PROTECTING SERVICEMEMBERS FROM FOREIGN INFLUENCE

A COUNTER-MDM TOOLKIT

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Abstract

The US government has long been concerned with protecting servicemembers from foreign influence and persuasion, but the solutions of previous generations fall short when faced with the challenge of mis-/dis-/mal-information (MDM) and its spread across social media. Luckily, there is a growing field of research focused on identifying techniques and strategies to help protect individuals from MDM, though little work has been done to compare the efficacy of interventions or their appropriateness for the US military. Building upon a comprehensive literature review, this paper focuses on four key interventions: inoculation, debunking, fact-checking, and media literacy. It considers how appropriate each intervention is – or isn't – for the US military. It summarizes best practices from the literature, including when to use an intervention, how it should be described to participants, and how it should be designed for maximum efficacy. And it concludes by offering recommendations on how to leverage, combine, and design interventions to most effectively protect US servicemembers from MDM.

Cover image: CNA

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Executive Summary

Recognizing the significant and growing threat to servicemembers from mis-/dis-/mal-information (MDM), the Department of Defense (DOD) has recently published policy and doctrine on social media use and the challenges posed by MDM.[1] However, combating MDM is complex and requires a substantial and coordinated response.

A comprehensive human-centric approach to countering MDM (versus a technology-centric approach such as using AI to identify MDM) is one that recognizes the need to protect against our psychological and social vulnerabilities to MDM. In other words, it is necessary to acknowledge—and identify, design, and implement—counter-MDM solutions that address both the psychological vulnerabilities that make us receptive to MDM (e.g., our tendency to accept at face value content that looks official), and the social structures that make organizations vulnerable to the spread of MDM (e.g., our tendency to believe content from authoritative figures in hierarchical organizations). This work focuses on the former, but work on the latter is equally important.

MDM exploits normal psychological mechanisms that help people to function in their daily lives (for more, see our earlier work, *The Psychology of (Dis)information*).[2] Further, the availability of MDM is constant due to the 24-hour "breaking" news cycle and the easy accessibility of cultivated content on social media platforms. In the 1960s, the primary MDM threat to servicemembers was limited to prisoners of war, so the US government mainly needed to provide tools and support to those affected persons. However, under the current threat, the US government needs to provide this training to every servicemember with a smartphone.

To counter MDM on a large scale within a distributed population—one that is constant being exposed to MDM—this research examined four evidence-based interventions:

- *Inoculation*: The practice of exposing individuals to persuasive messages containing weakened arguments that threaten an attitude or belief in order to "inoculate" them against stronger persuasive messages and attacks on this attitude or belief in the future.

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[1] DOD Instruction 5400.17, Aug. 12, 2022, incorporating change Jan. 24, 2023, Official Use of Social Media for Public Affairs Purposes; MCDP 8, June 21, 2022, Information.

[2] Heather Wolters, Kasey Stricklin, Neil Carey, and Megan K. McBride, The Psychology of (Dis)information: A Primer on Key Psychological Mechanisms, CNA, 2021.

- *Debunking*: The use of a concise correction to MDM that demonstrates that the prior message or messaging campaign was inaccurate.
- *Fact-checking*: A journalistic practice designed to reject clearly false claims with empirical evidence from neutral or unimpeachable sources.[3]
- *Media literacy*: An individual's ability to critically assess a piece of content. It includes the skills required to evaluate a piece of content as well as an understanding of the structures that produced that content.

A full review of the literature on these interventions—including a brief history and definition of each technique, a description of how they work, and a summary of the state of research on each technique—is available in the companion to this report: *Evidence-Based Techniques for Countering Mis-/Dis-/Mal-information: A Primer*. In that review, we summarized the literature that used the term *debunking* separately from the literature that used the term *fact-checking*. However, there is considerable overlap in the best practices, advantages, and disadvantages of these two techniques. Because this document is written for practitioners, we have combined debunking and fact-checking in our analysis and recommendations.

The primary objective of this report is to provide DOD with practical recommendations for how to use counter-MDM interventions to mitigate the threat. We first provide an assessment of how appropriate each intervention is to a military context, and then we provide DOD with recommendations for using these techniques, including methods (virtual or in person), timing for refresher training, and best practices. We also provide a list of available tools and our assessment of their adaptability for the military.

Appropriateness for the military

To evaluate the appropriateness of the interventions for the military, we considered five factors: the population studied, the structure of the intervention (e.g., scalability, length of time required for training, and neutrality of the content), the longevity of the effects, whether the intervention is preventative or reactive, and the flexibility of the intervention to function in both a steady-state and a crisis environment.

- We found that technique-based inoculation interventions are appropriate for the military, but issue-based inoculation interventions should be carefully considered to make sure that their content is nonpartisan.
- Debunking and fact-checking will not build counter-MDM skills on their own. However, corrections of inaccurate information *do work* and can create a healthier media

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3 Interview with fact-checking subject matter expert, Dec. 1, 2022.

ecosystem. Thus, it is important for DOD to engage in debunking and fact-checking when appropriate.

- Media literacy training is appropriate for the military because it can be prophylactic and skill-building. In addition, this training can be designed to be nonpartisan and neutral.

Recommended course of action and best practices

Our analysis indicates that each intervention has clear advantages and disadvantages. By combining them, DOD can create a scalable and durable training program that provides all servicemembers with a baseline level of knowledge (i.e., protection) and includes a mechanism for responding to an MDM campaign or crisis. Specifically, we recommend the following actions:

- DOD should identify and deploy an already-existing media literacy program.
- DOD should work with academic experts to adapt an already-existing inoculation intervention.
- DOD communications personnel (i.e., those who are engaged in public-facing communication and those who are engaged in communicating to the force itself) should engage in debunking and fact-checking when appropriate.

We also provide guidance to inform decision-making on when to use a specific type of intervention, language for how to describe trainings and interventions to those who will receive them, and tips for how to design the interventions (e.g., how to build a fact-check). These best practices are designed for policy-makers, leaders, public health officials, and public affairs officers and can help DOD identify, design, and implement counter-MDM training.

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Introduction

The threat posed by MDM

In August 2022, the Department of Defense (DOD) issued a new document: *Official Use of Social Media for Public Affairs Purposes*.[4] This DOD instruction is designed for those who are initiating or maintaining an external official presence on social media platforms, and it addresses the existence of fake accounts and malign users spreading disinformation. A few months earlier, in June 2022, the US Marine Corps (USMC) issued Doctrinal Publication 8, Information. Although the document uses a rather expansive definition of *information*, it explicitly addresses the challenge posed by mis-/dis-/mal-information (MDM). Specifically, it notes, "Constant competition for the minds and behaviors of our populace, and by extension our Marines, requires persistent vigilance and resiliency. This challenge describes a form of continuous hostile social manipulation that was not possible during the industrial age."[5] The document goes on to argue that the USMC needs robust media literacy training:

> Media literacy instills a necessary level of critical thinking in everyday interactions with digital and traditional news and information environments. Effective training in this area reduces Marines' vulnerabilities to malign influence and supports force resiliency through unity of effort.[6]

These efforts represent good first steps, but more is needed to fully protect all servicemembers from foreign influence and persuasion. As Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict Christopher Maier noted, "This is a departmental-wide problem in many respects, building resilience and awareness and education in our force—but not only in our force, in their families and other people that are in their lives."[7]

Unfortunately, the challenge is significant. Knowing that you are being exposed to MDM is not enough to protect you from its influence. MDM exploits normal psychological mechanisms that

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[4] DOD Instruction 5400.17, Aug. 12, 2022, incorporating change Jan. 24, 2023, *Official Use of Social Media for Public Affairs Purposes*.

[5] MCDP 8, June 21, 2022, *Information.*

[6] Ibid*.*

[7] Josh Luckenbaugh, "Troops Need Training on Information Threats, Official Says," *National Defense Magazine,* Jan. 24, 2023, accessed Jan. 26, 2023, https://www.nationaldefensemagazine.org/articles/2023/1/24/troops-need-training-on-information-threats-official-says.

help us function in our day-to-day lives (for more, see our earlier work, *The Psychology of (Dis)Information*).[8] As an analogy, keeping your front door locked at night is a great first step in protecting your home, but it won't stop a burglar who breaks in through your dryer vent (i.e., something you didn't think of as a vulnerability). In the same way, being intelligent, thoughtful, and critical—and even recognizing MDM in your newsfeed—is not adequate protection against MDM because this type of content circumvents normal defenses.

Moreover, the situation today is distinct from the challenges of the previous era, so we cannot simply implement the solutions of the past. In the current social media environment, we are all being regularly exposed to MDM (and to foreign adversary efforts to influence and persuade us). Adding urgency to this issue, the propagation of MDM and the efforts to influence US servicemembers are national security threats that can have deleterious effects on military readiness, order, and discipline.[9]

MDM can be designed to affect "operational security, force reputation, and even the physical health of servicemembers."[10] Weaponizing "emotional responses, changing thoughts and beliefs [and]...viral information can lead to world actions that can rapidly scale...both tactical and strategic effect, across any key issue,"[11] in some cases leading to real-world violence and death.

MDM can undermine US servicemembers' effectiveness by "creat[ing] fog and friction in the battlespace of the mind."[12] Intelligence experts say that Russia has dramatically increased its political warfare activities, utilizing disinformation, propaganda, and blackmail against US leaders to disrupt the American political process, with particular focus on the military community. Experts warn that this effort has the "potential to hobble the ability of the armed forces to clearly assess Putin's intentions and effectively counter future Russian aggression."[13]

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[8] Heather Wolters, Kasey Stricklin, Neil Carey, and Megan K McBride, *The Psychology of (Dis)information: A Primer on Key Psychological Mechanisms*, CNA, 2021.

[9] Matthew Butler, "Misinformation in the Military Community and the Next National Security Strategy," *The Strategy Bridge*, Apr. 14, 2021, accessed Nov. 1, 2022, https://thestrategybridge.org/the-bridge/2021/4/14/misinformation-military-community-next-nss.

[10] Peter W. Singer and Eric B. Johnson, "The Need to Inoculate Military Servicemembers Against Information Threats: The Case for Digital Literacy Training for the Force," War on the Rocks, Feb. 1, 2021, accessed Nov. 1, 2022, https://warontherocks.com/2021/02/we-need-to-inoculate-military-servicemembers-against-information-threats-the-case-for-digital-literacy-training/.

[11] Singer and Johnson, "The Need to Inoculate Military Servicemembers Against Information Threats."

[12] Ibid.

[13] Ben Schreckinger, "How Russia Targets the US Military," *Politico*, June 12, 2017, accessed Nov. 1, 2022, https://www.politico.com/magazine/story/2017/06/12/how-russia-targets-the-us-military-215247/.

It is not hard to envision other ways adversaries could employ MDM against servicemembers, including in operational settings. For example, servicemembers might be exposed to disinformation about a commanding officer, causing them to lose confidence in the chain of command at a critical moment; servicemembers might receive a seemingly valid order from a commanding officer and respond to it before realizing it is a foreign adversary MDM operation; or foreign adversaries might seed the information environment with enough MDM to obscure the ground truth and endanger US servicemembers. Assistant Secretary Maier warned as much during a recent panel discussion: "We have adversaries…that have seen the advantage of doing asymmetric things that often go not necessarily at our core national security leaders but go at, in some respects, the most vulnerable…and sometimes the most junior aspects of our force."[14]

Not only have the mechanisms of psychological influence and persuasion shifted over time, but the scope of the threat has also increased in an era of ubiquitous social media. Social media is embedded into the American way of life—no less for a US servicemember than for a US civilian.[15] As of 2016, 71 percent of military officers reported having multiple social media accounts, and 87 percent reported having a Facebook account.[16] Some of the changes that this shift has provoked are relatively benign (e.g., the use of social media platforms to recruit Generation Z Americans to the military),[17] but some of the changes are concerning (e.g., social media as a vulnerability that endangers US servicemembers).

In recognition of the uptick of MDM activity in the last five years, it is critical that the US government identify, design, and implement a program to protect US servicemembers from the influence of foreign adversary MDM campaigns. A comprehensive human-centric approach to this challenge (versus a technology-centric approach such as using AI to identify MDM) begins with the recognition that this is both a psychological and social issue. As such, it is critical that we identify, design, and implement counter-MDM solutions that address both the psychological vulnerabilities that make us receptive to MDM (e.g., our tendency to accept at face value content that looks official), and the social structures that make organizations vulnerable to the spread of MDM (e.g., our tendency to believe content from authoritative figures in hierarchical organizations). This work focuses on the former, but work on the latter is equally important.

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[14] Luckenbaugh, "Troops Need Training on Information Threats, Official Says."

[15] Holly Giroux, "Social Media's Impact on Civil-Military Relations: Balancing the Good with the Bad," *Wild Blue Yonder*, Dec. 13, 2021, accessed Nov. 1, 2022, https://www.airuniversity.af.edu/Wild-Blue-Yonder/Articles/Article-Display/Article/2871481/social-medias-impact-on-civil-military-relations-balancing-the-good-with-the-bad/#:~:text=Social%20Media%20Usage%20and%20Benefits&text=It%20is%20easy%20to%20understand,reported%20having%20a%20Facebook%20account.

[16] Ibid.

[17] Ibid.

Promisingly, an increasingly robust body of research discusses how people can protect themselves from exposure to MDM. The Office of Naval Research recognizes the benefit of aggregating evidence-based research on this topic in order to identify the most viable interventions for protecting servicemembers. In support of this goal, we reviewed the evidence-based research on four types of counter-MDM interventions.

Research goal: to protect, not persuade

This research—in addition to the interventions described in this review—is designed to bolster natural defenses, including those at the metaphorical front and back doors (which may be strong but not strong enough) and those at the dryer vent and heat exhaust (which may not yet exist). The goal is not to change people's strongly held positions, or even people's lightly held opinions. In fact, research suggests that these interventions don't change general political views, attitudes, or voting preferences, though they may change beliefs about the accuracy of MDM. Our research goal is narrow and specific: to help identify ways for DOD to help servicemembers sift the true from the false, and to protect servicemembers from being manipulated by systems and actors aspiring to circumvent their ability to engage in reasoned and critical thinking.

Intervention summary

In a companion to this report (*Evidence-Based Techniques for Countering Mis-/Dis-/Mal-information: A Primer*), we reviewed the literature on four types of interventions designed to counter MDM: inoculation, debunking, fact-checking, and media literacy. That paper presents a full review of the research on these interventions, including a brief history and definition of each technique, a description of how they work, and a summary of the state of research on each technique. Here, we summarize the critical findings for each type of intervention.

Inoculation (also called prebunking) is the practice of exposing individuals to persuasive messages containing weakened arguments that threaten an attitude or belief in order to "inoculate" them against stronger persuasive messages and attacks on this attitude or belief in the future (Table 1). Inoculation builds resilience to manipulation.

Table 1.   Inoculation key findings

Inoculation is an effective way to increase resistance to persuasion and manipulation.

• Inoculation works if people:
    ◦ have imperfect knowledge of a topic
    ◦ have imperfect knowledge of the techniques of manipulation
    ◦ care that they are being manipulated
• Inoculations can be designed to:
    ◦ target MDM on a specific topic
    ◦ target the techniques used by the creators of MDM
• Inoculations may be more effective when they actively engage the user
• Inoculations can be given before or after exposure to MDM (i.e., prophylactic vs. therapeutic inoculation)
• Inoculations that cite consensus information may be more effective
• Inoculation is a potentially useful as a component of a training program designed to teach US servicemembers how to protect themselves from MDM

Source: CNA.

Debunking is the use of a concise correction to MDM that demonstrates that the prior message or messaging campaign was inaccurate (Table 2). As one researcher working on this issue noted, "Corrections are wildly effective."[18]

Table 2.   Debunking key findings

Debunking is an effective way to reduce belief in MDM accuracy.

• Debunking can correct specific instances of inaccurate information, but it cannot protect people from influence in general
• Debunking messages appear to be more effective when they:
    ◦ cite high-credibility sources (i.e., sources that have expertise and are trustworthy)
    ◦ contain detailed corrective information, which is more effective than simple corrections
    ◦ express stronger corrections (e.g., those containing more information)
• The tone of the correction (e.g., uncivil, neutral, affirmational) does not appear to change the effect of the correction
• The format of the correction (e.g., truth first, myth first) does not appear to change the effect of the correction

Source: CNA.

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[18] Interview with Dr. Briony Swire-Thompson, Dec. 5, 2022.

Fact-checking is a journalistic practice designed to reject clearly false claims with empirical evidence from neutral or unimpeachable sources (Table 3).[19]

Table 3.   Fact-checking key findings

Fact-checking is an effective way to reduce belief in MDM accuracy.
• Fact-checking can correct specific instances of inaccurate information, but it cannot protect people from influence in general • Fact-checking is best when integrated into the consumption of news • Fact-checking is a potentially powerful tool for DOD personnel with communications responsibilities

Source: CNA.

Media literacy is an individual's ability to critically assess a piece of content. It includes the skills required to evaluate a piece of content, as well as an understanding of the structures that produced that content (Table 4).

Table 4.   Media literacy key findings

Media literacy is an effective way to increase resistance to persuasion and manipulation.

• In-person media literacy training has been found to be effective across a range of topics, behaviors, and outcomes
 	
• Online media literacy training has been shown to positively affect media use in multiple ways:
    o increase trust in media
    o increase the ability to differentiate real from fake headlines
    o lower people's belief that MDM is accurate
 	
• Online *news* media literacy training may be limited in its ability to counter MDM, but it has been shown to:
    o improve self-perceptions of media literacy
    o effectively reinforce lessons learned from in-person trainings
    o improve the quality of the news that people share online

Source: CNA.

The rest of this report focuses on the operationalization of the research we presented in the companion paper. Namely, we answer a central question: What courses of action does the research support if our goal is to protect US servicemembers from malign foreign influence and persuasion?

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[19] Interview with fact-checking subject matter expert, Dec. 1, 2022.

Report organization

This report is organized into three main sections.

First, we provide an assessment of how appropriate each type of intervention is for the US military. In making these assessments, we considered a range of factors outlined below. These variables, broadly speaking, addressed whether the intervention would work for a military population and whether it could realistically be adopted or implemented by the military.

Second, we provide a set of recommendations for implementing a suite of interventions to protect US servicemembers from foreign malign influence and persuasion. We also articulate best practices for those who are active in this space, including policy-makers, leaders, public health officials, and public affairs officers (i.e., anyone responsible for communication or the health of military personnel). Within these recommendations, we provide guidance to inform decision-making on when to use each type of intervention; language for how to describe trainings and interventions; tips on responding to specific instances of MDM (e.g., how to build a debunk or fact-check); and material that might inform discussions with entities tasked to identify, design, produce, and implement counter-MDM training.

Third, we offer some concluding thoughts regarding the possible impacts of our recommendations.

Additionally, we provide an appendix that lists currently available training packages, along with our preliminary assessment of how easily these could be adopted to protect US servicemembers from malign foreign influence and persuasion (see Appendix A: Adaptability of Existing Interventions). Finally, we provide an appendix describing our overall research methodology (see Appendix B: Methodology).

Analysis of the Interventions

Appropriateness for the military

In the companion paper to this report, we identified the major types of counter-MDM interventions and reviewed the literature for each type. In this section, we assess each intervention's appropriateness for the US military.

To determine each intervention's appropriateness for the US military, we collected data on a wide range of variables that helped us to answer the following questions (see Appendix B: Methodology for a more nuanced explanation of our methodology):

1. **Population:** Does the population on which the intervention was tested raise concerns about the likely transferability of the intervention to a military population? To answer this question, we collected data on how many people the intervention was tested on, the demographics of the population the intervention was tested on, and the country in which the intervention was tested. (See Table 9 in Appendix B: Methodology for a summary of the results.)

2. **Structure:** Will the intervention work within the structure of the military? To answer this question, we collected data on the scalability of the intervention, the length of time required for training, any precedents indicating that the intervention had already been used with military populations, the potential neutrality of the intervention, concerns about incentivization, and consideration of how servicemembers likely consume information.

3. **Longevity:** Are the intervention's effects problematically short-lived? (See Table 10 in Appendix B: Methodology for a summary of the results.)

4. **Prevention:** Does the intervention function preventatively?

5. **Flexibility:** Does the intervention function in both steady-state and crisis environments?

In the section that follows, we articulate the most salient advantages and disadvantages for each type of intervention. Note that we do not address each of the variables above because some variables are specific to only one type of intervention.

Inoculation

Advantages

Inoculation has several advantages in protecting against the influence of MDM. First, certain types of inoculation can be fully neutral. Issue-based inoculation may appear problematically partisan because it targets specific ideas (e.g., climate change).[20] However, technique-based inoculation is less politically complicated because it does not target any specific content; rather, it aspires to build a broadly beneficial skillset (i.e., the ability to recognize manipulative or false content). For example, an issue-based inoculation might provide information about why climate change is real (potentially a politically charged statement), whereas a technique-based inoculation might provide training in the skills necessary to protect against all manipulatory content—including evocative, alarmist, or emotionally distressing.

Second, inoculation interventions are increasingly scalable. Although the earliest inoculation experiments took place in-person or in a classroom or laboratory setting, post-2016 inoculation interventions have mostly taken place online—which is conveniently the same environment in which much MDM circulates. Researchers have developed and conducted experiments using several interactive inoculation tools, including Bad News (http://www.getbadnews.com), Harmony Square (https://harmonysquare.game/en), Go Viral! (http://www.goviralgame.com), and Cranky Uncle (http://www.crankyuncle.com). Although these approaches foreclose the possibility of reaching those without access to the internet, they exponentially expand the number of individuals with access to these interventions when compared to in-person or in-classroom interventions.

Third, we found precedent for intervention games being customized and applied to armed forces. For example, the Bad News game was customized for the Dutch Armed Forces.[21] The game format focused on simulating a disinformation attack on a North Atlantic Treaty Organization (NATO) compound; successfully deterring it allowed players to rise in the ranks.[22]

Finally, the interventions are usually quite short (e.g., a 10-minute interactive game, a 5-minute engagement with an infographic), and studies demonstrate that inoculation is effective even after these short interventions.

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[20] Melisa Basol et al., "Towards Psychological Herd Immunity: Cross-Cultural Evidence for Two Prebunking Interventions Against COVID-19 Misinformation," *Big Data & Society* 8, no. 1 (2021).

[21] Interview with Dr. Jon Roozenbeek, Nov. 22, 2022.

[22] Ibid.

Disadvantages

One potential disadvantage of inoculation is that, outside of a lab setting, it may be difficult (1) to determine how to incentivize engagement in interventions and (2) to ensure that the customization of the intervention is appropriate for specific sub-populations. For example, many modern active interventions (e.g., GoViral! and Bad News) use humor to engage participants, but this technique may not be appropriate for all groups.[23] That said, within the context of a discussion about counter-MDM training for a military population, the issue of incentivization may be moot given that training can be made mandatory.

As a final note, some potential concerns related to generalizability and longevity merit consideration, though our assessment is that neither of these are dealbreakers. Specifically, the participants in inoculation studies were largely from the US and Western Europe, and many of the studies had participant polls that skewed liberal, male, or higher educated compared to the US general population or US military population. Additionally, the inoculation types vary considerably, so the longevity of the effects of each type may vary as well. At present, research suggests that the effects of inoculation may last anywhere from one week to three months. Though this period may seem short—and would clearly necessitate regular refreshers (called "boosters" in the inoculation literature)—inoculation has shown an impressive durability compared to some of the other interventions we explored.

Conclusion

Technique-based inoculation should be considered as a viable preventative intervention to protect US servicemembers from foreign malign influence and persuasion. Whereas issue-based inoculation should be approached carefully to avoid the perception of partisanship, technique-based inoculation is a fundamentally nonpartisan and neutral intervention designed to increase resistance to manipulative content.

Debunking and fact-checking

In our companion report, we noted that the experts we consulted believe debunking and fact-checking are the same fundamental activity, and that the term used in the literature merely reflects the preference of the authors. In that review, we summarized the literature that used the term *debunking* separately from the literature that used the term *fact-checking*. This document, however, is written for practitioners; as a result, we have combined the two interventions here, since the academic distinction maintained in the literature review is of little value to those making programming decisions or designing interventions.

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[23] Ibid.

Advantages

Overall, research indicates that debunking and fact-checking, when well-executed, are effective tools for countering MDM. As one expert we consulted put it, "Corrections are wildly effective."[24] This approach has long been integrated into contemporary news consumption.[25] As such, the interventions that the research attempts to test are approximations of what broader populations already see when they consume news, including via traditional news outlets (e.g., newspapers), via social media, and via streaming platforms (e.g., Spotify, which has added tags to material concerning topics such as COVID-19). Because debunking and fact-checking have been found to be effective across various topics, such techniques can potentially be used for a variety of issues and are therefore ostensibly issue-neutral.[26] However, there may be bias in what particular issues are debunked or fact-checked.[27] Thus, debunking and fact-checking can be neutral, but it is nonetheless important that those who use this approach take care to deploy it in a neutral way.

Disadvantages

For debunking or fact-checking to be viable as a counter-MDM intervention for US servicemembers, the military would have to be prepared to counter MDM immediately after it appears, which requires establishing a nimble infrastructure that monitors various information sources, anticipates the kinds of MDM that might appear, conducts research on the topics in advance, and crafts corrections that can be adapted and implemented on a variety of platforms as soon as the MDM appears. Without such an infrastructure, the military would continuously be in defensive mode, scrambling to respond to MDM and perhaps not responding fast enough to prevent the MDM from becoming fixed in servicemembers' minds.

Additionally, both debunking and fact-checking are meant to be integrated into how people consume news, which would ideally enable news consumers to receive the correction

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[24] Interview with Dr. Briony Swire-Thompson, Dec. 5, 2022.

[25] Nathan Walter et al., "Fact-Checking: A Meta-Analysis of What Works and for Whom," *Political Communication* 37, no. 3 (2020): 350–375, doi: 10.1080/10584609.2019.1668894.

[26] See: Kim Fridkin, Patrick J. Kenney, and Amanda Wintersieck, "Liar, Liar, Pants on Fire: How Fact-Checking Influences Citizens' Reactions to Negative Advertising," *Political Communication* 32, no. 1 (2015): 127–151, doi: 10.1080/10584609.2014.914613; Katherine Clayton et al., "Real Solutions for Fake News? Measuring the Effectiveness of General Warnings and Fact-Check Tags in Reducing Belief in False Stories on Social Media," *Political Behavior* 42 (2020), https://doi.org/10.1007/s11109-019-09533-0; Ethan Porter and Thomas J. Wood, "The Global Effectiveness of Fact-Checking: Evidence from Simultaneous Experiments in Argentina, Nigeria, South Africa, and the UK," *Proceedings of the National Academy of Sciences* 188, no. 37 (2021), https://doi.org/10.1073/pnas.2104235118; Yamil R. Velez, Ethan Porter, and Thomas J. Wood, "Latino-Targeted Misinformation and the Power of Factual Corrections," *Journal of Politics* (forthcoming).

[27] Michelle A. Amazeen, "Checking the Fact-Checkers in 2008: Predicting Political Ad Scrutiny and Assessing Consistency," *Journal of Political Marketing* 15, no. 4 (2016), https://doi.org/10.1080/15377857.2014.959691.

immediately. Given that individuals (including US servicemembers) receive their news (and potential MDM) from a variety of disparate and decentralized sources, it would be difficult for DOD to implement a systemwide debunking and fact-checking approach.

Finally, as with inoculation theory, some additional issues in the literature merit consideration. Debunking and fact-checking have been tested on a variety of samples, from college students to nationally representative populations. However, numerous studies have been conducted in different cultures, in laboratory settings, or with samples of Americans composed of either college students or paid online survey respondents—neither of which are representative of the broader American population or the US military population. It is consequently not clear how generalizable the findings will be or whether they will work with a military population. Moreover, as noted earlier, the external validity of the research findings is potentially limited: one review article claims that the experimental tests used in academic research frequently do not match the reality of how people might encounter fact-checks in the real world.[28] That said, we assess that neither of these issues is significant enough to undermine the value of debunking and fact-checking.

Conclusion

Debunking and fact-checking—the provision of factually accurate information about a topic on which rumors or MDM are circulating—will not build skills that could improve servicemembers' capability to protect themselves from MDM. Thus, this intervention is not one that DOD should consider employing at the level of individual servicemembers. However, given the consensus that corrections work, the use of debunking and fact-checking is critical to cultivating a healthy media ecosystem. DOD should therefore incorporate these effective communication tools into a broader counter-MDM initiative. In this scenario, we imagine that elements of DOD responsible for communication might use debunking or fact-checking as a mechanism for responding to MDM that they encounter (e.g., using the best practices below to correct an MDM-laden response to an official social media post).

Media literacy

Advantages

Media literacy interventions have clear advantages in combating MDM. First, media literacy interventions are content neutral and can be effective across a range of topics. In addition, evidence shows that the topic of the intervention has no effect on the intervention's efficacy,[29]

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[28] Nicholas Dias and Amy Sippitt, "Researching Fact Checking: Present Limitations and Future Opportunities," *Political Quarterly* 91, no. 3 (2020), https://doi.org/10.1111/1467-923X.12892.

[29] S. H. Jeong, H. Cho, and Y. Hwang, "Media Literacy Interventions: A Meta-Analytic Review," *Journal of Communication* PMC3377317 62, no. 3 (2012): 454–472, doi: 10.1111/j.1460-2466.2012.01643.x, NLM.

and that critical thinking could be a universal solution to the issue of MDM.[30] If individuals understand the steps needed to critically evaluate a piece of content or understand the logical fallacies often present in MDM, it won't matter *what* the content is—the individuals should be able to apply this way of thinking to the new MDM. Given how quickly information can spread online, having an intervention that can help protect individuals from a new piece of MDM (or MDM on a new issue) without needing to update training is not only valuable but also necessary.

Second, media literacy interventions are highly scalable, are easily replicable, and have low startup costs. These interventions are scalable because they can be generic, as opposed to tailored to specific pieces of MDM, and can be shown at any time. Additionally, preexisting training resources, such as syllabi, curricula, and exercises, can be drawn on to reduce the startup costs for initiating in-person trainings. Online interventions also exist, which may be less costly than in-person training but also less effective, as indicated by research on remote versus in-person learning.[31] However, a mixture of in-person and online training can be effective because online interventions have shown to remind individuals of concepts learned during in-person education. Finally, although most existing trainings are focused on general media or news literacy, some trainings are already focused on MDM (see Appendix A: Adaptability of Existing Interventions).

Some of the most promising research about media literacy's efficacy studied the effects of the interventions on the general population.[32] Although most studies we reviewed leveraged survey participants who were not particularly analogous to the US military, a meta-analysis of media literacy studies found that the age of the participants did not affect the efficacy of the media literacy training.[33] It is consequently possible to make a compelling argument that some of these trainings—particularly those focused on teaching more general "critical thinking" skills—are applicable and will resonate with members of the US military.

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[30] John Cook, "Cranky Uncle: A Game Building Resilience Against Climate Misinformation," *Plus Lucis* 3 (2021): 13–16.

[31] Cara Goodwin, "The Benefits of In-Person School vs. Remote Learning," *Psychology Today*, Aug. 20, 2021, https://www.psychologytoday.com/us/blog/parenting-translator/202108/the-benefits-in-person-school-vs-remote-learning.

[32] Michael Hameleers, "Separating Truth from Lies: Comparing the Effects of News Media Literacy Interventions and Fact-Checkers in Response to Political Misinformation in the US and Netherlands," *Information, Communication & Society* 25, no. 1 (2022): 110–126, doi: 10.1080/1369118X.2020.1764603; Erin Murrock et al., "Winning the War on State-Sponsored Propaganda," *IREX* (2018): 5.

[33] Jeong, Cho, and Hwang, "Media Literacy Interventions."

Disadvantages

A disadvantage of media literacy training is that media literacy could lead to overconfidence and something referred to as the "Kruger-Dunning effect." Scholars warn that media literacy education might make individuals believe they are identifying MDM and distinguishing false headlines from real headlines even when they are not. This overconfidence could make individuals less cautious when evaluating sources and more susceptible to misinformation.[34]

Conclusion

Media literacy training should be considered as a viable prophylactic intervention to protect US servicemembers from foreign malign influence and persuasion. Media literacy interventions are a potentially powerful mechanism to protect US servicemembers from MDM. Similar to inoculation, these interventions can be nonpartisan and neutral, and the disadvantages are modest.

Comparing and combining interventions

A final challenge we encountered in the literature is that most research on MDM interventions considers each technique individually, without comparison to other MDM interventions. We did find a few exceptions in which researchers experimentally compared two or more interventions and determined that one was better or worse. This line of analysis is relatively nascent, though, and does not currently provide results robust enough to support a definitive recommendation.

The most direct comparisons in the literature are either between inoculation and debunking or between media literacy and fact-checking. However, our analysis of the literature revealed no consensus on which type of intervention is best.[35] Moreover, given the emergent nature of the literature on the effectiveness of interventions, particularly on the relative merits of

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[34] Monica Bulger and Patricia Davison, "The Promises, Challenges, and Futures of Media Literacy," *Journal of Media Literacy Education* 10 (2018): 1–21.

[35] Courtney D. Boman, "Examining Characteristics of Prebunking Strategies to Overcome PR Disinformation Attacks," *Public Relations Review* 47, no. 5 (2021): 102–105; Li Qian Tay et al., "A Comparison of Prebunking and Debunking Interventions for Implied versus Explicit Misinformation," *British Journal of Psychology* 113, no. 3 (2022): 591–607, NLM; Michelle A. Amazeen, Arunima Krishna, and Rob Eschmann, "Cutting the Bunk: Comparing the Solo and Aggregate Effects of Prebunking and Debunking COVID-19 Vaccine Misinformation," *Science Communication* 44, no. 4 (2022): 387–417; Emily K. Vraga, Leticia Bode, and Melissa Tully, "The Effects of a News Literacy Video and Real Time Corrections to Video Misinformation Related to Sunscreen and Skin Cancer," *Health Communication* 37, no. 13 (2021): 1628; Emily K. Vraga, Leticia Bode, and Melissa Tully, "Creating News Literacy Messages to Enhance Expert Corrections of Misinformation on Twitter," *Communication Research* 49, no. 2 (2020): 15; Emily Vraga, Melissa Tully, and Leticia Bode, "Assessing the Relative Merits of News Literacy and Corrections in Responding to Misinformation on Twitter," *New Media & Society* 24, no. 10 (2022): 2354–2371.

specific interventions, the consensus view and specific recommendations on this topic will likely shift over time.

That said, a clear takeaway from the literature is that combining multiple interventions maximizes effectiveness.[36] Overall, the literature recognizes that an interdisciplinary response drawing on several strategies is necessary to meet the complexity of the MDM problem, and that combining multiple interventions can be more effective and also more efficient. Furthermore, using interventions in concert can help mitigate the intrinsic limitations of each type of intervention. Again, though the field has not reached full consensus, the majority of scholars who have researched combined techniques recommend their use, and only a limited number of researchers found that a combination of techniques may be counterproductive.[37]

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[36] Hameleers, "Separating Truth from Lies"; Joseph B. Bak-Coleman et al., "Combining Interventions to Reduce the Spread of Viral Misinformation," *Nature Human Behaviour* 6, no. 10 (2022): 1372–1380; Ecker, "Why Rebuttals May Not Work."

[37] Amazeen, Krishna, and Eschmann, "Cutting the Bunk"; Yue Nancy Dai et al., "The Effects of Self-Generated and Other-Generated eWOM in Inoculating Against Misinformation," *Telematics and Informatics* 71 (2022), doi: 101835; Ariana Modirrousta-Galian and Philip A. Higham, "Gamified Inoculation Interventions Do Not Improve Discrimination Between True and Fake News: Reanalyzing Existing Research with Receiver Operating Characteristic Analysis," *Journal of Experimental Psychology: General* (forthcoming).

Recommended Course of Action

A layered approach to countering MDM

Protecting US servicemembers from foreign influence and persuasion—and, more specifically, from foreign MDM—is a critical national security need. Well-placed (or even fortuitously placed) MDM can negatively affect military readiness, order, and discipline in multiple ways.[38]

Our assessment of the literature partly supports the USMC's understanding of the role that media literacy might play in protecting servicemembers. However, our ultimate conclusion—based on our review of the literature and the analysis presented above—is that media literacy alone (particularly if done online) is unlikely to be as effective as a full suite of interventions.

Based on our analysis, we assess that the military needs an approach that meets five core requirements:

1. **Population:** Does the population on which the intervention was tested raise concerns about the likely transferability of the intervention to a military population?
2. **Structure:** Will the intervention work within the structure of the military?
3. **Longevity:** Are the intervention's effects problematically short-lived?
4. **Prevention:** Does the intervention function preventatively?
5. **Flexibility:** Does the intervention function in both steady-state and crisis environments?

The populations on which the interventions were tested were imperfect—for example, there were high rates of random internet users and low rates of nationally representative samples—but the populations were similar across the interventions, and we found no patterns in the data to suggest that the interventions might fail when translated to a military population (e.g., testing done exclusively on the elderly, testing done exclusively on women). Given this, we assessed that none of the interventions should be excluded based on the population on which they were tested.

As a result, we considered the remaining four core issues: structure, longevity, prevention, and flexibility. None of the interventions we evaluated met all the requirements for these focus areas, but in combination, the interventions do meet the requirements (see Table 5).

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[38] Butler, "Misinformation in the Military Community and the Next National Security Strategy."

Table 5.   Analysis underscoring the need for a layered approach

Intervention	Structure	Longevity	Prevention	Flexibility
Inoculation	This technique-based inoculation is neutral and scalable; very short trainings have been shown to be effective; precedent indicates that the intervention has already been used with military populations.	Literature suggests a potential longevity of 7 to 90 days with regular boosters; even so, this training is a good complement to more intensive in-person media literacy training because it can be easily implemented (e.g., in a 5- to 10-minute online game).	This preventative approach provides servicemembers with the skills necessary to protect themselves from MDM.	As a preventative approach, this is a poor mechanism for responding to a crisis.
Debunking and Fact-checking	Comprehensive application is not possible given how servicemembers consume information; the issue-based nature of the content means it may be perceived as non-neutral.	Not applicable because debunking and fact-checking do not teach counter-MDM skills.	This responsive approach can be used in steady-state or crisis environments.	This responsive and flexible approach can be used in both steady-state and crisis environments.
Media literacy	Media literacy training is neutral; scalability may be challenging because in-person training appears to be the most effective.	Literature suggests a potential longevity of 2 years with boosters; as a result, this intervention will provide a solid foundation for those whose deployment cycles preclude regular inoculation training.	This preventative approach provides servicemembers with the skills necessary to protect themselves from MDM.	As a preventative approach, this is a poor mechanism for responding to a crisis.

Source: CNA.
Legend: Green indicates that the intervention is appropriate for the military, yellow indicates that the intervention has limited value for the military, and red indicates that the intervention is not appropriate for the military.

In light of this analysis, we recommend the following course of action:

- **DOD should identify and deploy an already-existing media literacy program.** A list of potential options is provided in Appendix A: Adaptability of Existing Interventions.
  - All personnel should receive an in-person media literacy training every one to two years.
- **DOD should work with academic experts to adapt an already-existing technique-based inoculation intervention.** A list of potential options is provided in Appendix A: Adaptability of Existing Interventions.
  - If possible, this should be an active inoculation.
  - All personnel should receive an inoculation intervention four times a year and boosters eight times a year (i.e., in all months that an intervention does not occur). Notably, inoculations of just five to ten minutes have been shown to be effective, so this approach need not be a major drain on time or resources. In total, an intervention of this type would take one to two hours per year, equivalent to the amount of time required to complete annual DOD trainings on operations security or cyber awareness.
- **DOD communications personnel (i.e., both those who are engaged in public-facing communication and those who are engaged in communicating to the force itself) should engage in debunking and fact-checking when appropriate.**
  - Guidance for how to undertake this work can be found in the Best practices for Implementation section below.

This layered approach ensures that DOD will meet the four core needs outlined above because it: (1) includes a scalable training program, (2) includes a durable training program, (3) is adequately preventative and ensures that all servicemembers are provided with a baseline level of training (i.e., protection) at all times, and (4) includes a mechanism for responding to an MDM campaign or crisis (refer to Table 5).

Best practices for implementation

Drawn from the full range of findings in the literature, the best practices presented below—for inoculation, debunking and fact-checking, and media literacy interventions—are designed to work at a variety of levels and are targeted at a range of actors, including policy-makers, leaders, public health officials, and public affairs officers. These best practices also might inform discussions with entities tasked with identifying, designing, producing, and implementing counter-MDM training.

In this section, we provide guidance to inform decision-making on when to use a specific type of intervention, language for how to describe trainings and interventions to those who will receive them, and tips for how to design the interventions (e.g., how to build a fact-check). We have intentionally kept this part of the document short and usable: the writing is in plain language, and there are no in-text citations except for direct quotations. For those interested, the supporting research can be found in the literature review that is a companion to this report (*Evidence-Based Techniques for Countering Mis-/Dis-/Mal-information: A Primer*).

As a final note, these best practices are informed by the existing research, but perfect consensus is rare in academic literature. We based these best practices on (1) findings that had achieved significant consensus (e.g., putting on a helmet before riding a bike will protect you from some head injuries) and (2) findings that had been contested but that would likely do no harm (e.g., putting on a helmet and saying a lucky chant before riding a bike will protect you from some head injuries).

Inoculation

Although the information below should aid decision-making about inoculation efforts, we note that an expert will be needed to design an actual training protocol. Thus, the "how to design it" discussion is meant to guide leaders in their interactions with expert designers.

When to use it

- **Consider using inoculation to counter a constant stream of falsehoods.** A "firehose of falsehoods" cannot be effectively countered with a "squirt gun of truths."[39] In these cases, using inoculation strategies that expose the manipulation tactics and flawed arguments may be more effective than trying to counter each individual falsehood.

How to describe it

- **Note that this tool is apolitical.** Inoculation theory should be described as a series of tools that everyone can use to protect themselves from undue influence, not as a means of trying to persuade people to believe a certain way. This is important because the underlying mechanisms for self-protection are apolitical, broadly applicable, and effective, even though some of the issues that inoculation interventions focus on are political or controversial.

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[39] Christopher Paul and Miriam Matthews, *The Russian "Firehose of Falsehood" Propaganda Model: Why It Might Work and Options to Counter It*. RAND Corporation. 2016.

- **Note that inoculation increases smart decision-making and free will.** Inoculation theory interventions focus on training the mind to understand influences that may diminish an individual's ability to make decisions of their own free will.

How to design it

Structure

- **Leverage experts.** Although the tenets of inoculation may seem straightforward, this type of intervention is difficult to design. Experts should be consulted in the design and delivery of the training, though leaders should ensure those experts approach their work in the ways described in the next bullet.

- **Build the intervention** around the following steps:

  1. **Introduce a threat or forewarning to the target audience.** This lets the target population know that they are at risk and need to protect their attitudes or beliefs against manipulation.

  2. **Introduce the inoculation,** which is a weakened form of the misinformation they will face in the real world.

  3. **Prompt the individual to develop "antibodies" to reject the threatening message.** This can be done in several ways, including by asking them to develop counterarguments or to recognize manipulation techniques (active inoculation), or by exposing them to counterarguments or explaining techniques for recognizing manipulation (passive inoculation).

  4. **If possible, follow up with a subsequent refresher** somewhere between one week and three months after the original training.

- **Choose active inoculation when possible.** If the situation permits, *active* inoculation should be prioritized over *passive* inoculation because evidence shows it is relatively more effective.

  o Active inoculation can take the form of playing an online or physical game or interacting with an app. Active inoculation can also specifically prompt people to come up with their own counterarguments, or ensure they are actively engaged in the development of those counterarguments (such as clicking through a game and making choices).

- **Choose passive inoculation when active is not an option.** As one example, *active* interventions often require a computer or phone with internet access, time to play a board game for in-person interventions, or the cognitive ability to follow simple

instructions. By contrast, *passive* inoculation can require as little as basic literacy and can be as simple as reading a text or infographic.

- o Passive inoculation interventions can take the form of reading a text (short paragraph, website, Instagram post, tweet thread, etc.) or observing a visual intervention (infographic, short video, etc.).

Content

- **Choose technique-based inoculation when possible.** If the goal of inoculation is to help people develop the skills to identify psychological manipulation techniques that could be applied to any number of topics (such as emotional manipulation), choose a *technique-based* inoculation intervention.

  - o Whether an individual's strong preexisting beliefs influence the effectiveness of inoculation—and to what extent—is an unresolved question, but one way to hedge on this issue is to prioritize *technique-based* inoculation when targeting a population known to have polarizing views. This may help lessen the likelihood that a specific issue will trigger a defensive response.

- **Choose issue-based inoculation when attempting to counter a specific narrative.** If the goal of inoculation is to help people develop the skills to identify psychological manipulation around specific topics, choose an *issue-based* inoculation intervention.

  - o **Avoid the appearance of partisanship when selecting topics.** Notably, issue-based inoculations need to be approached carefully because they tackle specific (and likely controversial) information and narratives. This means taking care when constructing a specific inoculation and also ensuring the full portfolio of inoculation is balanced and impartial.

  - o **Incorporate consensus information into an inoculation strategy** because evidence suggests that consensus information has a positive, value-added effect on inoculation.

- **Consider the audience when selecting tone and nuance.** There are different styles of presenting inoculation (such as using humor or graphics). All have been shown to be effective, but it is important to consider the audience. Humor, sarcasm, or certain imagery may not be appropriate for all audiences or topics.

Timing

- **Interventions should be short.** It can be tempting to confuse quantity with quality, but evidence shows that even a five-minute intervention is effective. Active inoculation games are effective at 15 to 20 minutes or less. Short inoculations are more likely to

keep people's attention and reach more people. They are also easier to fit into the already-congested suites of training that servicemembers must complete.

- **Plan for repeat inoculation interventions to ensure the longevity of the effect.** Inoculation effectiveness has been found to last anywhere from one week to three months, depending on the intervention and amount of follow-up (note: active inoculation has more lasting effects).

Debunking and fact-checking

When to use it

MDM experts offer several strategies for determining when to use debunking:

- **Focus on information that can indeed be debunked or fact-checked** versus statements that are opinions or normative in nature. For instance, providing information on whether MDM regarding US biological warfare is accurate would be better than trying to fact-check opinion-based assertions, such as "building bioweapons is the only way to protect ourselves" or "disarmament is the only path forward."

- **Correct falsehoods when they arise.** Debunking and fact-checking should be used to rebut MDM when it arises. Research consistently shows that seeing corrections can lead to more accurate attitudes on various topics.

- **Choose your battles.** There may be no point in responding to MDM if it is not spreading widely or does not seem likely to cause harm. In these cases, the less said about the myth, the better.

- **Acknowledge and work with the limits of this intervention.** Fact-checking is limited to particular falsehoods *within a given context*. It is not meant to correct misinformation about the broader underlying topic, but rather the particular piece of disinformation initially presented to a consumer.

- **Target the undecided majority.** Debunking and fact-checking can be effective even for "deniers," but remember that this work is also about "onlookers." You may not persuade people who are locked into the false information, but you may persuade those who are undecided.

- **Situate fact-checking within the broader disinformation issue.** Fact-checking should be employed along with messaging about the more general risks of MDM.

How to describe it

Debunking and fact-checking should be presented as efforts to articulate factually correct information, which appeals to people's desire for accuracy. Experts offer a few ideas for cultivating a positive attitude toward this approach:

- **Emphasize its impartiality.** One of the underlying elements of fact-checking is that it is supposed to adhere to journalistic standards of accuracy. As such, fact-checking can be described as an impartial process.

- **Point out that it is a way to respond quickly to MDM and to help others.** For example, seeing someone else on social media being corrected can lead to more accurate attitudes on various topics.

- **Describe it as a way to encourage healthy skepticism.** Corrections that counterargue MDM can create conditions that facilitate scrutiny and encourage healthy skepticism.

How to design it

Structure

Research indicates that the format of the debunking or fact-checking message has little to no influence on its effectiveness. However, MDM experts offer the practical guidelines listed below, which leaders should use to ensure that these techniques are being applied appropriately:

- **Identify and target.** Identify the specific falsehood and provide a corrective statement tightly scoped to that falsehood.
  - o A general template for the debunking or fact-checking message is as follows:
    - ▪ **Fact:** Lead with the fact, which allows the debunker to frame the message rather than respond to talking points from the misinformation.
    - ▪ **Warn about the misinformation:** Warning people ahead of time helps put them on guard cognitively that they are about to receive misinformation.
    - ▪ **Repeat the misinformation only as necessary:** Repeat the misinformation only as needed to refute it, perhaps including how it misleads. But remember that unnecessary repetition may cause the original misinformation to stick in people's minds more than the retraction itself.

- **End with the facts:** State the truth again so that it is the last thing people process.
- **Keep it short.** Research has shown that short statements can be more effective than longer and more complex statements. Particularly when correcting misinformation on social media, a retraction should use fewer than 280 characters so that it is "tweetable."
    - **If exceptionally short on space, focus on the correction.** The correction should provide accurate information (e.g., whales are mammals) instead of negating incorrect information (e.g., whales are not fish).
- **Build trust and connections with audiences' values and concerns.** Those using debunking and fact-checking approaches should endeavor to construct trust with audiences by linking corrections "to values many people hold, to concerns that audiences have, and to what they deem important."[40]
- **Consider using videos.** Videos may be the most effective way to debunk or fact-check MDM.

Content

Debunking content aims to present facts effectively. Some general tips offered by debunking experts are listed below:

- **Translate complicated ideas.** The truth is often more complicated than the false claim. Therefore, it is important to ensure that the correction is easily read, easily understood, and easily recalled.

- **Use visual aids.** Well-designed graphs, videos, photos, and other visual aids can help convey complex or statistical information clearly and concisely.

- **Keep it simple.** The facts should be simple (if possible), pithy, concrete, and plausible, and they should "fit" with the story. Avoid scientific jargon or complex, technical language.

- **Explain the fallacy when appropriate.** At times, it may be useful to explain how a myth misleads, which can help people see and resolve the inconsistencies in misinformation. The explanation should include details about why the misinformation was thought to be correct initially, why it is now clear that it is wrong, and why the alternative is correct.

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[40] Nicole M. Krause, Isabelle Freiling, Becca Beets, and Dominique Brossard, "Fact-Checking as Risk Communication: The Multi-Layered Risk of Misinformation in Times of COVID-19," *Journal of Risk Research* 23, no. 7-8 (2020): 1052–1059, doi: 10.1080/13669877.2020.1756385.

- **Don't waste time and space on noting the source of the MDM** because research suggests that corrections are not more effective if people know where the MDM came from.

- **The source of the correct information *must* be credible and reputable as well as primary when possible.** The source used in the correction must be perceived as credible and reputable by individuals across the political spectrum, and the information involved in the correction should ideally be primary in nature (e.g., original documents).[41]

- **Think about using visual rating scales of truthfulness** because these may be more effective than simple corrective statements.

- **Include nudges about the value of accurate information.** Incorporating accuracy nudges (e.g., "most people want to receive accurate information") into debunking or fact-checking messages can empower people to increase the accuracy of the information they receive and share.

Timing

- **Correct falsehoods promptly.** Organizations should respond quickly to MDM to ensure that it does not go unchallenged and to help reduce its spread.

Media literacy

When to use it

- **Deploy proactively, not reactively.** Media literacy training will be most effective against MDM if individuals receive it prior to exposure. However, its focus on improving critical thinking still makes it helpful when applied post-exposure.

- **Deploy alongside other interventions.** Media literacy interventions have been found to make corrections to MDM (debunking and fact-checking) more effective.

How to describe it

- **Media literacy is a skillset to help people distinguish good information from bad information.** Emphasize that high-quality information does exist, and that media literacy is a tool to help individuals find it. Encourage skepticism of information, not cynicism.

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[41] Michelle A. Amazeen, *A Critical Assessment of Fact-Checking in 2012* (New America Foundation, 2013); Elmie Nekmat, "Nudge Effect of Fact-Check Alerts: Source Influence and Media Skepticism on Sharing of News Misinformation in Social Media," *Social Media + Society* 6, no. 1 (2020).

- **Media literacy is a framework.** Media literacy is about more than just evaluating misinformation. It is a way of assessing data that will improve critical thinking skills, improve the person's ability to evaluate information, and reduce vulnerability to manipulation.

- **Media literacy is apolitical and topic-neutral.** Media literacy encourages skepticism of information sources across the political spectrum. Its lessons are applicable across a wide range of topics.

- **Point out that being media literate is an individual's responsibility.** Emphasize that it is an individual's responsibility to accurately evaluate MDM. Describing it as a "civic duty" has proven effective.

- **Media literacy increases critical thinking skills.** Don't worry about whether a training conforms to the tenets of media, information, or digital literacy. Focus more on increasing critical thinking skills and providing concrete tools to participants.

How to design it

Structure

- **Leverage experts.** Media literacy is hard to do well. Experts should be consulted in the design and delivery of training.

- **Ideally, begin with in-person, active training** followed by short online trainings, tips, public service announcements (PSAs), and other reminders to reinforce lessons. After approximately two years, an individual should participate in a refresher course.

  - o The more actively participants engage in a training, the greater its effectiveness. Include exercises, ask individuals to both create and evaluate media, play games, and encourage discussion.

- **In-person trainings are preferable.** The benefits of in-person trainings are more significant and will last longer, but remote trainings are a good second option.

  - o **For in-person training:**

    - ▪ **Remove existing hierarchies.** Begin trainings with strategies or exercises that "undo" the military command structure. Emphasize the importance of diverse perspectives and encourage all participants to speak up.

    - ▪ **Encourage curiosity.** Urge individuals to question things. Provide opportunities for them to question the facilitators during the training itself.

- **Experts versus peers.** Both experts and peers can effectively deliver training. Try conducting trainings with each and proceed with what seems to work best.

- **Practice simplicity.** Including too many components can overwhelm participants and make an entire training less effective.

o **For remote training:**

- **Include concrete tips.** Providing as few as four concrete tips can make people more effective at resisting MDM.

- **Focus on accuracy.** Tweets, tips, and PSAs that emphasize the accuracy of headlines are particularly effective.

- **Reuse what works.** Recycle content that has been proven to work well, such as Facebook's "Tips to Spot Fake News" program.

- **Engage your audience.** Incorporate exercises, short quizzes, and other interactive components into any self-guided training. Consider using free online games, such as Fakey, BBC's iReporter, Factitious, or Newsfeed Defender.

Content

- **Update materials frequently.** Trainings need to be relevant to the lived experiences of participants to be helpful.

- **Consider your audience.** Avoid messaging that singles out individuals for behavior or beliefs. Try to make individuals feel like part of a community.

- **Tailor if necessary.** Although media literacy is topic-neutral, modifying interventions can be beneficial. For example, if working to counter misinformation on vaccines, try using concrete tips from the field of health or science literacy.

Timing

- **Repetition is key.** Different types of media literacy training should be repeated at different intervals, but repetition will be needed in all cases.

o In-person training should be repeated approximately every two years.

o Remote self-guided training should be repeated frequently, ideally four times a year.

Conclusion

According to a May 2020 survey directed by senior Army leadership, almost 90 percent of US Army soldiers and civilian employees had not received any information from their units regarding adversarial propaganda about the COVID-19 virus, even though both Russia and China had been circulating virus-related MDM since March 2020.[42] This lack of awareness—and lack of counter-MDM training—left servicemembers vulnerable to external influence. It also effectively ceded the battlespace to US adversaries, allowing Russia and China to act with uncontested impunity to potentially influence servicemembers in the information sphere.

Imagine how May of 2020 might have looked different had the military adopted the recommendations above. When Russia and China began circulating virus-related MDM in March 2020, they would have encountered a force in which (1) all personnel had received media literacy training within the previous two years, and (2) all personnel had played an inoculation game or seen an inoculation booster within the previous month. Additionally, military communications staff in a range of commands would have had the tools and authorities necessary to promptly fact-check the MDM, ensuring that servicemembers were made aware of its falseness. In this scenario, the May 2020 survey likely would have found that 90 percent of US Army soldiers and civilian employees *had* received information from their units about the MDM, instead of the other way around.

There is no single solution to the challenge of protecting US servicemembers from MDM. The decision to adopt just one approach (e.g., USMC media literacy training) is a good step forward but likely inadequate to overcome the challenge. Each type of intervention has distinct advantages and disadvantages, and the best path forward is a layered one because it offers the most protection possible.

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[42] Amy Mackinnon, "US Army Failed to Warn Troops About COVID-19 Disinformation," *Foreign Policy*, Oct. 21, 2021, https://foreignpolicy.com/2021/10/21/us-army-covid-19-disinformation-russia-china/.

Appendix A: Adaptability of Existing Interventions

During our analysis, we identified several counter-MDM inoculation and media literacy interventions already in circulation. Below we include (1) a list of inoculation and media literacy games that have been evaluated and that we assessed for adaptability to a US military population (see Table 6) and (2) a short list of games available to the public that we did not assess for DOD because we found no literature evaluating their effectiveness.

Interventions that have been evaluated

The games and interventions included in the table below are unique among those available to the general public because academic literature has assessed their effectiveness. The assessments are not identical—some interventions have been assessed multiples times, while others have been assessed only once—but the consensus is that each of these interventions has been effective. Below, we have taken the existing evaluations of the interventions into consideration, along with our assessment of their suitability for the military (see Table 6 and Table 7).

Table 6.   Adaptability of existing inoculation interventions

Intervention	Minimal	Moderate	Significant
Inoculation	**Harmony Square game:** Online game funded by the US government (Global Engagement Center); appropriate for the US media environment and military population; unfortunately, **only one peer-reviewed article validates its efficacy**; some minor updates may be needed.	**Go Viral! game:** Online game that is appropriate for a US media environment and a military population; effectiveness supported by literature; **content could be perceived as political** in a US environment.	
		Cranky Uncle game: Online game that is appropriate for a US media environment and a military population; effectiveness somewhat supported by literature; **content could be perceived as political** in a US environment.	
		Bad News game: Online game that is appropriate for a US media environment and a military population; effectiveness supported by literature; **content could be perceived as political** in a US environment.	

Source: Adapted from Coreen Farris, Melissa Marie Labriola, Sierra Smucker, Thomas E. Trail, Samuel Peterson, Brandon Crosby, and Terry L. Schell, *Healthy Relationship Approaches to Sexual Assault Prevention: Programs and Strategies for Use within the US Military*, RAND Corporation, 2021.

Table 7. Adaptability of existing media literacy interventions

Intervention	Minimal	Moderate	Significant
Media literacy	**Facebook's Tips to Spot Fake News:** Online intervention that is appropriate for a US media environment and a military population; effectiveness supported by literature; **no updates needed**.	**MediaWise for Seniors:** Self-directed online course that is appropriate for a US media environment; **may need to be updated for a more media-savvy population**; effectiveness supported by literature.	**Learn to Discern training:** In-person training that is **not appropriate for a US media environment** but is appropriate for a military population; effectiveness supported by literature.
		Fakey game: Online game that is appropriate for a US media environment and a military population; **effectiveness somewhat supported by literature; content could be perceived as political** in a US environment.	

Source: Adapted from Coreen Farris, Melissa Marie Labriola, Sierra Smucker, Thomas E. Trail, Samuel Peterson, Brandon Crosby, and Terry L. Schell, *Healthy Relationship Approaches to Sexual Assault Prevention: Programs and Strategies for Use within the US Military*, RAND Corporation, 2021.

Interventions that have not been evaluated

A growing number of online games and interventions have been designed to help protect individuals from MDM, but there are no prerequisites for developing such an intervention. In theory, a teenager with no knowledge of the research on this topic could make a game and sell it in an online application store. Given this reality, we did not seek to compile an exhaustive list of all the interventions we identified during our research. Those listed in this section are unique because they *have not* been evaluated by researchers (and thus are omitted from the table above) but *have* been discussed in the academic literature (and thus may merit more consideration than many of the others on the market).

- **Fake It to Make It** is a game that teaches players how MDM is created and disseminated. One article classified it as a digital literacy game, and another noted that "although the game does not adopt the inoculation theory as its theoretical framework,

it shares very similar structure with Harmony Square and Bad News."[43] We found no peer-reviewed research evaluating the effectiveness of this game. The only evaluation we found was a conference presentation in which the game was tested with a group of seven participants.

- **Troll Factory** is a game that one article described as "one of the tools that addresses the largest number of learning outcomes, pointing to specific audiences to target (*who*), proposing different types of multimodal content to pick up (*what*), and explaining what is the rationale behind their strategic selection (*why*)."[44] We found no peer-reviewed research evaluating the effectiveness of this game.

- **Factitious** is a news literacy game that teaches players to think about variables including the truthfulness of sources and emotionally manipulative language. The game has been described as "appl[ying] inoculation theory relatively bluntly."[45] We found no peer-reviewed research evaluating the effectiveness of this game.

[43] Alex Urban, Carl Hewitt, and Joi Moore, "Fake It to Make It: Game-Based Learning and Persuasive Design in a Disinformation Simulator," presented at Association for Educational Communications and Technology Conference, 2018; Lindsay Grace and Songyi Liang, "Examining Misinformation and Disinformation Games Through Inoculation Theory and Transportation Theory," *Proceedings of the 56th Hawaii International Conference on System Sciences* (2023).

[44] Elena Musi, Lorenzo Federico, and Gianni Riotta, "Human–Computer Interaction Tools with Gameful Design for Critical Thinking the Media Ecosystem: A Classification Framework," *AI & Society* (2022): 1–13.

[45] Grace and Liang, "Examining Misinformation and Disinformation Games."

Appendix B: Methodology

Operationalizing a still-maturing literature is complicated. In some cases, an incredibly interesting finding has yet to be replicated; in other cases, comparing experiments is difficult because the researchers used different language. Research findings can also seem to be in direct conflict with one another. Moreover, as we noted in our review of this literature (see *Evidence-Based Techniques for Countering Mis-/Dis-/Mal-information: A Primer*), our goal was not to conduct a traditional academic literature review; rather, we wanted to conduct a review that would inform policy-makers and practitioners seeking to act immediately.

The analysis included in this report—in the Analysis of the Interventions and Best practices for Implementation sections—is based on a multi-part research effort.

Our first step was to conduct a semi-traditional literature review (published separately as *Evidence-Based Techniques for Countering Mis-/Dis-/Mal-information: A Primer*). In this review, we chose to deviate from the conventions of a systematic literature review by focusing on the core or overall findings of the field, rather than summarizing all work in the field. For this reason, we did not include research findings that had not been replicated or embraced by the field. We determined that a finding articulated by a single article did not offer adequate evidence to be incorporated into a training program for US servicemembers. Such individual findings may be replicated in the future and become accepted features of the literature, at which point they should be incorporated into the literature that informs training program decisions. But given that such findings may just as likely remain unsubstantiated or be refuted, we excluded them at this stage.

The literature review was not the only analysis that informed our final recommendations. We also systematically identified and coded the experiments that had been reported in the academic literature. This process consisted of three core steps:

1. We used the following Boolean strings in Google Scholar to identify experiments related to each of the four intervention types:

    a. (inoculation OR pre-bunking OR prebunking) AND (misinformation OR mis-information OR disinformation OR dis-information OR MDM OR "fake news")

    b. (debunking OR de-bunking OR correction OR refutation OR retraction) AND (misinformation OR mis-information OR disinformation OR dis-information OR MDM OR "fake news")

    c. (fact) AND (correction OR corrections OR correcting) AND (misinformation OR mis-information OR disinformation OR dis-information OR MDM OR "fake news" OR false OR inaccurate)

d. (media literacy OR news literacy OR digital literacy OR information literacy OR new literacy OR digital media literacy OR digital news literacy OR news media literacy) AND (misinformation OR mis-information OR disinformation OR disinformation OR dis-information OR MDM OR "fake news")

e. Note: Results were limited to the post-2011 period at the request of the sponsor.

2. We reviewed the first 20 pages of Google results (i.e., the first 200 results) and downloaded every relevant article that contained an experiment, excluding theoretical articles and meta-analyses.

In the process of completing both the literature review and the coding, we reviewed a total of 147 peer-reviewed articles that assessed a total of 320 distinct thesis statements or research questions (see Table 8).

Table 8. Summary of literature reviewed

Intervention	Number of Articles Reviewed	Number of Hypotheses Reviewed
Inoculation	34	53
Debunking	36	84
Fact-checking	49	89
Media literacy	28	94

Source: CNA.

To determine each intervention's appropriateness for the US military, we collected data on a wide range of variables that helped us to answer the following questions:

1. **Population:** Does the population on which the intervention was tested raise concerns about the likely transferability of the intervention to a military population? To answer this question, we collected data on how many people the intervention was tested on, the demographics of the population the intervention was tested on, and the country in which the intervention was tested (see Table 9).

2. **Structure:** Will the intervention work within the structure of the military? To answer this question, we collected data on the scalability of the intervention, the length of time required for training, precedent indicating that the intervention had already been used with military populations, the potential neutrality of the intervention, concerns about incentivization, and consideration of how servicemembers likely consume information.

3. **Longevity:** Are the intervention's effects problematically short-lived? (See Table 10 for a summary of the results.)

4. **Prevention:** Does the intervention function preventatively?

5. **Flexibility:** Does the intervention function in both steady-state and crisis environments?

Table 9.   Demographics of populations used in testing

Intervention	Total Participants	Participant Demographics	Percent of Participants Who Were Western
Inoculation	89,510	2% university students; 12% nationally representative samples (US)	>80%
Debunking	170,907	5% university students; 18% nationally representative samples (US)	>90%
Fact-checking	60,097	8% university students; 17% nationally representative samples (US)	>70%
Media literacy	151,382	2% university students; 14% nationally representative samples (US)	>70%

Source: CNA.
Note: In participant demographics, the percentage of the sample that is not explicitly identified is, in most cases, random online participants. For example, for inoculation, 2 percent of participants were university students and 12 percent were nationally representative samples, meaning that 86 percent were random online participants.

Table 10.   Longevity of intervention effects

Intervention	Average Longevity of Effects (Number of Studies Reporting Longevity)
Inoculation	2–91 days (11 experiments)
Debunking	2–21 days (6 studies)
Fact-checking	7–30 days (7 studies)
Media literacy	0–547 days (20 studies)

Source: CNA.

As our primary takeaway from this analysis, we found no major concerns related to the variable we called **population**. The demographics of the population on which the interventions were tested were imperfect (e.g., high rates of random internet users), but we found no patterns in the data suggesting that the interventions might fail when translated to a military population. As such, we set this variable aside and focused on the four remaining variables: **structure**, **longevity**, **prevention**, and **flexibility**.

The coding that we did across these four categories informed the recommendations that we made above. Notably, our coding did not lead us to exclude any broad category of intervention,

but it did lead us to exclude certain sub-types within a category. As one example, we noted in our coding that one-on-one peer interventions (i.e., interventions in which a respected peer speaks to a colleague about MDM that the colleague may have shared) were not viably scalable, whereas online games (i.e., interventions in which an individual plays a 5- to 10-minute publicly available game) were viably scalable. We also noted in this process that issue-based inoculations would be more likely to appear partisan than technique-based inoculations. Thus, in the recommendations and best practices articulated in this document, we call for scalable interventions such as online games and technique-based inoculations.

With this analysis in hand, we sought to answer two questions: What are the advantages and disadvantages of this intervention if the goal is to provide the military with a program that will protect servicemembers from MDM? And what is the best course of action for the military to take if its goal is to protect servicemembers from MDM? The answer to the former question can be found in the Analysis of the Interventions section, and the answer to the latter question can be found in the Recommended Course of Action section.

Importantly, the criteria we used for including research findings in the literature review differed slightly from the criteria we used for the best practices. In the literature review, we included research findings if we found some degree of consensus in the literature. We did not include research findings that had not been replicated or embraced by the field. By contrast, in the Best Practices for Implementation section, we chose to include both (1) findings that had achieved significant consensus (e.g., putting on a helmet before riding a bike will protect you from some head injuries) and (2) findings that had been contested but that would likely do no harm (e.g., putting on a helmet and saying a lucky chant before riding a bike will protect you from some head injuries).

Tables

Abbreviations

DOD	Department of Defense
MDM	mis-/dis-/mal-information
NATO	North Atlantic Treaty Organization
PSA	public service announcement
USMC	US Marine Corps

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