

# Learning from Fake News Games

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## Acknowledgements

Cover photo by [Connor Danylenko](#) (edited).

## Introduction

“More information was supposed to mean more freedom to stand up to the powerful, but has also given the powerful new ways to crush and silence dissent. More information was supposed to mean a more informed debate, but we seem less capable of deliberation than ever. More information was supposed to mean mutual understanding across borders, but it has also made possible new and more subtle forms of subversion. We live in a world in which the means of manipulation have gone forth and multiplied, a world of dark ads, psy-ops, hacks, bots, soft facts, deep fakes, fake news, Putin, trolls, Trump.”

**Pomerantsev (2019)**

“We are all apprentices in a craft where no one ever becomes a master.”

**Hemingway (1961, 11th July)**

Social media has brought about an attention economy in which polarisation, extremism, and conflict are now the primary factors that attract the public’s fleeting concentration. Since the 2016 U.S. elections, there has been an explosion in the proliferation of online fake news, misinformation, and disinformation. Actions taken during President Trump’s administration, the worsening climate emergency, and the emergence of the global COVID-19 pandemic have further reinforced an information landscape in which fragile truths are increasingly hard to discern from forceful falsehoods.

Research suggests that from 2019 to 2020, unreliable news sites more than doubled their share of social media engagement (McDonald, 2020). Work by Lyons et al. (2021) also found that most people not only have a hard time identifying false news but are not aware of their deficiencies at doing so. In a survey of 8,285 Americans, 90% of participants indicated they were above average in their ability to discern false and

legitimate news headlines. Those with inflated perceptions of their abilities more frequently visited websites linked to the spread of false or misleading news. Overconfident participants were also less able to distinguish between true and false claims about current events and reported higher willingness to share false content, especially when it aligned with their political predispositions.

Some research has downplayed the degree to which the public consumes fake news (Allen et al., 2020; Guess et al., 2018). However, the storming of the U.S. Capitol Building on 6th January 2021 and the deleterious actions of the global anti-vax movement have shown that fake news can have very real consequences.

Many initiatives are attempting to tackle fake news. These include developing systems to automate the identification of fake news, automatic and crowd-sourced fact-checking and labelling systems, methods to seek out and provide alternative viewpoints, legislation of social media platforms, and a wide variety of educational initiatives. One exciting development is the emergence of educational games that engage the public in learning about fake news in novel and interesting ways. While ostensibly functioning as entertainment, these games also serve more serious goals, echoing the sentiments of Scarfe (1962):

“The highest form of research is essentially play.”

**Scarfe (1962)**

In this article, I will discuss the theory underlying these games and describe a number currently available. I will conclude by outlining ways in which future games could better exploit deception and counter-deception theory.

Let us begin by considering Inoculation Theory.

## Inoculation Theory

Inoculation theory (Lewandowsky & Van Der Linden, 2021; Lumsdaine & Janis, 1953; Papageorgis & McGuire, 1961; Roozenbeek et al., 2021) posits that, just as the administration of a weakened dose of a

virus triggers antibodies in the immune system to fight off future infection, pre-emptively exposing people to weakened examples of common techniques used in the production of fake news can generate ‘cognitive antibodies’. Like against a virus, if enough individuals are ‘immunised’, the informational ‘virus’ cannot spread.

Instead of trying to inoculate against every form of fake news, these games are founded on the proposal that resistance to misinformation, in general, can be built by focusing on the most common manipulation techniques used to create and spread fake news.

Research increasingly suggests that inoculation can successfully protect against the impact of fake news (Banas & Rains, 2010; Lewandowsky & Van Der Linden, 2021; Lumsdaine & Janis, 1953; Miller et al., 2013; Roozenbeek & van der Linden, 2019; Roozenbeek et al., 2020). However, inoculation theory has several potential problems:

- Inoculation Theory operates based on the provision of weakened versions of previously detected fake news. Arguably, prior detection suggests that these cases of fake news are deceptively weak. Games based on readily detected fake news may risk teaching people how to spot things that are already easy to spot.
- The content of fake news may be specific to its message, audience, or context. Generic approaches to spotting fake news can therefore be challenging to apply to particular items of news, particularly those that are ambiguous, subtle, or promulgated as part of a broader, multiple channel and platform campaign.
- It is unclear what a weakened form of fake news might look like or how it differs from a strong form.
- Inoculation could potentially decay over time. And to extend the metaphor, it may require regular ‘booster jabs’ to continue to be effective.

- Exposure to the methods used to produce fake news does not necessarily provide the basis for its detection.

Making clear that fake news is not true is also no guarantee that people will perceive it as such. The 2015 book *The Gluten Lie: And Other Myths About What You Eat* by Adam Levinovitz (Levinovitz, 2015) exposed pseudoscientific nutrition claims and the methods used to formulate and promote phoney diets. At the end of the book, Levinovitz exemplifies the pseudoscience used to promote false diets by describing one of his own — the ‘UNpacked Diet’. The premise of the Unpacked Diet is that by refusing to eat food that has come in contact with plastic, styrofoam, or aluminium foil, it is possible to cure everything from autism to Alzheimer’s, as well as achieve effortless weight loss.

Levinovitz’s satire should have been clear. Every chapter includes multiple warnings about precisely the kinds of claims made in the diet. The chapters that precede the UNpacked Diet scrupulously debunk each deceptive tactic employed. And after describing the diet, in a section called the “UNpacked Diet, UNpacked”, Levinovitz goes through each deceptive tactic and explains why he chose it.

Despite these extensive explanations, Levinovitz describes (Levinovitz, 2021) how, following the publication of his book, he was inundated by readers wanting to know which food items were permissible within the framework of the diet; where to buy the “UNpacked Diet-approved unbleached coffee filters” (which Levinovitz dreamed up as part of the satire); and where they could find more details about the diet. As Levinovitz notes regarding his inclusion of the fake diet and its use of pseudoscientific methods:

“In just a few pages, these powerful rhetorical techniques overcame chapter after chapter of carefully crafted guidance on how to resist them.”

**Levinovitz (2021)**

He concludes that:

“Although inoculation is promising, my own experiences make me skeptical. Even if inoculation works in certain cases such as climate change and conspiracies, it may not do so in all cases. Panaceas for misinformation are no more plausible than dietary panaceas. Not every kind of misinformation is the same, and it’s unlikely that we can develop a one-size-fits-all solution.”

**Levinovitz (2021)**

In addition, even if somebody understands that they are reading fake news, they may still formulate an erroneous belief:

“Telling people that Barack Obama is not a Muslim fails to change many people’s minds, because they frequently remember everything that was said —except for the crucial qualifier “not.” Rather, to successfully eradicate a misbelief requires not only removing the misbelief, but filling the void left behind (“Obama was baptised in 1988 as a member of the United Church of Christ”). If repeating the misbelief is absolutely necessary, researchers have found it helps to provide clear and repeated warnings that the misbelief is false. I repeat, false.”

**Dunning, (2014)**

None of the games identified in this article present alternative truthful information or inform players about searching for truthful information to take the place of any refuted false news stories.

Despite these concerns, it is hard to contend that increased awareness of the strategies used to produce fake news, together with an improved understanding of its inherent characteristics and subsequent impact, will not create a more robust platform from which to fight fake news.

Let us now turn our attention to a range of disinformation games, all available to play for free online. The first three games discussed are by [DROG](#), a Netherlands-based company that, according to their website:

“...counters sociological online harm globally. We offer public-private solutions to proactively counter online subversion, coordinated inauthentic behaviour and disinformation.”

<https://drog.group>

DROG has received funding from the U.K. Home Office and the U.S. Department of Homeland Security. The company also works with academic organisations to evaluate approaches for countering online disinformation.

DROG’s games are very similar in their look, feel, structure, player interactions, and themes. Let us now take a trip to Harmony Square.

## Harmony Square (DROG)

[harmonysquare.game](https://harmonysquare.game)

Harmony Square is a product of DROG in partnership with the University of Cambridge. It has received funding from the U.S. Department of State’s Global Engagement Center (GEC) and the U.S. Department of Homeland Security’s Cybersecurity and Infrastructure Security Agency (CISA).

The game situates the player as “Chief Disinformation Officer”. It takes place in a fictional town square (Harmony Square), where social media provides the primary means for residents to obtain their news and formulate their beliefs. Each faction within the Square reacts differently to local news stories. Social media serves to amplify local politics and, often, to sow division between groups.

The game involves selecting between potential alternative posts to place on the Square’s social media page. The player gets to see residents’ reactions to each post by the number of likes they receive and the residents’ replies. The narrative unfolds as a result of residents’ responses, both online and in the real world. The player gets feedback explaining the reasons for residents’ reactions. Topics addressed include trolling individuals, using emotion to make messages resonate with readers, paying supporters to increase the volume of messages about an issue, using

bots to amplify sentiment, and alternate ways of escalating tensions between groups.

It is this latter area in which the game excels. The game guides players through deploying polarised messages to amplify small sources of conflict and disagreement. Framing these messages as originating from the ‘other’ group serves to seed and artificially escalate tensions between groups.

Roozenbeek & van der Linden of Cambridge University have evaluated the game’s impact on a sample of 681 players (Roozenbeek et al., 2020). They report that:

“We find that the game confers psychological resistance against manipulation techniques commonly used in political misinformation: players from around the world find social media content making use of these techniques significantly less reliable after playing, are more confident in their ability to spot such content, and less likely to report sharing it with others in their network.”

**Roozenbeek et al. (2020)**

## Bad News (DROG)

[getbadnews.com](http://getbadnews.com)

Bad News is a publicly accessible media literacy tool, and the game includes a questionnaire to support research and enable future scientific publications on media literacy. The goal of Bad News is simple — to gain as many followers while maintaining credibility. The player acts as a “disinformation and fake news tycoon”. The game begins with the player sending out a single, emotion-laden tweet that gains both followers and credibility. To gain further credibility, the player next appropriates the identity of an official government body (or somebody important) using a Twitter handle that differs from the official handle by only a single foreign alphabet character. After sending additional tweets using this handle, the player gets to see posts reacting to their messages. Throughout the game, the player can track their accumulation of followers and credibility.

Early in the game, the player can object morally to the strategies they are encouraged to apply. However, pursuing this line soon loses them the game. If the player continues, they launch their news site. Players learn techniques that earn them badges for impersonation, emotion, conspiracy, polarisation, discrediting, and trolling.

Basol, Roozenbeek and van der Linden (Basol et al., 2020) have evaluated Bad News, and that:

“We find that playing Bad News significantly improves people’s ability to spot misinformation techniques compared to a gamified control group, and crucially, also increases people’s level of confidence in their judgments. Importantly, this confidence boost only occurred for those who updated their reliability assessments in the correct direction. This study offers further evidence for the effectiveness of psychological inoculation against not only specific instances of fake news, but the very strategies used in its production.”

**Basol et al. (2020)**

Evaluation by Maertens et al. (Maertens et al., 2021) similarly found that:

“... participants rate fake news as significantly less reliable after the [game playing] intervention.”

**Maertens et al. (2021)**

## Go Viral (DROG)

<https://www.goviralgame.com>

Go Viral is a game that aims to educate players on how to protect themselves from Covid-19 misinformation. It is a collaboration between the Social Decision-Making Lab at the University of Cambridge, DROG, Bad News, Designer Gus Manson, and the U.K. Cabinet Office. Its goal is to accumulate as many likes as possible by posting misinformation about Coronavirus.

The game builds upon the Bad News platform and follows a very similar structure based upon the spread of Coronavirus disinformation. Fake news approaches

include the use of filter bubbles (people that only communicate with other people that share the same views and filter out opposing views); use of fake medical experts to increase the credibility of a story; and discrediting and attacking Coronavirus fact-checking stories that run counter to the player's narrative. The feedback the player receives about the decisions they make, and their subsequent impact, is excellent.

Basol et al. (Basol et al., 2021) have evaluated the impact of Go Viral and conclude that:

“We find that Go Viral!, a novel 5-minute “prebunking” browser game, (a) increases the perceived manipulateness of misinformation about COVID-19, (b) improves people’s confidence in their ability to spot misinformation, and (c) reduces self-reported willingness to share misinformation with others. The first two effects remain significant for at least one week after gameplay.”

**Basol et al. (2021)**

## Fake It to Make It

<https://www.fakeittomakeitgame.com>

Fake It to Make It was developed by learning/game designer [Amanda Warner](#). The intent of the game is for players to leave with a better understanding of how misinformation is created and spread so that they are more sceptical of information that they encounter in the future. The goal of the game is to generate advertising revenue on sites that promote fake news to increase their views. Players specify at the beginning of the game how much money they aim to make.

Fake It to Make It is the least linear of all the games reviewed, as players can choose their path through a network of decisions and their impact.

The game provides players with a budget and engages them in a detailed process of designing and populating a fake news site. Creating a site involves selecting the site name, logo, layout theme, and means of monetisation. The player can choose between using a free site or buying a

domain name that will add credibility. The player, therefore, has to balance their budget with the costs of obtaining credibility.

Having created a site, the player then begins to populate it with news stories copied from other sites. The player receives a score for how seductive (i.e., ‘clickbait’) their selected stories are. They can also purchase user profiles that have varying degrees of credibility with different groups and use them to plant the copied story on aligned interest groups to generate traffic.

As the site begins to grow and gain credibility, the player receives tasks to generate more traffic and thus more advertising revenue. They achieve this by selecting relevant news stories that will elicit outrage, fear, happiness, etc., among the site’s readers. As income grows, money can be spent producing custom stories, purchasing additional tailored profiles, and extending the player’s portfolio of websites, stories, and planted news items.

Players can author content tailored to the views of certain audience sector beliefs. The game allows users to select different thematic components (such as quoting a fake source, citing authoritative-sounding sources, asking readers to help uncover the truth, etc.) to shape the article to make it more dramatic. The player can also plant stories on sites that have specific follower factions (the ‘orange party’ and the ‘purple party’).

The game also provides locked (and seemingly unimplemented) options to enable a site to collect and exploit subscriber details and download malware onto subscriber’s computers.

The feedback provided by the game about the player’s decisions is excellent for explaining how different components of a story make them dramatic and believable, how to appeal to target groups’ interests, and how to gain views by amplifying blame between different factions.

The open nature of Fake It to Make It and the detailed implementation of fake news creation set this game apart from the others reviewed in this article.

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## Postfacto

<http://www.postfacto.com>

Post Facto is another creation of learning/game designer [Amanda Warner](#), in conjunction with journalist/researcher [Tamar Wilner](#). They created the game for the [TruthBuzz](#) creative fact-checking contest run by the International Center for Journalists.

Post Facto is a game in which the player acts as a fact-checker on a news story that a robot (FactyPlex 5000) is about to share on social media. The player investigates clues embedded within the story to determine if it is real or false.

The game presents players with a genuinely published, politically loaded news story and then asks them to select from a list of cues that may indicate that the account is dubious. Cues include the source of the story, its author, temporality within the story, the nature of the photos presented, etc. When the player clicks on each potential cue, they then select from a list of reasons suggesting why the cue may be suspicious. For example, the story's byline imitates another trusted source, a 'fact' is presented "according to reports", geographical details do not check out on Google Maps, a reverse image search reveals that the story's images relate to a different story, etc.

The game provides excellent feedback on the player's decisions and exemplifies how online research can reveal both truth and falsehood behind the elements of a story. Sadly, the game only exposes players to a deconstruction of one story.

## Factitious 2018 and Factitious Pandemic Edition

<http://factitious.augamestudio.com> (note that the site recently stopped working at the time of this blog post) and <http://factitious-pandemic.augamestudio.com>

Factitious is a production of the [American University Game Lab](#) and the [JoLT Program](#). The Game Lab serves as a hub for experiential education, persuasive play research, and innovative production of

games for change and purposeful play. The JoLT Programme is a collaboration between American University's GameLab and School of Communication, tasked with exploring the intersection of journalism and game design (for more of their news-based games, see [here](#)).

Factitious challenges players to differentiate real news stories from false news stories that have genuinely appeared online. As the game presents each story, the player indicates their assessment by swiping left or right on their screen. The 'Pandemic' version of the game presents the same challenge relating to stories about Covid-19.

The game provides three levels of difficulty that correspond with levels of education: *Easy* (Middle School), *Medium* (High School) and *Hard* (College).

Factitious enables players to check the source of each story by following a link to the story's source. A story's source is often a good indicator as to the veracity of the story itself. The game then informs the player whether their assessment is correct and explains the cues inherent within the story that suggest its integrity and veracity. Cues may include that the story originates from a satirical source, the story contains no citations, there is no identification of the story's author, the story contains spelling errors or poor grammar, etc.

As the game progresses, the player transitions between educational levels and the false stories become significantly harder to differentiate from real stories. The feedback and explanations provided are generally helpful; however, the game relies to a certain extent upon the player's knowledge of the credibility of online media outlets. For example, the game assumes that the player knows the difference between (or that they will go off and research) the relative credibility of infowars.com versus the Washington Post as news sources. Some stories also require background research to determine the trustworthiness of a story. For example, one credible-looking Covid-19 story quotes a real research fellow at a real university. However, the game explains that researching this individual reveals that they are an expert in military history and are therefore not qualified to comment on

epidemiology (thereby suggesting that the story is false).

Despite the occasional provision of questionable feedback to players, the game's use of published true and false news stories is novel. It exemplifies well the practical, real-world challenge of differentiating between truth and falsehood online.

## BBC iReporter

<https://www.bbc.co.uk/news/resources/idt-8760dd58-84f9-4c98-ade2-590562670096>

BBC iReporter is an educational collaboration between the BBC and Aardman (the creators of Wallace and Gromit and Shaun the Sheep). The game targets 11 to 18-year-olds and aims to put the player in the heart of the newsroom, providing them with an opportunity to be a journalist working on a breaking story.

Players need to establish the facts of a story and avoid pitfalls such as fake and false information.

The game assesses players for their accuracy, speed and impact, and addresses topics including:

- The role of an editor and other teams in the newsroom.
- The importance of someone checking reported material before it is published.
- How journalists use social media to generate and collect comments and audience interaction.
- The risks of using social media to find information.

The narrative centres on a popular social media platform that suddenly goes offline. Multiple rumours, claims, and counterclaims circulate about the cause of the outage. As the player gathers and publishes information about the story, a Reality Check team assesses the veracity of their claims, facts, data, and use of graphs.

The game makes excellent use of multimedia. The player receives video calls from their editor and other sources,

receives emails from other reporters, sees the internal BBC news chat group, and access external chat groups. The player also gets to analyse official and unofficial websites and other social media platforms, etc. At various points in the game, the player can interview sources by choosing from predefined questions to ask and then watching a video of the interviewee's answers.

While the play is relatively linear, the game provides good feedback about the influence of the player's decisions on the accuracy, speed, and impact measures used to assess their performance. For example, the game lets the player know when they are not gathering useful facts from an interview, when stories have not been accuracy checked before publication, and when reported causal relationships within a story are, in fact, only correlations, etc.

The game also ties in with a helpful set of high-level educational materials that include videos and downloadable PDF exercises on assessing the trustworthiness of sources, recognising fake news, fact-checking, the danger of misleading numbers, etc. The resources are available [here](#).

## Fakey

<https://fakey.osome.iu.edu>

Fakey is a game created by [Indiana University's Observatory on Social Media](#). Note that the Observatory has produced a range of other interesting fake news tools that are available [here](#).

The player receives a simulated news feed that includes stories from legitimate sites and sites that typically publish false or misleading reports, clickbait headlines, conspiracy theories, junk science, and other types of misinformation.

Players have to inspect each article in the feed regarding its image, headline, and description. They then decide whether they consider the story credible, in which case they may virtually share or like it. If the player does not trust the article, they can send it for fact-checking. The game scores the player for each action they take. Points reflect experience and skill measures how



good they are at promoting information from trustworthy sources while filtering out articles from low credibility sources.

After players indicate their selection, they receive feedback on whether their assessment was correct and an indication of the cues within the story that could suggest falsehood (primarily, the story's source).

Unfortunately, the game employs several stories that do not help the player learn about fake news. For example, players assess the veracity of the headline "Incessant Rains and Widespread Flooding Devastate the South Indian State Of Kerala, Killing 67" at one point in the game. There is no source identified or other supporting information provided. Responding to the story by selecting 'FactCheck' reveals that the report has been sourced from The Times and is true (so the player, therefore, does not score points). These kinds of inconsistencies somewhat limit the game's value.

## Play Interland

[https://beinternetawesome.withgoogle.com/en\\_us/interland](https://beinternetawesome.withgoogle.com/en_us/interland)

Play Interland is a set of interlinked educational games that Google has produced to improve children's web literacy.

The game involves the player controlling an abstract character who can move within a simulated three-dimensional world. The world consists of four zones — *Kind Kingdom* (Respect Each Other), *Reality River* (Check It's For Real), *Mindful Mountain* (Think Before You Share), and *Tower of Treasure* (Secure Your Secrets).

To progress their journey through the simulated world, players need to solve challenges that they may encounter online, such as responding to bullying, responding to online scams, etc. In the game 'Reality River', the player has to choose between multiple options for responding to various types of false information. For example, a website that flashes a link for a free games console (players can choose between ignoring the link, copying the link's URL into a new window, and clicking the link to

not miss the offer). For each answer the player gets right, a new stepping stone appears to help them cross the river.

The fake news content addressed within the game is intended for children and is therefore necessarily simplistic. Nonetheless, the game provides a novel, engaging, and entertaining introduction to the topic of fake news and other online forms of influence.

## Learn to Discern

[http://irex.mocotms.com/ml\\_en/story\\_html5.html](http://irex.mocotms.com/ml_en/story_html5.html)

Learn to Discern has been produced by the International Research & Exchanges (IREX) Board, an international, nonprofit organisation specialising in global education and development.

The game seeks to educate citizens in Ukraine about various forms of online falsehood, including misinformation, disinformation, advertorials, propaganda, and censorship. The game has been converted to English, although some of the presented media is still in Ukrainian.

The game takes the form of a multimedia storybook and involves breaking into a disinformation factory to identify and destroy its means for producing fake news.

The player has a set of tools that can help them on their mission, including a *Logic-Ometer* that allows the player to establish logical information chains, a *Concept Collider* that translates unknown terms, a *Camera* to record critical information, and a *Lie Cutter* that can shred propaganda and false manipulative disinformation.

The game begins by presenting the player with a series of locks that each describe one example of information-based manipulation. Players also receive a set of keys labelled with different types of information manipulation. Players have to pair each lock with its corresponding key to open the factory door.

Once inside the factory, there are three floors — Propaganda Production, Fake News and Manipulations Storage, and the Department of Hate Speech Delivery. The player has to solve various problems to progress through each floor. For example,

the player has to watch real news videos (in Ukrainian, subtitled in English). After each video, the game presents a list of various characteristics of propaganda, and the player has to indicate which ones they believe are present within the video. If assistance is required, the player can activate the Logic-Ometer to explain each characteristic. Other games involve sorting posters into piles for Information, Advertising, PR Campaign, Public Service Announcements, and Propaganda, reviewing news stories, selecting true information from propaganda, etc.

Learn to Discern is a rich and visually engaging game that provides players with a detailed understanding of the various forms and contents of fake news and other types of disinformation.

IREX has conducted several studies to evaluate the impact of the broader Learn to Discern initiative, of which the game is part. In an evaluation of adult learners (Murrock et al., 2018), adults were 28% more likely to demonstrate sophisticated knowledge of the news media industry and 13% better at identifying a fake news story, even a year and a half after completing the programme. And in an evaluation of students in 50 schools (Druckman & Vogt, n.d.), students were twice as likely to detect hate speech and 18% better at identifying fake news stories after participating in Learn to Discern.

## **Potential Directions for Future Fake News Games**

The games reviewed in this article all contribute to the battle against fake news, misinformation, and disinformation online. The games roughly fall into two categories:

- Offensive games, in which players learn about the characteristics of fake news by conducting an offensive disinformation campaign. These include Harmony Square, Bad News, Go Viral, and Fake It to Make It.

- Defensive games, in which the player tries to detect and analyse fake news stories. These include Factitious (and the Factitious Pandemic Edition), Postfacto, BBC iReporter, Fakey, Play Interland, and Learn to Discern.

Each game comes with benefits and drawbacks. However, there also appear to be some significant gaps in the issues that these games address.

Here are six ideas for future fake news games:

### **1. Identify and delineate the practices that the game addresses**

The term ‘fake news’ now refers ubiquitously to almost any form of falsehood. No officially recognised or standardised definition of the term exists. And there are conflicting views regarding the boundaries as to what constitutes fake news (for example, whether fake news includes commercial deception?). For an interesting attempt to clarify the term, see Wardle (2017).

Games should be clear about the subset of fake news issues they address and inform players that there is more to fake news than is represented within the game. Without such clarification, players may believe that the game tackles the entirety of the fake news problem.

### **2. Provide meaningful campaign goals**

A fake news campaign generally achieves an outcome that is beneficial to its instigator. For example, hostile states may seek to influence voter behaviour to affect the result of an election. Anti-vaxxers could try to dissuade people from receiving a vaccination. Energy lobbyists might seek to persuade the public that global warming is a hoax. And a government could seek to misdirect the press from pursuing a damaging story, etc.

The games identified in this article generally have only superficial goals, such as obtaining likes, establishing credibility, earning revenue, etc. These goals do not represent those of a genuine fake news campaign. Future games should consider more important and meaningful goals and

assess players' achievements against these.

### **3. Represent coordinated activity across multiple platforms**

The media channels simulated in the offensive games identified in this article focus primarily on Twitter and fake news sites. While these are legitimate channels for promulgating fake news, actual campaigns usually involve coordinating supportive and corroborative information across multiple platforms that act as vectors for information delivery. Different parts of the narrative will often be intentionally fragmented across platforms or channels so that audiences have to work to put the pieces together for themselves (having invested effort to do so, they will then form stronger erroneous beliefs). Fragmentation also enables campaign instigators to instruct potential audience members to 'research' the facts for themselves.

Future games should consider including campaigns that necessitate coordination across multiple channels, such as (to name just a few):

- Twitter and Twitter bots.
- Installation of malware and hidden data logging.
- Harvesting information about individuals' views, preferences, and online behaviour.
- Using profile data to target individuals with tailored messaging.
- Feeding information to extremist journalists.
- Exploiting supportive politicians.
- Duping and exploiting popular influencers that have significant reach.
- Publication across multiple fake news websites (using the same narrative expressed in unique ways).
- Seeding 'citizen reporters'.
- Seeking to get erroneous news stories reported in legitimate print newspapers.
- Television, Radio and Podcasts (including advertisements).

- Personal blogs.
- Creating an online presence for fake 'independent' research organisations.
- Self-publication of 'academic-like' research papers.
- Use of water armies and troll factories (large numbers of low paid individuals that, together, can flood the online media environment with seemingly independent yet consistent messaging).
- Manipulation of news aggregation, indexing, and scoring algorithms to bring fake news to the top of feeds and search results, etc.

The fake news landscape is rich and varied, and future games should expose players to more of it. In this way, they can begin to develop a better sense of the mechanisms of fake news.

### **4. Use failure as an opportunity to learn**

Most of the games identified (with the exception of Fake It to Make It) do not represent the notion of failure. The reality is that, due to the vast number of online narratives generated every day, most attempts to go viral fail (Fuller, 2014; Wynne, 2018). Indeed, some research suggests that less than 1% of attempted viral messaging is successful (Goel et al., 2012).

While games needn't necessarily force the player to promulgate 99 messages before one gets to go viral (!), it would likely be instructive to include the notion of failure within a game. Clear feedback on why a fake news story has failed to propagate would help the player understand more about why some messages *do* promulgate widely. And allowing players to redesign their campaign could enable experiential learning based on real-world conditions.

The game that currently comes closest to this is Fake It to Make It, where a player's attempt to make a fake story go viral may fail to generate likes or shares if it is not both dramatic and credible. Future games could capitalise significantly on failure as an opportunity to learn in more detail about why campaigns succeed and fail.

## 5. Represent adversarial competition

Of the games reviewed, Fake It to Make It is the only one that provides any notion of adversarial competition. After a story has gone viral, journalists or fact-checking sites can debunk it, leading to a loss of credibility for both the story's poster and the bogus site the player created to host the story.

Real-world battles between offensive fake news campaigns and defensive measures to counter them give rise to escalatory arms races that play out continuously in the online environment (Henderson, 2021). Future games would benefit by including this adversarial competition and could include features like expert refutation, government rebuttals, provision of alternative competing news stories, public reaction turning against the promulgator of a false story (i.e., the player), etc.

## 6. Respond to the detection of fake news

Fake news poses two fundamental challenges for its recipients. The first challenge is to detect it. The second challenge is to respond to it.

For individuals, the most effective response to fake news is to not promulgate the story further. For organisations, formulating a response is more complicated. None of the games identified addresses the design and execution of responses to fake news campaigns. For example, how might a sceptical public, already swayed by a barrage of fake news, come to recognise and believe the truth? How should the player go about quashing an active fake news campaign conducted by a hostile state? How should the public be dissuaded from only attending to sources and consuming stories that reflect and more deeply entrench their pre-existing beliefs? How can the public be encouraged to consider both sides of an argument equally, understand the impact of emotion upon their thinking, and make up their minds more rationally? Etc.

In addition to current and emergent games that enable players to execute fake news campaigns, future games should consider allowing players to design and run counter-fake news campaigns.

## Conclusions

Among the many initiatives attempting to tackle fake news, various educational games have recently begun to emerge to educate the public about how fake news works. Initial evaluations suggest that these games have the potential to reduce players' susceptibility to fake news, enabling them to detect it when they encounter it and, therefore, to be less swayed by its content.

While all the games identified support the battle against fake news, there are some notable omissions in the range of issues they address. Future games could, for example, consider incorporating goal-directed campaigns coordinated across multiple platforms, adversarial competition between fake news and counter-fake news activities, opportunities for the player to learn from campaign failures, and in-game capabilities for responding to fake news.

Where these games succeed, however, is in enabling the public to learn more about the complex (and not always stimulating) topic of fake news in simple, engaging, and entertaining ways.

## References

- Allen, J., Howland, B., Mobius, M., Rothschild, D., & Watts, D. J. (2020). Evaluating the Fake News Problem at the Scale of the Information Ecosystem. *Science Advances*, 6.
- Banas, J. A., & Rains, S. A. (2010). A Meta-Analysis of Research on Inoculation Theory. *Communication Monographs*, 77(3), 281-311. <https://doi.org/10.1080/03637751003758193>
- Basol, M., Roozenbeek, J., Berriche, M., Uenal, F., McClanahan, W. P., & Linden, S. v. d. (2021). Towards Psychological Herd Immunity: Cross-Cultural Evidence for Two Prebunking Interventions against Covid-19 Misinformation. *Big Data & Society*, 8(1). <https://doi.org/10.1177/20539517211013868>

- Basol, M., Roozenbeek, J., & van der Linden, S. (2020). Good News About Bad News: Gamified Inoculation Boosts Confidence and Cognitive Immunity against Fake News. *J Cogn*, 3(1), 2. <https://doi.org/10.5334/joc.91>
- Druckman, M., & Vogt, K. (n.d.). *Boosting Immunity to Disinformation: Ukrainian Students Better Detect False Information after Teachers Integrate Media Literacy into Standard Subjects*. International Research and Exchanges Board.
- Dunning, D. (2014). *We Are All Confident Idiots*. Retrieved 20/06/2019 from <https://psmag.com/social-justice/confident-idiots-92793>
- Fuller, J. (2014). *7 Times Politicians Tried to Go Viral — and Failed Miserably*. Retrieved 28/05/2021 from <https://www.washingtonpost.com/news/the-fix/wp/2014/10/09/7-times-politicians-tried-to-go-viral-and-failed-miserably/>
- Goel, S., Watts, D. J., & Goldstein, D. G. (2012). The Structure of Online Diffusion Networks. Proceedings of the 13th ACM conference on electronic commerce,
- Guess, A. M., Nyhan, B., & Reifler, J. (2018). *Exposure to Untrustworthy Websites in the 2016 U.S. Election*. Retrieved 30/05/2021 from [www.dartmouth.edu/~nyhan/fake-news-2016.pdf](http://www.dartmouth.edu/~nyhan/fake-news-2016.pdf)
- Hemingway, E. (1961, 11th July). About Hemingway. *New York Journal American*.
- Henderson, S. (2021). How to Win the Deception / Counter-Deception Arms Race? Retrieved 02/06/2021, from <https://deceptionbydesign.com/wp-content/uploads/2021/04/Henderson-Deception-Arms-Race-1.0.pdf>
- Levinovitz, A. (2015). *The Gluten Lie: And Other Myths About What You Eat*. Simon and Schuster.
- Levinovitz, A. (2021). *They Swore by the Diet I Created — but I Completely Made It Up: How Exposure to Misinformation Inoculation Sometimes Makes Things Worse*. Retrieved 06/05/2021 from <https://elemental.medium.com/they-swore-by-the-diet-i-created-but-i-completely-made-it-up-c6d168e84c26>
- Lewandowsky, S., & Van Der Linden, S. (2021). Countering Misinformation and Fake News through Inoculation and Prebunking. *European Review of Social Psychology*, 1-38
- Lumsdaine, A. A., & Janis, I. L. (1953). Resistance to “Counterpropaganda” Produced by One-Sided and Two-Sided “Propaganda” Presentations. *Public Opinion Quarterly*, 17(3), 311-318. <https://doi.org/https://doi.org/10.1086/266464>
- Lyons, B. A., Montgomery, J., Guess, A., Nyhan, B., & Reifler, J. (2021). Overconfidence in News Judgements. *Proceedings of the National Academy of Sciences*, 118. <https://doi.org/10.1073/pnas.2019527118>
- Maertens, R., Roozenbeek, J., Basol, M., & van der Linden, S. (2021). Long-Term Effectiveness of Inoculation against Misinformation: Three Longitudinal Experiments. *J Exp Psychol Appl*, 27(1), 1-16. <https://doi.org/10.1037/xap0000315>
- McDonald, K. (2020). *Unreliable News Sites More Than Doubled Their Share of Social Media Engagement in 2020*. Retrieved 25/05/2021 from <https://www.newsguardtech.com/special-report-2020-engagement-analysis/>
- Miller, C. H., Ivanov, B., Sims, J., Compton, J., Harrison, K. J., Parker, K. A., Parker, J. L., & Averbek, J. M. (2013). Boosting the Potency of Resistance: Combining the Motivational Forces of Inoculation and Psychological Reactance. *Human Communication Research*, 39(1), 127-155. <https://doi.org/10.1111/j.1468-2958.2012.01438.x>

- Murrock, E., Amulya, J., Druckman, M., & Liubyva, T. (2018). *Winning the War on State-Sponsored Propaganda: Gains in the Ability to Detect Disinformation a Year and a Half after Completing a Ukrainian News Media Literacy Program*. I. R. a. E. Board.
- Papageorgis, D., & McGuire, W. J. (1961). The Generality of Immunity to Persuasion Produced by Pre-Exposure to Weakened Counterarguments. *The Journal of Abnormal and Social Psychology*, 62(3), 475.
- Pomerantsev, P. (2019, 27th July, 2019). The Disinformation Age: A Revolution in Propaganda. *The Guardian*. <https://www.theguardian.com/books/2019/jul/27/the-disinformation-age-a-revolution-in-propaganda>
- Roozenbeek, J., Basol, M., & van der Linden, S. (2021). *A New Way to Inoculate People against Misinformation*. Retrieved 07/05/2021 from <https://behavioralscientist.org/a-new-way-to-inoculate-people-against-misinformation/>
- Roozenbeek, J., & van der Linden, S. (2019). Fake News Game Confers Psychological Resistance against Online Misinformation. *Palgrave Communications*, 5(1). <https://doi.org/10.1057/s41599-019-0279-9>
- Roozenbeek, J., van der Linden, S., & Nygren, T. (2020). Prebunking Interventions Based on the Psychological Theory of “Inoculation” Can Reduce Susceptibility to Misinformation across Cultures. *Harvard Kennedy School Misinformation Review*. <https://doi.org/10.37016/mr-2020-008>
- Scarfe, N. V. (1962). Play Is Education. *Childhood Education*, 39(3), 117-121.
- Wardle, C. (2017). *Fake News. It's Complicated*. Retrieved 26/05/2021 from <https://medium.com/1st-draft/fake-news-its-complicated-d0f773766c79>
- Wynne, R. (2018). *There Are No Guarantees -- or Exact Statistics -- for Going Viral*. Retrieved 28/05/2021 from <https://www.forbes.com/sites/robertwynne/2018/03/09/there-are-no-guarantees-or-exact-statistics-for-going-viral>



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