

TUNNEL VISION AND THE INDUSTRIAL INVESTIGATION

- *Tunnel vision:* People tend to seek and interpret information in a way that confirms their preconceptions.
- Example of tunnel vision in the industrial incident investigation:
 - Investigator holds a preconceived opinion that the young worker is unsafe.
 - Investigator seeks and interprets information to support his/her theory that the young worker was a major contributor to the industrial accident.
 - Objective assessment of all the evidence may have led to a different conclusion, i.e. that it was faulty equipment that was in fact the primary cause of the incident not worker fault.
- This research explores how preconceived ideas about a worker or a tire can bias investigators conclusions about the direct cause(s) of the accident.
- *Immediate or Direct Cause(s):* Factors that are immediately responsible for the incident (e.g., substandard worker actions, substandard equipment, or substandard environment).
- This research was conducted by Carla MacLean, Dr. Elizabeth Brimacombe, and Dr. Stephen Lindsay.

TUNNEL VISION AND DIRECT CAUSE ALLOCATION

- Participants: Study 1, undergraduate students; Study 2, real industrial investigators.
- Participants were given information that either the tire or the worker involved in the incident had a history of unsafe behaviour.
- Half of the participants then received tunnel vision education. This education defined tunnel vision and provided participants with strategies to reduce its influence in their investigation.
- Participants were then given information about an industrial accident; the information did not clearly indicate worker or tire fault.
- Participant then allocated 100% of the cause of the accident to the worker, tire or “other factors”.

1. Does knowledge that a tire or worker has a history of unsafe behaviour affect the way participant-investigators' allocate direct cause for an accident?

Yes

- Participants who received unsafe worker information indicated that the worker was more of a direct cause for the accident than the tire (e.g., 60% worker, 25% tire) and those with a tire bias allocated significantly more cause to the tire than the worker.
- If participants were viewing the information objectively, they would have allocated an equal amount of cause to the tire and worker (e.g., 33% worker, 33% tire, 33% “other”).

2. Does prior knowledge influence how participant-investigators' interpret additional evidence about the event?

Yes

- Participants were given a piece of evidence that supported that the worker caused the incident and a piece that supported that the tire caused the incident.
- Regardless of how participants allocated cause for the event (mostly tire cause or mostly worker cause), all participants interpreted both pieces of evidence as slightly supportive of how they allocated cause.
- Thus, prior knowledge distorted participants' interpretation of the evidence.

3. Does educating participants about tunnel vision reduce its influence on investigative decision making?

- After receiving additional evidence, participants once again allocated 100% of the cause of the accident to the worker, tire or "other factors".

Yes

- *Unsafe Worker Information:* Participants who received information that the worker had a history of unsafe behaviour were able to adjust for their bias accordingly. Thus, they evenly allocated cause to the tire and the worker.

No

- *Unsafe Tire Information:* Participants who received information that the tire had a history of unsafe behaviour overcorrected and allocated significantly more cause to the worker than to the tire.
- For discussion of why we see a difference between tire and worker background information and ability to adjust for bias, please see the forthcoming publication of this research.

4. Notable differences between undergraduate participants (Study 1) and real workplace investigators (Study 2) in direct cause allocations.

I) Investigators allocated a greater percentage of cause of the accident to factors other than the ones they received background information about (i.e., worker & tire).

- Investigators: "other" average = 26%; Undergraduates: "other" average = 14%

II) Real investigators responded earlier to our education intervention than undergraduates.

- Education reduced tunnel vision in investigator reporting the first time investigators allocated direct cause as well as the second time.
- Education only altered undergraduate responding the second time we asked for participants direct cause allocations.

ACKNOWLEDGEMENTS

For those industrial investigators who participated in this research we greatly appreciate your support.

We would also like to thank the Canadian Society of Safety Engineering (CSSE) for endorsing the project.

Finally, this project would not have been possible without the funding and support provided by Worksafe BC.

Thank you!