International Journal of Communication 15(2021), Feature 4294–4306 1932–8036/2021FEA0002

Threat and/in Inoculation Theory

JOSH COMPTON
Dartmouth College, USA

For years, scholars of the inoculation theory of resistance to influence have considered threat to be a major part of the resistance process—the motivational force that triggers such responses as counterarguing against future challenges to a position. More recently, scholars have begun to question the conventional explanation for the importance and/or role of threat in inoculation, (re)considering its importance, its conceptualization, and in some cases, its very existence in the process of attitudinal/belief inoculation. This theoretical article synthesizes some of the key arguments advanced about threat in inoculation theory and traces its development from the earliest iterations of the theory to its contemporary development and application. It proposes five avenues for future investigations of threat and/in inoculation theory in the continuing study of persuasion.

Keywords: inoculation theory, persuasion, resistance to influence, threat, social influence

Throughout the lifespan of inoculation theory—the classic theory of resistance to influence—few of its constructs have been touted more so than threat. McGuire (1964), who first introduced the formalized theory of inoculation to resistance in the early 1960s, noted that for an inoculation treatment message "to be effective[,] the prior defense . . . presumably should be threatening rather than reassuring about the belief" (p. 201), and in an earlier work, McGuire (1961) described threat as "shock value" (p. 185). Pfau (1997) argued that threat is "the most distinguishing feature of inoculation" (p. 137). Compton and Pfau (2005) asserted that "inoculation is impossible without threat" (pp. 100–101). Threat, then, is regularly touted as a core construct of inoculation theory–conferred resistance to influence.

Until recently, we could also add: Few constructs of inoculation theory have been as *understudied* as threat. More than a decade ago, Compton (2009) observed that threat had "slip[ped] under the radar in much of the inoculation scholarship" (p. 2). But the situation has since changed. Scholars have more recently taken closer looks at threat in inoculation theory, reconsidering its conceptualization and its effect(s). This work has in some ways supported how threat has been understood in the more than 60-year development of inoculation theory (e.g., indeed, threat seems to be important, if not critical), and in other ways, some work has challenged how we have understood threat (e.g., we might be using the wrong affect constructs to understand threat as it functions in inoculation theory).

It is probably more accurate, then, to begin with the premise that few constructs have been as touted *or as contested* as threat in inoculation theory. But it is important to clarify that the contested status of threat is relatively recent in inoculation's story. It is not so much that scholars were working from an agreed-on conceptualization of threat before this debate; it is more that scholars—for the most part—were

not giving much attention to threat at all. For example, threat was not even consistently measured in inoculation research until the late 1980s (Pfau & Burgoon, 1988).

The case for examining threat in the inoculation process of resistance to influence has only gotten stronger, as inoculation continues to see development against new threats (e.g., fake news; van der Linden, Roozenbeek, & Compton, 2020), and through new modalities (e.g., video games; Roozenbeek & van der Linden, 2019a, 2019b). As this key communication theory is pushed, it is important to keep sight of its core constructs (Pfau, 1997).

Inoculation Theory

The analogy for which it is named explains inoculation theory well: Just as a body can develop resistance to future viral attacks through pre-exposure to weakened forms of that virus (e.g., a conventional flu vaccine), a mind can develop resistance to future attacks through pre-exposure to weakened versions of those attacks (McGuire, 1964). In some ways, threat is what binds the medical analogy with the process of persuasion resistance; in both cases, conferred resistance is motivated by a form of threat (Compton, 2013). Preemptive exposure to weakened challenging content motivates a process or processes of resistance to future exposure to stronger challenging content.

Inoculation theory has been successfully applied to a number of issues and in a number of contexts (for a comprehensive review, see Ivanov, Parker, & Dillingham, 2020), and research consistently finds that inoculation theory can successfully confer resistance to future influence (see Banas & Rains, 2010, for a meta-analysis), including from misinformation (e.g., Roozenbeek & van der Linden, 2019a, 2019b), crises (e.g., Ivanov et al., 2016), and propaganda (e.g., Braddock, 2019).

In most inoculation theory research and application, two-sided messages are used to inoculate against future attacks. As McGuire (1964) pointed out, this approach is "an obvious way of threatening" (p. 201). Messages are prepared that raise and refute possible challenges to an existing state (e.g., an attitude, belief, position). With this approach, the raised challenges (i.e., counterarguments) are functioning as early exposure to an attack, and the raised challenges are paired with refutations, to make the challenges weak enough not to successfully change the desired position. The key, as McGuire (1964) pointed out in his early work, is to weaken the attacks for use in the inoculation treatment so that they are strong enough to trigger resistance but not leave them so strong that they would overwhelm the recipient of the inoculation message. This is the zone, then, in which threat seems to play a role: Recipients of inoculation messages are concerned *enough*.

Threat and Inoculation Theory

There are two main ways scholars have proposed to get inoculation message recipients concerned *enough*: explicit forewarnings and refutational preemption. Explicit forewarnings are direct statements that warn message recipients that a position is likely to be attacked and/or vulnerable to such attacks. Most often, explicit forewarnings are in the first part of an inoculation treatment message (Ivanov, 2011), although some studies have used forewarnings in the conclusions of inoculation messages as well (Miller et

al., 2013). An explicit forewarning might read something like: "You have the right position on this issue, but people will try to change your mind. Their arguments can be so strong that they might make you question your position." Such a statement, used in this way in an inoculation treatment message, functions as an explicit way to generate threat.

In some inoculation scholarship, forewarning has been considered interchangeable with threat; that is, threat has been defined as a forewarning (e.g., Pfau et al., 1997). But a forewarning is not a requirement for inoculation. It is elicited threat (an effect), and not a forewarning (a message feature), that is requisite (Compton, 2013). Inoculation treatment messages can generate threat without using an explicit forewarning through—among other possibilities—the inclusions of refutational preemption, or raised counterarguments and refutations.

Refutational preemption—the raising and refuting of possible counterarguments—is the prototypical format for an inoculation treatment message (Ivanov, 2011). Message designers usually incorporate 2–3 counterarguments and their refutations into a message. For example, a counterargument paired with a refutation might read:

> Opponents will try to tell you that the data on which your conclusion is based is faulty. They are wrong. Scientists in the best research programs have analyzed and reanalyzed the data, so we can be confident that the results are reliable.

This format is thought to do at least two things. First, the presence of the counterargument is enough to generate threat—*implicit* threat (see McGuire, 1964). Second, the pairing of the counterargument with a refutation models the process of counterarguing, in a sense teaching message recipients how to think critically about the issue (see Wyer, 1974). Indeed, recent research with inoculation theory has focused on designing inoculation messages that are specifically designed to boost critical thinking about the target issue. That is, instead of pairing counterarguments with fact-based refutations, reasoning fallacies are paired with their identification and explanation as fallacies (e.g., Cook, Lewandowsky, & Ecker, 2017).

This latter part of an inoculation process of resistance to influence has been expanded in recent years. The original idea was that an inoculation message—by generating threat and modeling counterarguing—motivated more original counterarguing by the message recipient (see McGuire, 1964). Message recipients would continue to think about the issue, raising new potential counterarguments and refutations of those counterarguments. Some evidence does point to inoculation messages motivating more thoughts about an issue (e.g., Pfau et al., 2006). More recently, scholars have discovered that message recipients are doing more than thinking more about the issue. They are talking more about the issue, too, engaged in what scholars have called *postinoculation talk* (Ivanov et al., 2012). Postinoculation talk brings us back to a consideration of threat—or at least, some conceptualizations of threat. The earliest theorizing about postinoculation talk was that it was motivated by two main forces—the need for reassurance after a position's vulnerability has been made salient, and the desire to advocate now that confidence in the position has been boosted (Compton & Pfau, 2009). Threat would seem to play a role in the former by motivating a need for reassurance. Ivanov and associates (2015) found some support for this idea: In their study, threat seemed to boost postinoculation talk

in terms of the number of conversational partners and the number of conversations. However, they did not find evidence that reassurance was the motivation (Ivanov et al., 2015).

As previously mentioned in the discussion of threat and forewarning, an explicit forewarning is not required for inoculation to take place. Nevertheless, explicit forewarnings are often included in inoculation messages crafted for inoculation research, and using both an explicit forewarning and generating implicit threat seems to be more effective than a forewarning alone (McGuire & Papageorgis, 1961). When forewarnings are included in an inoculation message, they are most responsible for threat generated by inoculation treatment messages (Compton & Ivanov, 2012). One thing of note, however, is that evidence suggests that the relationship between threat and resistance is not so that the more threat, the more resistance (Banas & Rains, 2010). Instead, threat seems to function as more of a threshold—there needs to be enough threat to trigger an inoculation process of resistance to influence, but more resistance does not seem to result from more threat.

Other evidence suggests that inoculation messages generate threat, and generated threat boosts perceived involvement levels with the issue, and this boosted involvement contributes to resistance (Compton & Pfau, 2004). That is, an inoculation message—a message that introduces weakened versions of attack messages—exposes vulnerability in an existing position, and that makes the issue itself seem more relevant or important to the person, which then leads to bolstering the position in preparation for future, stronger attacks. Even when threat does not reveal a direct effect on resistance, then, it does seem to contribute to resistance through a "synergetic relationship" (Compton & Pfau, 2004, p. 110) between threat and involvement levels.

In decades of inoculation research, inoculation messages have generated threat, but also in decades of inoculation research, the amount of generated threat has not exceeded moderate levels (Compton & Pfau, 2005). Research has tried to boost threat a bit more, however. Pfau and colleagues (2010), by emphasizing the severity, personal significance, and salience of the upcoming threat in the inoculation treatment message, boosted attitude certainty when compared with "regular" threat. But the forewarning designed to boost more threat did not generate more threat than the typical approach. In another study, Richards, Banas, and Magid (2016) found that more threat might actually be counterproductive to the aims of the inoculation treatment message. Their inoculation treatment messages that used enhanced threat were less likely to dampen reactance—the rejection of the message based on perceived threats to their freedom (see Brehm, 1966; Dillard & Shen, 2005).

Banas and Richards (2017) offer a clarifying look at conceptualizations of threat in the inoculation process of resistance to influence with their focused investigation of threat as motivation. Their study concludes that threat should be seen as more of a process of motivation than as a response of apprehension, which contrasts with the most commonly used threat measurement scale developed by Burgoon, Miller, Cohen, and Montgomery (1978) that seems more tuned into threat as fear. Consequently, some of the most recent inoculation scholarship has labeled the conventional threat measure as an indicator of *apprehensive threat* and the Banas and Richards' (2017) measure as *motivational threat*. To date, evidence suggests that inoculation treatments are eliciting both types of threat (e.g., Ivanov, Hester, et al., 2020), but that

motivational threat is functioning more in line with how inoculation-conferred resistance is thought to function in motivating resistance (Banas & Richards, 2017).

Ivanov, Hester, and colleagues (2020) have provided a clearer look at when threat takes place during inoculation, with specific attention to whether threat lingers after an attack. They found that it does. Threat continues after a position is attacked—both motivational and apprehensive threat.

Another long-standing question about threat has also been answered—at least partly. Scholars had noted that it remained unclear whether the forewarning component of inoculation or the refutational preemption component of inoculation is most responsible for the threat generated by inoculation messages (e.g., Wood, 2007). Since then, one study sought to answer this question—to "untangle" threat. Compton and Ivanov (2012) found that both parts—the forewarning and the refutational preemption—generate threat, but when both are used, most of the generated threat comes from the forewarning. The message feature that had been originally conceptualized as a way to boost threat seems to actually be doing most of the work in generating threat. It might be the key threat trigger.

Threat has also played a prominent role in research that has used inoculation theory as a basis for rhetorical analysis. In this work, scholars have identified threat as one of the core features that identifies an inoculation strategy at work. For example, Compton and Kaylor (2013) found both threat triggers—explicit forewarnings and refutational preemption—in their analysis of a 17th-century religious pamphlet that they argue used inoculation strategy to protect support of smallpox vaccination in the face of attacks against vaccination.

We know, then, a lot about threat—at least, a lot more than we have known before. Threat is now regularly measured in inoculation research, and with recent developments, measured with greater precision and clearer conceptualization. There remains, however, a lot left to learn about this fundamental component of such a classic theory of persuasion. We consider some of these promising possibilities next.

Pushing Threat Forward

Analogy

Some scholars have blamed inoculation theory's namesake—the analogy—for muddling theoretical development, both in general and with threat in particular. Compton (2009) notes that while there seems to be a quite direct parallel between the production of refutations of counterarguments and the body's production of antibodies, there was not the same connection between the automatic generation of antibodies on encountering a viral threat in a healthy body during medical inoculation and the generation of refutational preemption in persuasion inoculation. Later, however, Compton (2013) suggests that the analogy has helped more than hurt inoculation theory's development—that it was "both limiting and flexible enough" (p. 233). The idea was that the analogy drew key comparisons to the preemptive quality of inoculation, in both medical and persuasion contexts, and in the key role of threat, or some form of motivator for ultimate resistance (Compton, 2013). In medicine, an immune system is automatically motivated to fight off a (weakened) foe via inoculation. In persuasion, cognitive and affective systems are motivated to fight off a

(weakened) foe on recognition of a threat. But by taking a wider view of inoculation in both medical and persuasion contexts, the analogy can also be "flexible enough to account for a wide range of defense-building processes against a wide range of attacks" (Compton, 2013, p. 233).

Although some recent developments of inoculation theory have questioned the preemptive strategy inherent boundary condition of inoculation theory (e.g., Ivanov et al., 2017), even those developments have been within the analogic of inoculation theory (Compton, 2020). Moving forward, then, perhaps it is not so much that the analogy has limited our understanding of threat in inoculation theory, but instead, that *our understanding of the analogy* has limited our understanding of threat in inoculation theory. I think this approach is the best way forward with explicating threat's role(s) in inoculation theory-conferred resistance to influence, which might mean rethinking—among other things—just how automatic a response to a threat is. Such considerations seem particularly important when studying inoculation theory as a therapeutic (retroactive) messaging strategy (Compton, 2020), which would seem to invert the conventional understanding of how threat works. That is, when an inoculation treatment is presented to those with an opposite position from what is being advocated, the material that would be threatening under typical inoculation applications would, in this case, be seemingly reassuring. However, the inverse would also seem to be true: The refutations provided to refute the counterarguments would, in these therapeutic cases, be functioning as counterarguments, or as threat-invoking.

Affect

In their focus on whether threat functions more as a force of apprehension or of motivation, Banas and Richards (2017) have taken us a major step forward in understanding what threat actually *is*. There is even more to learn, especially about the affective dimensions of threat (Compton, 2009). Plus, extending inoculation theory work into affect does not necessarily mean abandoning the analogy from which inoculation is named and explained (Compton, 2013). Psychoneuroimmunology is a focus of immunity science that explores connections between emotions and resistance to disease (see Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002). So, as with threat in general, using the analogy to guide further development of inoculation theory might be more a matter of expanding our working understanding of medical inoculations, including checking in with recent developments in medical inoculation practices, rather than moving away from the analogy.

One emotion, in particular, warrants continued attention: anger (Compton, 2013). Scholars should continue the work of Pfau and colleagues (2001, 2009, 2010), who looked at connections between anger and threat. Some results (Pfau et al., 2001, 2009) indicate that messages designed to generate anger generate more threat. But another study (Pfau et al., 2010) found that an attempt to generate more threat through a more strongly worded forewarning actually led to less anger than a conventional forewarning. Ivanov and associates (2012) revealed that threat and anger both motivate postinoculation talk, which ultimately boosts resistance to influence.

Such work would continue the examination of inoculation theory and affect—a line of inquiry that, in some ways, traces back to the earliest iterations of the theory (McGuire, 1964), but, in other ways, is a more recent development. Indeed, measurements of affect did not begin until Pfau and colleagues' work in the 2000s. Pfau and company (2001) found, for example, that messages designed to elicit anger boosted

threat, and subsequently, boosted resistance. Much of the recent work in explicating threat in inoculation has focused on what emotions are not involved in threat (e.g., fear; Banas & Richards, 2017). Next, scholars should take a closer look at what emotions are actually involved in threat (Compton, 2009), following the lead of Ivanov, Hester, and colleagues (2020), who have explored the discrete emotions that persist after an attack on an inoculated position.

Side Effects

One of the newer lines of analysis in inoculation research is to look beyond intended effects (i.e., resistance to influence) to also consider unintended side effects. In terms of the analogy, this would be the equivalent of iatrogenic effects of medical treatments—effects arising from the treatments themselves (Compton, 2009, 2013). Scholars have already found a few side effects of threat, including source derogation (Pfau et al., 2000) and irritation (Jacks & Devine, 2000). Intriguingly, some studies have found potentially conflicting side effects, such as decreased attitude certainty (Compton & Pfau, 2004) but also, at least with some triggers of threat, increased attitude certainty (Pfau et al., 2010). As we move forward with inoculation research in general and threat in inoculation in particular, scholars should consider additional potential side effects.

New Ways of Threatening

For decades of inoculation research, only two main threat triggers have been used: explicit threat from forewarnings and implicit threat from refutational preemption (Compton, 2013). McGuire (1964) has referred to the latter as "an obvious way of threatening" to feature "pre-exposure to weakened forms of attacking arguments" (p. 201). For years, inoculation theory research had not ventured much beyond this "obvious way."

More recently, scholars have begun to sketch out new ways of triggering threat, or more threat, in an inoculation treatment message, including emphasizing the severity, personal significance, and salience of the upcoming attack (Pfau et al., 2010; Richards, Banas, & Magid, 2017); prompting people to reflect on their experienced threat (Compton & Ivanov, 2012); and manipulating certainty about an upcoming attack (Ivanov et al., 2013). Next, scholars should continue to discover better ways of manipulating the variables that have already been studied, like attack certainty (Ivanov et al., 2013) and discovering brand-new ways of eliciting threat in an inoculation treatment message, including evocative visuals (Compton & Pfau, 2005; e.g., Nabi, 2003) and other sensory means, including audio. One medium that would allow research into both would be video games. Here, we have existing models of inoculation theory-based video game development and research (e.g., Roozenbeek & van der Linden, 2019a, 2019b).

Conclusions

Returning to the foundations of inoculation theory-conferred resistance to influence has a long-standing tradition. During the renaissance of inoculation theory research in the 1990s, Pfau (1997) specifically made the call for scholars to "[go] back to the construct's core assumptions, refining and extending them" (p. 152). His call continues to resonate, with some of the most critical discoveries about

inoculation theory—both in its theoretical development and in its application—springing from this returned focus to inoculation's core constructs.

And yet, there is more work to be done. As I have tried to survey here, the progress that scholars have made with a better understanding of threat—from what it is, to when it functions, to how it is triggered—provides a solid foundation from which to sustain this type of work and to grow it. Five key recommendations emerge from this analysis:

1. Work with threat should continue to connect with the analogic behind inoculation theory—the close parallels between persuasion/social influence resistance and biological resistance. The analogy is broad and focusing enough for such work (Compton, 2013). With inoculation theory, the analogy is the explanation.

2. In many ways, the construct of threat has been the most affect-focused variable of inoculation theory's development. Even with the primary focus on cognitive activity during resistance (e.g., the exposure to and further generation of counterarguments and refutations [McGuire, 1964]), threat has been considered the fuel for such thinking (see also Banas & Richards, 2017). And yet, for decades, threat was not thoroughly conceptualized beyond its operationalization—an explicit forewarning—or as what it is *not* (fear, according to Pfau, 1997, and others). Moving forward, scholars should take the lead of Banas and Richards (2017), who have begun to tease apart what threat actually is, which might—as they argue—mean measuring it differently.

3. In keeping with the medical analogy from which inoculation theory is based, it is appropriate to consider not only main effects of the treatments but also side effects. Perhaps nowhere is this more important than in investigations of threat—the unsettling part of inoculation-conferred resistance to influence. The experience of threat is dissonance-inducing, and so, scholars should continue to measure the effects of such dissonance on how people think and feel about important issues.

4. Inoculation scholars have made clearer delineations in recent years between threat as a message feature—once conceptualized more as a specific message component, a forewarning—and threat as a response to a message (e.g., Compton, 2013). Nevertheless, most manipulations of threat still rely on the same triggers as McGuire's earliest inoculation research: an explicit forewarning and raised and refuted counterarguments. Furthermore, more often than not, inoculation messages are text-based and use a static medium (see Roozenbeek & van der Linden, 2019a, 2019b, for an example of an exception). Such an approach is less likely to generate affect than more emotionally-evocative approaches (e.g., an inoculation message delivered in face-to-face conversation), and if threat is at least partly affective, we probably will not see its full range until inoculation research more consistently uses a wider set of media and messaging in inoculation treatment messages.

5. As inoculation theory is stretched and pulled, in how it is understood and how it is applied, threat needs to remain a central part of the conversation. If threat is what binds the analogic and the analogic is what defines the theory (Compton, 2013), then threat is a critical consideration of inoculation research.

We have come a long way in our understanding of threat in inoculation-conferred resistance to influence, but there is so much more to discover. Now is the time for even more creativity and theoretical development. The stakes are high, both in more fully understanding inoculation and in applying it more effectively to pressing issues of the day. To do that, we need to understand inoculation theory's core constructs, especially threat.

References

Banas, J., & Rains, S. (2010). A meta-analysis of research on inoculation theory. *Communication Monographs, 77*(3), 281–311. doi:10.1080/03637751003758193

Banas, J. A., & Richards, A. S. (2017). Apprehension or motivation to defend attitudes? Exploring the underlying threat mechanism in inoculation-induced resistance to persuasion. *Communication Monographs*, *84*(2), 164–178. doi:10.1080/03637751.2017.1307999

Braddock, K. (2019). Vaccinating against hate: Using attitudinal inoculation to confer resistance to persuasion by extremist propaganda. *Terrorism and Political Violence*. Advance online publication. https://doi.org/10.1080/09546553.2019.1693370

Brehm, J. W. (1966). *A theory of psychological reactance.* New York, NY: Academic.

Burgoon, M., Miller, M. D., Cohen, M., & Montgomery, C. L. (1978). An empirical test of a model of resistance to persuasion. *Human Communication Research*, *5*(1), 27–39. doi:10.1111/j.1468-2958.1978.tb00620.x

Compton, J. (2009). Threat explication: What we know and don't yet know about a key component of inoculation theory. *Journal of the Speech and Theatre Association of Missouri, 39*(1), 1–18. Retrieved from https://speechandtheatremo.org/journal-archive/

Compton, J. (2013). Inoculation theory. In J. P. Dillard & L. Shen (Eds.), *The SAGE handbook of persuasion: Developments in theory and practice* (2nd ed.; pp. 220–236). Thousand Oaks, CA: SAGE.

Compton, J. (2020). Prophylactic versus therapeutic inoculation treatments for resistance to influence. *Communication Theory, 30*(3), 330–343. doi:10.1093/ct/qtz004

Compton, J., & Ivanov, B. (2012). Untangling threat during inoculation theory–conferred resistance. *Communication Reports, 25*(1), 1–13. doi:10.1080/08934215.2012.661018

Compton, J., & Kaylor, B. T. (2013). Inoculating for small pox inoculation objections in Reverend Cooper's *Letter to a Friend in the Country*. *Journal of Communication and Religion, 36*(1), 92–107.

Compton, J., & Pfau, M. (2004). Use of inoculation to foster resistance to credit card marketing targeting college students. *Journal of Applied Communication Research, 32*(4), 343–364. doi:10.1080/0090988042000276014

Compton, J., & Pfau, M. (2005). Inoculation theory of resistance to influence at maturity: Recent progress in theory development and application and suggestions for future research. *Annals of the International Communication Association, 29*(1), 97–145. doi:10.1080/23808985.2005.11679045

Compton, J., & Pfau, M. (2009). Spreading inoculation: Inoculation, resistance to influence, and word-of-mouth communication. *Communication Theory, 19*(1), 9–28. doi:10.1111/j.1468-2885.2008.01330.x

Cook, J., Lewandowsky, S., & Ecker, U. K. H. (2017). Neutralizing misinformation through inoculation: Exposing misleading argumentation techniques reduces their influence. *PLOS ONE, 12*(5), 1–21. doi:10.1371/journal.pone.0175799

Dillard, J. P., & Shen, L. (2005). On the nature of reactance and its role in persuasive health communication. *Communication Monographs*, *72*(2), 144–168. doi:10.1080/03637750500111815

Ivanov, B. (2011). Designing inoculation messages for health communication campaigns. In H. Cho (Ed.), *Health communication message design: Theory and practice* (pp. 73–93). Thousand Oaks, CA: SAGE.

Ivanov, B., Burns, W. J., Sellnow, T. L., Sayers, E. L. P., Veil, S. R., & Mayorga, M. W. (2016). Using an inoculation message approach to promote public confidence in protective agencies. *Journal of Applied Communication Research, 44*(4), 381–398. doi:10.1080/00909882.2016.1225165

Ivanov, B., Hester, E. B., Martin, J. C., Silberman, W., Slone, A. R., Goatley-Soan, S., . . . & Anderson, A. (2020). Persistence of emotion in the process of inoculation: Experiencing post-attack threat, fear, anger, happiness, sadness, and surprise. *Communication Quarterly*, *68*(5), 560–582. doi:10.1080/01463373.2020.1850492

Ivanov, B., Miller, C. H., Compton, J., Averbeck, J. M., Harrison, K. J., Sims, J. D., . . . & Parker, J. L. (2012). Effects of post-inoculation talk on resistance to influence. *Journal of Communication, 62*(4), 701–718. doi:10.1111/j.1460-2466.2012.01658.x

Ivanov, B., Parker, K. A., & Dillingham, L. L. (2020). Inoculation theory as a strategic tool. In H. D. O'Hair & M. J. O'Hair (Eds.), *Handbook of applied communication research* (Vol. 1, pp. 13–28). Hoboken, NJ: Wiley.

Ivanov, B., Parker, K. A., Dillingham, L. L., Petrun, E. L., Grant, L. F., & Geegan, S. (2013). Enhancing inoculation: Examining the relationships among attack certainty, threat and resistance. *International Journal of Neuroscience and Behavioral Science*, *1*(2), 13–23. doi:10.13189/ijnbs.2013.010201

Ivanov, B., Rains, S. A., Geegan, S. A., Vos, S. C., Haarstad, N. D., & Parker, K. A. (2017). Beyond simple inoculation: Examining the persuasive value of inoculation for audiences with initially neutral or opposing attitudes. *Western Journal of Communication*, *81*(1), 105–126. doi:10.1080/10570314.2016.1224917

Ivanov, B., Sims, J. D., Compton, J., Miller, C. H., Parker, K. A., Parker, J. L., . . . & Averbeck, J. M. (2015). The general content of postinoculation talk: Recalled issue-specific conversations following inoculation treatments. *Western Journal of Communication, 79*(2), 218–238. doi:10.1080/10570314.2014.943423

Jacks, J. Z., & Devine, P. G. (2000). Attitude importance, forewarning of message content, and resistance to persuasion. *Basic and Applied Social Psychology*, *22*(1), 19–29. doi:10.1207/S15324834BASP2201_3

Kiecolt-Glaser, J. K., McGuire, L., Robles, T. F., & Glaser, R. (2002). Psychoneuroimmunology: Psychological influences on immune function and health. *Journal of Consulting and Clinical Psychology 70*(3), 537–547. doi:10.1037/0022-006X.70.3.537

McGuire, W. J. (1961). The effectiveness of supportive and refutational defenses in immunizing and restoring beliefs against persuasion. *Sociometry*, *24*(2), 184–197. doi:10.2307/2786067

McGuire, W. J. (1964). Inducing resistance to persuasion: Some contemporary approaches. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 1, pp. 191–229). Cambridge, MA: Academic. doi:10.1016/S0065-2601(08)60052-0

McGuire, W. J., & Papageorgis, D. (1961). The relative efficacy of various types of prior belief-defense in producing immunity against persuasion. *Journal of Abnormal and Social Psychology*, *62*(2), 327–337. doi:10.1037/h0042026

Miller, C. H., Ivanov, B., Sims, J., Compton, J., Harrison, K. J., Parker, K. A., . . . & Averbeck, J. M. (2013). Boosting the potency of resistance: Combining the motivational forces of inoculation and psychological reactance. *Human Communication Research*, *39*(1), 127–155. doi:10.1111/j.1468-2958.2012.01438.x

Nabi, R. (2003). "Feeling" resistance: Exploring the role of emotionally evocative visuals in inducing inoculation. *Media Psychology, 5*(2), 199–223. doi:10.1207/S1532785XMEP0502_4

Pfau, M. (1997). Inoculation model of resistance to influence. In G. A. Barnett & F. J. Boster (Eds.), *Progress in communication sciences: Advances in persuasion* (Vol. 13, pp. 133–171). New York, NY: Ablex.

Pfau, M., Banas, J., Semmler, S. M., Deatrick, L., Lane, L., Mason, A., . . . & Underhill, J. (2010). Role and impact of involvement and enhanced threat in resistance. *Communication Quarterly*, *58*(1), 1–18. doi:10.1080/01463370903520307

Pfau, M., & Burgoon, M. (1988). Inoculation in political campaign communication. *Human Communication Research*, *15*(1), 91–111. doi:10.1111/j.1468-2958.1988.tb00172.x

Pfau, M., Compton, J., Parker, K. A., An, C., Wittenberg, E. M., Ferguson, M., . . . & Malyshev, Y. (2006). The conundrum of the timing of counterarguing effects in resistance: Strategies to boost the persistence of counterarguing output. *Communication Quarterly, 54*(2), 143–156. doi:10.1080/01463370600650845

Pfau, M., Holbert, R. L., Zubric, S. J., Pasha, N. H., & Lin, W. K. (2000). Role and influence of communication modality in the process of resistance to persuasion. *Media Psychology*, *2*(1), 1–33. doi:10.1207/S1532785XMEP0201_1

Pfau, M., Semmler, S. M., Deatrick, L., Mason, A., Nisbett, G., Lane, L., . . . & Banas, J. (2009). Nuances about the role and impact of affect in inoculation. *Communication Monographs*, *76*(1), 73–98. doi:10.1080/03637750802378807

Pfau, M., Szabo, E. A., Anderson, J., Morrill, J., Zubric, J., & Wan, H. H. (2001). The role and impact of affect in the process of resistance to persuasion. *Human Communication Research, 27*(2), 216–252. doi:10.1111/j.1468-2958.2001.tb00781.x

Pfau, M., Tusing, K. J., Koerner, A. F., Lee, W., Godbold, L. C., Penaloza, L. J., . . . & Hong, Y. (1997). Enriching the inoculation construct: The role of critical components in the process of resistance. *Human Communication Research*, *24*(2), 187–215. doi:10.1111/j.1468-2958.1997.tb00413.x

Richards, A. S., Banas, J. A., & Magid, Y. (2017). More on inoculating against reactance to persuasive health messages: The paradox of threat. *Health Communication*, *32*(7), 1–13. doi:10.1080/10410236.2016.1196410

Roozenbeek, J., & van der Linden, S. (2019a). The fake news game: Actively inoculating against the risk of misinformation. *Journal of Risk Research*, *22*(5), 570–580. doi:10.1080/13669877.2018.1443491

Roozenbeek, J., & van der Linden, S. (2019b). Fake news game confers psychological resistance against online misinformation. *Palgrave Communications*, *5*(1), 1–10.

van der Linden, S., Roozenbeek, J., & Compton, J. (2020). Inoculating against fake news about COVID-19. *Frontiers in Psychology*, *11*, 566790. https://doi.org/10.3389/fpsyg.2020.566790

Wood, M. L. M. (2007). Rethinking the inoculation analogy: Effects on subjects with differing preexisting attitudes. *Human Communication Research, 33*(3), 357–378. doi:10.1111/j.1468-2958.2007.00303.x

Wyer, R. S. (1974). *Cognitive organization and change: An information processing approach*. Hoboken, NJ: Wiley.