Reliability and Validity

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The real world does not listen to scientists. At least not primarily. There could be examples about climate change here, but more than a year of living with Covid have made it sufficiently clear that decision makers first make the decisions and then ex-post find a way of explaining how those decisions fit with the science. Fortunately for them, scientists in official positions–think Fauci– often look for ways not to embarrass their bosses too much even if they correct them.

As a result, the world has gotten difficult to navigate. On the one hand, the 21st century so far has been the final nail in the coffin for the modernistic notion of progress (there is a reason why people don't often use the term third millennium anymore). On the other hand, even Bruno Latour eventually felt the need to reconcile between the obligation to remain critical in every regard, and the recognition that some discoveries–such as climate change–are "matters of concern" (Latour, 2004). So how do we reconcile the fact that–to stay with the example of Covid–scientists were able to sequence the DNA of the virus in a matter of weeks and develop a vaccine within just a few months, but collectively the world still suffered millions of deaths?

Reliability and validity of knowledge are the factors that explain a divergence between organizational and collective learning (such as scientific research) and real world outcomes. This article lays out a theory of reliability and validity of organizational learning. Validity learning describes processes that allow for prediction and control of outcomes. Reliability is given when the learning outcome is also public, stable and shared (March et al., 1991).

Scale

Reliability and validity are applicable concepts for collective learning at any scale–be it at the level of a small organization or at the scale of our global society. On the same issue, one might observe a difference in validity and reliability of the learning process depending on the scale. For instance, the same discovery will have a different impact on collective knowledge at the level of the research lab where the discovery has taken place, at the level of the university, and at the national level.

- The larger the organization (or collective) the more obvious the divergences. Most obvious at societal and global level.

- Managing divergences is a core feature of large organizations, such as corporations–think corporate culture. Employees might be quite cynical about the strategy of a corporation, but impression management may prevent that information to get out.

  Here, could mention that examples from sustainability are used–or could just move on and let the reader figure that out herself.

  If wanted to make it explicit, reasoning would be that there is less need to disentangle truth from politics of truth–although there is still some.

Validity

Validity is the extent to which a learning process generates knowledge through which a collective can understand, predict, and control current and future events (March et al., 1991; Rerup & Zbaracki, 2021). The most illustrative example are explicit quantitative models that predict or allow to calculate specific values. For instance, Manabe and Wetherald predicted in 1967 that a doubling of carbon dioxide in the atmosphere would lead to a temperature increase of 2.3°C–a value that was later validated by observations (Forster, 2017). Their efforts–in conjunction with the work of predecessors and research lab at Princeton–undoubtedly represents an example of valid organizational learning.

- Unreliable learning

  Guarino et al. (2020)

  Predictions of sea-ice loss to conservative

Reliability

- Reliable learning

- Unreliable learning

Quadrants

Similarly populate this section with examples, without drawing attention away from purpose of introducing terminology.

- Expert/Technicist learning

  Low reliability & high validity

- Popular/Populist learning

  High reliability & low validity

- Regulatory/Political learning

    High reliability & high validity

    Building coalitions around (selected) pieces of valid learning

- Skeptical learning

    Low validity & low reliability

Discussion

- Some observations of (political) processes that complicate processes of reliable and valid learning. Below some examples.

- Pailler (2018):

    Acting against better knowledge when (individual) political interests involved

- Aronczyk and Espinoza (2019):

    Interest groups insert themselves into learning processes early on, with complex implications for knowledge creation

    In this case, the interest groups has engaged in valid learning on stakeholders (MNCs) and their interests

    Or reliable learning, because their prediction on industry action did not pan out? Very political process at hand.

    Lessens primacy of validity with regard to *physical* processes–the *social* sphere gets to be considered

- Boudet et al. (2020):

    "Resilience" of reliable over valid learning. Reliable learning can persevere in the face of overwhelming evidence that *should* constitute cosmology episode

Conclusion

Just a summary? Spelling out implications for sustainability seems construed? Implications for different fields maybe?

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