EDITORIAL

Statistical literacy
– who's problem is it?

Steve MacFeely*

For many years I have been involved, in one way or another, in the movement to improve statistical literacy. This work began at the Central Statistics Office in Ireland back in 2010 with the launch of the *John Hooper Medal Competition* (the national competition to select the Irish entries to the ISLP poster competition) and the Professional Diploma in Official Statistics. I got involved because I had become convinced that statistical literacy was of critical importance in today's information age and that national statistical offices had a responsibility to this cause. This wasn't purely altruistic – in my view NSOs will be downstream beneficiaries of improved statistical (and data) literacy. I would also argue that NSOs are better positioned than any other institution, including educational organisations or statistical societies, to organize and run statistical literacy programmes, as they have the organizational and technical skills, the data and content, the dissemination channels and are tied to the wider media networks and public administration. With the recent attention being placed on AI, I am more convinced than ever that statistical and data literacy is critical, as there is no AI governance without data governance. But many people of influence don't understand this.

At OECD, like many international organisations, we are concerned by the proliferation of multiple data sources, many of poor or unknown quality. We are also concerned by the rise of mis- and dis-information in public discourse. We combat this as best we can by producing and disseminating high quality, internationally comparable statistics, accompanied by accurate

metadata. But these efforts have not been enough. We are now investigating using AI to track the use of our statistics on large IT platforms and websites to ensure our statistics are being presented and described accurately. We are also considering our role in improving statistical literacy. I noted above my view that national statistical offices had a responsibility to improving statistical literacy. The same applies for international organisations, although the avenues are less obvious. Nevertheless, it is a topic of some interest at OECD.

This brings me to the ISLP project. For many years I had the privilege of serving as a director on the ISLP executive. I got to understand firsthand the wonderful work being done by country coordinators around the world. I also shared in the frustrations of the executive when insufficient funds didn't allow us to realise our ambitions. Today, as chair of the advisory board, I work with the ISLP project executive and board, and with the ISI, to try and find solutions to several challenges – but not least funding. I retain huge admiration for, and give my thanks to, all of the volunteers that make the ISLP project special. The project itself has many facets, but my first love is always with the schools competition. If we can teach children the joy of numbers, the joy of asking and answering questions, then we really will have achieved something special.

So as the year draws to a close, I again give my heartfelt thanks to all involved. I wish you a joyful holiday season wherever you are. Lets come back in the New Year with renewed energy and continue to improve statistical literacy in every way we can.

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Season's Greetings and Happy New Year 2025 from the ISLP project

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Thank you!

USA

My statistics life

Juana Sanchez*

I am deeply grateful to the ISLP for inviting me to contribute this article about my statistical journey. Reflecting on my experiences, I realize that questioning and using data for insights have been integral to my mindset since childhood, weaving through every phase of my journey. This narrative focuses on some aspects and individuals that influenced subsequent stages of my journey or left an indelible mark on my statistics career. For more detailed information, my curriculum vitae and personal website [11], the publications page of the IASE website [45], and the ISLP Newsletters from 2008 to 2009 [9] provide additional insights

1. The chapter of my statistical journey involving the ISLP

As detailed in the history of the ISLP [1], I served as director from 2007 to 2009, a role that remains one of the most significant honors of my professional life in statistics. The experience at the ISLP profoundly influenced my approach to teaching through its rich array of meticulously curated and evidence-based teaching resources posted in a wiki webpage, as well as its community of esteemed educators and advocates for statistical literacy from around the globe. Engaging with passionate individuals who

are dedicated to promoting statistical literacy for learners and residents in their respective countries was truly transformative.

I had the privilege of collaborating with longstanding members of the current Executive Committee of the ISLP to advance its mission: partnering with Pedro Campos to organize the pilot statistical literacy competition in Portugal in 2007 [2][3] and with Reija Helenius, Adriana D'Amelio and Pedro to orchestrate the comprehensive First International Statistical Literacy Competition spanning 2008-2009 [4]. Additionally, I worked closely with other advisory board members of that period, who contributed invaluable statistical literacy resources, translated documents for educators and learners participating in training and competitions, managed the competitions in their respective countries, and offered guidance and contacts. While too numerous to list individually here, all advisory board members in 2009 are detailed in Appendix 1. It was an honor to collaborate with such distinguished representatives from so many countries, many of whom have been integral to the ISLP's remarkable growth under Reija Helenius' leadership since 2009. Gratitude is owed to the International Statistical Institute (ISI), Luigi Biggeri (1994-2002) and the late Carol Blumberg (2003-2006) for planting the seeds of this pivotal project before my tenure as the ISLP's director began [1, 46].

During my tenure at the ISLP from 2007 to 2009, the International Association of Statistics Education (IASE) Presidents were Gilberte Schuyten (2005-2007, depicted in Figure 1) and Allan Rossman (2007-2009, depicted in Figure 2). At the same time, the ISI was led by its first female president

Figure 1.
Gilberte Schuyten, IASE President (2005-2007).

and advocate for statistical literacy, Denise A. Lievesley (2007-2009). The ISI's Permanent Office, particularly Shabani Mehta, provided essential

Figure 2. From left to right: Chris Wild (New Zealand), Allan Rossman (USA), Mary Townsend (Canada) and Richard Scheaffer (USA), all of them members of the ISLP advisory board during my tenure as director. They spoke about international statistics school curricula at the 2008 invited session organized by the ISLP for the 2008 ASA annual meeting in Denver, Colorado, USA [52]. The hand on the left belongs to the discussant, Tim Hesterberg (USA).

Figure 3. ISIBALO ambassador teacher, the late Professor Kambule, addresses the delegates of the 26th ISI's World Statistics Congress in Lisbon, Portugal, 2007, during the announcement of the hosts of the 27th Congress. Left to right: Pali Lehohla (Statistician General and ISI Vice-president), Trevor Manuel (South African Minister responsible for Statistics) and ISIBALO ambassador teacher Mrs. Kwelane.

administrative support throughout the period, managing donations from sponsors, overseeing some of the competition prizes, drafting waivers for the final of the competition and endorsement letters for institutions. The ISIBALO capacity building program of Statistics South Africa [5] was a source of inspiration and crucial support for the 2008-2009

competition. ISIBALO not only coordinated phases 1 and 2 in Africa but also hosted international learners and teachers during the final competition in Durban, South Africa, for an entire week during the ISI's 57th Congress (ISI 57). The foundational support for all these efforts stemmed from ISI's 56th World Statistical Congress (ISI 56) in Lisbon, Portugal, an event captured in Figure 3.

At ISI 56, Pali Lehohla, who served as Chief Statistician of Statistics South Africa (2000-2017) and Vice President of the ISI (2009-2013), a longstanding advocate for statistical capacity building in Africa, made a profound announcement. He emphasized that teachers, numeracy and statistical education would be central to the upcoming ISI 27 in 2009. This declaration, made in front of a gathering primarily composed of research-oriented statisticians, was unprecedented and deeply moving for me. It inspired me to approach ISIBALO and propose hosting the final of the 2008-2009 competition. To my delight, they agreed, marking the beginning of a robust and fruitful collaboration.

In addition to participating in the individual statistical literacy competition in Durban, South Africa during ISI 57, international and South African students conducted a survey of the ISI delegates at the Durban Convention Center. They also presented a poster demonstrating their statistical findings in the convention center lobby, as depicted in Figure 4. A South African learner delivered a PowerPoint presentation of the findings at the closing ceremony of ISI 57, in front of all the ISI Congress delegates. The survey comprised three sections with questions crafted by the learners and teachers during group discussions. These sections included demographic questions (such as degree, tenure with ISI, time taken to excel in statistics, etc.), queries about the delegates' opinions on ISI 57 (including reasons for attending and their conference experience), and general opinion questions (like explaining the significance of statistics in development and their plans to support the next generation in statistics).

Figure 4. Left. Naomi Robbins (USA, in blue) [6], the late Jean Claude Girard (advisory board member representing France – in yellow), International Statistical Literacy Competition participants (in green) and a South African teacher (leftmost) work together on the data obtained from a survey that learners designed to survey the delegates at the 57th ISI. Right: Learners look at each other's posters summarizing the data collected from the ISI 57 delegates. The survey was designed in a group discussion among the learners, the teachers and the organizers.

During the week organized by our hosts, learners also took part in the Soccer4Schools program. While finalist learners engaged in outdoor soccer training exercises led by soccer legend Johnny Masegela, others were tasked with collecting data from these activities. Subsequently, the learners conducted a statistical analysis of the soccer training data to address pertinent questions. They were introduced to modern statistical graphics for this purpose, guided by experts in statistical graphics Naomi Robbins [6] and Diane Cook [7]. The late advisory board member Jean Claude Girard, along with teachers of competition participants, learners and other facilitators, collaborated to discuss interpretations of the graphs and find answers to their questions. Figure 5 illustrates one of the South African learners who participated in the competition constructing and interpreting modern graphical summaries of the data, leading discussions alongside Di Cook. A detailed description of the soccer data activity conducted during ISI 27 with competition participants can be found in [8].

Surveys and student-led data collection to address inquiries using statistics or probability have been fundamental in my teaching pedagogy across various classes and school years. However, as a global citizen, witnessing the engagement with data among an international cohort of learners in South Africa left me profoundly optimistic about the world.

For further insights into the activities of the ISLP community between 2008 and 2009, additional summaries can be found in the newsletters of those years [9], the ISLP history [1,46] and publications found in the IASE Publications website [45].

1.1 Participation at conferences and publications to promote the ISLP

I have always enjoyed participating in conferences. The sense of being part of a community in my field, instilled in me during secondary education and such an important ingredient in the retention of learners in the sciences, engineering and mathematics fields, has always been a significant motivator. Unlike my conference participations before 2007, those from 2007 to 2009 were centered on promoting the ISLP and expanding the group of people interested in the

Figure 5. Learners participating in the First International Statistical Literacy Competition in Durban, South Africa, during ISI 57 also participated in the Soccer4Schools data collection activity in the field and analyzed the collected data as a group. On the left, Dianne Cook, in the background, and one of the learners guided the discussion and the graphing. For a detailed account of the data and the analysis done, first manually, and then with computers, see an article we wrote with the details of the activity [8].

project. I even participated in conferences that were new to me, such as the 50th Annual Conference of the South African Statistical Association (SASA2007), in Misty Hills Conference Center, Muldersdrift, South Africa in October 2007. It was not uncommon to see me wearing t shirts and carrying bags with the ISLP competition's logo or handing out brochures and flyers advertising the competition. I also displayed banners with the ISLP logo in the halls of various meetings, including the American Statistical Association (ASA)'s joint statistical meetings [51] and USCOTS [54]. My presentations during those years were also primarily about the ISLP. Figure 6 shows me with an ISLP t-shirt next to Maria Manuel da Silva Nascimento, who was deeply involved in the statistical competitions and the advisory board and, like Pedro Campos, made me feel very welcome in Portugal. Figure 7 shows one of my poster presentations at the ASA's joint meetings. There were many more presentations, that I cite in my CV under publications, presentations, and invited presentations sections [11], all promoting the ISLP. Some publications were mandatory for my role, such as reporting to the IASE insert in the ISI Newsletter, IASE matters, Hipótesis Alternativa - Boletín de IASE para América Latina, and the ISLP newsletter, to inform everyone of what the ISLP was doing. Others

Figure 6. Posing with Maria Manuel da Silva Nascimento (left), member of the ISLP advisory board (2007-2009), during a cloudy and humid day in Monterrey, Mexico 2008, where we participated in the Encuentro Latinoamericano de Educacion Estadistica (ELEE) featured in [10]. Photo taken by Vicente Novegil Soto (also in the advisory board).
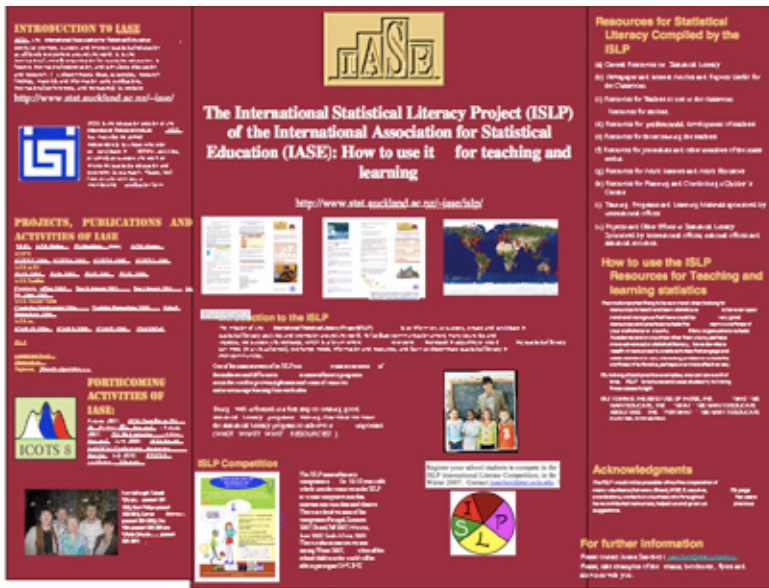
Figure 7. Left: Poster promoting the ISLP, presented at the Joint Statistical Meeting of the American Statistical Association in Salt Lake City, Utah, USA, 2007. Right: Larry Weldon (Canada), member of the ISLP advisory board.

Figure 8. Some members of the ISLP. Advisory Board at the ISI's 57th World Congress in Durban, South Africa. From left to right: Hugo Hernandez (Mexico), Rene Smulders (Netherlands), Alan Rossman (Ex-officio, U.S., President of IASE), Juana Sanchez (ISLP Director), Sharlene Forbes (New Zealand), Helen MacGillivray (Ex-officio, Australia, President-Elect of IASE), Adriana D'Amelio (Argentina) and Pedro Campos(Portugal).

were part of conference proceedings, also listed in [11]. Along with members of the advisory board, we also published online books. We discussed all these matters at our advisory board meeting held during major conferences. Figure 8 shows some of the members who attended the advisory board meeting held during ISI 27.

1.2 The unexpected

When I was appointed Director of the ISLP in the Fall of 2006, the expectation was that I would continue coordinating and expanding the website of resources and the group of interested individuals that the late Carol Blumberg had established before 2007 in her role as ISLP coordinator. However, as discussed in this section and the history of the ISLP [1] from 2007 onward shows, I felt that this was not sufficient for my contribution.

There was one unexpected outcome of the position. I began receiving invitations to conferences, workshops and seminars, which I attended solely because I was directing the ISLP. Those invitations were addressed to the ISLP and made me realize that those responsible for promoting numeracy and statistical literacy elsewhere considered the ISLP an equal player deserving a seat at the table.

For example, in 2007, I was invited in an advisory role to the Organization for Economic Cooperation and Development (OECD)'s *Seminar on Innovative Approaches to Turning Statistics into Knowledge*, held in Stockholm from May 26-27. An account of this groundbreaking conference, which featured innovative case studies promoting statistical literacy with the latest interactive graphs, was published by Thygesen and Sundgren (2008) [12]. The exposure to these creative and modern ways of transforming information into knowledge was breathtaking. Those conferences are still held annually.

Additionally, I was invited and offered funding by Bernard L. Madison, then PMET-codirector on behalf of the PMET Project of the Mathematical Association of America to participate in their *Quantitative Literacy and Its Implications for Teacher Education conference* from June 23-25, 2007, at the Johnson Foundation's Wingspread Conference Center in Racine, Wisconsin. The conference aimed to explore educational solutions to the increasing quantitative reasoning demands on United States residents, focusing particularly on the education of teachers. Madison and Steen (2008) [13] is an account of this conference.

There was one additional invitation that sprang from my role as ISLP director, but I will refer to it in Section 4.3 of this narrative because it also involves the Department of Statistics and Data Science (UCLA StatsDS) at the University of California Los Angeles (UCLA) where I have taught since 1999.

2. Origins of my statistics journey

Summary statistics on educational attainment released by the United States Census Bureau in 2022 reveal that in 2021 only 23.5% of the population had a bachelor's degree (an undergraduate degree) and 14.4% had a master's or doctoral degree [14]. Having spent 40 years of my life on a U.S. university campus, these figures always give me pause. However, everything is relative. Compared to the approximately 5% who had a bachelor's degree during my childhood in southern Spain in the late 1950s and early 1960s, the U.S. in 2022 was in better shape regarding higher education. Many children where I grew up did not have the opportunity to attend high school. I would have been one of them if not for my loving grandmother, which declared that I would attend the Instituto (in Spain, at that time, an Instituto was equivalent to secondary education, middle and high school in the U.S.). I felt immense pride in my anticipated future at the Instituto and was convinced that I belonged there. This sense of belonging is a powerful

motivator for a child's educational aspirations. It took many unsung heroes to help me reach the Instituto, but against all odds, it happened.

Statistics is the science of data, and my passion for data collection and learning from data dates back to the late 1960s and early 1970s. At the school where I completed my middle and high school education, at university seminars, and at my neighborhood's civic association, scientific decision-making and civic change were driven by transforming data into knowledge that informed decisions.

2.1 Secondary education

I attended the public Instituto Infanta Isabel de Aragon for women in Barcelona, Spain. The headmaster, natural science teacher, and mentor, the late Maria dels Angels Ferrer i Sensat, daughter of Rosa Sensat [15], along with most of the teachers she employed, inspired in me a deep curiosity about the natural world. They taught me to think and act like a scientist and to value learning from data and effective teaching methods. At the Rosa Sensat Teacher-training School in Barcelona, where most of my teachers came from, there was a strong emphasis on active, student-centered learning, with direct interaction with nature, encouraging a love of learning for its own sake, without relying on external rewards or punishments. This approach promoted multidisciplinary and global perspectives [15]. Importantly, it fostered personal responsibility and encouraged continuing educational research and teaching innovations. The pedagogy at my Instituto reflects today's best practices in culturally relevant, student-centered, inclusive, active and scientific teaching and learning. By scientific teaching, I mean using pedagogical practices based on evidence that these methods are effective [16].

Figure 9. Some of my colleagues at UCLA StatsDS posing before and during the 2016 Department's commencement ceremony. Some of us also participate in the College one, which holds 10000 people (between students and relatives).

2.2. Neighborhood associations

Learning from data was also a common practice in my neighborhood association. At the time of my secondary education, neighborhood associations were very significant in Barcelona [17] (and they continue to be). My neighborhood had one, and I attended some of their meetings and activities. These gatherings included university graduates, factory workers, clergy, teachers, and many other dedicated neighbors. They frequently collected data and used summary statistics to document the neighborhood's quality of life and advocate for change. Data and their summaries were integral to civic engagement and were as important for

the association's goals as they were for learning science in my Instituto's lab. I had my own questions from childhood, and my interactions with people of varying educational backgrounds heightened my curiosity and motivation to seek answers. I developed a strong interest in effective teaching methods for education and became a dedicated reader of the works of Piaget, Montessori.

Many individuals in the association did not have a high school degree, but they certainly knew how to compile statistical information to write convincing proposals for city hall to request improvements.

2.3 University seminars during secondary education

In addition to my high school environment and the neighborhood association, I took my teacher's recommendation to attend seminars at the local university very seriously. If my chemistry teacher suggested a seminar showing how something we learned applied to, say, producing plastics, I would attend and be fascinated by it. I truly felt like I belonged in that community. Scientists used data and summarized it in ways I admired, even if I did not completely understand. Recent campaigns at UCLA to increase student retention in the sciences have recommended teaching practices that help students feel they are part of the scientific community. In my own small way, I experienced that during my secondary education years because I had no doubt that I belonged to that community. At that time, I could not have predicted that I would end up working in the Department of Statistics at UCLA (UCLA StatsDS), alongside esteemed colleagues who shared my belief that statistics is the science of data and it is a right for all. Together, each year we celebrate the students we train in this field. Figure 9 depicts one of my preferred service activities at UCLA, where I join colleagues in fostering a sense of pride in statistical literacy among participants.

2.4 Sharing my questions and conclusions from data with the world

At my Instituto, everybody believed I was destined to get a university degree in the physical or life sciences, and I shared that belief. However, my curiosity, coupled with an excellent English teacher who loved the U.S., motivated me to apply for a scholarship with American Field Service [18] to spend my senior year of high school as an exchange student in the United States. This experience altered my trajectory. Conveniently, I was assigned to the so-called "Show Me" state, Missouri, attending a private high school for girls, while living with a wonderful host family in St. Louis. My host parents were amazed by and loved the many facts and discussions about social issues, particularly education, that I brought to the dinner table. They encouraged these discussions.

A week at the Blackfeet Indian reservation in Montana, as part of an AFS exchange with the Superintendent of schools' daughter, was filled with numbers and data. Stories, data, and consequences seemed to go hand in hand worldwide. Culturally relevant education was emphasized. I felt like a global citizen, part of an international community that shared my passion for evidence-based discussions and solutions to social and scientific problems and cared about the world.

 While I grew immensely as a person and learned a lot during my AFS school year (1974-1975), I did not take the same preparatory courses in science and mathematics as seniors in a Spanish Instituto. Despite this, the work I did was officially counted in Spain as if I had. This became a decisive factor in how formal training in statistics entered my life. Unlike many statistics educators, my academic path did not begin with a mathematics degree.

3. Formal training in statistical theory

The beginning of my formal training in statistical theory commenced at the public Universidad Complutense of Madrid, Spain. Upon returning to Spain from St. Louis, I needed employment and found a position at the AFS office in Madrid, Spain. Soon after, in 1978, I enrolled in Economics at the Complutense, supported by a small government scholarship known as "beca," which supplemented my earnings. The curriculum included formal courses in statistics for economists (econometrics). The first course, Introduction to Econometrics, based on Jan Kmenta's renowned book Elements of Econometrics [19], was a profound revelation for me. Despite being largely theoretical, Kmenta's book proved to be an invaluable resource for self-study. It became a powerful companion in my pursuit to learn from data and helped me answer the many questions I had harbored since childhood.

In the second Econometrics course, the instructor presented us with a block of mainframe computer printouts to demonstrate how theory could be applied to analyze large data, with the results contained within those extensive pages. I found that block of paper both thrilling and mysterious. However, I began to feel increasingly frustrated by our limited computer access. Despite this, econometrics courses quickly became my favorite. I decided to leave my job at the AFS office and instead worked as a tour guide during the summer months. This provided sufficient income to supplement my beca year-round and allowed me to dedicate myself fully to my studies during the school year.

After acquiring knowledge of statistical theory, I felt empowered and embarked on journeys to collect data in the villages of my home province in southern Spain, with the goal of understanding the role of local governments in income inequality. City hall personnel were taken aback when I requested data from them. As expected, I obtained very little data. Reflecting on this experience, I realize that

this approach was not very practical. Nevertheless, I felt like a data scientist, even though that term wasn't commonly used at the time. I crafted my own culturally relevant data science education by delving into subjects that helped me comprehend the world in which I was raised. Many learners appreciate receiving that kind of information [47], and I was one of them. Statistics made that possible.

In my teaching practice, I typically begin by training my students before they undertake their own statistical investigations. They engage as a group in the PPDAC (Problem, Plan, Data, Analysis, Conclusion) cycle [24], using data collected collectively through a survey of UCLA students and Google Docs where everyone can view entries. Detailed analysis sheets and accompanying videos guide the activity uniformly for all participants. The discoveries are presented to the entire class and discussed, enabling students to interact with each other in a manner akin to experts in the field. These resources were not available during my undergraduate statistics classes. One reason I was inspired to consider leading the ISLP project was the alignment of many of its curated resources with that focus.

During my time as an undergraduate, there were no outreach or social activities organized by the university for all students. Classes were the primary focus. Back then, I couldn't have imagined the variety of outreach activities we now undertake at UCLA. For instance, students, faculty and administrative staff contribute to major recruitment efforts through social gatherings, networking events, and periodic campus events, exemplified in Figure 10.

I completed my undergraduate degree in 1983, rewarded by my keen interest in applied research.

3.1 Doctorate studies in Missouri, U.S.

So far in this narrative, we have been in southern Spain, Barcelona, St. Louis, Missouri in the U.S., and Madrid. We now will go back to St. Louis.

Figure 10. When parents and prospective students visit UCLA, students, faculty and administrative staff talk to them and provide information about the Statistics major. Shown here is the 2023 Bruinday, in which I participated. I enjoy taking part in these and other UCLA outreach events.

Some of my professors at the Universidad Complutense recognized my interest in research and recommended me for a grant from the Instituto de Estudios Fiscales, which I used to study Social Security Systems using multiple criteria decision-making methodology in the U.S. With the support of that grant and a donation to Washington University (WU) in St. Louis from my AFS host family, I left Madrid immediately after graduation and returned to St. Louis, Missouri, U.S. in the summer of 1983. Initially planning to conduct research for a few months and then return to Spain, I was offered the opportunity to enroll in the Ph.D. program and decided to stay.

In the U.S., Ph.D. students receive tuition remission and a stipend (essentially a small salary) for their roles as teaching and research assistants while pursuing their studies. This support enabled me to focus solely on my academic pursuits without needing additional work outside the university. After receiving some teacher training, I began teaching classes in WU's night program, starting in 1984. During the day, I worked as a teaching or research assistant, attended classes, and furthered my academic endeavors.

In my final academic year, 1988-1989, I was awarded a dissertation fellowship, allowing me to dedicate myself entirely to my research.

Graduate school at WU, where I earned my Ph.D. (doctorate degree) in Econometrics in 1989, marked a pivotal moment in my statistics journey. The department provided access to a mainframe computer and a dedicated lab assistant. While all graduate students had access to this mainframe, it was underutilized, as many economists conducting research aimed to empirically validate established economic theories, often waiting until their Ph.D. thesis to utilize computing resources. In later years, the department also established a desktop computer lab. Around this time, I purchased my first laptop, an IBM, further enhancing my capabilities.

At WU, equipped with statistical software like SAS and direct access to extensive datasets within SAS, I felt truly at home. Collaborating closely with professors, I engaged in diverse research projects involving data analysis, descriptive statistics and graphs and statistical inference. Together, we investigated the determinants of high school expenditures by U.S. states. Professor David Felix [48], with whom I researched capital flight from Latin American countries, generously funded my presentation of the work at a conference in Guanajuato, Mexico. For my dissertation, under the guidance of my co-advisor from Physics, the late Edward Jaynes [32], I studied the effects of vertical integration on the chicken broiler industry, presenting part of my findings in Cambridge, England, as per his recommendation. He also encouraged me to present at a conference in Santa Fe, New Mexico, where we explored strategies to prevent credit card fraud using data and statistical methodology and machine learning. All those research projects brought me great joy, and as always, I felt a strong sense of belonging to the statistical research profession.

Figure 11. My Ph.D. thesis advisor, the late Edward Greenberg (left), and his wife, Joan (right), posing with my husband (center) in Torrance, Los Angeles in 2003, when they visited their daughter.

The vibrant academic environment of the department, coupled with unwavering support from my professors and peers, motivated me to participate in regional conferences and the annual meetings of the American Economic Association, further fueling my passion for statistical inquiry. During my Ph.D. studies, I also developed proficiency in the programming language Fortran, crucial for statistical computing. I used a lab manual from the Mathematics Department to learn the language. Interestingly, I met my husband, a fellow Ph.D. student from Spain in that department, during my third year at WU.

During my graduate school years at WU, I developed a strong affinity for Bayesian statistics. My primary advisor, the late Edward Greenberg [33], pictured in Figure 11, favored this approach to statistical inference and actively encouraged me to engage with prominent figures in Bayesian statistics. He facilitated my attendance at significant events such as NBER-NSF Bayesian Inference in Econometrics conferences, where Arnold Zellner famously advocated for "Keep It Sophisticatedly Simple" (KISS), Case Studies in Bayesian Statistics Conferences at Carnegie Mellon, known for its practical, applied statistics case studies, and a

gathering in Valencia, Spain, bringing together Bayesians from around the globe.

Through these conferences and interactions guided by my advisor, I had my initial encounters with statisticians whose focus wasn't solely on economics. This exposure sparked a deepening interest in the broader applications of statistics beyond economics. It became evident to me that my passion for statistics could find a home in a statistics department, where others shared my enthusiasm for the subject matter.

An article by Leamer [20] inspired me to aspire to a future career at UCLA [21]. But that would have to wait.

Figure 12. Jeff Solka, officer of the ASA's Section on Statistical Computing, thanking me for my service to the section during the section's annual business meeting at the Joint Statistical Meetings of the ASA of 2007. Source: Newsletter of the ASA Section on Statistical Computing and the Section on Statistical Graphics, Vol 18, No.2., Dec 2007.

4. The professorial stage of my statistics journey

After completing my Ph.D. in 1989, and before my husband finished his, I chose to remain close to WU. I accepted a tenure-track assistant professorship at Missouri University of Science and Technology (Missouri S&T) at Rolla, located 100 miles from St. Louis, where I enjoyed teaching engineers. The University emphasized quality education, inclusivity, and dedicated mentoring and advising. I was hired by the Economics Department, and my role involved designing and teaching all econometrics courses and labs using the statistical software *Minitab*. Class sizes were typically capped at 30 students per class, ensuring personalized academic support with faculty members serving as advisors.

As part of the campus strategic initiatives, I contributed to a committee tasked with developing the Faculty Advisors' Handbook, intended to equip all advisors with essential information regarding student needs, faculty responsibilities, and university policies. I highly value advising students. Providing them with information and support to help them navigate their undergraduate studies with a sense of belonging and hope is essential for their success.

Eager to align my research with the interests of the campus community, particularly in technology and innovation—an interest cultivated since my teenage years when I pondered Spain's technological advancements—I conducted surveys of high-tech companies, collecting and analyzing data to explore the determinants of various stages of innovation. Additionally, I conducted experiments to elicit prior probabilities in individuals, influenced by the research of Jay Kadane [34], with whom I collaborated on one paper. I also pursued research in the application of Bayesian statistics and remained active in attending and presenting my findings at conferences.

I made it a practice to share all my research with my students, aiming to illustrate the diverse applications of the statistical methodologies they were learning. This approach has been a constant part of my teaching philosophy. In certain instances, undergraduate students were actively engaged as research assistants, a practice I continued when I transitioned to UCLA StatsDS. Belonging to the field they are learning about is a powerful motivator and highly desirable.

Figure 13. Participants of the First CensusAtSchool Workshop in Melbourne, Australia, 26-27 of March, 2007. ABS members and Australian and international participants are represented in this photo (I am the one with the yellow shirt). Siu-Ming Tam, standing at the front, was the Division Head at the time, and Paul Taylor, in the front row, on the right, was the Director of Educational Services.

4.1 Medical statistical research as the bridge between Missouri S&T and UCLA StatsDS

While waiting for my husband to transition from postdocs outside Missouri to a tenure track assistant professorship in Los Angeles, California, I visited Duke University's Department of Statistical Science from 1994 to 1995. By 1994, I had decided to dedicate myself exclusively to applied statistics without restricting my work to economic data. I greatly admired the case studies conducted by Mike West [49] and his time series methodology, and Don Berry's [50] methods for clinical trials and his introductory Bayesian statistics book [35]. Both were at Duke, a hub for Bayesian statisticians, making it an ideal place to spend a year before moving to Los Angeles.

At Duke, I realized that despite my extensive training in econometrics, I needed more formal education in computational statistics and more statistical methodology. It was there that I was introduced to the software *S-Plus* and Bayesian software *BUGS* and taught my first large Introductory Statistics class of 125 students, a daunting task after having only taught small classes at WU and Missouri S&T. I also took several courses on advanced methodology that broadened my statistics toolbox. During that year, I also collaborated on statistical work with genetic

data on BRCA1 with Duke faculty. This experience solidified my determination to apply statistics to any type of data that piqued my interest.

I arrived in Los Angeles in 1995 when my husband secured a tenure-track job at one of the Cal State campuses. During the transition period from 1995 to 1998, I worked as a research associate with several public health and medical research teams at UCLA School of Nursing and UCLA School of Public Health, programming with SAS, *Splus*, and *BMDP*, and performing statistical analysis of their data. This role allowed me the freedom to analyze data from schizophrenic patients, head and neck cancer patients, women diagnosed with breast cancer, and hospitalized veterans. I was no longer confined to economic data and was on the path I desired. I also took additional graduate courses in statistical theory and applications from Rob Weiss [36], a Bayesian in the Biostatistics department, became an active participant in the American Statistical Association (ASA)'s annual meetings, and was appointed to some sections and committees at the ASA.

Working with medical researchers, I noticed that Bayesian statistics were not universally accepted in the community. This realization led me to adopt a more flexible approach, embracing both Bayesian and frequentist statistics from then on.

The research associate positions at UCLA were a natural transition in my career, helping me move towards a full statistics department role at a university I had been interested in since graduate school. One of the researchers involved in the veteran's data analysis was Rob Gould [37], who was a lecturer in the Statistics Division of the Math Department at UCLA. He was, and still is, fully involved with GAISE [24] and other educational programs of the ASA and was and is very active at IASE (which I was unaware of at the time).

4.2 UCLA StatsDS department as the natural destination for a data scientist

I have always embraced a growth mindset. When Rob Gould informed me of a part-time lecturer position that opened in 1999 at the then multidisciplinary Statistics Division of the UCLA Mathematics Department, I seized the opportunity and applied, setting the stage for the next 25 years of my career. Coincidentally, Edward Leamer was (and still is) part of the guest faculty of the department. That same year, the Statistics Division split from Mathematics and became the Statistics Department [22]. From its inception, the department emphasized teaching quality, statistical computing, and applications. It also stood out for its supportive environment where teaching track faculty, like me, were cherished and treated on par with research track faculty. Statistics education research was and is highly valued.

Although small in 1999, the department boasted a consulting center and a computer lab with Mac computers. It was slightly behind in the use of statistical computing software like S-Plus, but teaching statistics with a lab component was mandatory. With Rob Gould involved in the statistics education community and the department's leadership fostering multidisciplinary research, our department led innovations in multidisciplinary statistics teaching and applications. Initially, we had few statistics majors and faculty, requiring

me to teach all undergraduate courses across the curriculum, which I thoroughly enjoyed and for which I was prepared. I also developed new courses for our majors. The department's friendly atmosphere attracted students from across campus, making statistics the fastest growing major at UCLA. By recent years, we had over 900 undergraduate students (majors, pre-majors, and data theory majors) and more than 200 graduate students (Ph.D. and Masters). The department grew 300% in the last decade. In 2023 the department was renamed Statistics and Data Science (StatsDS). An old photo of my colleagues and myself can be seen at [53].

Throughout the years, students used *Data Desk, Fathom, Stata*, or R software for labs. I was the first to use R in 2001 while teaching my time series course. The software is an integral component of any of my courses, but it is carefully aligned with the course objectives and introduced with the same scaffolding as the lesson plans and data analysis projects. I cannot teach a class without sharing with students the cultural relevance of what they are learning and that involves use of data and statistical software.

I dedicated the last 25 years of my teaching career to full-time teaching at UCLA's StatsDS from 1999 until my retirement in 2023 as Senior Lecturer Emerita.

During my tenure at UCLA StatsDS, I remained very active in the ASA, participating in annual meetings and serving in various committees and roles. For example, in 2000 and 2001, I was elected as publications chair of the ASA Section on Bayesian Statistical Science [39]. From 2005 to 2008, I served as Council of Sections Representative for the ASA Statistical Computing Section and co-edited the section's newsletter from December 2005 to June 2007 [25], gaining valuable experience in newsletter production, which I later applied at the ISLP. Through the ASA sections, I met Dianne Cook [7, 8] and Naomi Robbins [6] who greatly assisted during the ISLP's International Competition in Durban in 2009.

Through my involvement with the ASA, I met Carol Blumberg, who was the Coordinator of the ISLP webpage and network between 2001 and 2006. She introduced me to the ISLP and its extensive collection of global statistical literacy resources, which I found fascinating and frequently used in my teaching at UCLA StatsDS. At that time, I was also involved in several projects for teaching with apps (the Soccer Project [40]) in my department and convinced my colleagues to send me to present our work at ICOTS-7, July 2006 in Salvador, Bahia, Brazil. Chris Wild organized and chaired the ISLP's Advisory Board meeting there since Carol resigned and did not attend. During the meeting, the search for a director was announced and I applied. My appointment as Director was announced in October 2006.

As I mentioned in Section 1 of this narrative, my experience with the ISLP was incredibly impactful. I would like to congratulate Reija (seen in Figure 14) for her leadership and for taking the ISLP to the next level. *The International Day of Statistical Literacy* and the growth of the international competition are award-winning achievements.

I have been teaching statistics for almost 40 years, and by far my most enjoyable teaching experience has been at UCLA StatsDS. Being on the teaching track has allowed me to indulge in teaching practices that I enjoyed since my high school years: active learning, evidence-based teaching, continuous professional development, culturally relevant education that connects students to reality through observations and data, programming, statistical software, and research.

In recent years, as upper-division classes grew, I fostered active learning and student engagement in the classroom with various approaches. Figure 15 shows some students engaged in a think-pair-share activity where they participate using color cards. The disagreement in their answers helps trigger noise in the classroom: students talk to each other to discuss why they disagree. I like hearing noise in my classrooms, hearing students talk to each other,

Figure 14. From left to right: Reija Helenius (Director of the ISLP 2010-present), name missing, Adriana D'Amelio (Deputy Director), Juana Sanchez (U.S.), Ana Serrado Bayes (Spain) and Rene Smulders (Netherlands).

Figure 15. Engaging with the course material and with each other through a think-pair-share activity in an introductory probability class has been one way to improve my lesson plans and conduct formative assessments, specially as class sizes have grown. I have learned a lot from my students through this and other interactive processes.

like experts in the field do, belonging to the field, working in groups and engaging.

I have engaged in a lot of community sharing of teaching practices through my involvement in an initiative of my university called CEILS [41] and by participating in statistics education conferences and webinar. However, my professional development in teaching statistics culminated in 2021 with the design of a fully asynchronous probability course [23]. I collaborated with an instructional designer to enhance the student learning experience, resulting in a radical and comprehensive course development. This approach was a departure from the replication of in-person teaching methods in online formats that we were initially forced to adopt at the beginning of COVID-19. It represented a teaching method where best practices came together in a single course. The instructional designer, Sirui Wang, is part of the Online Teaching and Learning office at UCLA [42].

4.3 Project that sprang from my role as Director of the ISLP

During her tenure as coordinator of the website and network for the ISLP initiative, Carol Blumberg compiled various resources, including a link to the international internet-based CensusAtSchool Project [26, 27] launched by the Royal Statistical Society. Since 2000, this project has promoted the practice of statistics as the science of data in schools across several countries. It utilizes authentic multivariate data collected by students, applying the PPDAC framework to develop active-learning lesson plans. These plans are shared with educators and tailored to align with the curriculum of each participating country.

In December 2006, shortly after my appointment as director of the ISLP, I received a letter from Dennis Trewin, on behalf of the Australian Bureau

of Statistics (ABS), inviting the ISLP to participate in the First International CensusAtSchool Workshop at the ABS office in Victoria, Melbourne, Australia, from the 26th to the 29th of March, 2007. The workshop theme was *"Working Cooperatively for the Future,"* and participants are shown in Figure 13. I viewed this workshop as an opportunity to promote the ISLP and introduce new resources to it. I gave a presentation on statistical literacy in a panel co-led with Neville Davies from the Royal Statistical Society. During that panel, the idea of expanding the CensusAtSchool program to the United States was discussed. Although I was not entirely sure why, I promised that, as faculty member at UCLA StatsDS, I would organize the second international workshop at UCLA to bring CensusAtSchool to the U.S.

After returning to the U.S., I conducted a small pilot test of the project at a school in Santa Monica. Three of my undergraduate students were enthusiastic about the project and joined me in the classrooms, achieving great success. Although this was limited evidence, it convinced me of the project's feasibility. Thus, I began organizing the second CensusAtSchool workshop at UCLA. I invited stakeholders from the U.S. who I believed could help launch the project in the country (among them the late Martha Aliaga from ASA), as well as some participants from the workshop in Australia. Some of my colleagues at StatsDS along with few teachers from California also participated.

With support from my department and other sponsors, I organized the Second International CensusAtSchool workshop at UCLA, as I had promised in my presentation at the first workshop. The workshop took place in a big auditorium at UCLA, and you can see the group photo from that workshop, along with additional photos, in [28].

Figure 16. Group photo of the participants of the Second CensusAtSchool Workshop that I organized at UCLA to bring U.S. stakeholders together with international CensusAtSchool longstanding practitioners and some of my colleagues from UCLA. The U.S. saw the merits of the project and two years later initiated it in the United States.

The group photo is also shown in Figure 16. The outcome of this workshop was the implementation of the CensusAtSchool program by the American Statistical Association [29, 51] two years later, as indicated in AMSTATNews [30].

5. Becoming emeriti faculty at UCLA and new role as editor of the JDSE

I retired from UCLA StatsDS in July 2023 and joined the emeriti community at UCLA which, under the retirement office, keeps retirees and emeriti faculty engaged with the campus. Emeriti at UCLA remain part of their departments. I coincidentally learned about the American Society of Aging (ASA) after I retired. They, too, rely on data to improve the quality of life of the aging population.

Retirement does not mark the end of my engagement with statistics, data science and the statistics education community. From 2025 to 2027, I will serve as Editor in Chief of the Journal of Statistics and Data Science Education [31], a new role that I am very excited about, having been part of the journal's editorial board since 2010. One of my goals as Editor is to make the journal more internationally inclusive, so we can all learn from each other about statistics education practices worldwide.

As the reader may have noticed, change has been a constant in my life, but I have always been engaged and felt a sense of belonging no matter where my statistics journey has taken me. This is because observing patterns in data and using statistical tools have helped me make decisions that, with the help of others, led me to places I wanted to be and distanced me from those in which I no longer wished to be. I have been fortunate to receive support and wisdom from many individuals and institutions.

In a recent book I read, the author said: "Happiness is not a possession to be prized, it is a quality of thought, a state of mind" [43]. Similarly, the habit of learning from data and making evidence-based decisions is not a possession; it is a quality of thought, a state of mind that starts very early in life. This mindset does not disappear regardless of my pursuits.

* Senior Lecturer Emerita, UCLA Department of Statistics and Data Science

Editor-in-Chief, Journal of Statistics and Data Science Education (2025-2027)

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Appendix 1.

Members of the Advisory Board of the ISLP in 2009 (and the year they joined)

In the Advisory Board Meeting of 2009, the members of the ISLP Advisory Board were listed, together with the year they joined the advisory board. Many of them were actively involved in the role of page coordinators during the Carol Blumberg's tenure as ISLP coordinator. Their names and the year they officially were added to the advisory board are given below.

Argentina: María Inés Rodríguez (July 2008) and Adriana D'Amelio (July 2008)
Australia: Paul W. Taylor (2007)
Brasil: Lisbeth Cordani (July 2008)
Canada: Larry Weldon (British Columbia) (2007); Mary Townsend (Sept 2007)
China: Zhang Zhongliang (China) (Dec 2008).
Finland: Reija Helenius (Sept 2007)
France: Jean-Claude Girard (May 2008)
Italy: Paola Giocche (Feb 2008); Maria Gabriella Ottaviani (IASE President 1997-1999) (2007)
Mexico: Hugo Mael Hernandez Trevethan (July 2008)
Netherlands: René H. M. Smulders (July 2008)
New Zealand: Sharlene Forbes (July 2008); Christopher Wild (IASE President 2003-2005; IASE web master) (July 2008); John Harraway (July 2008)
OECD/ISTAT: Enrico Giovannini (Italy/France) (May 2008)

Portugal: Pedro Campos (August 2007); Maria Manuel da Silva Nascimento (August 2007)
Russia: Vladimir Ulyanov (July 2009)
South Africa: Maseka Lesaoana (2007); Miranda Mafafo (June 2008)
Spain: Carmen Batanero, (IASE President 2001-2003) (2007); Ana Serrado Bayes (July 2008); José Vicente Novegil Souto (July 2008)
United Nations: Beverley Carlson, USA (July 2008)
United States: Kate Tranbarger, Boston; Kathryn Lee Flores (2008)
Zimbabwe: Cyril Parirenyatwa (2008)

Ex-Officio members of the Advisory Committee were:

Allan Rossman (U.S., IASE President 2007-2009)
Helen Macgillivray (Australia, IASE President-Elect)
Ada van Krimpen (ISI Permanent Office's Director)
Shabani Mehta (Administrative Projects Officer, ISI Permanent Office)

Computer Support

Stephen Cope (University of Auckland New Zealand, Server Administrator and main architect of the hardware and software)
Juana Sanchez (ISLP Director : Management, updating, contents, editing, daily maintenance and aesthetics of the Wiki ISLP and home page)
David Walton

Appendix 2.

ISIBALO INTERNATIONAL STATISTICAL LITERACY PROJECT (ISLP) COMPETITION PROGRAM

Day 1: Sunday, 16 August 2009
- 10:00 – 15:50 Registration of SADC learners and teachers
- 16:00 – 21:00 Opening Ceremony

Day 2: Monday, 17 August 2009
Facilitator: Johnny "Black Sunday" Masegela, Dianne Cook
- 09:00 – 12:30 ISIbalo Soccer Program— Data collection
- 12:30 – 13:30 Lunch
- 13:30 – 17:00 ISIbalo Soccer Program— Data Collection

Day 3: Tuesday, 18 August 2009
Facilitators: Dory Reddy, Lawrence Sithole
- 09:00 – 11:00 Casio Workshop – Academic Program
- 11:00 – 12:30 Statistical Games
- 12:30 – 13:30 Lunch
- 13:00 Registration of international learners and teachers

Facilitators: Johnny "Black Sunday" Masegela, Lawrence Sithole
- 13:30 – 15:30 Academic Program – Using data from soccer program – "Learning Statistics Through Soccer"

Day 4: Wednesday, 19 August 2009
Facilitator: Juana Sanchez, Themba Mohoto, Maseka Lesaoana
- 09:00 – 12:30 Conducting a Survey/ Data Collection Activity (Survey of ISI delegates)
- 12:30 – 13:30 Lunch

Facilitators: Johnny "Black Sunday" Masegela Lawrence Sithole
- 13:30 – 17:00 ISIbalo Soccer Program/ Team-building activities

Day 5: Thursday, 20 August 2009
Facilitator: Juana Sanchez, Koleka Rangaza
- 09:00 – 09:50 Registration for ISIbalo ISLP Individual Competition
- 10:00 – 12:00 Phase 3 ISLP Competition - Individual Competition
- 12:00 – 13:30 Lunch
- 13:30 – 16:00 ISIbalo ISLP Country Competition
- 16:00 – 17:00 Cultural Exchanges Activities

Day 6: Friday, 21 August 2009
Facilitators: Juana Sanchez, Martha Aliaga, Naomi Robbins
- 09:00 – 10:00 Discussion to warm up for poster preparation
- 10:00 – 13:45 Poster Presentation Preparations
- 13:45 – 14:30 Lunch
- 14:30 – 18:00 Tour of the City & (Shopping)

Day 7: Saturday, 22 August 2009
Facilitator: Juana Sanchez
- 09:00 – 12:30 Poster Presentations
- 12:30 – 13:30 Lunch
- 15:30 – 17:45 Closing Ceremony
- 19:30 – late Gala Dinner

ISIbalo International Statistical Literacy (ISLP) competition finalists

Africa
Botswana
Dilan SriDaran
Tshepo Naomi Tumelo
Shirly Moses

Lesotho
Tlotliso Makakole
Corneel VanderPlaeste
Teele Sehalahala

Malawi
Pamela Sauzande

Memory Nuka
Denise Msowoya

Mozambique
Wadney Tiago Loureiro

South Africa
Lindiwe Dhlamini
Saskia Adriaanse
Jade Holt
Tamaryn Fortuin

Swaziland
Phumelele Nhlengethwa
Nozibusiso Tembe
Wabantu Hlophe

Zambia
Saili Chibesa
Leya Mwanza
Chikolwa Chilengi

Europe
Italy
Marco Bertoletti
Rosa de Vivo
Giovanni Compagnoni

Mattia Carpin and Matia Coccato

Finland
Elmo Eelis Pikkupeura
Justus Mutanen
Mina Elina Virtanene
Matilda Vouti Kaisamari

Portugal
Joana Maria Ferreira
Emanuel Vales
André Manuel Rodrigues
João Pedro Lages
João Nuno Brandão
Ana Gomes Moreira and Diana Pereira

Spain
Leo Casasola
Juan Diego Rodrigues

North America
Canada
Amanda Ens

United States of America
Anika Hall
Moriah Rahamim
Aiyanna Cameron-Lewis

South America
Argentina
Valentina Zabalo
Micaela Zabalo
Rodrigo Enzo de Prada
Juan Martin Boehler

Brazil
Renan Dias
Victor Sena Moreno
Giovana Carvalho

Chile
Rodrigo Escarate

Facilitators of the ISLP International Statistical Literacy Competition in Durban

Mr. Johnny "Black Sunday" Masegela

Dr. Juana Sanchez

Professor Dianne Cook

Mr. Dory Reddy

Mr. Lawrence Sithole

Dr. Naomi Robbins

Dr. Martha Aliaga

Professor Maseka Lesaoana

ISIBALO competition committee

Jean Claude Girard (France)

Sharleen Forbes (New Zealand)

Vladimir Ulyanov (Russia)

Juana Sanchez (USA)

Koleka Rangaza (South Africa)

Sponsors

- Statistics South Africa (South Africa)
- Statistical Society of Canada
- Actuarial Foundation of Canada
- Halton District School Board (Canada)
- Biostatistics Section of Statistical Society of Canada
- McGraw Hill Ryerson (Canada)
- SORA (Canada)
- ASA Office of the Director of Education, American Statistics Association
- Cleveland Chapter of the American Statistical Association (USA)
- Section on Statistics Education, American Statistical Association (USA)
- I'Clicker (USA)
- Statistics Finland
- Economic Information Office (Finland)
- Numerola Ltd (Finland)
- Lions Club Helsinki/Kamppi (Finland)
- Lions Club Kerava (Finland)
- Municipality of Kempele (Finland)
- City of Rovaniemi (Finland)

- Finnish National Board of Education (FNBE)
- Câmara Municipal de Santo Tirso (Portugal)
- Sociedade Portuguesa de Estatística (Portugal)
- Câmara Municipal de Vila Nova de Famalicão (Portugal)
- INE (Portugal)
- Associação Brasileira de Estatística (Brazil)
- Itatibatur (Brazil)
- Fondi MIUR per la diffusione della cultura statistica (Italy)
- SAS Institute, filiale di Milano (Italy)
- International Association for Statistics Education
- Cajamar (Almeria, Spain)
- Silestone (Mármoles Macael) (Almeria, Spain)
- INE (Spain)
- Colegio Salesiano Valparaiso (Chile)
- Gaspalvo, SA (Chile)
- Consejo Regional de Valparaiso (Chile)
- Casio (South Africa)
- UCLA, Department of Statistics

Belgium

Engaging children and young people in the world of statistics

Kelly Sabbe*

Statbel Academy is the learning platform of Statistics Belgium to support teachers in primary, secondary and higher education. It includes Statbel Junior, the European Statistics Competition, the EMOS, datasets, a supporting YouTube channel and lots more.

By continuing to focus on statistical literacy, including among children and young people, Statistics Belgium wants to contribute positively to a better-informed society in which citizens build up the necessary knowledge to deal critically with data and figures, and so make well-informed decisions.

Introduction

National Statistical offices are major players in the information society worldwide. It is therefore important to focus on statistical literacy in all levels of society. Making statistics more available, and ensuring they are better understood and used, leads to better decisions. We give you a more in-depth understanding about our most important offer used among children and young people.

Statbel Academy

Statbel Academy is the learning platform of Statistics Belgium. With Statbel Academy, Statbel is reaching out to educational institutes, and wants to support teachers.

Statbel Junior is a website designed for children and young people in the last years of primary education and in the first years of secondary education. The website starts from two simple variables: municipality and age. Those two data allow you to dive into statistics about your municipality in a very accessible way through the topics of population,

population evolution, nationalities, road accidents and agriculture. The website includes a toolbox, where basic statistical concepts covered in the topics are explored in more detail.

The European Statistics Competition is a competition for students in the third grade of secondary education, testing in various ways the knowledge of statistical concepts, analytical skills and communication skills in an online competition.

On the YouTube channel @StatbelAcademy, videos provide more in-depth explanations on how specific statistics are calculated. You will learn about the calculation of causes of death, population trends and life expectancy, and how to interpret them even better. A unique look behind the scenes given by Statbel statisticians.

The "Key Figures" contain a complete statistical overview of Belgium, with the latest figures in a variety of topics. Data on health, demography, economy, labour market, social indicators such as the risk of poverty or the consumption behaviour of Belgians, play an essential role to make informed political decisions.

Statbel also publishes the "Key Figures on Agriculture". This publication provides an overview of the current situation and most recent evolutions in agriculture in the broad sense.

Statbel provides several datasets for teachers to test analytical skills in students. Accompanying the datasets, Statistics Belgium provides several test questions adapted to the target group.

Statistics Belgium is a partner in the European Master in Official Statistics (EMOS), a network of master's programmes that aims to give statisticians sufficient knowledge and skills to start their professional careers in European official statistics. In Belgium, KU Leuven has had the official "EMOS label" since the 2017-2018 academic year.

Conclusion

Statbel Academy is a starting point in the discovery of public statistics. The statisticians at Statbel are happy to introduce classes to our products, tools,

or to a comprehensive set of figures, concepts and statistics to introduce students to the wonderful world of statistics.

By continuing to focus on statistical literacy, including among children and young people, Statistics Belgium wants to contribute positively to a better-informed society in which citizens build up the necessary knowledge to deal critically with data and figures, and so make well-informed decisions.

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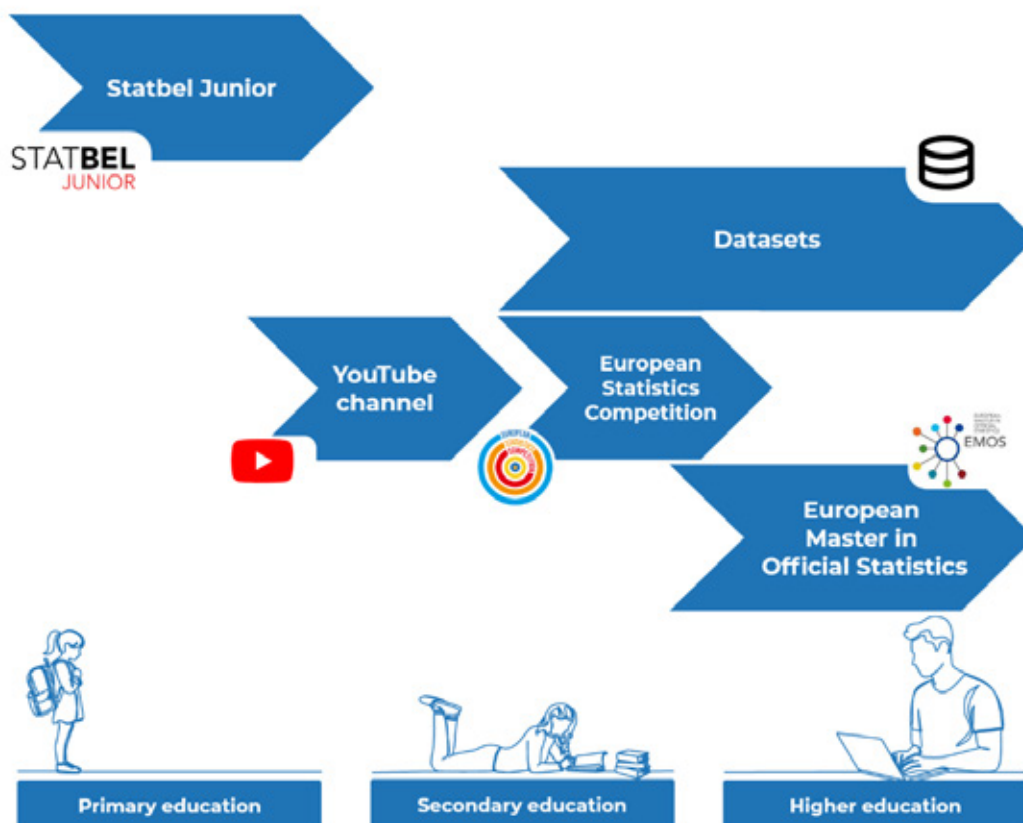Alternative email: **statliteracy@economie.fgov.be**

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Statbel Junior: **www.statbeljunior.be/en**
Statbel Academy: **www.statbelacademy.be**
Statistics Competition: **www.statisticscompetion.be**

Peru

Hábitos de uso excesivo del teléfono móvil en estudiantes universitarios:

Impacto en la concentración y en el desarrollo de la alfabetización estadística

Yheni Farfán*, Talia Vizcardo**, Yetsabel Auccaille***, Yariani Barreto****

Introducción

En la era digital actual, los teléfonos móviles se han convertido en herramientas fundamentales para la vida cotidiana de los estudiantes universitarios. Sin embargo, el uso excesivo de estos dispositivos puede tener consecuencias importantes en el rendimiento académico y en el desarrollo de habilidades clave, como la alfabetización estadística. La alfabetización estadística es un conjunto de competencias necesarias para interpretar y analizar datos de manera efectiva, habilidades esenciales para enfrentar las demandas académicas y profesionales en diversas áreas del conocimiento.

Este estudio tiene como objetivo explorar cómo los hábitos de uso excesivo del teléfono móvil afectan la concentración de los estudiantes y su desarrollo de competencias en alfabetización estadística. En particular, se pretende identificar las dimensiones del uso del teléfono móvil que podrían influir negativamente en la capacidad de los estudiantes para aprender y aplicar herramientas estadísticas, afectando así su rendimiento académico.

Además, se destaca la creciente preocupación por la adicción al uso excesivo de dispositivos móviles entre los jóvenes, quienes son más vulnerables a

desarrollar este tipo de dependencia. Un estudio reciente sobre la estandarización del Test de Dependencia al Celular en Arequipa identificó cuatro factores clave que reflejan las dimensiones de la adicción: abstinencia, abuso y dificultad para controlar el impulso, problemas ocasionados por el uso excesivo y tolerancia. Estos hallazgos subrayan la necesidad de contar con instrumentos validados en el contexto peruano para abordar la problemática de la adicción al celular. Se espera que los resultados de esta investigación contribuyan a un mejor entendimiento y tratamiento de la adicción al celular, así como a su impacto en el rendimiento académico y en el desarrollo de competencias esenciales como la alfabetización estadística (Gamero et al., 2016).

Metodología

El estudio se basa en una investigación cuantitativa de tipo descriptivo - correlacional. Se utilizó un cuestionario estructurado de 23 ítems de una tesis (71025873.pdf, s. f.). El Dr. Choliz es autor del instrumento TMD para medir la dependencia al teléfono móvil (33-44_choliz.pdf, s. f.). Los datos sociodemográficos de los estudiantes encuestados fueron: la mayoría de ellos tenían edades entre 18

a 20 años (53%), eran del sexo masculino (60,1%), procedían del departamento de Cusco (78,7%) y se encontraban entre el V a VI semestre (26,8%) de sus estudios. Las preguntas del cuestionario fueron respondidas en una escala de Likert de 5 puntos (0: nunca, 1: rara vez, 2: a veces, 3: con frecuencia y 4: muchas veces), lo que permitió medir la frecuencia con la que los estudiantes experimentan ciertos comportamientos relacionados con el uso del celular.

El Análisis Factorial Exploratorio (AFE) fue aplicado para identificar las dimensiones subyacentes en los comportamientos de los estudiantes en relación con el uso del celular. El cuestionario fue validado de acuerdo al contenido por juicio de expertos, asegurando su relevancia y claridad en la medición de las variables de estudio. Además, se determinó el coeficiente alfa de Cronbach, obteniéndose un valor de 0.908, lo que indica que presenta una alta confiabilidad interna del cuestionario.

Los participantes fueron seleccionados mediante un muestreo no probabilístico por conveniencia, obteniéndose una muestra de 183 estudiantes universitarios de diversas escuelas profesionales de una universidad pública. La recolección de datos se realizó de forma anónima, y el análisis de los resultados se llevó a cabo utilizando software estadístico R - studio.

Resultados

Aplicando el Análisis Factorial Exploratorio (AFE), se encontró un estadístico KMO de 0.898, un estadístico Chi – cuadrado = 1411,683 y una prueba de esfericidad de Bartlett con un p-valor de 0.00, lo que indica que esta técnica de análisis multivariado se puede aplicar a este conjunto de datos. Además, se identificaron cinco dimensiones que explicaron el 56,34% de la variabilidad total de la variable uso excesivo del teléfono móvil de los estudiantes universitarios, las cuales fueron denominadas:

1. Dependencia y uso impulsivo del celular

Las preguntas asociadas a esta dimensión son (2, 7, 8, 9, 11, 22) indican que los estudiantes que presentan dependencia del celular tienden a ser más fácilmente interrumpidos por notificaciones y llamadas, lo que afecta negativamente su capacidad de concentración. Esta distracción constante reduce el tiempo dedicado al estudio de estadísticas y dificulta el aprendizaje profundo de los métodos estadísticos. La procrastinación, resultado de la dificultad para desconectarse, también afecta la práctica y aplicación de los conceptos estadísticos.

2. Conflictos familiares y consumo excesivo del celular

Esta dimensión (1, 3, 5, 6, 10, 12) puede generar conflictos familiares que resultan en ansiedad o estrés, lo que impacta negativamente en el bienestar emocional de los estudiantes. Estos factores emocionales reducen la capacidad de concentración en actividades académicas, como el análisis de datos estadísticos, y pueden llevar a los estudiantes a evitar tareas que requieren pensamiento crítico y atención a los detalles, como los problemas estadísticos complejos

3. Dependencia emocional y comunicación inmediata

Las preguntas asociadas (15, 17, 18, 19, 21) a esta dimensión, afecta la capacidad de los estudiantes para enfocarse en su aprendizaje. Los estudiantes pueden priorizar la comunicación inmediata sobre las tareas académicas, lo que interrumpe su flujo de trabajo al estudiar estadísticas. Además, la necesidad de estar en contacto constante puede generar procrastinación, limitando el tiempo dedicado al estudio y la práctica de habilidades estadísticas necesarias para la toma de decisiones basada en datos.

4. Impacto en la vida diaria y aumento en la frecuencia de uso

Esta dimensión (4, 13, 14) indica que, los estudiantes que, pasan más tiempo en el celular pueden postergar el estudio de la estadística, lo que reduce la calidad de su aprendizaje. La falta de tiempo para practicar la resolución de problemas estadísticos y la interpretación de datos afecta la alfabetización estadística, ya que los estudiantes no dedican el tiempo necesario para internalizar conceptos y técnicas.

5. Impulsividad y dificultad para estar sin el celular

Las preguntas asociadas (16, 20) a esta dimensión, afectan la capacidad de los estudiantes para mantener la concentración en tareas complejas como las que implican análisis estadístico. Esta falta de autocontrol en el uso del celular lleva a los estudiantes a distraerse con facilidad, lo que reduce la calidad de su trabajo académico y su capacidad para aplicar el razonamiento lógico necesario para resolver problemas estadísticos.

Conclusiones

El uso excesivo del teléfono móvil tiene un impacto negativo significativo en la concentración de los estudiantes universitarios y en su capacidad para desarrollar competencias en la alfabetización de la estadística. La procrastinación, la distracción constante, los conflictos emocionales y la falta de autocontrol dificultan el aprendizaje de conceptos estadísticos y su aplicación en la resolución de problemas. Para mejorar la alfabetización estadística, los estudiantes deben aprender a gestionar mejor su tiempo, reducir las distracciones y utilizar el celular de manera más eficiente, considerando tanto sus efectos negativos como sus posibles beneficios, como herramienta educativa.

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Indonesia

Initiatives to promote statistical literacy among Indonesian students

Achmad Badrun Kurnia*

Current report from Indonesia

This brief report is based on my PhD dissertation at the University of Canberra, which examined the statistical literacy (SL) of Indonesian high school students from diverse demographic backgrounds. The demographic backgrounds include the grade level, gender, school status (public and private) and city of origin. Indonesian students were selected because they were frequently underrepresented in SL studies. Moreover, Indonesia was among the developing countries with the lowest scores in the uncertainty and data subscale of the Programme for International Student Assessment (PISA) in 2003, 2012, and 2022.

To further reveal the Indonesian students' ability to analyze data using critical thinking, an SL assessment study was carried out. A framework for SL, which educators can use widely for both evaluation and pedagogical purposes, was developed. We anticipated that the framework would have a significant impact on educational strategies and curriculum development aimed at promoting SL. In this framework, SL incorporates four complex response skills—*interpreting, communicating,*

evaluating, and *decision-making*. These skills are strongly supported by students' appreciation of the three interconnected knowledge components—*text and context, representation*, and *statistical-mathematical knowledge*. In terms of the SL level, the framework applies a six-level hierarchy for every component. For more information, the full version of this dissertation can be found on the website of the International Association for Statistical Education (IASE); see **https://iase-web.org/Publications.php?p=Dissertations**.

Based on this research, an article focusing on the differences in SL by grade level and gender was written and published in the Mathematics Educational Research Journal (MERJ). Findings revealed that there were significant grade differences in both overall SL and all of its skills except interpreting. Despite notable grade level differences, there were no significant gender differences in students' SL and other skills. For more details, this article can be accessed through **https://link.springer.com/article/10.1007/s13394-023-00449-x**.

What's next?

This year, a group of young and progressive Indonesian researchers in the field of mathematics education established a new organization called the Indonesian Group for Research and Learning in Mathematics Education (IGRiME). With 98 members spread across Indonesia, IGRiME offers a diverse range of expertise, including statistics education. Four executives were chosen to lead this organization, and I have been appointed as the first head of IGRiME for the next two years (2025-2026). It is an honour to take on this national-scale role, which will complement my international position as the International Statistical Literacy Project (ISLP) country coordinator for Indonesia.

The IGRiME executives, along with a select group of members, have developed several strategic programs, including those aimed at advancing SL. These strategic programs include teacher training in statistics education, webinars, lectures, and workshops. The promotion of SL to Indonesian students and preservice and in-service mathematics teachers at all educational levels is expected to be accelerated by those programs. For instance, a webinar series on teaching and evaluating students' understanding of statistics might be offered to mathematics teachers. One of the goals for this webinar is to educate Indonesian mathematics teachers on the importance of SL in today's data driven society. It is expected that such educators become statistically literate and assist their students in achieving SL.

Another crucial initiative, agreed upon by the IGRiME executives and selected members, is to involve Indonesian students in the ISLP poster competition. This participation is planned to take place for the first time in the next competition (2026-2027 round). With 98 members, most of whom are lecturers and teachers, I am quite confident that IGRiME will successfully run this competition.

Finally, IGRiME welcomes all scholars worldwide, especially those from ISLP, to collaborate with IGRiME members. This collaboration could be in the form of, but not limited to, joint webinars or research projects. If you are interested, please kindly contact me at **badrun.bbest@gmail.com**. On behalf of IGRiME members, I look forward to collaborating with you all.

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Nigeria

International Statistical Literacy Project (ISLP) and Hankali-Intel workshop report

Chigozie Kelechi Acha*

Introduction

The Hankali-Intel Workshop was the maiden two-day online workshop series that featured very interesting topics handled by experts and professionals. The workshop's theme was **"Transforming Research with Statistics, Meta-Analysis, and Data Science Tools."** This workshop was jointly organized by International Statistical Literacy Project (ISLP) and Hankali-Intel and it was held on, November 14th and 15th, 2024.

The two-day workshop was well attended and brought together more than 300 participants from more than 29 countries: Australia, Bolivia, Benin, Cameroon, Canada, Cape Verde, China, Egypt, India, Kenya, Malawi, Malaysia, Mauritius, Niger, Nigeria, Oman, Pakistan, Poland, Portugal, Singapore, Somalia, South Africa, Spain, Sri Lanka, Tanzania, Turkey, USA, UK, Zambia, and others.

Figure 1: Schedule for the first Hankali-Intel Workshop.

Day 1

The workshop started with an opening address that was well organized, articulated and rendered seamlessly by the ISLP deputy director, Prof. Irena Ograjenšek. Thereafter, sharing of experiences and learning from experts started with Chief Executive Officer Hankali-Intel (CEO) Michael Mgbeme's presentation titled **Modern Data Science Tools for Research**. The second paper presented was **Ethics in Research** by Chigozie Kelechi Acha, PhD (ISLP, country coordinator, Nigeria). She was the host and organizer of this thoughtful, insightful and breath-taking event. The third presenter for the day was Data and Artificial intelligent (AI) Management Specialist (UK) Michael Olanipekun whose presentation was on: **Ethics implications of AI in research**. A link to the events of Day-1 can be found here:

https://drive.google.com/drive/folders/1tsCDcOpR-ugoSxuDDvZmZ5P5FsJZS3sk?usp=sharing

Day 2

The second day started on a refreshing note, with a paper on **Leveraging Power BI to Analyze Survey Data for Research** ably presented by Remide Olatunji (Founder Data Analytics Elites Global Community and Data Expert, Nigeria). The second presenter, Oluwatunmise Jiboku (Data Analyst, Nigeria) spoke eloquently on: **Python Packages for Statistical Research (Stasmodel Package)**. The ISLP country coordinator for Pakistan, Quratulain Khaliq, PhD, capped the day with her presentation titled **Introduction to Design of Research Poster**. A link to the events of day 2 can be found here:

https://drive.google.com/drive/folders/13k8hFwEE7cmEiZAQH4krjmCqVXrNMLbV?usp=sharing

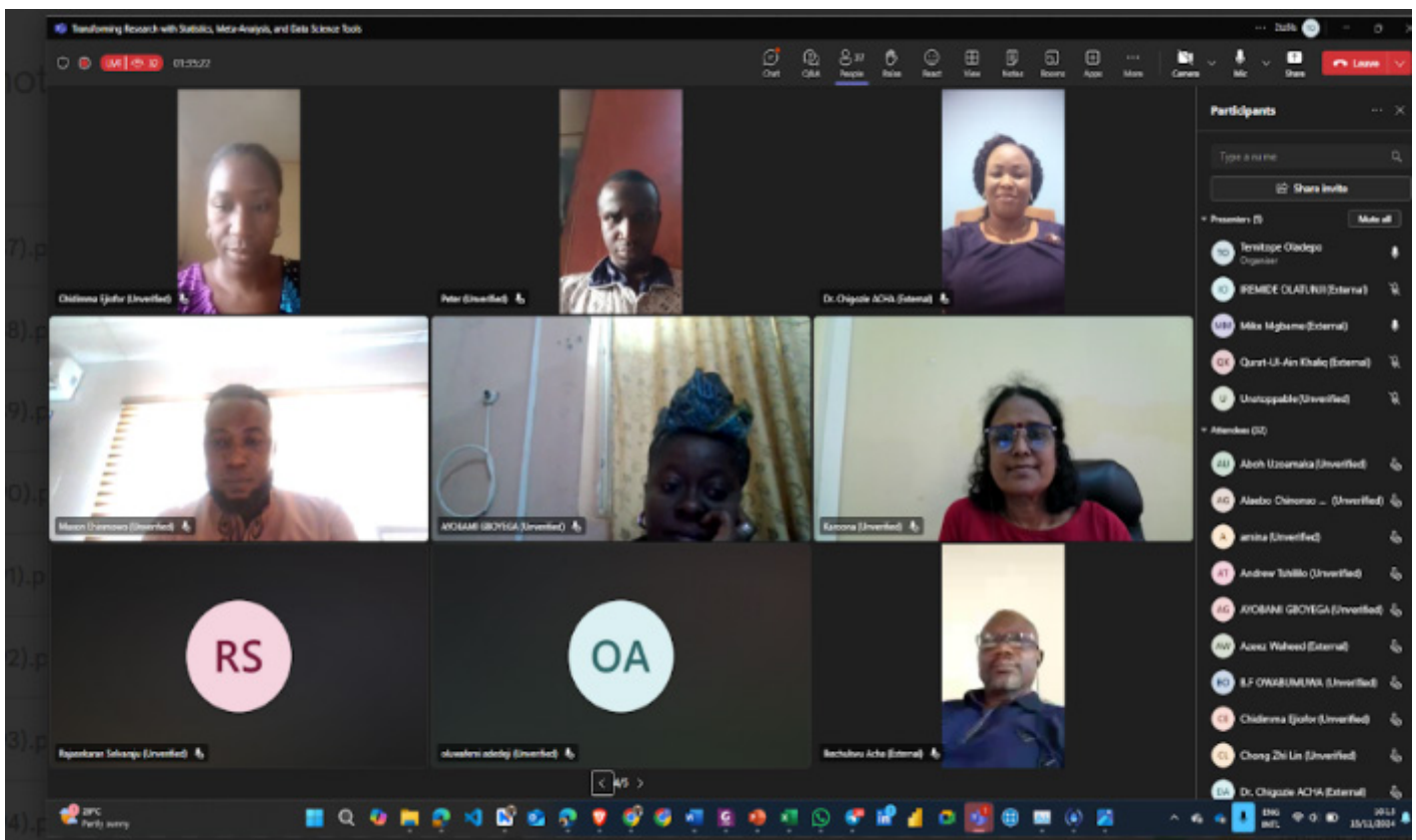Cross-sectional pictures of the event can be found in Figures 2-7.

Figure 2: Screenshot from the first Hankali-Intel Workshop.

Acknowledgments and appreciation

I would like to start by thanking and appreciating ISLP Director Helenius Rejia for her support and encouragement. I recognize and thank the ISLP deputy director, Prof. Irena Ograjenšek, for the time and effort she put into preparing the opening address. We will be obliged to have you in our future events where we hope you will do more than the opening. Thank you very much Prof. Irena for your time and insights. My sincere thanks go to Chief Executive Officer Hankali-Intel, Michael Mgbeme and Chief Operating Officer Hankali-Intel, Elvis Chibuzo Okafor; your efforts made everyone feel comfortable and welcomed. My sincere gratitude goes to Temitope Oladepo, Data Analyst and IT Engineer for the dexterity with which you handled the ICT center. I am also very thankful to the speakers for their excellent thought-provoking talks, and for organizing and animating their sessions, keeping things both under control and reasonably on time. I'm fortunate and privileged to be one of them. Most importantly, I would like to thank you the participants and everyone who contributed to making this event a memorable and impactful experience. **May this workshop inspire all of us to continue working hard, supporting each other, and striving for greatness**.

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Canada

Report on the executive bootcamp of Statistics Canada

Evelyne Bougie*

In the fall of 2024, Statistics Canada piloted an Executive Bootcamp on Disaggregated Data. This initiative aimed to equip policy and program executives across the federal public service with the knowledge and tools to effectively leverage data-driven decision-making.

Key insights from consultations:

Based on extensive consultations with policy and program executives throughout the federal public service, we identified the following key needs:

- **Data Literacy:** Executives desire to learn and have access to practical support to apply to data-driven decision-making.
- **Challenging the Data:** Executives understand the current limitations and challenges to the data presented to them but need help probing their teams on the data.
- **Ethical Considerations:** Executives have concern for sensitive data and potential biases, especially when working with disaggregated data.

The bootcamp design

To address these needs, the bootcamp was composed of three short sessions, offered over three weeks, including:

- **A High-Caliber Panel Discussion:** A thought-provoking session with renowned experts, including:
  - Dr. Wendy Cukier, Founder of the Toronto Metropolitan University's Diversity Institute
  - Ümit Kiziltan, retired Chief Data Officer at Immigration, Refugees and Citizenship Canada and immigration advocate
  - Dr. Kwame McKenzie, CEO of the Wellesley Institute
  - Ima Okonny, Assistant Deputy Minister and Chief Data Officer from Employment and Social Development Canada
- **Two Interactive Workshops:** Engaging sessions on "Challenging the Data" to help executives better probe the data presented to them and "Data Ethics" to provide them with the ethical lens needed when working with disaggregated data. Both workshops were designed to provide practical tools and strategies.

Positive feedback and future improvements

Overall, the bootcamp received a lot of positive feedback from participants, who appreciated the interactive format and the tangible tools provided. To further enhance the program, participants shared that they would have benefitted from:

- **Pre-session Material:** Sharing presentations in advance to better prepare participants.
- **Role-Playing Exercises:** Incorporating more practical scenarios to simulate real-world challenges.
- **Extending Future Workshops:** 75-minute workshops would have been beneficial to allow more comprehensive coverage of the material.

We aim to continue enhancing the pilot to ensure a meaningful learning experience that empowers executives to make data-driven decisions that benefit Canadians.

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India

International webinar on smart health frontiers precision medicine through statistical engineering (IWSHFMTES 2024)

National Statistics Day is celebrated in honor of Professor Pasanta Mahalanobis, distinguished Statistician. In this compelling webinar, Ms Adriana D'Amelio spoke as a representative of the ISLP.

International Webinar on
Smart Health Frontiers
Precision Medicine
Through Statistical Engineering
(IWSHFPMTES 2024)
on the occasion of National Statistics Day
celebrations June 29, 2024

Department of Statistics

Bharathiar University

Coimbatore

Speakers

Ms. Reija Helenius
Director of ISLP

Dr. Denise Britz do Nascimento Silva
Escola Nacional de Ciências Estatísticas (ENCE/IBGE)
National School of Statistical Sciences, Brazil
Vice-President , ISI, Netherland

Dr. Sriraam Natarajan
Director of Center for Machine Learning,
CS Department, UT Dallas, USA
RBDSAI Distinguished Faculty Fellow, IIT Madras
Hessian.ai Faculty Fellow, TU Darmstadt

Dr. Adriana D'Amelio
National University of Cuyo, Argentina
Deputy Director, ISI, Netherland

Dr. R. Jaisankar
Convenor

Registration link   https://forms.gle/E45clefbqvbydBWj7
Google Meet ID   https://meet.google.com/zgd-nqif-kns
Join telegram   https://t.me/+ckOH4NhCDns2ZWQ1

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Pakistan

JMP workshop on data handling, analysis, and visualization 11th-12th July 2024

Qurat-Ul-Ain Khaliq*

1. Introduction

Dr. Quratulain, Khaliq expertly organized and designed the content for the **JMP Workshop on Data Handling, Analysis, and Visualization on July 11–12**, 2024. This workshop was online and provided free registration and certification. This initiative not only prepared students for upcoming poster competitions but also imparted essential knowledge and skills. I found JMP software is highly appealing and believe it is crucial to teach it to others. Our efforts have successfully educated participants not only in Pakistan but also in India, showcasing the workshop's extensive reach and impact.

The workshop successfully gathered professionals, PhDs, university and college students, and enthusiasts from various fields to enhance their skills in data science and statistical analysis. We organized this workshop because JMP is still relatively new in the statistical community, and many individuals struggle with creating technical posters. A poster is an excellent tool for sharing research, allowing one to convey maximum information in a short time. To address this, we concluded the workshop with a poster competition. We received numerous submissions, not only from Pakistan but also from India. Many students used JMP to design their posters and present their ideas in an innovative way. The workshop also covered data handling, cleaning, and engineering, comparing methods in Python and JMP. Several professors joined us to share their research. The high-class posters submitted were truly impressive, showcasing both rigorous academic work and a deep understanding of real-life social issues.

The purpose of the workshop was to highlight the importance of creating posters and prepare the audience for an upcoming poster competition of the ISLP. Additionally, it aimed to teach the audience how to use JMP software, which is completely new to our community. We wanted to familiarize everyone with the features of JMP software. None of our audience members knew how to professionally create posters or had any idea about JMP software.

This workshop's success was largely due to ISLP's tremendous support. The honorable **Reija Helenius, ISLP Director**, provided us with immense support. This workshop was not only a success for us, but also for ISLP. We not only reached our target audience but also conducted a pilot competition. Most of our participants were unfamiliar with the JMP and poster design. During this workshop, they learned how to use JMP and design their own posters. Many participants have requested additional workshops to further equip statisticians with statistical tools and promote statistical literacy.

Dr. Volker Kraft conducted a two-hour session where he not only explained JMP features but also covered advanced topics like handling real-life data, data analysis, and graphical displays. This session was incredibly beneficial, providing us with numerous posters on JMP. Additionally, Dr. Quratulain Khaliq led six sessions, guiding through data engineering, cleaning, analysis, and graphical display. She also conducted a special session on poster design. Participants really enjoyed these sessions. Mahad Iqbal led the session on data engineering session using Python. Prof. Teresa Oliveria presented the invited session of five talks to motivate participants for research.

Prof. Dr. Muhammad Asadi's presence as our special guest was an honor. He has been a significant source of support, inspiration, and motivation for the organizing team and participants alike. His expertise

and insights added immense value to the workshop, inspiring participants to leverage data science for innovative solutions.

We also organized a poster competition within the workshop to assess how much benefit the participants gained from the session and to gauge the success of the workshop. Initially, we created three categories to give every educational level a chance to showcase their outcomes. We received numerous submissions from India and Pakistan, with many participants using JMP software to design their posters and share innovative ideas.

To motivate our participants, we selected the top posters as winners, including national and international winners. This approach was intended to promote online learning, ensuring that attendees not only listened to the workshop but also contributed by applying what they learned. The workshop at ISLP involved diverse attendees from various industries, including data analysts, researchers, and students. Participants enjoyed the interactive sessions and hands-on exercises, requesting more workshops to promote statistical literacy. Feedback was positive, with participants expressing interest in further training and advanced workshops. ISLP's support was instrumental in the success of the volunteer work.

As artificial intelligence and machine learning become more dominant, the importance of the field of statistics has grown. Promoting statistical literacy requires engaging diverse disciplines and creating a learning environment. Learning statistics is essential for research and understanding results, and the statistics community can effectively spread knowledge. Engaging in healthy activities like seminars and courses can help promote statistical literacy globally.
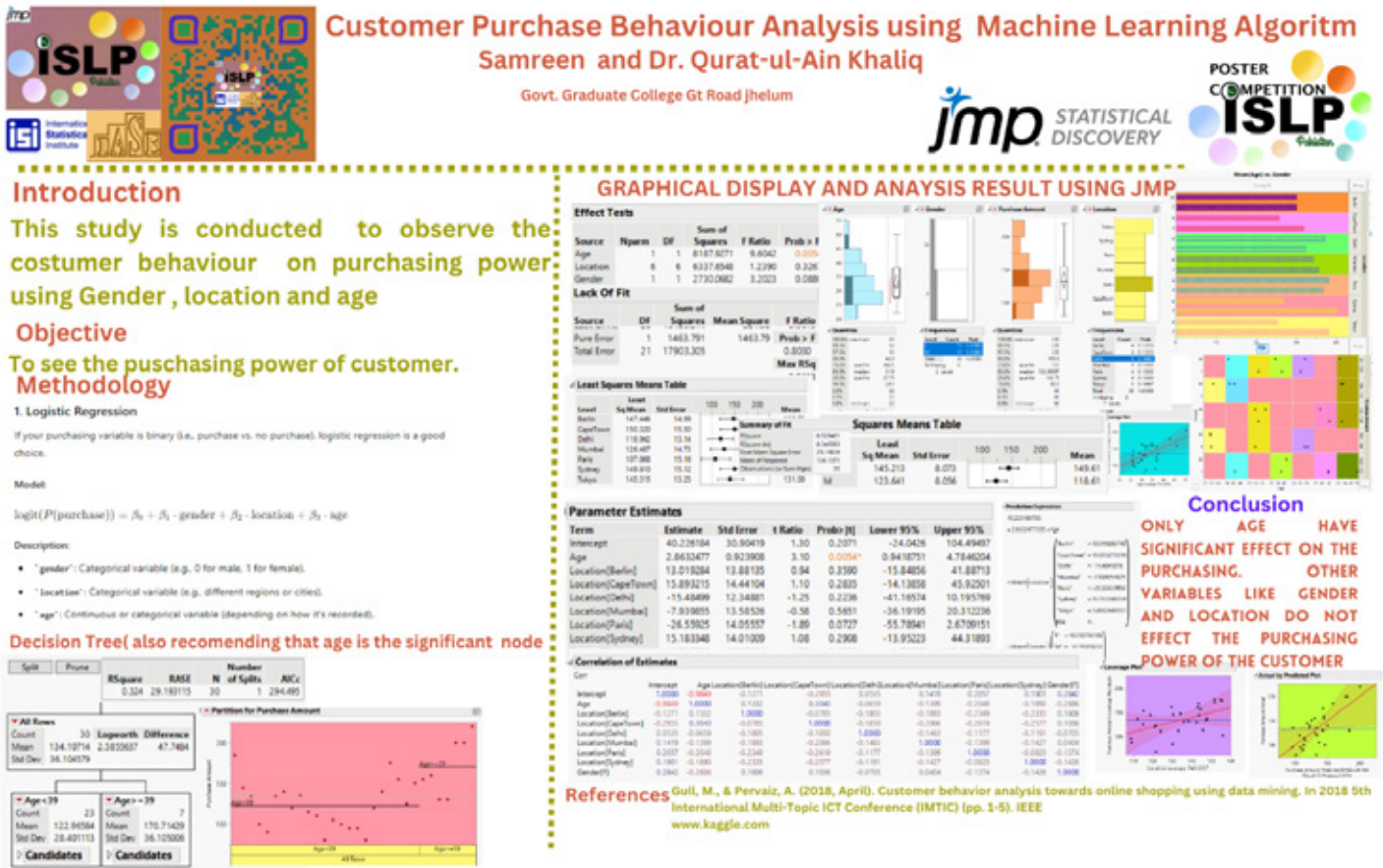
Figure 1: Poster designed by Samreen and Dr Quratulain Khaliq showing the customer purchasing behaviour analysis applying machine learning algorithm using JMP software.

Pakistan				
Position	Category Wise Poster Winner			National Winners
	I	II	III	
1st	Samreen	Roman Zainab	Shahla Gul	Shahla GUl
2nd	Maryam Tahir	Maria Malik	Ismat Parveen	Samreen
3rd	Nimra Ali and Ammara	Haseeba and Syed Shafqat Hussain Gardezi	Sidra Gul	Roman Zainab
India				
Position	Category Wise Poster Winners			National Winners
	I	II	III	
1st	Suryaprahasan. R	Swetha. M	Gayathri R	Gayathri R
2nd	C.Aravinth	Suryaprakash G	Sarathkumar S	Suryaprahasan .R
3rd	Sakthiswar. K	Anu K	Nandhinidevi S	Swetha. M & C.Aravinth
International Winners				
1st	Shahla Gul			
2nd	Gayathri R			
3rd	Suryaprahasan .R and Samreen			

Table 1: JMP workshop poster winners' country-wise detail (Pakistani team was supervised by Dr. Quratulain Khaliq while Indian team was supervised by Dr. S. Gandhiya Vendhan).

Figure 2: Details of all sessions organized in the JMP workshop.
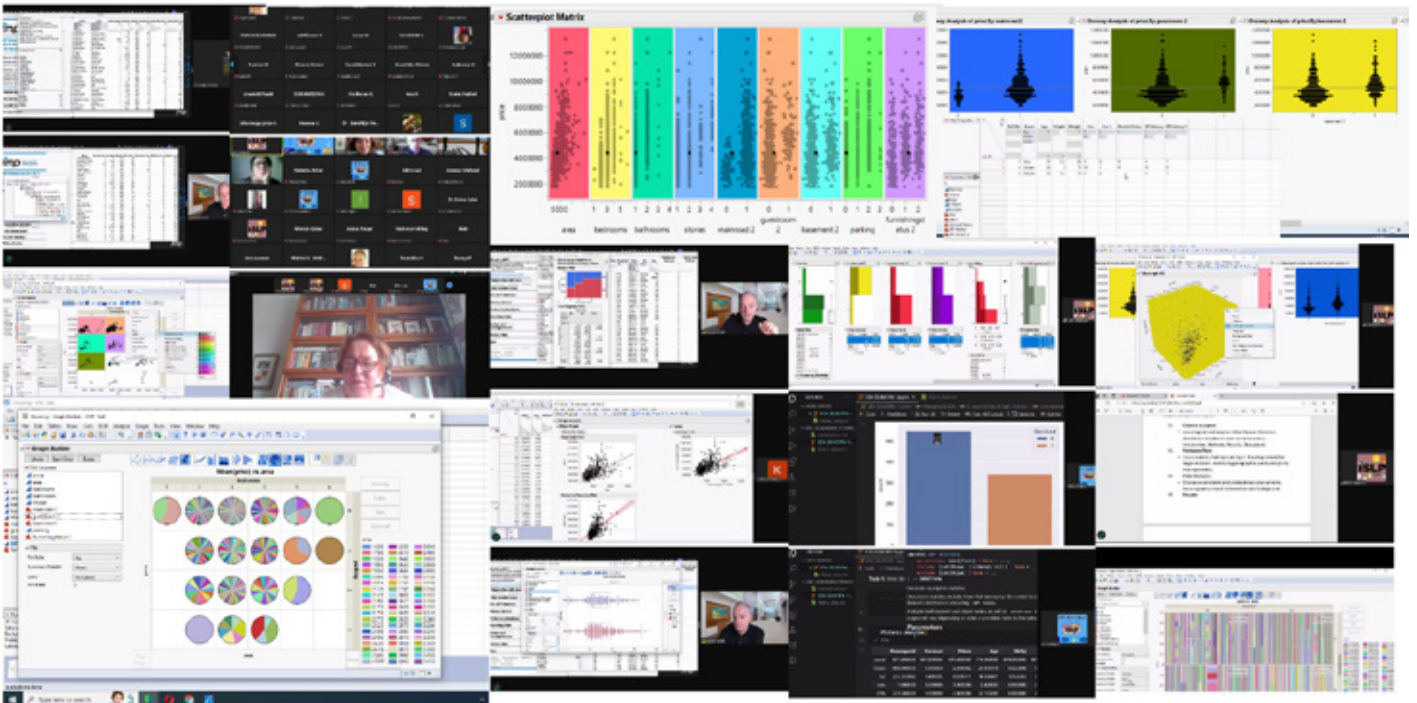
Figure 3: the overview of online session of honorable Reija Helenius, ISLP Director's speech and JMP training by Volker Kraft, Dr. Qurat-ul-Ain Khaliq, and Mahad Iqbal.
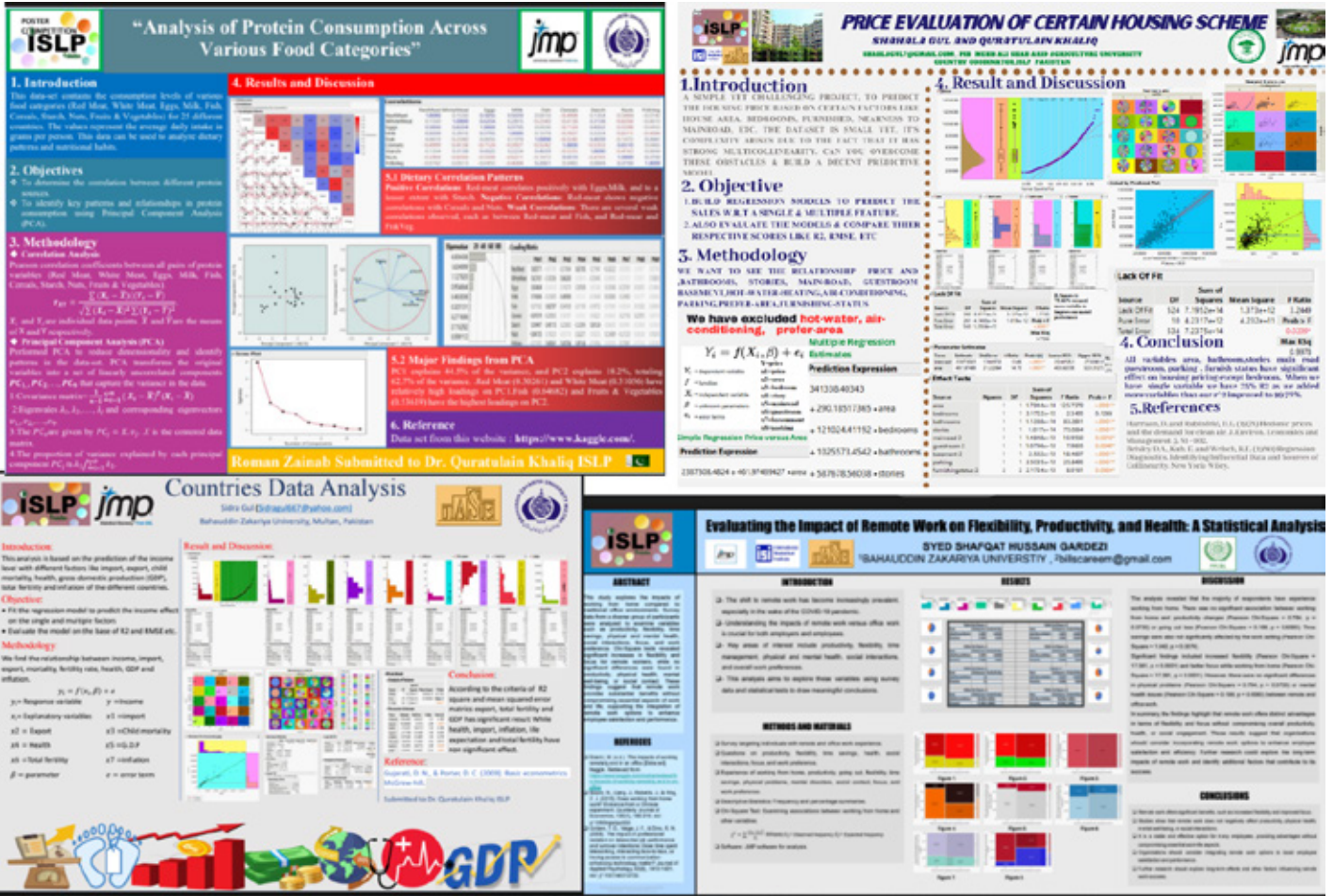
Figure 4: Some appealing posters designed by Pakistani participants using JMP software, under the supervision of Dr. Quratulain Khaliq.

Figure 5: Some beautiful posters designed by participants from India.

Figure 6: Some beautiful posters designed by participants from Pakistan under the supervision of Dr. Quratulain Khaliq.

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🇵🇰 Pakistan

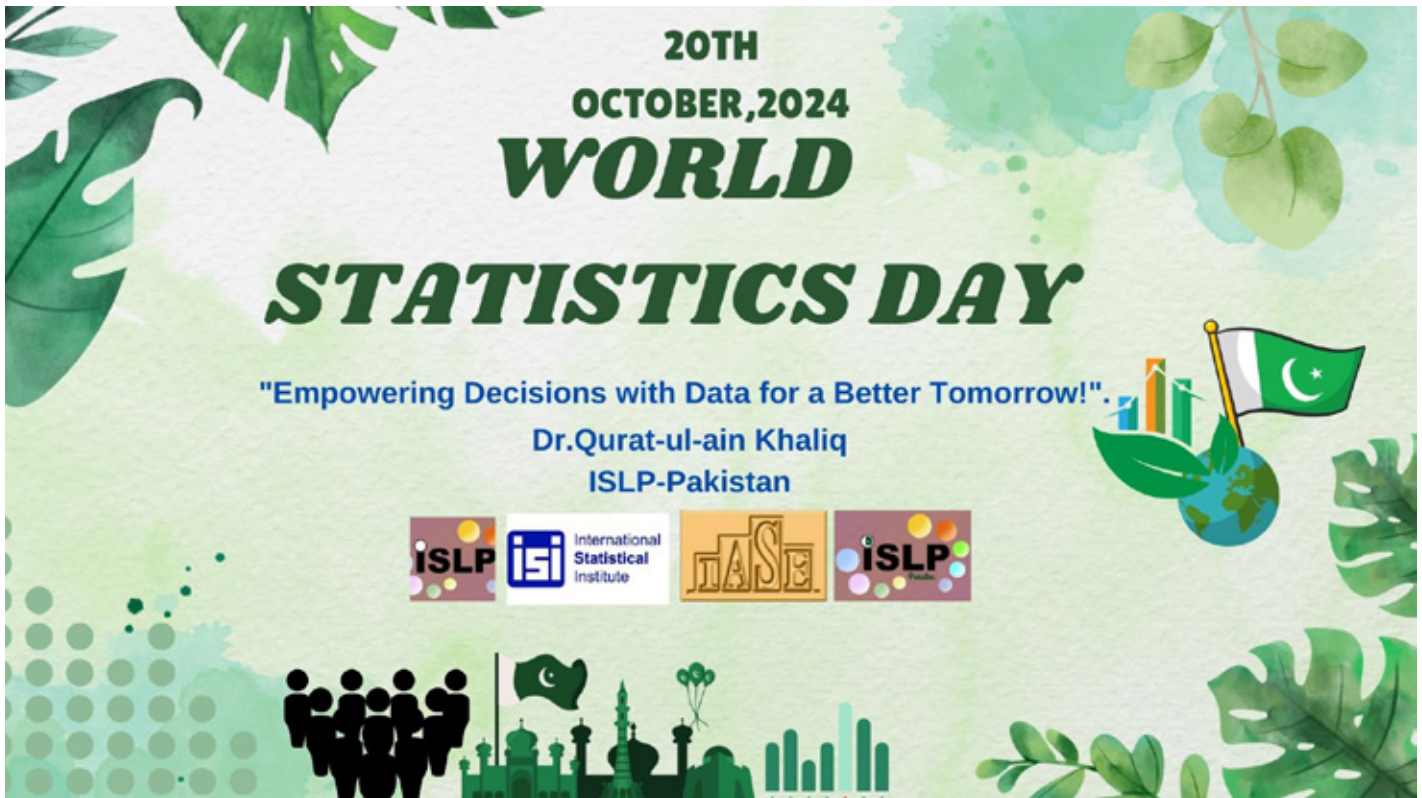# The NVivo software workshop on World Statistics Day 20th of October, 2024

Qurat-Ul-Ain Khaliq*

On **World Statistics Day, October 20, 2024**, ISLP Pakistan hosted an **NVivo Software Workshop** that supported the celebration's global objectives by showcasing the vital role of qualitative research and data analysis in understanding social phenomena. The event was hosted by **Dr. Quratulain Khaliq, ISLP Country Coordinator** from Pakistan, who discussed the importance and history of **World Statistics Day**, emphasizing the theme of "**Statistics is for Everyone**." **Professor Teresa Oliveira**, **Associate Professor at University of Aberta, Lisbon**, an invited speaker at the workshop, shed light on the importance of using and applying statistics. According to her, **statistics are like a garden; by properly planting and nurturing data, we can**

make this garden beautiful. She emphasized that the correct use of data is essential for achieving meaningful and insightful results, much like tending to a garden ensures its growth and beauty. We extend heartfelt gratitude to **MS. Maryam Fatima (Country Coordinator)** for her invaluable support throughout our sessions.

We celebrated World Statistics Day together, with participants enjoying the sessions and engaging in discussions on celebrating 2025 with renewed motivation. We focus on promoting statistics globally and ensuring their correct and practical application. Statistical experts underscored the crucial role of statistical methods across all disciplines and

emphasized the importance of applying correct techniques to inform and shape effective policies.

Dr. Shahla Gul, an educationist, gave a thought-provoking presentation on ethical practices in qualitative research and the correct application of statistical methods. Her encouragement to participants and speakers alike created an inspiring and welcoming environment. **Dr. Shahla's** unwavering motivation and enthusiasm uplifted the sessions, sparking engagement and excitement for future workshops and webinars. Her dedication has been a driving force, and we sincerely appreciate her helping make this event successful. **Ms. Ismat** Parveen conducted hands-on training, teaching participants to use **NVivo** software for qualitative data analysis. At the same time, the host, **Dr. Quratulain Khaliq**, shared her expertise in using statistics and qualitative research, offering in-depth knowledge of their application. She provided an in-depth understanding of qualitative research data collection methods and sampling techniques, guiding participants through collecting meaningful and reliable data. Additionally, she covered coding and categorizing data, essential steps in qualitative analysis, and effectively demonstrated how to design a research project using qualitative methods. Her comprehensive explanation helped participants

understand how to structure their projects to ensure accurate and insightful qualitative data analysis.

We had participants from Bangladesh, China, Ghana, India, Malaysia, Nigeria, Pakistan, Portugal, the USA, and the UK. Several participants came from non-statistics backgrounds, and through this workshop the team raised awareness about the significance of statistics and equipped attendees with practical skills in applying statistical techniques to real-life qualitative data using NVivo. This initiative supported the broader goals of World Statistics Day, reinforcing the value of high-quality, reliable data for informed decision-making and research. It also contributed to **World Statistics Day 2025** preparations by promoting statistical literacy, ethical research practices, and innovative methods in various sectors, empowering researchers and professionals worldwide. Samreen Azhar submitted her poster using NVivo software, showcasing the powerful outcomes of our workshop by applying qualitative research techniques through NVivo. Once again, it's inspiring to see what we learned in the workshop in action.

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Figure 1: Poster by Samreen Azhar.

 Argentina

XI jornada de educación estadística "Martha Aliaga" and LI coloquio Argentino de estadística

Enrique E. Alvarez*

The XI Jornada de Educación Estadística "Martha Aliaga" (Martha Aliaga Statistical Education Symposium), was held within the Annual Conference of the Argentine Statistical Society on September 24th at the Universidad Nacional de Luján (UNLu). The event, which was aimed at statistical teachers at all levels, included two plenary conferences, the morning conference was given by Dr. Joachim Engel, from Ludwigsburg-Germany, who spoke about "Alfabetización -Estadística para la educación democrática" (I.e, Statistical Literacy for Democratic Education). The afternoon conference was given by Dr. Jorge Sagula (UNLu), who spoke about teaching Probability and Statistics. Within the Education Symposium two workshops were also held: one about the impact of Artificial Intelligence in Education, given by Dr. Javier Di Salvo and Lic. Vanina Delfino (UNLu), and another about Statistical Education through case-project approach, given by Mg. Rosana Kukucbeyaz and Lic. Giselle Romagnano, Universidad Nacional de Tres de Febrero (UNTref).

In the subsequent days, September, 25th through the 27th, the **LI Coloquio Argentino de Estadística** was held at the same premises, Universidad Nacional de Luján (UNLu), Lujan main campus.

With colleagues from Argentina, Brasil, Chile, Panamá, Paraguay and Perú, the opening ceremony included welcoming words by Dr. Enrique Alvarez (President of the Local Orginizing Committee),

Lic. Emma Ferrero (Dean o fh the Department of Basic Sciences), Lic. Walter Panessi (President of the Universidad Nacional de Luján), and Dra. Lila Ricci (President of the de la Sociedad Argentina de Estadística -SAE- "i.e, Argentine Statistical Society").

During three intensive days, the conference participants had the oportunity to attend several plenary conferences as well as a discussion panel. The conferences were:

"Estimación de curvas ROC tras 60 años de Robustez" (i.e., Estimation of ROC curves after 60 years of Robust Statistics), by Dra. Ana Bianco (UBA).

"Asociaciones de beneficio mutuo: las estadísticas públicas se encuentran con la academia", (i.e., Cooperation for joint benefit: Official Statistics meets with Academics) given by Dr. Pedro Luis do Nascimento Silva (Instituto Interamericano
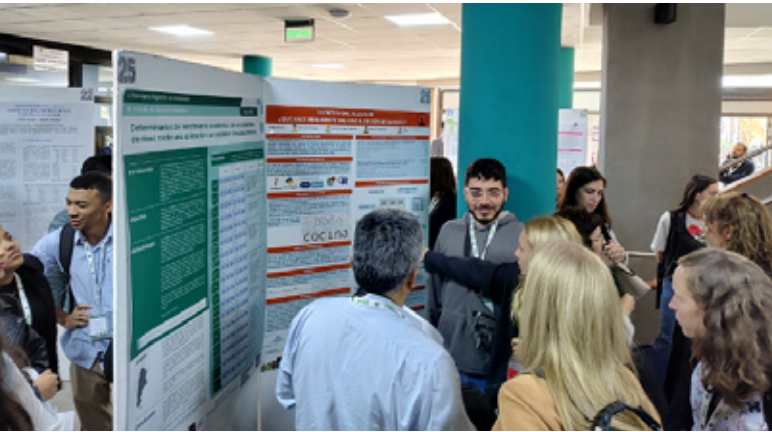
"Estadística robusta con aplicaciones en R" (Robust Statistics with R), by Dra. Alejandra Martínez (UNLu) and Dra. Marina Valdora (UBA);

"Análisis de supervivencia con aplicaciones en R" (Survival Analysis with R), by Dr. Maximiliano Riddick (UNLP) and Dra. Julieta Ferrario (UNLP); and "Aprendizaje automático con datos textuales en Phyton" (Statistical Learning from text data in Phyton), by Mg. Juan Manuel Fenández (UNLu).

de Estadística -IASI, i.e. Interamerican Statistical Institute).

"Inteligencia Artificial aplicada en el diagnóstico médico. Comentarios y experiencias Radiológicas", (i.e., Artificial Intelligence applied to medical diagnostics. Comments, and experience in Radiology") by M.D. Ariel Miquelini (Hospital Italiano).

"¿Está Sudamérica en riesgo de otra pandemia? Cómo la estadística podrá cuantificar el contagio de la gripe aviar (H5N1) bajo una mirada Bayesiana espacio-temporal", (i.e., Is South America at risk of a new pandemics? How Statistics could measaure the risk of spread of the Bird Flu through a Bayesian time-spatial approach" given by Dr. Diego Nascimento (Universidad de Atacama, Chile).

Within the conference, three short courses were also offered:

At the conference closing a discussion panel was held about the techniques and tactics for dealing with nonresponse in geographically large samples. The panel included experts in the Area from Official Statistical Agencies in Argentina as well from the Private Sector. The panel was conducted by Lic. Ernesto Rosa (UNTREF), and the invited members were Lic. Gerardo Antonio Mitas (Director Nacional de Metodología e Infraestructura Estadística, INDEC); el Mg. Néstor Fabián Rañil (Jefe del Departamento Metodología y Planificación, Dirección de Estadística de la Provincia de Buenos Aires); and el Mg. Nicolás Dagosta (Gerente de Inteligencia Artificial (IA) y Enseñanza Automatizada (Machine Learning, UALA). Last but not least, the conference included several contributed articles session in virtually every branch of Statistics, as well a broad Posters session.

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Argentina

Latest news from

the International Poster Competition

Adriana D'Amelio*

Several national coordinators from Latin American countries gathered, who shared experiences and organizations of this traditional event, which on this occasion will incorporate the primary level, in addition to the secondary and university levels.

México: Hugo Hernández, Laura Mora y Jorge Navarro
Argentina: Liliana Tauber y Adriana D'Amelio
Bolivia: Álvaro Chirino; Colombia : Juliana
Brasil: Mauren Pourciúncula; Perú : Yheni Farfán
Chile: Soledad Estrella y Guadalupe Lugo
Ecuador: Gabriela Castro
Venezuela: Johannalid González
Panamá: Elisa Mendoza

Then in October another meeting was held with the non-Spanish-speaking coordinators and especially the most recent ones from India participated. These meetings encourage interaction and pose the challenges involved in participating in and organizing the contest.

*"We remember that
the deadline to register
the country's winning poster is
April 20, 2025"*

* ISLP Deputy Director
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REUNIÓN COORDINADORES LATINOAMÉRICA
CONCURSO DE POSTERS ESTADÍSTICOS

Adriana D'Amelio 🇦🇷 lideró junto a Hugo Hernández 🇲🇽 la reunión del proyecto internacional de Alfabetización Estadística para el inicio de la Competencia Internacional de Posters ISLP. En esta oportunidad se congregaron varios coordinadores nacionales de países latinoamericanos, quienes compartieron experiencias y organizaciones de este tradicional evento, que en esta oportunidad incorporará el nivel de primaria, además de los niveles de secundaria y universitario.

Germany

AIRIES:

An educational tool for enhancing ethical and statistical literacy in project planning

Lisa Kauck* and Katharine Schueller**

Data and AI literacy is essential for understanding and responsibly using technology, encompassing technical knowledge, critical thinking, and ethical awareness. While these competencies are vital for working with data and AI systems, they are underpinned by **statistical literacy**—the ability to understand, interpret, and apply statistical methods responsibly. Statistical literacy encompasses three key competencies: (1) knowledge, (2) skills, and (3) attitudes and values. These components ensure that analyses are not only technically accurate but also ethically grounded in how data is collected, interpreted, and applied.

Statistical literacy is crucial for ethical data analysis, especially in the design and evaluation of AI systems, where making responsible decisions is vital.

Planning projects—especially those involving statistics, data or AI—requires a careful step-by-step approach to ensure ethical values are met. When project planners and stakeholders are guided to reflect critically throughout the planning process, and encouraged to ask and answer ethical questions, the result is more trustworthy projects that align with both organizational values and industry standards. This approach teaches a greater understanding of data and AI but also enhances

statistical literacy, which is essential for responsible project planning, design and implementation.

The **AIRIES (AI Risk & Impact Evaluation System)** tool helps students learn ethical and statistical principles by guiding them through real-world scenarios that simulate complex decision-making. While AIRIES is first and foremost an educational resource, its features also make it a valuable tool for professionals—such as statisticians, developers, and decision-makers—looking to plan ethical and data-driven projects.

The role of AIRIES in ethical decision-making

AIRIES supports both learners and professionals by integrating ethical and statistical principles into decision-making and guiding them through the key decisions involved in ethical project planning. It supports learners across many domains:

- **Students:** AIRIES supports problem-based learning by guiding students through projects, helping them apply ethical and statistical principles. It makes abstract concepts more tangible, enabling students to internalize ethical decision-making and better understand how to

navigate complex, data-driven challenges.

- **Statisticians:** AIRIES helps statisticians ensure data is used responsibly and aligns with global ethical standards, such as those set by the International Statistics Institute, to avoid biases and ensure fairness in data analysis. Further, it broadens their understanding of ethical dilemmas in statistics, enhancing their ability to make responsible decisions in data analysis.
- **Developers:** For developers, AIRIES provides practical tools to ensure AI systems are built with ethical considerations, such as fairness and transparency. It also offers valuable learning experience, helping developers integrate ethical practices into their technical work.
- **Decision-Makers and Policymakers:** AIRIES helps decision-makers make ethically sound, transparent, and accountable choices by aligning with global ethical principles. It encourages reflection on diverse perspectives and potential biases, enabling responsible, data-driven decision-making.

Key features of AIRIES include:

- **Automated Project Analysis:** Leads users through an ethical and statistical evaluation of their project, ensuring compliance with industry standards.
- **Tailored Recommendations:** Offers actionable steps to improve project design based on identified risks.
- **Risk Assessment:** Identifies potential ethical and statistical issues, such as biases, and suggests ways to mitigate them.

Learners reflect on ethical issues by working through projects and answering key questions, solidifying their approach to decision-making.

To show how AIRIES can be used, we examine a

case study in a fictional country, Fictionland, where AIRIES helps ensure statistical integrity during the process of redrawing electoral boundaries. In this case, AIRIES identifies risks like data manipulation and provides recommendations for maintaining fairness and transparency. This process depends on **population statistics**—data about the size, distribution, and composition of a population—to ensure fair and representative boundaries. This case looks at how statistical integrity and fairness can be affected by political interference. AIRIES helps by spotting risks like data manipulation, giving clear guidance on staying independent, and offering tools for transparency by (1) exploring the context, (2) adding values, and (3) identifying which aspects of the project support/harm the ethical requirements of the project.

Use case: ensuring compliance with International Statistical Institute ethical values in electoral boundary redrawing project

Addressing ethical challenges in electoral boundary redrawing

In Fictionland, a recent population census revealed significant demographic shifts, with urban areas growing while rural regions declined. This necessitates redrawing electoral boundaries to reflect these changes and ensure equitable representation.

1: Context exploration
In the educational setting, AIRIES starts by prompting learners to explore a real-world project scenario. Learners begin with a blank canvas (Figure 1), where they identify key project details such as data needs, project purpose, target groups, and potential challenges. This process encourages students to engage in reflective learning as they explore the complexities of project planning in practice. Alternatively, AIRIES can prefill these fields
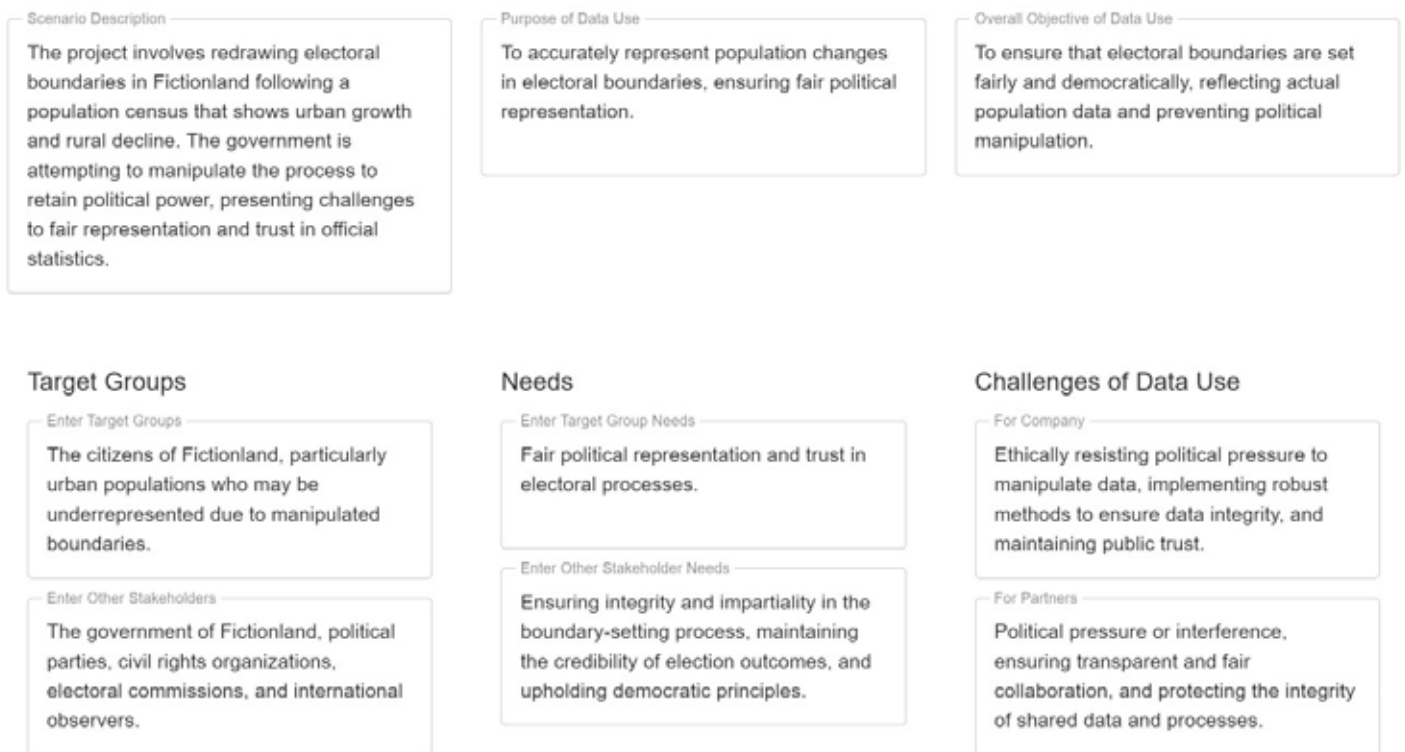
Scenario Description

The project involves redrawing electoral boundaries in Fictionland following a population census that shows urban growth and rural decline. The government is attempting to manipulate the process to retain political power, presenting challenges to fair representation and trust in official statistics.

Purpose of Data Use

To accurately represent population changes in electoral boundaries, ensuring fair political representation.

Overall Objective of Data Use

To ensure that electoral boundaries are set fairly and democratically, reflecting actual population data and preventing political manipulation.

Target Groups

Enter Target Groups

The citizens of Fictionland, particularly urban populations who may be underrepresented due to manipulated boundaries.

Enter Other Stakeholders

The government of Fictionland, political parties, civil rights organizations, electoral commissions, and international observers.

Needs

Enter Target Group Needs

Fair political representation and trust in electoral processes.

Enter Other Stakeholder Needs

Ensuring integrity and impartiality in the boundary-setting process, maintaining the credibility of election outcomes, and upholding democratic principles.

Challenges of Data Use

For Company

Ethically resisting political pressure to manipulate data, implementing robust methods to ensure data integrity, and maintaining public trust.

For Partners

Political pressure or interference, ensuring transparent and fair collaboration, and protecting the integrity of shared data and processes.

Figure 1: Context exploration.

using the project brief, providing learners with a starting point for deeper exploration and analysis.

2: Value selection

Next, learners are encouraged to upload ethical frameworks, such as the **International Statistical Institute (ISI) Declaration on Professional Ethics,** into AIRIES. AIRIES automatically extracts the values and definitions from the uploaded document (see Figure 2). By selecting values like 'Social

Responsibility' or 'Avoiding Harm,' students explore how these principles can guide real-world projects. This process deepens their understanding of ethical decision-making by connecting values to specific project risks and actions.

In addition to user-uploaded documents, AIRIES also includes pre-loaded values from recognized ethical frameworks, such as those outlined in the **EU AI Act**, the **VDE Code of Conduct** (a German technical-scientific association with a strong presence for

creating and maintaining standards), and the **Corporate Digital Responsibility (CDR) Kodex.**

3: Value-based design

As seen in Figure 2, the user selected several values such as "Respect for Privacy and Confidentiality" via checkboxes. Once a value is selected, the user can identify specific factors—called enablers and disablers—that support or harm that specific value.

AIRIES also provides suggestions for ethical requirements that could enhance the enablers and mitigate the disablers associated with each value. For example, as seen in Figure 3, AIRIES highlights how data manipulation can undermine statistical integrity and suggests safeguards like transparent data audit trails to prevent such issues. These steps can then be downloaded as to-do tasks, making it easy to track progress and ensure ethical compliance.

Overall the user has been directed through reflective

Company Values

Select	Title	Description
☑	Respect for Privacy and Confidentiality	We respect the privacy of others and the promises of confidentiality given to them. We should not suppress or improperly detract from the work of others.
☑	Professionalism and Responsibility	Professionalism implies responsibility, competence, expert knowledge, and informed judgment. We work to understand user needs, develop solutions based on the common good, ensure data quality, and act responsibly for data fitness and social acceptability. Statisticians obey the law, seek to change laws that impede good practices, avoid conflicts of interest, and strive for lifelong learning.
☑	Commitment to Truthfulness and Integrity	We produce statistical results unbiased by external pressures, present analyses openly, report limits on data relevance, and uphold transparency in methodologies. We respect intellectual property, pursue valid ideas, and ensure logical coherence of data.
☑	Protecting Subjects and Preventing Misuse	Statisticians protect subjects from harm and maintain confidentiality, only using data with consent and taking measures to prevent identity disclosure. They must communicate clearly to prevent misuse and address potential misuse after the fact.
☑	Ensuring Objectivity and Competence	Statisticians pursue objectivity without bias, ensuring data accuracy and timeliness, assessing alternatives impartially, and maintaining professional competence. They reject predetermined outcomes and ensure public confidence in statistical practices through accurate presentation and independent assessment of findings.

Figure 2: Company values.

Company Values: Respect for Privacy and Confidentiality

We respect the privacy of others and the promises of confidentiality given to them. We should not suppress or improperly detract from the work of others.

Supported / Harmed By	Enabler / Disabler	Ethical Requirement	Actions
Supported by	Confidential Data Usage (Fou	The handling of census data in redrawing electoral boundaries must ensure privacy and confidentiality, preventing unauthorized access or disclosure of personal information.	🗑
Harmed by	Political Manipulation (Found	The government's attempt to distort census data undermines privacy and confidentiality by potentially exposing individuals' data to unfair manipulation.	🗑
Supported by	Data Handling Protocols (Fou	Ensure that all electoral data, including sensitive census information, is handled with strict confidentiality to respect individuals' privacy and prevent data manipulation.	🗑

Add Row

Figure 3: Value based design.

context exploration and looked at values from various perspectives. This process helps identify the specific ethical requirements that are necessary to ensure the alignment of the project with a user-specified value system.

Broader applications and future directions

AIRIES prepares learners to handle practical challenges by equipping them with essential ethical and statistical skills. For example, in the Fictionland case, it flagged risks such as data manipulation in electoral boundary redrawing, offering practical solutions to protect integrity. These applications ensure that both students and professionals are equipped to navigate complex ethical decision-making. Users uploaded values like "Social Responsibility" and "Avoiding Harm," which AIRIES linked to project risks and actionable recommendations. This process ensures decisions are aligned with global standards.

Future updates will make AIRIES even more accessible and effective, including multilingual support, and deeper integration with tools like GitHub, GitLab, and Jira. These updates will allow users to embed ethical reviews directly into their workflows, while risk assessments will align with frameworks like the EU AI Act and certifications like ISO 24748-7000:2022. The addition of a Smart Archive will document best practices and facilitate

structured ethical decision-making, while new learning tools will promote data literacy and AI ethics through interactive examples and tasks.

Through its focus on ethical and statistical literacy, AIRIES prepares learners for projects responsibly. By offering a structured, reflective approach to decision-making, it bridges the gap between theoretical knowledge and practical application, ensuring that future statisticians, developers, and decisionmakers are equipped to lead ethical, data-driven projects.

If you're interested in exploring AIRIES or have any questions, feel free to contact us at:
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Statistical literacy newsletter

November 2024

eurostat

European Union

New statistical literacy tools and resources from Eurostat

Romina Brondino*

At Eurostat we are constantly looking for new ways to disseminate and make data accessible to the broader public. We would like to introduce some of our latest products which are aimed at different audiences and age groups and present data in a visual, inspiring and engaging way.

In previous articles, we presented our Education corner and the European Statistics Competition, both important products for statistical literacy. In this article, we focus on our new products, like the newsletter, plus other products which can be used in the classroom or elsewhere where clear presentation of data is needed to help learners understand the world.

The statistical literacy newsletter

Eurostat launched the statistical literacy newsletter to establish a regular communication channel with its network of educators and anyone looking for clearly presented official data. The newsletter is published a few times each year and has 4 sections:

- In Focus – usually some latest news
- What's new from Eurostat – information on latest updated or new products from Eurostat aimed at the audience that can use them for statistical literacy purposes
- News from our network – news from the national statistical offices
- Reading corner – suggestions for books, articles, videos or podcasts which might be interesting for the network.

You can subscribe to the newsletter on the Eurostat website.

Housing interactive publication

Eurostat publishes several interactive publications every year. The latest is the 2024 edition of the publication on housing, a very important topic for the EU and its citizens. All the visualisations used in the publications are interactive. Readers can select their country and compare the data with data for

the EU or other countries. The visualisations are designed to be intuitive, accessible and user friendly.

With the interactive publication on housing, we give a comprehensive overview of this extremely important topic that plays a vital role in everyone's life. There are large differences within Europe on how we live in terms of size, kind and quality of housing, and whether we own or rent. The evolution of house prices and rents also varies significantly between countries. In this publication you can explore the figures on many different aspects of housing.

The publication is organised in 3 sections:

- How we live: is it more common to live in a house or a flat? Do people in Europe own or rent their homes?
- Housing cost: How have house prices and rents evolved since 2010?
- Construction: Where are the most built-up areas among European regions? Have the number of building permits for residential properties gone up or down in recent years?

An automatic translation tool allows the users to translate the publication into any EU language.

Key Figures on Europe 2024

The publication Key Figures on Europe focuses on presenting main data on the EU and European citizens in a user-friendly way, accompanied by concise text. It provides insight into the current situation and recent developments across the EU countries. The publication is also available in French and German. Readers can compare the situation in their country with other European countries. It covers selected statistics focusing on people and society, economy and business, and environment and natural resources.

The publication is available online and in print.

Statistics at your fingertips

Eurostat Quiz

Want to test your own knowledge on statistics? Why not try our popular Eurostat Quiz. Choose one of the 9 statistical themes to get started. The goal is to get one correct answer per theme. For each theme you have three attempts.

You have three minutes in total to finish the quiz. The faster you reply, the higher your ranking.

The themes include regional statistics, economy and finance, population and social conditions, industry trade and service, agriculture and fisheries, international trade, transport environment and energy and science and technology.

The quiz is available in all EU languages and is a fun way to introduce data to the classroom.

The Education corner

The Education corner is dedicated to statistical literacy, with products and tools targeted at not only students and teachers, but at anyone willing to learn more about the world of statistics. The page offers an overview of the products and other resources designed to be easy to grasp, interactive and up to date.
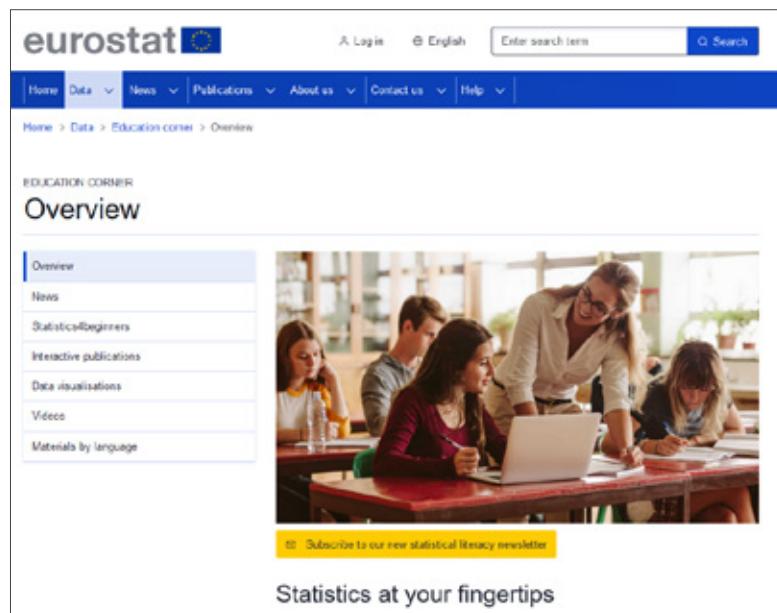
The Education corner is a useful entry point for anyone looking for statistical literacy products on the Eurostat website. A good place to start are the News and the In focus sections. In the news section, all recently published products are highlighted. The In focus section shows a curated selection of products and tools that are interesting for teachers and students.

In addition, links to other products, suitable for beginners, are included: Statistics 4 beginners and interactive publications are two ways for statistical novices to find their way in the world of statistics. Statistics 4 beginners explain the basic concepts and topics in statistics, while interactive publications present an overview of main statistical data on a specific topic using interactive visualisations.

Links:
- **Statistical literacy newsletter: last issues**
- **Subscribe to the Eurostat's statistical literacy newsletter**
- **Interactive publication on Housing**
- **Key figures on Europe**
- **Eurostat quiz**
- **Education corner**
- **Statistics 4 beginners**

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USA

Recent Stats+Stories podcast episodes

John Bailer*

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Freely available audiobook "Statistics Behind the Headlines"

John Bailer*

The audiobook version of "Statistics Behind the Headlines" read by Stats+Stories panelists John Bailer and Rosemary Pennington is now available. This audiobook explores the crucial role statistics play in understanding the news and promises to enlighten and empower listeners in deciphering the complexities of today's world.

"Statistics Behind the Headlines" equips listeners with the tools needed to critically analyze the numbers shaping our world. Bailer and Pennington demystify statistical concepts, empowering listeners to interrogate the data behind the headlines.

Whether it is understanding the impact of social media on teen depression, new running shoes on record marathon times, binge-watching television on health, or understanding the spread of COVID-19, this audiobook serves as a guide for anyone seeking to deconstruct news to determine what statistical and research ideas are the foundations for stories. It also provides insight into the journalistic practices that shape the production of news. Listen now at **www. statsandstories.net/book**.

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Belgium

New country coordinator:
Belgium

Kelly Sabbe*

Since June of 2024, Kelly is the new Statistical Literacy Coordinator at Statistics Belgium. Her tasks are:

- Coordinating the European Statistics Competition in Belgium, in collaboration with the Interfederal Institute for statistics and other partners;
- Maintaining and expanding Statbel Academy with the aim of making statistics accessible from primary school to further life. Statbel Academy's activities include Statbel junior (**https://www.statbeljunior.be/en**), the YouTube channel (**https://statbel.fgov.be/nl/statbel-academy**), and organising symposia; and
- Representing Belgium in national and international organisations promoting statistical literacy.

Her mission as ISLP country coordinator for Belgium is to promote statistical literacy in Belgium, driven by the inherent belief that statistical literacy and statistical reasoning are essential skills that can help people make better decisions in everyday lives. By understanding and applying statistical literacy concepts, people can more effectively interpret information, evaluate claims, and make informed choices.

Kelly started in the field of healthcare. After working as a data manager for the Federal Public Service of Health, she became a data analyst at Statistics Belgium, responsible for the Household Budget Survey and Time Use Survey, where she represented Belgium at Eurostat. Besides the responsibilities for these two surveys, Kelly coordinated multiple Eurostat projects and grants within the field of innovative tools and sources for official statistics in collaboration with Destatis, the German statistical office, and MOTUS, a spin-off from the Free University of Brussels (VUB). The focus of these grants was on implementing modularity for a better understanding of diary-based surveys and establishing cross-domain data collection platforms. After five years, and a brief intermezzo at the Belgian Health Care Knowledge Centre for one-and-a-half years, Kelly came back to Statistics Belgium as the Statistical Literacy Coordinator.

As well as working at Statistics Belgium, Kelly is also a teaching assistant in the field of scientific research and statistics at the University of Antwerp, where she is also the internship coordinator at the faculty of Health and Care and is finalizing her PhD in medical sciences.

She is a strong believer in collaborating and the value of transferrable skills. She tries to disseminate all her work and findings in multiple ways (from conferences to papers, books and book chapters, posters, leaflets and everything in between) and is always looking for opportunities to collaborate.

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Chile

New country coordinator:
Chile

Jesús Guadalupe Lugo-Armenta*

Lupita, as she is usually called by her friends, combines a strong academic foundation with extensive industry experience. She holds a PhD in Mathematics Education and works as a university professor. In the undergraduate ambit, her interests include key courses such as Descriptive Statistics, Probability and Statistics, and Inferential Statistics, with a primary focus on promoting statistical reasoning and literacy, a crucial skill for students in various disciplines. For the postgraduate level (Master's and PhD) in Mathematics Education, she specializes in research methodology, research seminars, and advanced statistics courses, aimed at preparing future researchers and educators in the field.

In addition to her teaching duties, Lupita Lugo-Armenta is an active and committed researcher in statistics. Her research primarily focuses on inferential statistical reasoning, among future and practicing mathematics teachers, as well as university students in fields related to the social sciences. Recently, she has established collaborations with researchers in the health field to strengthen the use of statistics in research within this field, highlighting the flexibility and interdisciplinarity of her research and her promotion of the application of statistics across various fields. One of her most notable contributions has been the proposal of levels of inferential reasoning for hypothesis testing.

Lupita Lugo-Armenta is currently the treasurer of the Sociedad Chilena de Educación Matemática (Sochiem) and the principal coordinator of the Seminario Latinoamericano de Colaboración sobre el Enfoque Onto-Semiótico. She is also involved in research projects both in Chile and internationally, aiming to promote statistical literacy among university students and mathematics teachers at the primary and secondary levels in Latin America. Her commitment to improving statistical education in the region is an integral part of her academic and professional career.

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Chile

New country coordinator:
Chile

Jesús Guadalupe Lugo-Armenta*

Lupita, como es llamada por sus amigos, combina una sólida base académica con una amplia experiencia en la industria. Es Doctora en Educación Matemática y se desempeña como profesora universitaria. En el ámbito de la docencia de pregrado, sus intereses incluyen cursos claves como Estadística Descriptiva, Probabilidad y Estadística, Estadística Inferencial, enfocándose principalmente en promover el razonamiento y la alfabetización estadística, una habilidad crucial para los estudiantes en diversas disciplinas. Para el nivel de postgrado (master y doctorado) en Educación Matemática, se especializa en Metodología de la Investigación, Seminarios de Investigación y cursos avanzados de Estadística, destinados a preparar a futuros investigadores y educadores en el campo.

Además de su labor docente, Lupita Lugo-Armenta es una investigadora activa y comprometida con la Estadística. Sus investigaciones se enfocan principalmente en el razonamiento estadístico inferencial, tanto entre futuros profesores y profesores en ejercicio de matemáticas como en estudiantes universitarios de áreas relacionadas con las Ciencias Sociales. Recientemente, ha establecido colaboraciones con investigadoras del campo de la salud con el objetivo de fortalecer el uso de la Estadística en investigaciones dentro de este ámbito, lo cual resalta la flexibilidad e interdisciplinariedad de sus investigaciones y promueve la aplicación de la Estadística en diversas áreas. Una de sus contribuciones más destacadas ha sido la propuesta de Niveles de razonamiento inferencial para las pruebas de hipótesis.

Actualmente Lupita Lugo-Armenta es tesorera de la Sociedad Chilena de Educación Matemática (Sochiem) y coordinadora principal del Seminario Latinoamericano de Colaboración sobre el Enfoque Ontosemiótico. Asimismo, está involucrada en proyectos de investigación tanto en Chile como a nivel internacional, con los cuales busca fomentar la alfabetización estadística entre estudiantes universitarios y profesores de matemáticas de nivel básico y secundario en Latinoamérica. Su compromiso con la mejora de la Educación Estadística en la región es una parte integral de su trayectoria académica y profesional.

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India

New country coordinator:
India

Ankita Dey*

Presently I am working as a Statistician in the National Institute of Tuberculosis and Respiratory Diseases, New Delhi, India, an autonomous Institute under the Ministry of Health and Family Welfare, Government of India. My duties involve providing training and guidance to post graduate medical students and in analysis, interpretation and presentation of data within various departments of the Institute. I collaborate with the faculty members involved in medical research. I received a PhD in Statistics in 2023 from the University of Calcutta (CU), India. After completion of my master's degree programme in Statistics in 2012, I worked in several research projects in Indian Statistical Institute, Kolkata, India. I was engaged as an Assistant Professor cum Statistician in the KPC Medical College and Hospital, Kolkata, during 2015-2019 and as a Guest Lecturer in Aliah University, Kolkata during 2015-2016. I have taught descriptive and analytical statistics courses to undergraduate and postgraduate medical students and students pursuing graduate and postgraduate education in statistics.

My research interests include latent class analysis & related latent variable models and their applications in various disciplines including sociology, medical science, educational measurement, etc. My acquired knowledge and skills include development of latent variable modelling and data driven decision making applicable in various domains viz. medical research, sociology, education, economics, etc. As a researcher in statistics, I like to integrate problem solving with real life data collected from various national or international databases, surveys, etc. and explore numerous possibilities of application of my research interest in applied multivariate analysis, latent class analysis, item response theory, in an interdisciplinary approach. This work helps in understanding present scenarios and identifying policy gaps, and it may lead to further policy making. I have authored more than ten research articles which are published in peer-reviewed journals.

My research publications include applications of latent class analysis in the medical diagnosis. I used latent variable models to construct an index to measure women empowerment and analysed its implication to the relevant Sustainable Development Goals for 2030. I developed a new model of multiple group latent class analysis which accounts for the influence of social networks among the respondents. The model is an important contribution to survey research and is also applicable to various scientific domains including medical and behavioural research. In education, I worked on implication of private tuition in student achievement in West Bengal. I also developed a novel technique to detect differential item functioning based on item response theory and demonstrated its use on the State Level Achievement Survey data on student achievement in West Bengal. In a research collaboration, I was also involved in analysing methodologies behind several financial indices relevant to the surveys conducted by the Reserve Bank of India. I was involved in the process of building appropriate statistical models for assessing the current situation and forecasting future scenarios.

My hobbies are singing Indian vocal classical and contemporary songs. I also have interest in amateur story writing and painting.

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Oman

New country coordinator:
Oman

Amal Said Al-Amri*

Amal Said Al-Amri is an Assistant Professor in Business Statistics at the College of Banking & Financial Studies, Sultanate of Oman. She holds a PhD in Applied Statistics from the University of Malaya, Malaysia, a master's degree in Statistics from the University of Wollongong, Australia, a postgraduate degree in higher education professional practices from Coventry University, United Kingdom, and a Bachelor of Science in Business Statistics from Sultan Qaboos University. She is a Senior Fellow of the Higher Education Academy, United Kingdom. She is a member of the Executive Committee of the Omani Society for Statistics (under formation) and a former member of the Executive Committee of the Omani Society for Quality in Higher Education and former member of the Executive Committee of the Omani Society for Education Technologies. In addition to her research and teaching experience, she handled various managerial roles at Middle East College, Sultanate of Oman: head of the Data Office (nearly 8 years) and head of the Quality Assurance and Student Experiences Office (nearly 5 years). She is an accredited manager in quality management and certified trainer in statistics. She is the co-Founder of AHSA for Statistical Services, Sultanate of Oman. She worked as a statistical analyst for many research projects at national level in Oman and has several publications in high indexed journals.

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South Africa

New country coordinator: **South Africa**

Delia North*

Professor North served in the Statistics section of the School of Mathematics, Statistics and Computer Science at UKZN (South Africa), for over 3 decades. She has over 30 years' experience in teaching statistics and has served as Chair of the South African Statistical Association Education committee for 17 years and is a former Vice President of the International Association for Statistics Education.

She has received various national and international awards in recognition of her excellence in capacity building projects in statistics, with focus on providing much needed knowledge production and research, through statistics capacity building projects at school level (empowering teachers) and university level (effectively preparing students for the workplace).

She retired from UKZN at the end of 2023, where she is now an Honorary Professor in Statistics, at the School of Mathematics, Statistics and Computer Science at UKZN.

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Colombia

New country coordinator: **Colombia**

Paula Juliana Cadena Castañeda*

*Docente. Programación en Visual Basic, Ofimática y Bases de Datos en Access. UNIVERSIDAD AUTÓNOMA DE BUCARAMANGA Docente en informática Básica y Fundamentos de Programación, en el nivel Técnico y Tecnólogo. Coordinadora de Articulación Alianza TIC Santander: Encargada de la coordinación del proceso de Articulación que inició Unab Tecnológica en el área de Teleinformática, matricula y gestión de procesos administrativos. Bucaramanga Colombia.

New country coordinator: **Colombia**

John Jairo Escobar*

Profesional en Matemáticas con énfasis en estadística de la U.T; con postgrados en: Especialista en "Gerencia de Proyectos", y Magister en "Pedagogía y mediaciones tecnológicas"; amplia experiencia en el campo docente, 15 años; docente universitario en:

Fundamentos de matemáticas, estadística descriptiva, estadística inferencial cálculo en una y varias variables, álgebra lineal entre otros. Ponente en más de 20 eventos académicos a nivel nacional e internacional. Docente de matemáticas en Institución Educativa Técnica Luis Carlos Galán Sarmiento de Ibagué. Caracas Colombia

International Statistical Poster Competition 2024–2025

The Poster Competition has started in February 2024.

Participating countries can submit winning posters until 20.4.2025.

To sign up, please contact **islp.coordination@gmail.com**

iStock

The Best Cooperative Project Award in Statistical Literacy,

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

The Best Cooperative Award is accepting contributions.
Submit it to the competition by writing a brief description of the project to islp.coordination(at)gmail.com and pedro.campos(at)ine.pt.
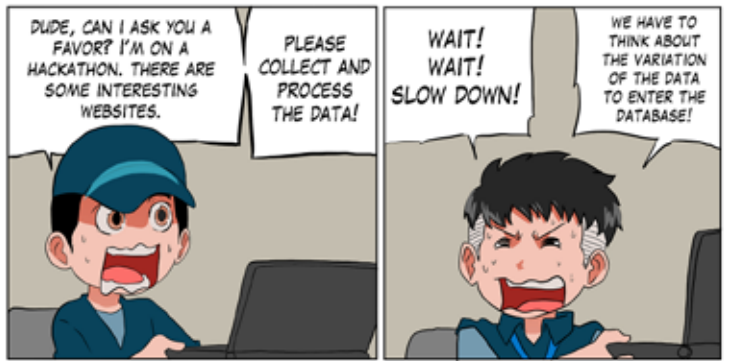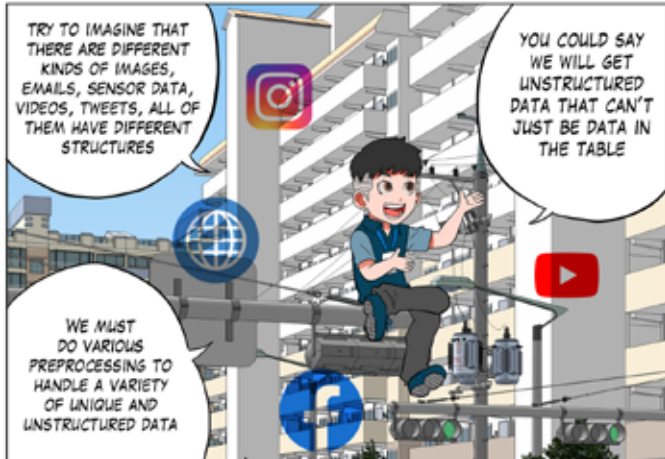
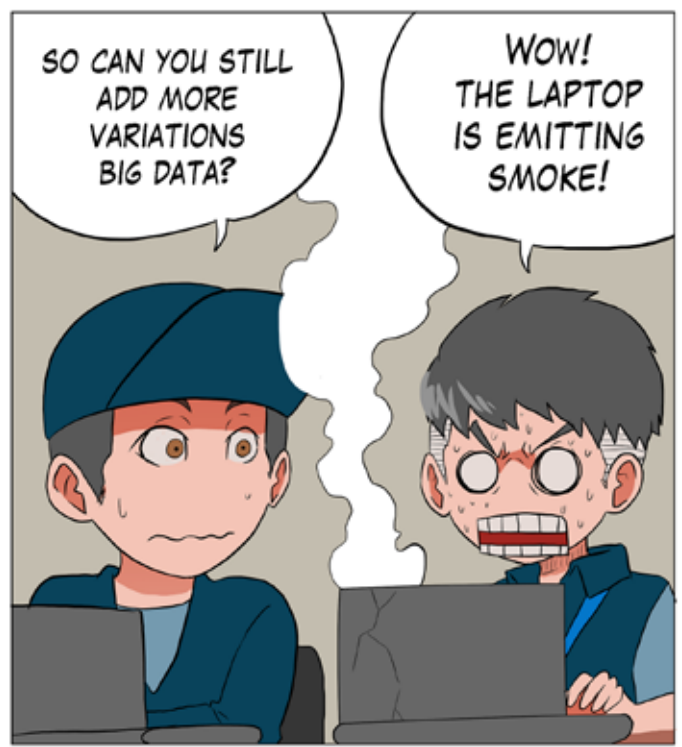**The competition closes Spring 2025.**

Indonesia

Big Data Comic

Maulana Faris*

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