



# HHS Public Access

Author manuscript

*J Occup Environ Med.* Author manuscript; available in PMC 2021 December 27.

Published in final edited form as:

*J Occup Environ Med.* 2021 November 01; 63(11): e821–e822. doi:10.1097/JOM.0000000000002300.

## Critical Points in Lemke’s Total Worker Health Calculus

**Kevin M Kelly<sup>1</sup>, Lee S Newman<sup>2</sup>, Martin Cherniack<sup>3</sup>, Laura Punnett<sup>4</sup>, Leslie B Hammer<sup>5</sup>, Glorian Sorensen<sup>6</sup>**

<sup>1</sup>Healthier Workforce Center of the Midwest Department of Occupational and Environmental Health University of Iowa, Iowa City, Iowa.

<sup>2</sup>Center for Health, Work & Environment Colorado School of Public Health, CU Anschutz Medical Campus, Aurora, Colorado.

<sup>3</sup>Center for the Promotion of Health in the New England Workplace (CPH-NEW) UConn Health Farmington, Connecticut.

<sup>4</sup>Center for the Promotion of Health in the New England Workplace (CPH-NEW) University of Massachusetts Lowell Lowell, Massachusetts.

<sup>5</sup>Oregon Healthy Workforce Center, Oregon Institute of Occupational Health Sciences Oregon Health & Science University Portland State University Portland, Oregon.

<sup>6</sup>Harvard T.H. Chan School of Public Health Center for Work Health and Well-being, Boston, Massachusetts.

---

### To the Editor:

In his recent editorial, Michael Kenneth Lemke makes the assertion that short comings within the Total Worker Health [TWH] program are due to its theoretical and methodological grounding in the “Newtonian paradigm.”<sup>1</sup> According to Lemke, the long-term potential of the TWH program is threatened by the hegemony of reductionism.<sup>1</sup> We assert that Lemke’s reasoning, and therefore, his conclusions are flawed. Moreover, we believe that his characterization does little to promote, and may hinder, the ability of the TWH program to fulfill its mission.

Lemke’s freestyle reasoning is replete with formal and informal logical fallacies that are so common that they have names (e.g., false premise,<sup>2</sup> incomplete comparison,<sup>3</sup> non-sequitor,<sup>4</sup> Straw Man,<sup>5</sup> cherry picking,<sup>6</sup> Texas sharpshooter<sup>7</sup>). In fact, the editorial’s deficient reasoning and inadequate substantiation are so glaring that several of us initially suspected the editorial was a scholarly publishing sting—a hoax not unlike the Sokal Affair<sup>8</sup>—submitted to test the journal’s intellectual rigor. However, the discovery of prior criticism<sup>9</sup> suggests that this display is simply added posturing.

For example, in Lemke’s editorial, his criticism of TWH begins with the premise that “As is true of the social sciences in general, the epistemology of TWH is grounded in theoretical and methodological assumptions and approaches that are representative of what may be called a “Newtonian paradigm.”

Lacking substantiation and quickly evident to be a “false premise,”<sup>2</sup> this “incomplete comparison”<sup>3</sup> is followed by this assertion: “Within [the Newtonian] paradigm, phenomena of interest—such as OSH outcomes—are assumed to be deterministic, mechanistic, and predictable.”

A non-sequitur,<sup>4</sup> this claim is supported by citing the works of Louth,<sup>10</sup> Haupt,<sup>11</sup> and Gershenson<sup>12</sup> [Lemke’s references 9, 10, and 11]. Here again, Lemke misses his mark as none of the three citations suggest that OSH outcomes or, for that matter, the social sciences after World War I, are grounded in a “Newtonian paradigm.” So, while true that Newtonian outcomes are “deterministic, mechanistic, and predictable,” Lemke fails to establish a plausible connection to the TWH paradigm or current social sciences methods. Consequently, the validity of any conclusions based on that premise remains in question.<sup>13</sup>

Undeterred, Lemke continues to attack his Straw Man<sup>5</sup> using cherry-picked<sup>6</sup> examples in an attempt to convince readers that he has hit his mark (known coincidentally as the Texas sharpshooter fallacy<sup>7</sup>). Clearly, he has not.

While a rebuttal of Lemke’s editorial, this response should not be read as a blanket defense of the TWH program. TWH has been evolving for more than a decade<sup>14</sup> and will continue to evolve to address the complex challenges we face today and as the future of work unfolds.<sup>15</sup> We agree that any system must be open for incremental change and reconsideration. However, any discussion of possible short-comings or potential improvements within the TWH program should be rational and objective. We encourage JOEM readers to consider the body of TWH research, practical tools, and educational offerings to see where the field has been and where it is headed, to promote the health, safety, and well-being of workers.<sup>16</sup>

## Acknowledgments

In full transparency, the authors acknowledge support, in part or in whole, from Cooperative Agreements from the Centers for Disease Control and Prevention (CDC)/National Institute for Occupational Safety and Health (NIOSH) (U19OH008868, U19OH011227, U19OH008857, U19OH010154, and U19OH008861). The contents are solely the responsibility of the authors and do not necessarily represent the official views of the CDC, NIOSH, or the authors’ respective institutes.

## References

1. Lemke MK. Is the total worker health program missing its mark? Integrating complex systems approaches to unify vision and epistemology. *JOEM*. 2021;63:e304–e307. [PubMed: 33928942]
2. False premise [Wikipedia website.] Available at [https://en.wikipedia.org/wiki/False\\_premise](https://en.wikipedia.org/wiki/False_premise). Accessed May 20, 2021.
3. Incomplete comparison [Wikipedia website.] Available at [https://en.wikipedia.org/wiki/Incomplete\\_comparison](https://en.wikipedia.org/wiki/Incomplete_comparison). Accessed May 20, 2021.
4. Non sequitur [Wikipedia website.] Available at [https://en.wikipedia.org/wiki/Formal\\_fallacy](https://en.wikipedia.org/wiki/Formal_fallacy). Accessed May 20, 2021.
5. Bluedorn N, Bluedorn H. *The Fallacy Detective* (4th ed). Christian Logic; 2015, 264 pp.
6. Devious deception in displaying data: Cherry picking [Science or Not website]. 4 3, 2012, Available at <https://scienceornot.net/2012/04/03/devious-deception-in-displaying-data-cherry-picking/>. Accessed May 16, 2021.

7. Bennett B Texas Sharpshooter Fallacy [Logically Fallacious website.] Available at <https://www.logicallyfallacious.com/logicalfallacies/Texas-Sharpshooter-Fallacy>. Accessed May 16, 2016.
8. Affair Sokal [Wikipedia website.] Available at [https://en.wikipedia.org/wiki/Sokal\\_affair](https://en.wikipedia.org/wiki/Sokal_affair). Accessed May 18, 2021.
9. Lemke M, Apostolopoulos Y, Sonmez S, Caban-Martinez AJ. How Complex Systems Approaches can Advance the Total Worker Health Program. [APHA's 2020 VIRTUAL Annual Meeting and Expo (Oct. 24–28) website.] October 27, 2020, Available at <https://apha.confex.com/apha/2020/meetingapp.cgi/Paper/470959>. Accessed May 20, 2021.
10. Louth J From Newton to Newtonianism: reductionism and the development of the social sciences. *Emerg Complex Org*. 2011; 13:63–83.
11. Haupt J Applying Complexity Science to Health and Healthcare. Minneapolis: Plexus Institute; 2003.
12. Gershenson C The implications of interactions for science and philosophy. *Found Sci*. 2013;18:781–790.
13. Weston A A Rule Book for Arguments. 4th ed. Indianapolis: Hackett; 2009, 19–22.
14. Tamers S, Chosewood L, Childress A, et al. Total Worker Health1 2014–2018: the novel approach to worker safety, health, and well-being evolves. *Int J Environ Res Public Health*. 2019;16:321. doi: 10.3390/ijerph16030321.
15. National Institutes for Occupational Safety and Health. NIOSH Future of Work Initiative. 4 2, 2020. Available at <https://www.cdc.gov/niosh/topics/future-of-work/default.html>. Accessed May 17, 2021.
16. National Institutes for Occupational Safety and Health. NIOSH Total Worker Health1 Pro-gram. 7 28, 2020. Available at <https://www.cdc.gov/NIOSH/twh/>. Accessed May 17, 2021.