.com/watch?v=rvdEKqgb5sA&t=2s

However, please note that the newspiece includes a typographical error. The news channel titled the interview "Zambia becomes first African country to host ISLP conference". It should, in fact, say "Zambia becomes first African country to host IAOS/ISI conference".

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Summary: Karen Bett's presentation*

The potential of data to change development outcomes and ultimately redress power imbalances lie in its effective use to inform decision making and produce fairer policies. This requires equipping people with the skills to understand, analyze, and use data but this is not sufficient. Effective data use requires human interoperability—the idea that data doesn't come together on its own, but requires people partnering from different parts of government, sectors, and communities.

For statistics to shape society, partnerships and skills should be leveraged as pathways for better data use. Governments should: promote data and information literacy in the population at large. Donors & international organizations should: align projects and goals with national priorities and commit to longer time horizons. The Private sector should: explore how to transfer skills and strengthen capacities for data analysis and use to public sector partners. Civil Society should: focus on connecting data to citizens, building data literacy skills, and investing in creating links to drive greater impact and sustainability.

The ISLP creates an opportunity to democratize data skills among students. Kenya has been an active ISLP chapter and has run 2 student competitions (most recent in 2023). Having run the 2023 competition, there was a high interest by students to participate because the competition creates:

- An opportunity to find purpose
- An opportunity to interact with peers & learn
- An opportunity to challenge themselves

The Kenya National Bureau of Statistics is now keen to play an active role in leading and coordinating the ISLP work in the country, of course guided and supported by the country coordinators to expand the reach of ISLP

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Summary: Delia North's presentation*

Educational Challenges faced by academic institutions in the data era, calls for a high level of strategic planning to deliver suitably trained individuals to the fast-changing workplace. Developing countries are faced with the additional burden of overcoming challenges related to funding, infrastructure and many more

This talk will focus on a collaborative system, set up by an academic institution in South Africa, to optimize the delivery of suitably trained Statistics/Data Science graduates to the workplace.

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Summary: Chikoloma Nakazwe's presentation*

Statistical literacy in Zambia is promoted in schools, colleges, universities and statistical associations including Young African Statisticians Association (YASA). Zambia's school curriculum incorporates math from early education to high school with its literacy rate standing at 88% (World Band education statistics 2020). Literacy in its interpretation referring to an individual aged 15 years and above who can read and write a short simple statement on their everyday life including the ability to make simple arithmetic calculations.

Opportunities for one to specialize in statistics do exists in Zambia however it depends on an individual's motivation, interest and whether or not they have sufficient mentorship to actualize the dream. One way in which statistical literacy is promoted in Zambia is through YASA, a statistical capacity building programme for young professionals and students. YASA Zambia formally established and registered under the Societies' Act in 2014 and draws it membership from diverse fields with statistical interest such as Demography, Economics, Statistics and Mathematics and Social Science.

YASA-Zambia's operations are guided by four strategic objectives through which they have been able to implement and also participate in various activities and events both in country and at continental level.

In advocating for improved use of statistics while working with the National Registration Office (NRO), YAS participated in the comprehensive assessment of Civil Registration and Vital Statistics which led to the development of the National Action Plan to reform and improve CRVS in Zambia (2013-2017).

With a view to educate young statisticians, YAS coordinated the 2016-2017- International Statistical Literacy Poster Competition, conducted an introductory training on GIS and its application in conjunction with the demographer and participated in the capacity building workshop on domestic resource mobilization and illicit financial flows in Zambia organized by Economic Commission for Africa Southern Regional Office.

In order to cultivate statistical knowledge and skills, YAS promotes the creation of Mathematics and Statistical clubs/associations/societies in schools and higher learning institutions, supports Scientific Paper writing among YAS members, participates and presents scientific papers in conferences, participate in statistical national, continental, and international meetings/commemorations. Added to this YAS participated in the Technical Working Group that quantified the "Strategy for Harmonization of Statistics in Africa (SHASA)" and the African Symposium for Statistical Day (ASSD).

YAS has various mechanisms of strengthening collaboration which include the WhatsApp and Facebook interactive platforms, participation in the continental YAS collaborative platforms such as the 5th ISIbalo Conference in Pretoria and engagement with associations in learning institutions.

YASA-Zambia is registered under the Societies Act, recognized by the National Statistics Office and has active membership, however the lack of funding for country activities and limited coverage for the few successfully implemented activities is challenge. Political will and continental support do exist, however the lack of a National statistical Association/Society could be a threat.

YAS-Zambia recommends that incentives be offered to students or young statisticians participating in certain programmes to act as a motivation. There is need for funding support to ease the implementation of activities and broaden the coverage to scale-up YAS activities especially in rural areas. Promote in-country recognition by awarding deserving Young Statisticians. Provide mentorship opportunities and advocate for the creation of a national statistical association.

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TOGO

Validation workshop of a consultancy report on the feasibility study for the opening of a statistics training center

INSEED Communication Team*

From December 13th to December 14th, 2022, the National Institute of Statistics (INSEED) organized a workshop to validate a consultancy report on the update of the feasibility study for the establishment of a statistical training center at INSEED.

During this workshop, it was mentioned that to remedy the problem of the shortage of statisticians in the national statistical system (NSS), the government included the creation of a statistics training center among the objectives of the project, for the harmonization and improvement of statistics in West Africa, financed by the World Bank. To implement this objective, the project for the harmonization and improvement of statistics in West Africa commissioned an update of the feasibility study carried out in 2015, considering the new needs of the national statistical system (NSS) and recent changes made in the sub-regional statistical training schools.

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Photo 1. Workshop organised by INSEED.

ISLP

Photo 1. The ISLP network.

IASE/ISLP webinar: Statistical edutainment

The International Association for Statistical Education (IASE https://iase-web.org/ hosted their May webinar, in collaboration with the International Statistical Literacy Project (ISLP https://iase-web.org/islp/).

Pedro Campos from the ISLP chaired the webinar and John Bailer, Paolo Noceda, Maulana Faris, José Pinto Martins, Jo Roislien presented. The webinar can be viewed via the IASE site: https://iase-web.org/Webinars.php?p=230523_1100 or through YouTube: https://www.youtube.com/watch?v=bErzpPrufCA

Speakers and their presentation titles

John Bailer
What can you do if you want to tell the statistics behind the stories and the stories behind the statistics?

Paolo Noceda
Gamifying statistics education through elevated learning experience (ELX)

Maulana Faris
Building statistical literacy through digital comics

José Pinto Martins
A new statistical adventure with Exploristica 2.0

Jo Roislien
The power of moving pictures: Increasing statistical literacy through video

Next, the speakers will share short articles about their selected topic.

INDONESIA

The history of comics in building statistical literacy

Maulana Faris*

Every living thing seeks effective ways to send information to one another. This information exchange between individuals is called communication today. Some animals communicate with voice intonation, antenna touch, even a beautiful dance. Likewise, with Homo Sapiens, we continue to develop the way we communicate with each other to exchange information, from the creation of language to the written alphabet. However, the development of different languages and writing conventions in different regions has become a barrier for human communication. Humans need a universal way of communication that can be understood by all, even in different parts of the world, and thus communication through images was createsd. Humans began to use pictures to tell various stories to other humans. The oldest picture which is estimated to be more than 40,000 years old was found in a cave in South Sulawesi, Indonesia, showing a pig. One of the things that is interesting about this painting is the presence of a handprint, which is suspected to be the artist's handprint near the image of a pig. This seems to be a message for

those who lived tens of thousands of years from their era which means “hello, we have lived in this era!” A message across time for the humans of our time from the distant past.

Over tens of thousands of years, communication through images continued to develop into something more complex in a variety of different medias. About three thousand years ago, the Egyptians wrote and drew on papyrus paper to tell about their civilization at that time. In several temples there are bas-reliefs that tell various stories from the past, as well as the beliefs they adhered to at that time, such as those in the reliefs of the Indonesian Borobudur temple. Communication through pictures then developed, not only telling stories from one picture but also dividing the stories into several sequences of side-by-side picture panels, which we now know as comics. Experts agree that the first printed and mass-published comic was a comic published by Rudolphe Topffer in 1837 under the title “Les Amours de Mr. Vieux Bois”. In 1896, Richard Felton Outclaut released the world’s first comic book entitled “The Yellow Kid”. Even now various comic genres continue to develop in various parts of the world, such as “manga” in Japan which was popularized by Osamu Tezuka after the second world war ended. The manga drawing style continues to be popular as a pop culture in Japan and plays an important role in driving the economy in Japan. In today’s internet era, webtoon comics have become popular for reading on teenagers’ smartphones. One of the most popular webtoon comic producing countries is South Korea. Comics originating from Korea are commonly known as Manhwa.

In its development, comics have developed a negative stigma within various parts of the world, both in America and Japan and Indonesia. Some people think that comics can damage the younger generation and children. In 1940, Dr. Fredric Werthmam, a German-American psychiatrist, argued about the dangers of comic books for children. One of his most famous books, “Seduction of the Innocent” (1954), asserted that comic books cause teenagers to become delinquent. Even in Japan, at the beginning of the popularity of manga, some people thought that comics had a bad influence on the morale of Japanese children. But there are many academics who have a different view. University of Pittsburgh professor W.W.D. Sones in the early 1940s conducted a series of studies on the use of comic books in education. The notion of how important comics are in the world of education then gave birth to the Journal of Sociology volume 18 issue 4 in 1944, which focused on discussing topics about comics for education. Comics in the world of education began to receive serious attention in the 2000s, especially in America. University of Minnesota Physics Professor James Kakalios made various discussions of Physics in comic form. One of his famous works is The Physics of Superheroes (2005). He is also famous for his analysis of the death of Gwen Stacy in the famous Spiderman story. Comics in the world of science and education continues to grow because of the advantages in motivating children to read even about themes that are often considered heavy and difficult.

Statistics, which are considered as the foundation of all scientific research, also eventually came into contact with comics. The use of comic books in explaining statistics was popularized by Larry Gonick and Woolcott Smith in 1993 in their book “The Cartoon Guide to Statistics”. This book consisted of twelve chapters written in stages, from explanations of basic statistical concepts up to regression. Even though the proportion of text is still quite a lot compared to picture illustrations, this comic book became the forerunner of various other statistical educational comic books. In 2008, Shin Takahashi created a manga titled “The Manga Guide to Statistics”. This comic with Japanese drawing style depicted an understanding of statistics and its practice in everyday life. The comic provides science and entertainment at the same time. In contrast to Larry Gonick’s work, Shin Takahashi’s work is drawn in the form of paneled stories just like today’s popular comics. In its development, the discussion in Shin Takahashi’s comics has become more advanced, such as his comics entitled “Linear Algebra” and “Regression Analysis”. In Korea, Comic “Why?” that discussed various science themes also began to enter discussions with data scientists such as Big Data and so on. In Indonesia itself, Statistics Indonesia (BPS) makes various statistical and big data literacy comics which are published in print and digitally on social media. Comics are expected to make people more comfortable in understanding statistics.

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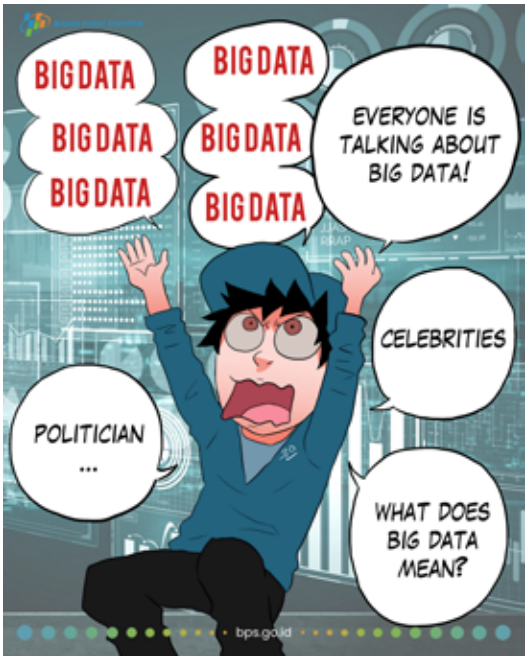
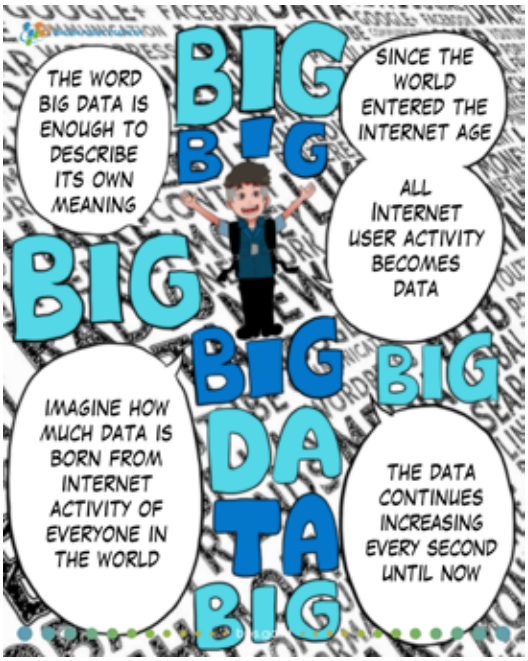
BIG DATA COMIC
Supervised by Setia Pramana
Cartooned by Maulana Faris


BIG DATA
BIG DATA
BIG DATA
BIG DATA
BIG DATA
BIG DATA
EVERYONE IS TALKING ABOUT BIG DATA!
CELEBRITIES
POLITICIAN ...
WHAT DOES BIG DATA MEAN?
bps.go.id


THE WORD BIG DATA IS ENOUGH TO DESCRIBE ITS OWN MEANING
SINCE THE WORLD ENTERED THE INTERNET AGE
ALL INTERNET USER ACTIVITY BECOMES DATA
IMAGINE HOW MUCH DATA IS BORN FROM INTERNET ACTIVITY OF EVERYONE IN THE WORLD
THE DATA CONTINUES INCREASING EVERY SECOND UNTIL NOW
BIG
BIG
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DA
TA
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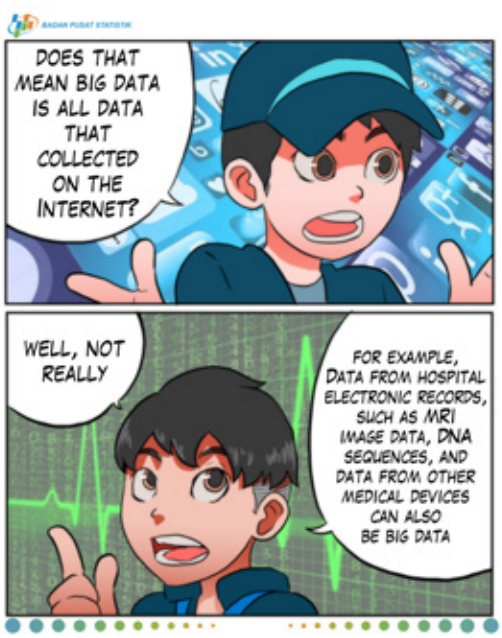
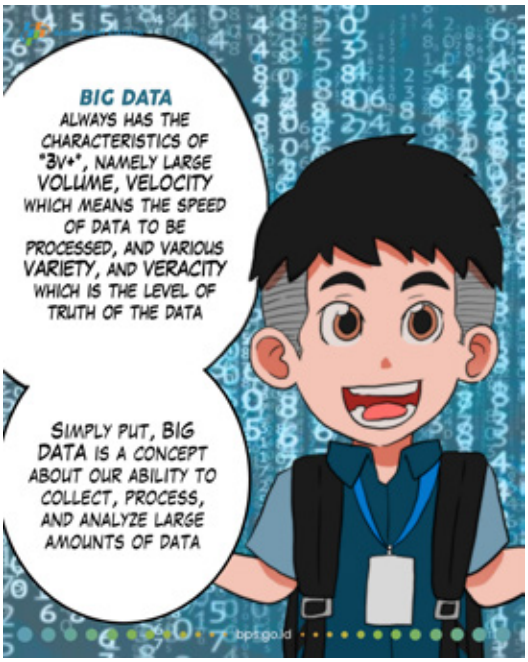

DOES THAT MEAN BIG DATA IS ALL DATA THAT COLLECTED ON THE INTERNET?
WELL, NOT REALLY
FOR EXAMPLE, DATA FROM HOSPITAL ELECTRONIC RECORDS, SUCH AS MRI IMAGE DATA, DNA SEQUENCES, AND DATA FROM OTHER MEDICAL DEVICES CAN ALSO BE BIG DATA


BIG DATA ALWAYS HAS THE CHARACTERISTICS OF "3V+", NAMELY LARGE VOLUME, VELOCITY WHICH MEANS THE SPEED OF DATA TO BE PROCESSED, AND VARIOUS VARIETY, AND VERACITY WHICH IS THE LEVEL OF TRUTH OF THE DATA
SIMPLY PUT, BIG DATA IS A CONCEPT ABOUT OUR ABILITY TO COLLECT, PROCESS, AND ANALYZE LARGE AMOUNTS OF DATA
bps.go.id


IF MY LIFE PROBLEMS CAN BE RECORDED, IT CAN BE BIG DATA TOO
WOW! WHAT IS THAT MANY PROBLEMS IN YOUR LIFE?
bps.go.id

USA

Stats+Stories podcast data visualization contest – Entries invited

John Bailer*

Do you like producing data visualizations? Do you like podcasts? If you answer 'yes' to one or both of these questions, how about an opportunity to produce a data visualization about a podcast?

The Stats + Stories podcast is about to celebrate our 300th episode. The Stats+Stories podcast started in 2013, and features conversations with guests to tell "the statistics behind the stories and the stories behind the statistics." A data set containing various information on over 280 episodes of the Stats+Stories podcast recorded over the past decade is now available. Your mission- create visualizations and tell a story with these data!

You can view the full document on the website (https://statsandstories.net/contest), as well as download the data as an Excel file or view the Key and Data as separate CSV files.

Submit your entries by filling out the form at this site. Static displays, dynamic dashboards, and insightful analyses are all invited to enter (the more unique the better). All entries must be submitted by June 30th at 12:00 AM EST. Fan voting for favorite entry will follow until August 31, 2023 at 11:59 EST. The finalist will be selected and announced the following day. The winner will be featured on the 300th episode of Stats+Stories and will receive a copy of the new book "Statistics Behind the Headlines", as well as some Stats+Stories swag.

To learn more visit
https://statsandstories.net/datavizcontest

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NORWAY

Statistics – it moves

Jo Røislien*

Humans are visual beings. Around 80 percent of our sensory impressions are registered through our eyes. Unsurprisingly, visual information dominates online, and most dominant is video. About 80 percent of all internet traffic is video. Given this central position video has in modern communication, it is a mode of communication everyone who has something important to say must learn how to master. For statistics to be part of people's everyday conversation, be it on large or small scale, nationally or internationally, we – the statistical community – need to be able to communicate statistics through moving images in such a way that people want to watch.

Made for television

About ten years ago I was asked by Norwegian tv production company to help develop and host a tv series about numbers, mathematics, and statistics for a general audience. While the idea of being able to talk about my favorite subject to hundreds of thousands of people was enthralling, the project was challenging. Mathematics is by definition abstract, while video is concrete. When you pick up a film camera and look through the lens, you want to see something. You need something to film, and this something must move. If you're just filming a person talking, you could just create a podcast. If the image is not moving, it's a photograph.

You cannot see an idea or a hypothetical situation that might have been. What you can see, however, is a representation of the idea. A metaphor. An example. Exactly how to translate abstract mathematics and statistics into concrete, moving images, with the potential of hooking hundreds of thousands of people from the general audience is rarely obvious. Cue human creativity.

Rice and rubber ducks

When I teach basic statistics at the university, I want to help students grasp the concept of randomness; the fact that "random" does not mean "pattern free" but

Photo 1: Pouring hundreds of yellow rubber ducks into an empty outdoor pool in slow motion to demonstrate what randomness really looks like.

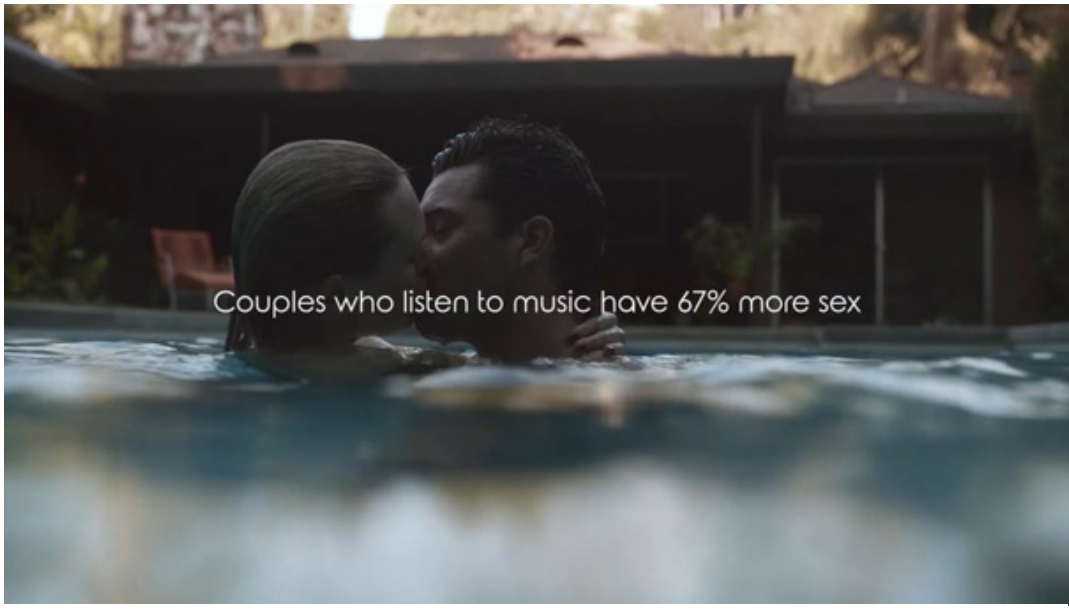

Photo 2: Screenshot from Telia ad "Everything is better with music".

rather "unpredictable". Often I will take a handful of rice and throw it onto the floor in the lecture hall, and afterwards point at rice grains on the floor forming patterns here and there. While this makes for a memorable lecture, a bland looking floor with scattered rice grains is not equally engaging on tv. When turning this live demonstration into video we kept the general idea but scaled it up. Considerably. We replaced the rice grains with bright yellow rubber ducks, and poured them out from a 10-meter-tall diving tower in an outdoor pool in the Norwegian capitol of Oslo. Hundreds of yellow rubber ducks, towards the backdrop of a bright blue pool, in slow motion, made for a striking visualization for demonstrating randomness (Figure 1). A visual image that people still talk about, ten years later.

The tv series *Siffer* (*Digits*) aired prime time on national Norwegian broadcaster NRK in 2011 to rave reviews, with 40% of tv viewers flocking to the tv screen when it ran, outperforming shows like Idol and Champions League football matches. Numbers, mathematics and statistics apparently makes for great television for the masses if done right. The series is still the benchmark for the presentation of mathematics and statistics throughout Scandinavia.

Merging popular culture and statistics

The creation of the tv series *Siffer* woke something within me. While doing my PhD in statistics I had also worked hard to be a pop star. It didn't happen – becoming a pop star is a rare event – but my love of popular culture and the arts was still there. Mass media communication of science was a place where I could combine popular culture and creativity with hard science. I took part in several tv and video productions over the years, from working with Discovery Channel, to creating artistic math movies for teenagers.

Music and health

In 2017 I moved to Los Angeles with my family. While there, I was asked by my long time movie making colleague, director Christian Holm-Glad, to take part in creating an ad for the Norwegian Telecom company Telia. It was an interesting request. Was it possible to create a short film that could say something scientific, yet entertaining and engaging, about music? It was a great opportunity to combine my love of music on the one hand, and that of being a professor of medical statistics on the other. I looked up scientific studies that had looked at the association between music and health, pulled out percentages and p-values and statistical methods, creating a list of research results that could both be easily summarized in simple numbers and was very concrete: Something film cameras could capture. From my list the director selected examples he liked and started working on visual images to go with the numbers. In order to connect with people, you have to speak to their emotions. Numbers do not do that by themselves, but paired with the right visuals, the power of the numbers can be brought forward. The ad "Telia – music freedom" was a huge hit when it was released (Figure 2). The core of the film is a list of statistics, but the presentation attaches emotions to the numbers, bringing the abstract percentages into the concrete lives of people, and moves something in us all.

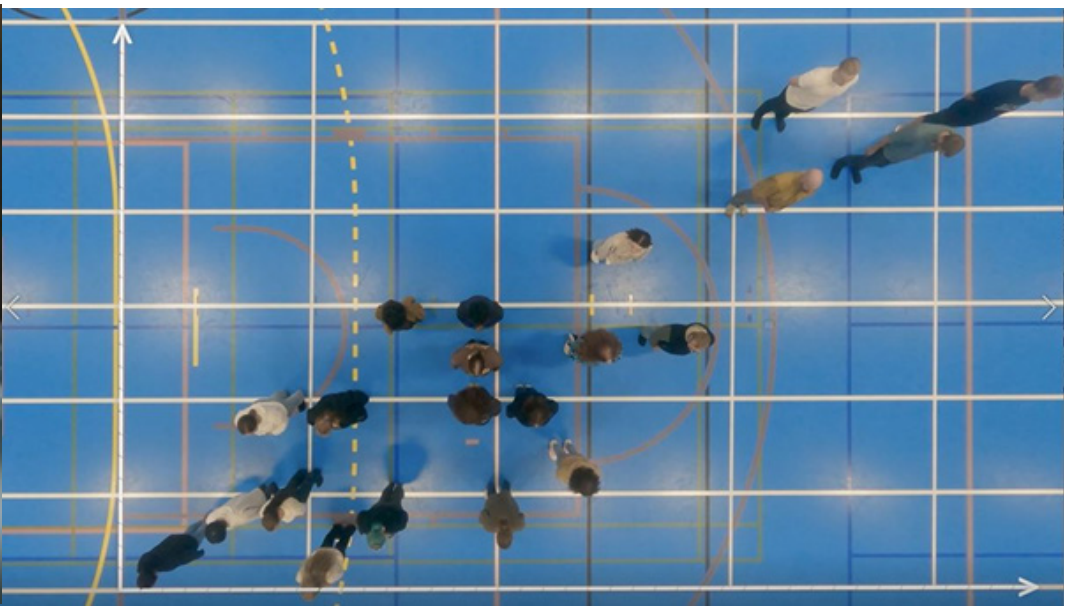

Photo 3: 'The human scatterplot' where individual humans make up the dots in the scatterplot of height vs shoe size.

Lessons learned from mass media communication

That is one of the most important things I have taken with me from working in mass media communication for more than a decade. The importance of being concrete, of telling little stories that people can engage with, and not being afraid of appealing to human emotions. Humans aren't machines, and if we are to connect with them – even with abstract and objective topics like mathematics or statistics – humans must be approached like that: as human beings.

As a professor of medical statistics I care about teaching statistics, but working at a health faculty, filled with nurses and paramedics and other students who don't see themselves as belonging to the maths savvy part of the population – rather, they often identify themselves as opposed to that – I have had to rebuild my teaching of basic statistics, in order to make the students I encounter ready for learning. Video has been an essential communicative tool for me to make that happen.

From television to teaching

When I in 2021 was contacted by MatRIC – Center for Research, Innovation and Coordination of Mathematics Teaching – at the University in Agder, Norway, to create a set of videos to be used when teaching classes in basic stats, I brought my mass media knowhow with me. While budgets for creating these videos were limited, compared to producing a TV series for a national broadcaster or an ad for a large commercial company, the task and the creative toolbox for making the viewers want to engage with the content was the same. Make statistics concrete, tell stories, and make people feel something.

The result of the creative film making process was 16 short movies – with a hope of creating more videos in the future to cover even more statistical ground – where we use cardboard boxes, wooden blocks, bags of pearls, and tens of students as extras – in order to make statistics come alive (Figure 3). Even before promoting the videos properly, teachers and students are embracing them.

The power of video

Video is an extremely powerful communicative tool. It is more resource demanding than many other means of communication, but the potential reward is similarly large. And, yes, even statistics can make for great visual content that people will choose to watch and enjoy.

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Photo 1. José Pinto Martins and Pedro Campos.

PORTUGAL

A new statistical adventure with Exploristica 2.0

José Pinto Martins* and Pedro Campos**

Explorística (version 2.0) (https://exploristica.scl.pt/) is a new itinerant exploratory exhibition, virtual (web) and physical, consisting of different interactive modules (including tangible and computer manipulatives) with the aim of bringing the fundamentals of statistics and probability toin primary and secondary schools.

The main concepts to be taught are: sampling and census, location and dispersion measures (mean, median, standard deviation), graphs (box and whiskers, bar charts, histograms), random and non-random sampling, relative frequency and probability.

Explorística describes five important phases of the statistical process- selecting, collecting, describing, estimatinge and interpreting- and is organised into six modules that present their content in the form of games and other interactive experiences.

The target group of Explorística 2.0 are teachers and students of upper primary and secondary schools (12 to 18 years old).

All these modules (games) have been developed and made available in two environments:

a) physical, with touch screens and other physical interfaces, such as joysticks, buttons, pumps, etc;

b) Internet, browser based. Anyone connected to the Internet can play the games using a computer and a browser (https://exploristica.scl.pt/).

The previous version (version 1.0) of Explorística was created in 2013 by the Portuguese Statistical Society with the support of Ciência Viva, the Portuguese Agency for the Dissemination of Scientific Culture.

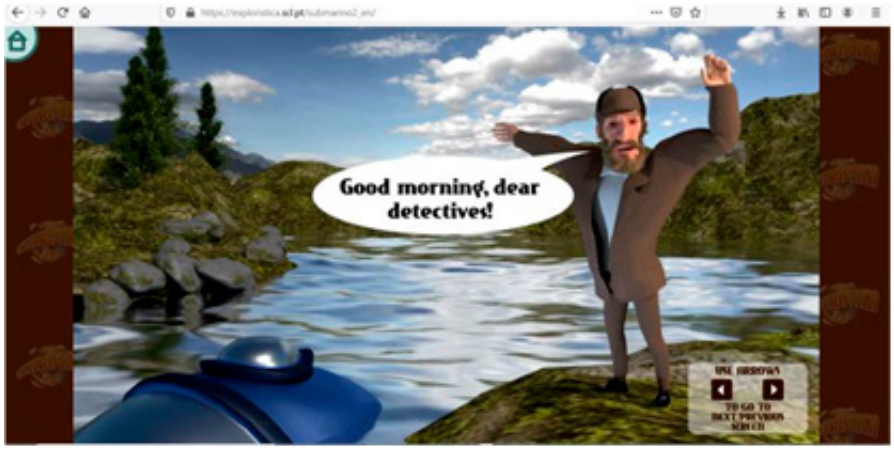
Modules that make up Exploristica 2.0:

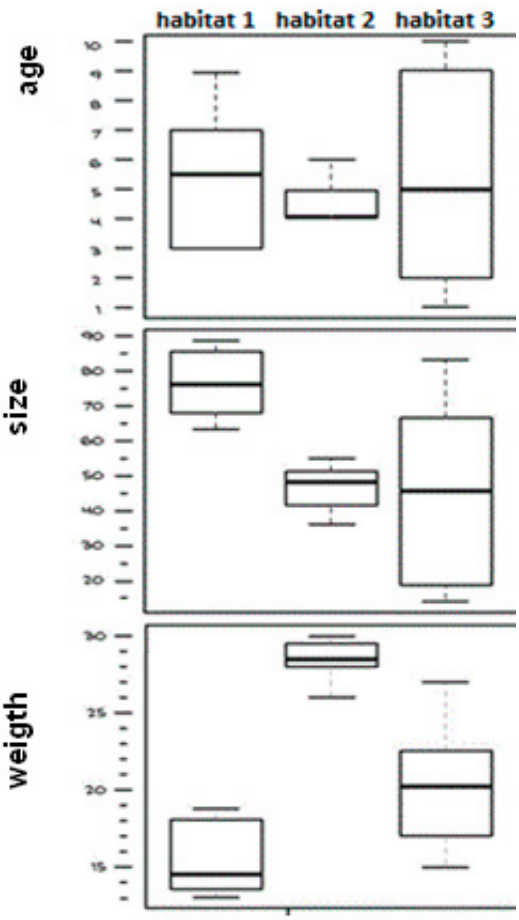
Watch - It is necessary to operate a watch manufacturing machine. Some of the watches produced in this factory are defective and it is necessary to check the pressure of the machine and evaluate the quality control of the whole production. It is intended for players to be aware of the statistical measures most commonly usedmost used in industrial control charts (mean, median and standard deviation).

Dr Odd - This is a Cluedo-style game where probability studies are used to solve a crime. Dr Odd has been murdered in his villa. There are five weapons, which must be discovered, that may have been used in the crime. On the other hand, there are six suspects. You must know the probability of each weapon being the murder weapon and the probability of each suspect using each weapon.

Players must calculate which of the suspects is most likely to be the murderer. This module aims to explain the use of conditioned probabilities and the usefulness of the Venn diagram in this context.

Conga - With the elections approaching, the president of the local council, D. Stimacione (the villain), wants to know if he can be re-elected. With the help of Conga, the gorilla, a sample is taken, first by convenience and then by random sampling, to show how different the results of these two types of sampling are when trying to estimate the expected number of votes for Mr Stimacione.





The Key - This module consists of a transparent dome. Inside the dome there are 100 small cubes with a circle drawn inside a square. The player presses and holds down a button which throws and shuffles the cubes as they fly around the dome and fall randomly. The player counts how many cubes have fallen outside the circle. The player checks that the ratio between the number of cubes in both areas is pi/4. The player must repeat the procedure to check that the ratio between the cubes inside and outside the circle is approximately constant.

The challenge is to match the result with keys inscribed with numbers to find the one that opens a secret door.

Patchwork - After a bank robbery, pieces of cloth are found in a nearby garden and several suspects are arrested whose trousers were torn by a dog as they ran through the garden. The player has to collect pieces of fabric from the scene so that they can be used as a representative sample. Using the pattern shown by this sample, he tries to identify the robber by looking at his torn clothes.

Submarine - A submarine trip in a lake where the user must steer the submarine and catch specimens (one at a time) with a claw on the front of the submarine. Participants weigh, measure, and identify the sex and age of each specimen they catch (and then return to the water). This data collection is followed by an explanation of how to draw a graph of extremes and quartiles.

There are three different subspecies of the reptile in the same lake, which can be distinguished by their main characteristics (measured weight, age, size, and sex). The players have tomust make box plots of these variables and compare them with the box plots of the population data to identify the subspecies. Players who identify the true subpopulation can win the game. Although the use of boxplots makes them particularly difficult for young students to use in authentic contexts, they are a very important graphical representation that cannot be ignored as a statistical tool. In addition, box plots can be seen as a kind of probability measure, as they allow sample data to be compared with the population.

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AUSTRALIA

ISLP presents:

Advisory board member

Professor Peter Howley*

Professional perspective

"Every system is perfectly designed to create the outcomes it produces".

Whether it is healthcare, education, industry, business, government, sports, a personal endeavour or other context, the benefits from a systems thinking, improvement-focussed, human-centric, statistical mindset cannot be overestimated.

Background

Professor of Statistics and Systems Improvement, Peter Howley is a national and international leader and award winning academic and practitioner of statistics, systems thinking, and integrated STEM (Science, Technology, Engineering, Mathematics).

Peter's expertise and accomplishments span the research, teaching, service, and professional consultant fields.

His expertise and accomplishments has assumed local, national and international leadership positions on advisory boards and in executive roles, working and liaising with national organisations and professionals in health, industry, education, and government, including CEOs, executive boards, media, politicians and dignitaries, and strategically aligning with, leveraging and/or impacting international and national initiatives and policy across various domains.

Such roles have included as an inaugural Science and Technology Australia STEM Ambassador, Assistant Dean for Outreach and Engagement, inaugural University STEMM (STEM + Medicine) Ambassador, expert advisor to the Australian Curriculum, Assessment and Reporting Authority (ACARA) and other State/Territory Education Leaders, and Director of the national Science and Engineering Challenge.

Peter is the creator and coordinator of Australia's National Schools Poster Competition, delivered annually since 2014, and many other leading STEM and Education initiatives and resources. He has also initiated, led and created successful postgraduate (and undergraduate) programs and courses in Data Analytics, Data Science, Integrated STEMM, Statistics, Total Quality Management and Systems thinking.

Peter received a 2015 national Office for Learning and Teaching Citation for Outstanding Contributions to Student Learning, the 2017 International Statistical Institute's Best Cooperative Project Award, and the 2018 Statistical Society of Australia's Service Award.

Peter's practical contemporary research in healthcare has fueled the development of robust health care systems, improved public health, and healthcare modelling of national and international significance. This has included Bayesian hierarchical modelling and its application to foster quality improvement activity in national and international health care through improved methods for analysing, reporting and monitoring clinical indicator data.

He has worked collaboratively with the Australian Council on Health Care Standards, Taipei Medical University, Taiwan Health, Health Services Research Group, Hunter Medical Research Institute, AMPControl, STEM Industry Schools Partnership (NSW Dept of Education), and many other organisations, universities, and interdisciplinary colleagues.

With a focus on systems and performance improvement, Peter is an advocate for and leader of practical collaborative initiatives which leverage synergies and data, and he has engaged in multidisciplinary collaborations across the healthcare, education, equity, science, STEM, business, management and industry spheres, achieving some $3 million in grants as lead or co-lead. His publications, grants and consulting span these fields, with many ERA A*/A/SCImago Q1, invited journal publications, and invited book chapters.

Current

Peter continues to be the National Chair of Statistical Education (Statistical Society of Australia), an elected member of the International Statistical Institute, Vice President of the Hunter Innovation and Science Hub, International Congress of Mathematical Education 2024 Ambassador, and steering committee member for the Royal Statistical Society's Centre for Statistics and Data Science Education.

Peter has moved on from his substantive academic position, and provides freelance consulting, support and upskilling for professionals and organisations from healthcare, education (including schools), industry, and so forth, employing statistics, systems thinking, process and quality improvement, total quality management, leveraging synergies, integrated STEM, and leadership through the lens of statistics and data.

Such work includes being the statistical research lead for the Hunter Surgical Clinical Research Unit and other Medical Centres, and supporting individual clinician and medical professional projects nationally, and internationally, as well as being Program Director of *StepChange* (MCB Business Partners) for Industry and Education.

In 2023, Emeritus Professor Tim Roberts AM and Professor Peter Howley, are expanding on previous work and delivering a national initiative to Primary and Secondary Schools entitled "Preparing for Industry 5.0 and beyond in light of COVID19- facilitating the cradle-to-career life cycle" having received a Commonwealth Grant from the Australian Government's Department of Education's Emerging Priorities Program for their project proposal.

The initiative builds upon Peter's annual National Schools Poster Competition and involves national online teacher professional development and student workshops on Statistics, Systems thinking, Sustainability, and STEM. These activities will teach cross-functional skills which are core to the emerging workforce and Industry 5.0 and support national curriculum learning outcomes.

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LIECHTENSTEIN

New country coordinator: Liechenstein

Adina Tellenbach*

I am a member of the Statistics Office of Liechtenstein, where I am responsible for health data and statistical literacy. I completed the Master's in Sociology at the University of Bern in Switzerland, where I had the opportunity to dive into different methods to examine social topics.

Besides the interesting outcomes of studies regarding economics, equality, environmental behavior or any other social challenge, the way of getting there has just as much impact on what information we get and how it makes us feel about the conditions we live in. With the broad availability of data today I believe it is necessary to develop competence in handling the stream of information with which we are confronted.

In Liechtenstein, statistics is only taught as a main subject to those students who are especially interested in mathematics. I am looking forward to getting involved with the building of a broader audience amongst students and others to enhance our understanding of society and our possibilities in it.

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BRASIL

Researchers in statistical education on exchange around the world

Our ISLP colleague Professor Mauren Porciúncula is on an exchange program in New Zealand for 6 months. We share here the news of the weekly newsletter of the Victoria University of Wellington, in New Zealand.

Mauren Porciúncula* is a Statistics Professor at the Institute of Mathematics, Statistics and Physics- IMEF, at the Federal University of Rio Grande, in Brazil.

She has just arrived at the School of Education at Te Herenga Waka – Victoria University of Wellington to develop her post-doctorate research entitled "Scientific, technological and innovative development: a partnership between Brazil and New Zealand for the production and dissemination of Social and Educational Technologies for Statistical Literacy" with professor Robin Averill.

She is a Productivity Researcher from the National Council for Scientific and Technological Development (CNPq), in Brazil. She develops activities at the Laboratory of Cognitive Studies and Technologies in Statistical Education (LabEst), at the Innovation Center of Statistical Education (ICE) www.ice.furg.br https://www.instagram.com/icefurg/.

Mauren is the author of books such as "Statistical Multimedia Literacy – LeME: Statistical Learning Projects in Basic and Higher Education", which will soon have an e-book launched by Apprís Publisher, in Spanish and in English.

In Brazil, she was coordinator and is a professor at the Post Graduate Program in Science Education (PPGEC) www.ppgec2.furg.br. She leads the International Research Group on Statistical Education (GIIPEE). Here at Te Herenga Waka – Victoria University of Wellington she is initially investigating the New Zealand Curriculum, especially in Mathematics and Statistics Area. But more news is coming...

Mauren is also the Coordinator of the Statistical Multimedia Literacy Program (LeME) Program and associated Projects. The program won the Best Cooperative Project Award from the ISLP and the International Association for Statistical Education (IASE), in 2019, https://iase-web.org/islp/Competitions.php?p=Best_Cooperative_Project_2019.

She was recently biographed in this book, which tells the story of researchers in Statistical Education in Brazil. In this book, she was the author of one of the opening chapters, where she wrote the history of statistical education research in the world. Mauren is also the author of articles such as STATISTICAL LITERACY: A STRATEGY TO PROMOTE SOCIAL JUSTICE. http://funes.uniandes.edu.co/27285/1/Porciuncula2019Statistical.pdf

Mauren Porciúncula is Country Coordinator of the International Statistical Literacy Project (ISLP) of the International Association for Statistical Education (IASE) https://iase-web.org/islp/People.php?p=Country_Coordinators. She is co-founder of Projects and Social and Educational Technologies for Statistical Education, such as the Statistics Learning Room (SalAEst) –

https://www.furg.br/noticias/noticias-institucional/professora-do-imef-e-finalista-de-premio-e-vira-case-de-pesquisa-da-universidade-de-harvard, the Technological Support Program for Playful and Interactive Statistics Education (ATELIE) https://www.instagram.com/ateliefurg/, the Collaborative Group for Teacher Training in Statistics Education (MoSaiCo Edu) www.mosaico.furg.br, and the International forum for early career researchers in statistics education (INCREASE), which was created and implemented in partnership with Carlos Monteiro and Iddo Gal. She is also Associate Editor of

the Statistical Education Research Journal (SERJ) https://iase-web.org/ojs/SERJ/about/editorialTeam. And she is in New Zealand to learn more, and better collaborate with the development of research in the world.

Mauren has been in New Zealand in 2013, participating in an Event organized by the New Zealand Association of Mathematics Teacher (NZAMT). In this, she had the opportunity to participate in a Probability and Statistics Workshop, offered by Robin Averill. According to her, she was delighted with the creativity of the activities proposed by the professor, and with her generosity and didactics in explaining and encouraging other professors to develop activities that would allow the student to be a protagonist. In search of learning and sharing their knowledge, it is the reason that brings her back to New Zealand.

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ARGENTINA

Coloquio Argentino de Estadística (CAE) y VIII Jornada de Educación en Estadística "Martha Aliaga" (JEE)

Adriana D'Amelio*

La Sociedad Argentina de Estadística y la Facultad de Ciencias Económicas de la Universidad Nacional de Cuyo invitan a participar del **L Coloquio Argentino de Estadística (CAE) y VIII Jornada de Educación en Estadística "Martha Aliaga" (JEE)**, que se llevará a cabo entre los días 3, 4, 5 y 6 de octubre 2023, en la modalidad presencial.

Todas las actividades se desarrollarán en dependencias de la **Facultad de Ciencias Económicas** de la **UNCuyo**, Centro Universitario Parque General San Martin, Ciudad, Mendoza.

El día **3 de octubre** estará destinado a la **VIII JEE**, mientras que, durante los días **4, 5 y 6** se realizará el **L CAE** contando con conferencistas invitados, mini-cursos, presentación de comunicaciones y pósteres.

Para más información, dirigirse a la página web del coloquio, https://sites.google.com/view/lcaeviiijee/inicio?authuser=0

aquí, o escriba a coloquio.sae2023@fce.uncu.edu.ar

https://sce.org.co/anuncio-ii-congreso-colombiano-de-estadistica-xv-congreso-latinoamericano-de-sociedades-de-estadistica-clatse/

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AUSTRALIA

15th International Congress on Mathematical Education (ICME), Sydney, Australia (7 – 14 July, 2024):

Come and be counted

Topic Study Group Paper and Poster submissions – close 18 August, 2023

Peter Howley*

The International Congress on Mathematical Education is the largest international conference on mathematics education in the world.

ICME-15 is for everyone involved in mathematics/statistics education – researchers, teachers at all levels, teacher educators, administrators, curriculum developers, and resource producers.

Connected by a shared passion for mathematics and statistics education, this event will bring together colleagues from more than 100 countries around the world.

This will be only the second time the Congress has been held in the southern hemisphere, the other being in Adelaide in 1984.

As such, ICME-15 is a particular opportunity for those in the Asia-Pacific region to connect with the global mathematics education community.

"Topic Study Groups (TSGs) are a unique opportunity to collaboratively explore classic and contemporary topics relevant to mathematics education through the submission of papers, session-based discussions, and report synthesis."

A list of the 54 TSGs is available online. TSG Submission and proposal requirements are available at https://icme15.org/wp-content/uploads/2023/06/ICME-2024-2ND-ANNOUNCEMENT-V2_HI-RES.pdf (page 26).

Examples of those that may interest the ISLP community, include:

- TSG 1.7: Teaching and learning of statistics
  Co-Chairs: Peter Howley, Mauren Porciuncula
- TSG 1.6: Teaching and learning of probability
  Chair: Mathieu Thibault
- Topic Study Group 3.18: Data science teaching and learning
  Co-Chairs: Daniel Frischemeier, Michelle Wilkerson.
- TSG 1.3: Teaching and learning of algebra at secondary and tertiary levels
  Co-Chairs: Lynda Ball, Ami Mamolo
- TSG 3.2: Mathematics education at tertiary level
  Co-Chairs: Nadia Azrou, Elena Nardi
- TSG 3.8: The role and the use of technology in the teaching and learning of mathematics at upper secondary and tertiary level
  Co-Chairs: Alison Clark-Wilson, Allen Leung

Additionally, *"Surveys teams are commissioned by the IPC to examine new developments and progress on specific themes and issues that have arisen in mathematics education during recent ICMEs".*

Examples of those that may interest SSA members, includes:

- Survey 2: Mathematics education and Indigenous perspectives
- Survey 3: Statistics and data science education as a vehicle for empowering citizens

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