ETHICAL STATISTICAL PRACTICE WITH THE INTERNATIONAL STATISTICAL INSTITUTE DECLARATION ON PROFESSIONAL ETHICS

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In the age of fake news and generative artificial intelligence such as ChatGPT, ethical professional practice is becoming more important than ever. Finding ways of upholding professional ethical behavior is important for the society and the world. For educators, it is important to teach ethics alongside of statistical practice. In a world where data is accumulated faster than taking a breath and fake news encountered more often than not, it is important to make sure our students are ethical statistical practitioners.

INTRODUCTION

The International Statistical Institute (ISI) Declaration on Professional Ethics (DPE) has recently been updated (ISI, DPE, 2023). An informal survey of International Association for Statistical Education (IASE) members in 2023 showed that majority (85%) of responders to the survey think that "ethics" is an important topic for statistics classrooms, 6 in 10 teach some ethics to their students though only 13% discuss the ISI DPE with their students.

The aim of this workshop was to inform the IASE community about how ISI DPE can be used for ethical practice through integrating ethics into curriculum. We used Wild & Pfannkuch (1999) Problem, Plan, Data, Analysis and Conclusions (PPDAC) investigative cycle as a guidance to map ISI DPE Professional Values and Ethical Principles to increase the understanding of the Ethics in Statistics of the IASE community.

Based on a case study I provided, the participants worked with me to complete the mapping of statistical activities to the PPDAC investigate cycle and then to the ISI DPE so that in the future they can support their own learners to have ethical lens on their statistical practice; where the learners will be sensitized to criticize cases observed in news from an ethical perspective by use of the ISI DPE; and will be able to justify any decisions on the PPDAC cycle with an ethical consideration based on the ISI DPE (not personal judgment). The workshop was interactive and included brainstorming, small group discussions, and peer reflections.

CASE STUDY: DO WE HAVE A PROBLEM?

Context: In a work integrated learning unit, students were provided with a data file by a client in Excel (many sheets) where they could see the names and staff IDs. The file contained staff access to different rooms in the company-owned buildings. Some of these rooms were staff offices (some open space office desks), and others were laboratories or meeting rooms or photocopy rooms etc. The students were asked to analyse the data and identify usage of the rooms by each staff.

Questions: Can we identify associated statistical tasks from the PPDAC and problem(s) where ethical reasoning and the ISI DPE could have helped students to do the right thing (whatever it is, we need to define "the right action" as well)? Which of the ISI DPE Values and/or Principles can be used for each task identified? Can we find the ISI DPE values and/or principles which could be used for the identified tasks to stop unethical behaviour?

CONCLUSION

Tables 1 and 2 were created prior to the workshop by the author. During the workshop the participants worked in pairs to do their own mapping prior to seeing the author's mapping. Comparisons of the participants' mappings, and the author's mapping showed that they were consistent. In addition, one of the authors of the Wild & Pfannkuch (1999) paper was also a participant in the workshop and confirmed the mapping was in line with her thinking (personal communication with M. Pfannkuch).

Table 1 shows the breakdown of the activities which are expected of the students into their place in the PPDAC cycle while Table 2 shows the ISI DPE mapping to PPDAC cycle. It was clear that the

ISI DPE Values were relevant to all of the PPDAC activities (bold font is used to emphasize where it was easier to decide most relevant value).

Table 1: The breakdwon of the activities which are expected of the students into their place in the PPDAC cycle

Problem	Plan	Data	Analysis	Conclusions
Students are asked to analyse secondary data which was collected for security, but client wants to know whether space is effectively utilised.	What do the client mean by "utilisation"? How would this be measured? Understanding the room usage.	Data has staff names (without consent for data analysis). Swipe cards used for entering the spaces but not exiting. There are many excel sheets to merge.	Use agreed definition to explore the data. It can be piloted by a space or a building. Is it possible to do any modelling?	Write a report keeping in mind privacy concerns of the staff and how the results could be used for decision making (i.e. Is the management planning to move to hot desks instead of dedicated office?)
Are the spaces effectively utilised by staff?	Clarification of definition and ways of data collection.	Data cleaning, checking that staff are aware that the data is used for a different purpose.	Understand the limitations of data before deciding how to analyse in the meantime complete exploratory data analysis.	Communicate effectively and clearly at the level of the client

Table 2: The ISI DPE mapping to the PPDAC cycle

ISI DPE	Problem	Plan	Data	Analysis	Conclusions
Values	**Respect Professionalism Trustfulness and Integrity**	**Respect Professionalism Trustfulness and Integrity**	**Respect** Professionalism Trustfulness and Integrity	Respect Professionalism Trustfulness and Integrity	Respect Professionalism Trustfulness and Integrity
Principles	5. Avoiding pre-empted outcomes 10. Communicating ethical principles	2. Clarifying obligations and roles 4. Conflict of interests 6. Guarding privileged information 12. Protecting the interests of subjects	1. Pursuing objectivity (accurate - timely data) 6. Guarding privileged information 12. Protecting the interests of subjects	3. Assessing alternatives 9. Exposing and reviewing methods and findings	1. Pursuing objectivity (present findings openly, completely, document limitations, communicate clearly) 8. Maintaining confidence in Statistics
	7. Exhibiting Professional Competence 11. Bearing responsibility for the integrity of the Discipline Dispositions: Scepticism, imagination, curiosity and awareness, openness, a propensity to seek deep meaning, being logical, engagement and perseverance				

Learning statistics in isolation of ethical values and principles could cause unethical behavior without being aware of the problems. Similar activities with relevant case studies, either with the ISI DPE or with national statistical code of ethics, can be used in statistics classrooms to encourage students to think about ethics and its place in statistical practice to prevent any future unethical behaviour.

REFERENCES

International Statistical Institute, Declaration on Professional Ethics. (2023). https://www.isi-web.org/declaration-professional-ethics

Wild, C. J., & Pfannkuch, M. (1999). Statistical thinking in empirical enquiry. *International statistical review*, 67(3), 223-248. https://iase-web.org/documents/intstatreview/99.Wild.Pfannkuch.pdf