Collaborative Learning Discussion 2

Initial Post

Many research studies use data to construct or validate their conclusions, hypotheses, or theories. To ensure the accuracy and trustworthiness of these outcomes, researchers employ validity and reliability as crucial factors in their investigations. Validity refers to the degree of accuracy in measuring data or results, while reliability pertains to the consistency of these measurements. Ahmed and Ishtiaq (2021) note, "The validity factor in research assesses the accuracy of data or result measurements, while the reliability factor evaluates the consistency of these measurements".

Let us examine the concerns and explore potential courses of action for Abi:

1. Analyzing the correct data to support different conclusions

Manipulating data or analysis to support a specific conclusion is unethical. However, even with the same data, different conclusions can be reached, as Schweinsberg et al. (2021) demonstrated. They list several reasons for these discrepancies: Variable operationalization differences, statistical analysis variations, subjective decisions by individual analysts, Absence of clear theoretical guidance and complexity of the data analyzed.

As a professional programmer, Abi should adhere to ethical codes such as the BCS Code of Conduct. By maintaining professional competence, integrity, and duty to the profession (BCS, 2021), Abi is expected to be transparent about the methods used and present the results unbiasedly.

2. Obligation to present both positive and negative analyses

A comprehensive analysis should present a complete picture of the data, encompassing both positive and negative aspects. Focusing solely on one side could compromise the quality of decisions based on the conclusions. As a computing professional, considering potential risks is essential to maintaining ethical standards and responsible decision-making.

3. Responsibility for the use of program results

Abi's responsibility lies in delivering accurate and unbiased results. While he cannot control

how others use his findings, he should ensure that the results are presented clearly and without bias. Additionally, Abi should demonstrate transparency in his data processing methods to uphold ethical standards and maintain trust in his work.

4. Courses of action if the manufacturer only publicizes positive results

a. Report to his supervisor, highlighting potential risks, and request a discussion to address the issue and take any necessary steps.

b. Consider disclosing the information to the public, as the BCS Code of Conduct requires all members to prioritize public interest (BCS).

c. Consult with legal professionals for guidance on appropriate actions and potential implications.

Legal, Social, and Professional Impacts:

Legal: Abi should be aware of local and international laws and regulations regarding calculated potential risks or hidden negative conclusions from the analysis. Violating these laws could result in legal consequences for Abi and his institute.

Social: selectively presenting data could undermine the public's trust in research and negatively impact the institute's and Abi personnel's reputation.

Professional: Abi's professional reputation and integrity could be at stake if he engages in unethical practices.

Reference

Ahmed, I. and Ishtiaq, S., 2021. Reliability and Validity: Importance in medical research. *methods*, *12*, p.13.

Schweinsberg, M., Feldman, M., Staub, N., van den Akker, O.R., van Aert, R.C., Van Assen, M.A., Liu, Y., Althoff, T., Heer, J., Kale, A. and Mohamed, Z., 2021. Same data, different conclusions: Radical dispersion in empirical results when independent analysts operationalize and test the same hypothesis. *Organizational Behavior and Human Decision Processes*, *165*, pp.228-249.

British Computer Society. (2021). BCS Code of Conduct. [online] Available at: https://www.bcs.org/media/2211/bcs-code-of-conduct.pdf [Accessed 19 Mar. 2023].

Summary Post

I would like to express my sincere gratitude to everyone who replied to my initial post. Your insights and perspectives have been invaluable, and I am truly inspired by your contributions.

As an IT professional Abi, he faces various decisions that require him to rely on his knowledge and expertise. However, not all decisions can be determined by universal constant principles. In some cases, the same data can lead to different conclusions, which could indicate a quality issue with the data or a lack of understanding by the people analyzing it (Schweinsberg et al., 2021).

As a responsible and ethical professional, Abi should strive to present a complete and accurate picture of the data, as recommended by the Association for Computing Machinery (ACM, 2018). Additionally, as a computer professional, Abi should also analyze any potential risks that the decisions could bring, as highlighted by the British Computer Society (BCS, 2022).

Jonathan (2023) pointed out in his peer review that mishandling and misinterpreting data could result in accusations and significant damage to personal and professional reputations. The case of scientists sponsored by tobacco companies to argue against the relationship between lung cancer and smoking, leading to a loss of public trust and ultimately forcing the tobacco companies to pay billions of dollars in a settlement agreement in 1998 (NAAG, n.d.), serves as a classic example of the devastating consequences that researchers and companies could face due to a loss of public trust.

In conclusion, as professionals, it is our responsibility to use unbiased and critical thinking to provide as accurate information as possible, with the public interest as our first priority. This approach will benefit not only our personal and organizational goals but also our communication and relationships with others.

Reference

ACM (2018) Association for Computing Machinery. ACM Code of Ethics and Professional Conduct.

British Computing Society. (2022). Code of Conduct For BCS Members.

Cummings, K.M., Brown, A., & O'Connor, R., 2007, The Cigarette Controversy, Cancer Epidemiology Biomarkers & Prevention, 16(6), pp. 1070-1076

National Association of Attorneys General. (n.d.). The Tobacco Master Settlement Agreement (MSA). NAAG. Retrieved March 22, 2023, from https://www.naag.org/our-work/naag-center-for-tobacco-and-public-health/the-master-settlement-agreement/

Schweinsberg, M., Feldman, M., Staub, N., van den Akker, O.R., van Aert, R.C., Van Assen, M.A., Liu, Y., Althoff, T., Heer, J., Kale, A. and Mohamed, Z., 2021. Same data, different conclusions: Radical dispersion in empirical results when independent analysts operationalize and test the same hypothesis. Organizational Behavior and Human Decision Processes, 165, pp.228-249.

Peer review to Zihaad Khan’s Initial Post

Hi Zihaad, thank you for the excellent explanation in your initial post, particularly the focus on ethical guidelines from the statistical organization code.

Indeed, even when using the same data, different conclusions can be reached (Schweinsberg et al., 2021). This may be acceptable and might not initially be considered an ethical concern. However, as you pointed out, the ASA has relevant guidelines for its members: "Statisticians should contemplate, and be sensitive to, the manner in which information is framed to avoid disproportionate harms to vulnerable groups" (ASA, 2022). In Abi's case, he should take responsibility for presenting a complete picture of the analysis, not just the aspects that the manufacturer would be pleased to hear.

Accuracy implies that the data and conclusions should be correct and not mislead people into making incorrect decisions. It is difficult to believe that an incomplete analysis can generate high-quality predictions. In my view, the ASA may have a more formal process for resolving conflicts, while the ACM or BCS may have a more informal approach that relies on discussion and negotiation. Given the ASA's expertise in statistics, Abi could consider turning to the ASA first for guidance on his actions, especially since the conclusions are more closely related to data analysis rather than programming.

Reference

Schweinsberg, M., Feldman, M., Staub, N., van den Akker, O.R., van Aert, R.C., Van Assen, M.A., Liu, Y., Althoff, T., Heer, J., Kale, A. and Mohamed, Z., 2021. Same data, different conclusions: Radical dispersion in empirical results when independent analysts operationalize and test the same hypothesis. Organizational Behavior and Human Decision Processes, 165, pp.228-249.

ASA (2022) American Statistical Association. Ethical Guidelines for Statistical Practice. Available from: https://www.amstat.org/your-career/ethical-guidelines-for-statistical-practice [Accessed 20 March 2023].

Peer review to Jonathan Callaghan’s Initial Post

Hi Jonathan, thank you for sharing your perspective.

In this case, as a professional statistician and programmer, Abi's primary responsibility is to provide a comprehensive and accurate analysis for the manufacturer to reference and make decisions, even if the results are unexpected. Additionally, it is worth noting that the same data can lead to different conclusions due to various factors, such as employing distinct statistical methods for data interpretation (Schweinsberg et al., 2021). As you suggested, Abi should be transparent about how he processes data and arrives at conclusions. On the other hand, Abi is obligated to make his research available for external scrutiny, ensuring high validity, which means that the results accurately reflect the real properties, characteristics, and variations in the physical or social world (Middleton, 2019).

I agree with you that IT professionals can use the BCS Code of Conduct to guide their daily work and assess their behavior. The BCS prioritizes public interest, so if there is a conflict between the manufacturer and the public, Abi should consider the public's perspective and act accordingly. Additionally, when faced with such a situation, Abi should not make decisions in isolation. Instead, he could involve more people in the discussion to gather diverse perspectives, which can help him make a more informed and responsible decision.

Reference

Schweinsberg, M., Feldman, M., Staub, N., van den Akker, O.R., van Aert, R.C., Van Assen, M.A., Liu, Y., Althoff, T., Heer, J., Kale, A. and Mohamed, Z., 2021. Same data, different conclusions: Radical dispersion in empirical results when independent analysts operationalize and test the same hypothesis. Organizational Behavior and Human Decision Processes, 165, pp.228-249.

Middleton, F. (2019). Reliability vs validity in research. [online] Scribbr. Available at: https://www.scribbr.com/methodology/reliability-vs-validity/.

Peer Review to Kate Wood’s Initial Post

Hi Kate, thanks for your sharing.

As you mentioned, it is crucial for researchers to let their investigations guide them to conclusions, rather than pursuing a predetermined outcome. When a researcher prioritizes a company's specific goal, it can lead to misleading and untrustworthy conclusions.

However, researchers do not operate in a vacuum; they may experience various pressures from financial, social, and interpersonal sources. For instance, scientists sponsored by tobacco companies published a series of articles attempting to claim that smoking does not cause lung cancer (Cummings et al., 2007). Another example involves Elsevier, a prominent climate research publisher, which has supported the energy industry's efforts to optimize oil and gas extraction. This conflict of interest arose because many staff members or associates of the research publisher were also employees at leading oil companies (Guardian, 2022). Unbiased conclusions and data are crucial for maintaining research quality, particularly when individuals rely on these findings to inform their future work or predict potential outcomes (Williams, 2021).

Research that is tailored to serve the interests of a specific group or company can lead the public to question the reliability of such reports and cast doubt on the researcher's independence. In the long run, this may result in harm to the reputation of the relevant sectors and researchers involved.

Reference

Cummings, K.M., Brown, A., & O'Connor, R., 2007, The Cigarette Controversy, Cancer Epidemiology Biomarkers & Prevention, 16(6), pp. 1070-1076

The Guardian. (2022). Revealed: leading climate research publisher helps fuel oil and gas drilling. [online] Available at: https://www.theguardian.com/environment/2022/feb/24/elsevier-publishing-climate-science-fossil-fuels.

Williams, T. (2021). Why is quantitative research important? [online] Grand Canyon University. Available at: https://www.gcu.edu/blog/doctoral-journey/why-quantitative-research-important.

Formative tutor feedback

Make sure that discussion does not just merely interpret research, as this is a descriptive way of writing. Criticality needs to take place in both formative and summative to ensure that all content looks at the pros and cons of research. This happens in both formative and summative academic assignments.

Use citation at all times in academic writing, whether formative or summative.

If using speech marks, this denotes a quote and so cite immediately after. If you are not using a quote then don't use speech marks to highlight phrases.

Generally speaking, well formed and formally academically written posts, and so do continue with this approach for summative.

Some interesting and varied posts, that reflect different positions regarding the context of the discussion and scenarios. This is an appropriate approach academically for both formative and summative.

Don't list/bullet point in your academic writing. This approach makes content descriptive as opposed to critically analytical. Use full sentences and paragraphs at all times.

Ensure all lists of references are in alphabetical order.

Ensure all posts are fully expansive/academic in context at all times as these formative convert into summative for e-portfolio

Overall, good use of current relevant research resources. Remember to cite at every opportunity, and so where there is a fact/research cite. Ensure that all list of references are expansive enough to get rich and varied debate and discussion occurring in the content, [be that formative or summative]

This feedback has been posted in the relevant Collaborative Unit, as well as in an announcement,

With best wishes

Karen