

# RESEARCH NOTE

## Abstract

Misinformation and disinformation represent persistent challenges to the integrity and safety of our organizations and institutions. If we want to protect against these threats, we need to develop and sustain robust critical thinking skills. This research note describes the development of the first installment in the *Navigate Your Fate* series—a series of pathway novels designed to train the general workforce. This novel, *Misinformation in the Purple Ridge Mountains*, leads readers through a fictional story and asks them to use critical thinking skills to successfully navigate their way to the conclusion.



## About The Threat Lab

The Defense Personnel and Security Research Center (PERSEREC) founded The Threat Lab in 2018 to realize the Department of Defense (DoD) Counter-Insider Threat Program Director's vision to incorporate the social and behavioral sciences into the mission space. Our team is headquartered in Seaside, California, and includes psychologists, sociologists, policy analysts, computer scientists, and other subject matter experts committed to workforce protection.

## Misinformation in the Purple Ridge Mountains: A Navigate Your Fate Story

OPA Report No. 2021-043 • PERSEREC-RN-21-07 • AUGUST 2022

*David Prina, Fred S. Katana, Shannen McGrath, & Stephanie L. Jaros*

## Introduction

Information sharing and storytelling are not 21<sup>st</sup> century phenomena. We have always passed along information to keep others safe—weather updates, product recall notices, travel advisories—and we have shared stories to elicit a quick laugh, an eye roll, or maybe even a lively discussion. What is different now, however, is the effect we can have even when, or especially when, we are wrong.

Information is easier to share, moves faster, and reaches more people than ever before. And, if that information is false, it is harder to retract and replace with the truth. Thus, the consequences of misinformation—inadvertent sharing of false information—versus disinformation—the deliberate creation and sharing of information known to be false (Wardle & Derakshan, 2017)—are much more severe than they used to be.

The ability to think critically is a powerful tool that helps us process, adjudicate, and respond to the information we consume every day. Critical thinking is defined as the “use of cognitive skills or strategies that increase the probability of a desired outcome” through purposeful, reasoned, and goal-directed activity (Halpern, 1998, p. 450). If our desired outcomes include informed decisions, accurate information sharing, and protection against unintentional insider threat incidents such as spear phishing attacks, we must evaluate and enhance our ability to differentiate between what is true and what is not.

The National Insider Threat Task Force and the DoD Counter-Insider Threat Program asked The Threat Lab, a program within the Defense Personnel and Security Research Center, to design and deliver a toolkit to elevate critical thinking skills within the general workforce and protect against the emergent threats associated with



misinformation and disinformation. In response, we developed *Misinformation in the Purple Ridge Mountains: A Navigate Your Fate Story*, a choice-based, self-directed, virtual novel that guides the reader through scenarios they must resolve using their critical thinking skills. This research note summarizes the foundational research on which the novel is based and documents the development process.

## Literature Review

We began with a literature review of unclassified sources across a number of disciplines, including psychology, insider threat management/mitigation, and organizational security. We reviewed sources to better understand (a) how messaging campaigns are designed, transmitted, and consumed and (b) how critical thinking techniques can be introduced in this process to prevent the spread of misinformation and disinformation.

### Messaging Campaigns

In general, messaging campaigns include three components designed to influence behavior: the agent, the message, and the interpreter (Wardle & Derakshan, 2017). The agent is the entity that creates and distributes the message, either directly or through a network, based on a particular motive or set of motives. Agents may be individuals, companies, or “states looking to influence events beyond their borders, politicians and their supporters looking to win power, [or even] extremist groups ... trying to recruit or radicalize members” (Tanner, 2020, p. 2).

The message itself is designed to align with both the agent’s motives and the experiences and views of the third component, the interpreter. The interpreter may be a specific individual or a group that receives the message. If the agent is successful, the message will motivate the interpreter to take action or avoid taking action in accordance with the agent’s motives (Wardle & Derakshan, 2017).

Agents make mistakes and transmit misinformation that is generally not intended to deceive, but some agents intentionally leverage disinformation to further their goals. When agents transmit disinformation, they often hope to gain a strategic advantage by creating conflict between the target and the target audience. That is, an agent may spread disinformation *about* one group—the target—to the other group—the target audience. Ultimately, prolonged disinformation campaigns that intentionally interfere with inter- or intra-group cooperation and consensus-building efforts may irreparably compromise trust in people and institutions (Wardle & Derakshan, 2017).

### Critical Thinking Skills

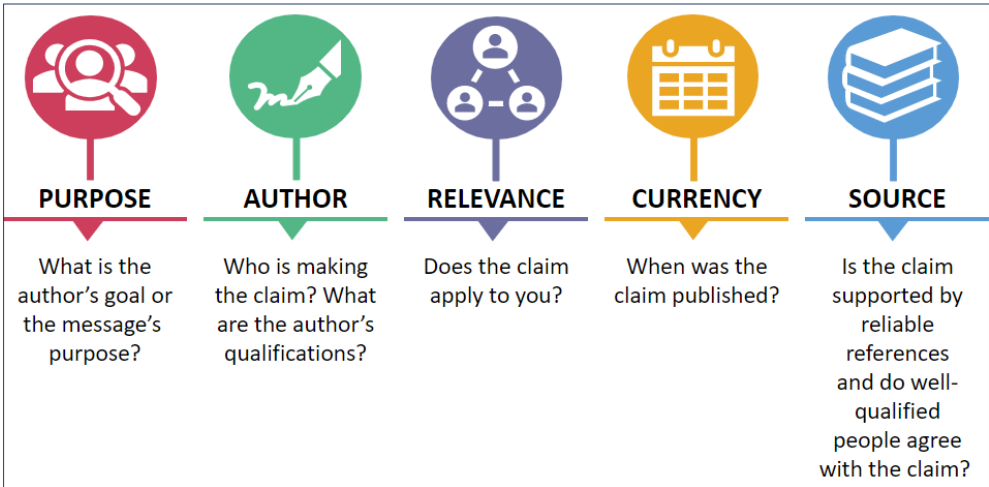
According to the Agent-Message-Interpreter Model, we must actively ingest and interpret information for it to have any effect on our behavior (Wardle & Derakshan, 2017). Because this processing can take time and effort, agents often design messages to make them easier to consume. For example, agents may attempt to appeal to a target audience’s susceptibilities or predispositions (Vasu et al., 2018).

In a sample scenario, a community is experiencing an increase in violent crime by young offenders. City officials propose increased spending on after-school and mentoring programs. An agent who wants parents to vote against these initiatives designs a media campaign to spread an alternative explanation for the increase to parents—violent video games. Parents already concerned about violence in their community are predisposed to worry about their children’s exposure to violence. The

agent develops messages about “the desensitizing violence in video games,” hoping to disrupt the city’s narrative with an alternative explanation. In this scenario, the agent’s goal is to disrupt, rather than induce, action.

Although these and other tactics make it difficult to identify misinformation and disinformation, critical thinking skills offer valuable countermeasures. Critical thinking is the ability to (a) identify, formulate, and solve problems; (b) recognize and use inductive reasoning; (c) draw reasonable conclusions from information found in various sources; (d) defend one’s conclusions rationally; (e) comprehend and use concepts; and (f) distinguish between opinion and fact (Rudd, 2006). Each of these skills requires practice, but the simplest place to begin is to ask a series of questions rather than to accept a message or a claim at face value (Kiely & Robertson, 2016). According to one approach, we should ask questions organized into five categories (Zucker, 2019). Figure 1 provides more details about each category.

**Figure 1**  
*Five Categories of Questions*



In addition to these questions, we should note where the information was published (e.g., newspaper, magazine, blog) to help evaluate its veracity. We also should note if the title is unclear or misleading. Finally, once we consume the information, we should reflect on whether it told us only what we wanted to hear.

## Navigate Your Fate Design

Interactive learning modalities help individuals comprehend material and apply skills (Means et al., 2010) and so, upon completion of the literature review, we wrote and illustrated a fictional yet plausible, scenario-based pathway novel. The first novel in our *Navigate Your Fate* series is titled *Misinformation in the Purple Ridge Mountains*, and it provides readers with opportunities to learn and practice critical thinking skills in order to manage misinformation and disinformation.

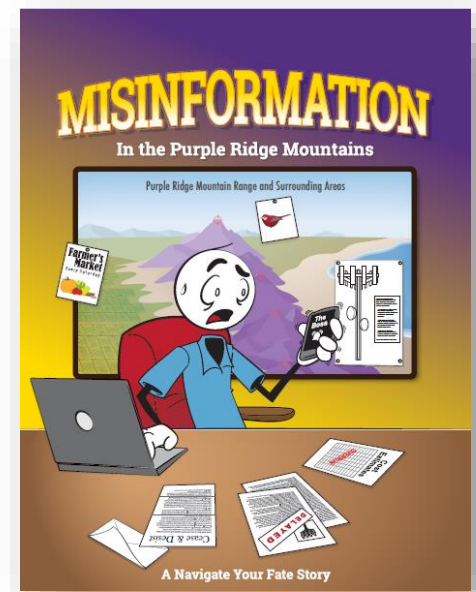
The novel begins with an overview of its purpose and the reader's role in the story. This section stresses that the reader's choices influence the direction of the story and highlights the fact that there are options for success and failure.

The introduction puts the reader in the role of a project director charged with overseeing the construction of a cell phone tower. This project will improve cell and data coverage for both the rural valley on one side of the mountain and several coastal communities on the other. Along the way, the project runs into several roadblocks, and, as the project director, the reader must leverage critical thinking skills to successfully complete the project on time and within budget. Specifically, the reader must navigate several messaging campaigns rooted in misinformation or disinformation:

- Health concerns about the radiation the cell tower emits,
- Residents who think the cell tower construction is part of a nefarious government scheme,
- A local homeowners association that believes the cell tower will destroy their property values,
- An environmental group that believes construction will destroy the natural habitat of an endangered bird, and
- Rumors that the cell tower is going to desecrate the grave of a prominent statesman.

Each of these obstacles has decision points at which the reader is presented with several options and must decide which path to take. Some of these options lead to additional decision points, some redirect the reader to reconsider their choice, and some end the story with a successful or failed construction project.

Throughout the novel, we encourage readers to gather as much information as possible to make an informed decision. If the reader makes a poorly informed choice, the story ends and the reader is informed of the consequences. If the reader makes a well-informed choice, the narrative continues to the next obstacle. At the end of the novel, we include an at-a-glance overview of critical thinking techniques that readers can use in the future.



## Future Directions

Misinformation and disinformation present an evolving security threat to organizations and individuals. Engaging and interactive products such as *Navigate Your Fate* can be effective tools to address this threat. By increasing the variety of training products, organizations can accommodate diverse ways of learning, leading to deeper engagement with a larger audience. We hope to continue this series and address other topics in the counter-insider threat space.

## References

- Halpern, D. F. (1998). Teaching critical thinking for transfer across domains: Disposition, skills, structure training, and metacognitive monitoring. *American Psychologist*, 53(4), 449–455. <https://doi.org/10.1037/0003-066X.53.4.449>
- Kiely, E., & Robertson, L. (2016, November 18). *How to spot fake news*. FactCheck.org. <https://www.factcheck.org/2016/11/how-to-spot-fake-news/>
- Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2010, September). *Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies*. U.S. Department of Education, Office of Planning, Evaluation and Policy Development, Policy and Program Studies Service. <https://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf>
- Rudd, R. (2006). Can we really teach students to think critically? *The Agricultural Education Magazine*, 78(6), 4-7.
- Tanner, J. (2020). *10 things to know about misinformation and disinformation*. ODI. <https://www.odi.org/publications/17330-10-things-know-about-misinformation-and-disinformation>
- Vasu, N., Ang, B., Teo, T-A., Jayakumar, S., Faizal, M., & Ahuja, J. (2018). *Fake news: National security in the post-truth era*. RSIS, Nanyang Technological University. [https://www.rsis.edu.sg/wp-content/uploads/2018/01/PR180313\\_Fake-News\\_WEB.pdf](https://www.rsis.edu.sg/wp-content/uploads/2018/01/PR180313_Fake-News_WEB.pdf)
- Wardle, C., & Derakshan, H. (2017). In *Information disorder: Toward an interdisciplinary framework for research and policy making*. Council of Europe Report DGI (2017)09.
- Zucker, A. (2019). Using critical thinking to counter misinformation. *Science Scope*, 42(8), 6-7, 9.