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## Bolstering Resistance to Misinformation through K-12 Education

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Allison Johnson, Student

Dr. Cory Curl, Major Professor

Dr. Cory Curl, DUS, Director of Graduate Studies

# Bolstering Resistance to Misinformation through K-12 Education

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## Executive Summary

Misinformation online and in news media is a problem because it degrades truth and hinders legitimate democratic discourse. As misinformation becomes more prevalent, we need to start finding ways to limit the extent of the problem. To do so, I recommend a policy solution based on inoculation theory.

Inoculation theory, as the name suggests, uses the metaphor of a vaccine. When receiving the flu shot, we get a weakened dose of the virus, which in turn helps us to create antibodies and later be more effective at fighting the real flu. In this instance, people are exposed to weakened doses of misinformation which allows them to create “mental antibodies” and bolster their resistance to misinformation. Misinformation has been proven to “stick,” displaying the critical importance of bolstering resistance prior to exposure, rather than correcting after exposure.

My policy recommendation contains three main components aimed at bolstering resistance to misinformation through K-12 education in Kentucky. First, Kentucky should adopt an adapted version of Media Literacy Now’s model bill, which requires the development of a media literacy curriculum, provides appropriate training and resources to teachers and teacher-librarians via the Kentucky Department of Education, and mandates annual surveys to determine best practices for teaching media literacy at all grade levels. Secondly, Kentucky should create additional digital literacy standards focused around identifying and resisting misinformation. Finally, the Kentucky General Assembly should allocate appropriate funds for the Kentucky Department of Education to fulfill the mandates set for them in the first two policies.

# Problem Statement and Purpose

Access to the truth is one of the pillars of our democracy and the functioning of our society. Without access to facts, people cannot make informed decisions about something as simple as what foods to buy to something as important as what vaccines to give their children. Misinformation circulated through the internet and media has become so prevalent that 78% of people think that Republicans and Democrats disagree not only on policies, but on basic facts.<sup>1</sup> The inability to identify facts and the degradation of truth hinders legitimate democratic discourse.<sup>2</sup> Misinformation is more than an annoying byproduct of the social media age, it is a serious threat to the health of our democracy.

**Misinformation:  
Information that is  
ostensibly  
presented as true  
but is in fact false or  
misleading.**

Misinformation has been defined as information that is ostensibly presented as true but is in fact false or misleading.<sup>3</sup> In 2016, the *Columbia Journalism Review* asserted there were six major types of misinformation circulated in the presidential election:

1. Authentic material used in the wrong context
2. Imposter news sites designed to look like brands we already know
3. Misinformation sites
4. Fake information (presented in engaging graphics, images, videos, and memes)
5. Manipulated content
6. Parody content<sup>4</sup>

The misinformation problem is incredibly wide sweeping, complex, and at times, feels insurmountable. But the size of a problem isn't a reason to stop looking for solutions. When the COVID-19 pandemic began, there were fearmongers preying on people's anxieties saying, "this is never going to go away" and "just get used to it." That may be true, COVID-19 may never go away. But we found tools to bolster our resistance to it. We wash our hands, we wear masks to prevent the spread, we get vaccines

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<sup>1</sup> John LaLoggia, "Republicans and Democrats agree: They can't agree on basic facts," *Pew Research Center*, August 23, 2018, <https://www.pewresearch.org/fact-tank/2018/08/23/republicans-and-democrats-agree-they-cant-agree-on-basic-facts/>

<sup>2</sup> Lewandowsky et al., "Misinformation and Its Correction: Continued Influence and Successful Debiasing," *Psychological Science in the Public Interest*, Vol. 13, No. 3 (2012) 106-131.

<sup>3</sup> Tay, Li Qian, Mark J. Hurlstone, Tim Kurz, and Ullrich K. H. Ecker. 2022. "A Comparison of Prebunking and Debunking Interventions for Implied versus Explicit Misinformation." *British Journal of Psychology* 113 (3): 591–607. doi:10.1111/bjop.12551.

<sup>4</sup> Claire Wardle, "6 types of misinformation circulated this election season," *Columbia Journalism Review*, August 18, 2016, [https://www.cjr.org/tow\\_center/6\\_types\\_election\\_fake\\_news.php](https://www.cjr.org/tow_center/6_types_election_fake_news.php)

and boosters. Misinformation is never going to go away, but we can compile tools to bolster people's resistance to it.

In schools, children are learning to utilize technology to enhance their learning and research various topics. Supplementing Kentucky's current academic standards for digital literacy with learning objectives on the definition of misinformation, the continued influence effect, and the use of "pre-bunking" as tools to bolster resistance to misinformation will not only inform students that misinformation is a problem, it will increase their resistance to it.

In this policy brief I will detail my policy recommendations, explaining the cognitive effects of misinformation and how we should utilize that information to craft stronger academic standards to combat them. I will go on to evaluate those recommendations for political feasibility and ease of implementation, discussing the current political climate in the Commonwealth of Kentucky.

## Policy Recommendation and Discussion

### 1. Enact an adapted version of Media Literacy Now's model bill.

## What are academic standards, curriculum, and instructional resources?

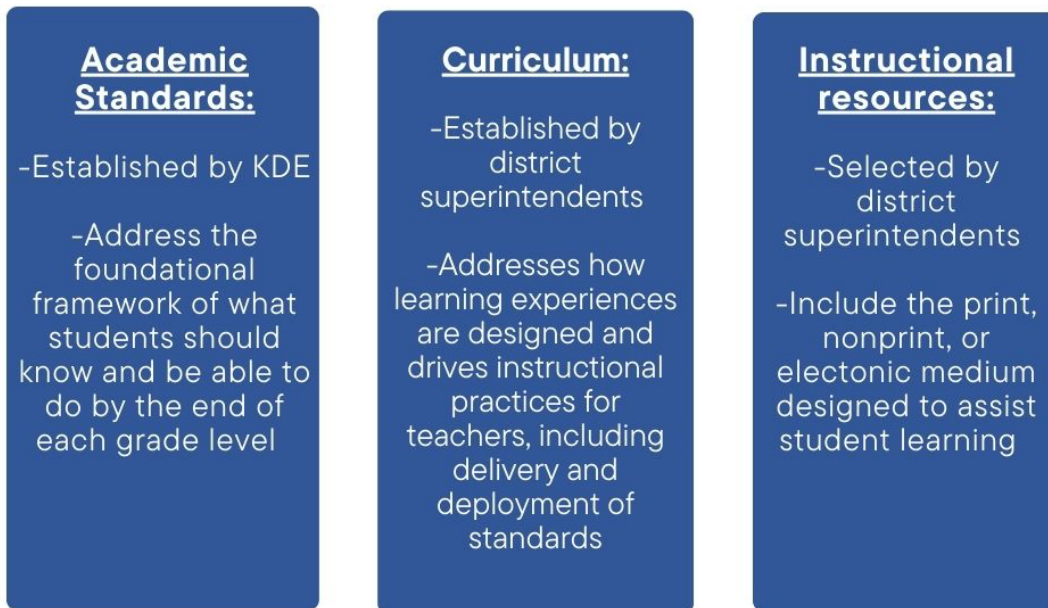


Figure 1: Source, KDE Senate Bill 1 (2022) Changes for School-based Decision Making (SBDM)

As of June 2022, school district’s superintendents are now responsible for selecting a school’s “curriculum, textbooks, instructional materials and student support services after consultation with SBDM council and the local board of education.”<sup>5</sup> Senate Bill 1 (2022) transferred the responsibility of curriculum determination and principal selection away from SBDM (school-based decision making) councils and to superintendents. Superintendents are required to “consult” SBDM councils and local school boards prior to enacting the curriculum, and whilst they must adhere to any previously established school board policies, superintendents will have full authority to select whatever curriculum they choose.

Media Literacy Now, in partnership with Common Sense Kids Action, the National Association for Media Literacy Education, and the Digital Citizenship Institute created a model bill<sup>6</sup> to start dialogue in state legislatures regarding the importance of digital literacy education in public schools. The bill requires states to include media literacy standards in the curriculum for public schools, provide appropriate training and resources to teachers and teacher-librarians via the Kentucky Department of Education (KDE), and mandates annual surveys to determine best practices for teaching media literacy at all grade levels.

There is a small issue with the first section of the model bill. The bill requires that states must have curricular content which integrates critical thinking and media-literacy skills. In Kentucky, curriculum is established only by local school districts, specifically superintendents. The state is responsible for Academic Standards, rather than curriculum, to allow local schools and districts to choose the curricular design which best meets the needs of their students, as required by Kentucky law.<sup>7</sup> Academic Standards are designed to create a framework of what is to be learned, rather than how it is to be learned. Kentucky’s Academic Standards for Technology do address media literacy skills but fail to sufficiently address skills which would bolster resistance to misinformation. (More on this in recommendation 2.) By removing section 1 of the model bill, it eliminates that problematic language and leaves the most important components of the bill.

There are several critical action items in Media Literacy Now’s model bill. First, it requires that states form a working group to update the K-12 learning standards for media literacy<sup>8</sup> and encourages school districts to update media curriculum on an annual basis. Second, it requires that the KDE create a web-based location to recommend best practices and resources to support educators as they teach media literacy skills. It also contains provisions for KDE to support professional development for teachers in this subject area and requires that one teacher training per year be dedicated to media literacy. Finally, it mandates that the KDE administer an annual survey evaluating what supports educators need in the

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<sup>5</sup> KDE Senate Bill 1 Guidance for School-based Decision Making

<https://education.ky.gov/districts/SBDM/Documents/Senate%20Bill%201%20Guidance.pdf>

<sup>6</sup> <https://medialiteracynow.org/become-an-advocate/>

Full text of the model bill can be found here under “resources and tools” under the header Model Bill: Advisory Committee/Annual Updates/Survey/Professional Development

<sup>7</sup> KRS 167.160 Promulgation of administrative regulations by the Kentucky Board of Education and 704 KAR 8:090 Kentucky Academic Standards for Technology

<sup>8</sup> For purposes of this act, “media literacy” shall be considered a broad term that encompasses consumption and production of media and digital products and is defined as the ability to access, analyze, evaluate, create and take action with all forms of communication, and encompasses the foundational skills of digital citizenship and internet safety including the norms of appropriate, responsible, healthy behavior, and cyberbullying prevention.

implementation of media literacy curriculum. These supports and professional development tools create infrastructure that will be essential in implementing the next recommendation.

## 2. Supplement the model bill with new standards for misinformation resistance.

The Kentucky Academic Standards for Technology (K-12) do address media literacy by establishing seven main concepts, with subsequent standards, learning priorities, and performance indicators.<sup>9</sup> The concept which would address misinformation online and in digital media would be the “Knowledge Constructor” standard. The learning priority for that standard is to “evaluate digital sources for accuracy of information; compare and consider the perspectives of the sources; determine usefulness and assess the credibility of the sources.”

The indicators for grades 9-12:

1. Evaluate digital sources for accuracy of information; compare and consider the perspectives of the sources; determine usefulness and assess the credibility of the source.

Based on our current understanding of misinformation retention, these indicators may not sufficiently prepare students to understand the effects of misinformation. Once someone has been exposed to misinformation, it is challenging to reverse the effects. Often referred to as the “misinformation effect” or the “continued influence effect,” even when misinformation is corrected, people often rely on the original misinformation.<sup>10</sup> Several studies have shown that when participants were presented with a persuasive fact and a related piece of information or a contrarian counter frame, their beliefs were unaffected. The misinformation cancelled out the facts.<sup>11</sup>

The current consensus for teaching students how to evaluate digital sources for accuracy uses the debunking method. Go to a website, evaluate the content, sponsors, and other identifying factors, and then determine the reliability of the source. There are several reasons this is not an ideal mechanism to combat misinformation. First, we know that misinformation tends to “stick” to the brain through the continued influence effect. Secondly, without the presence of a clear causal alternative (a fact which would lead people to dismiss the initial piece of information), it’s less likely that people will identify the information as incorrect.<sup>12</sup> Finally, evidence suggests that a person’s political views may make them less likely to accept the inaccuracy of misinformation.

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<sup>9</sup> [https://education.ky.gov/curriculum/standards/kyacadstand/Documents/KAS\\_Technology.pdf](https://education.ky.gov/curriculum/standards/kyacadstand/Documents/KAS_Technology.pdf) Kentucky Academic Standards for Technology (K-12)

<sup>10</sup> Stephan Lewandowsky & Sander van der Linden (2021): Countering Misinformation and Fake News Through Inoculation and Prebunking, *European Review of Social Psychology*, DOI: 10.1080/10463283.2021.1876983

<sup>11</sup> Van der Linden et al, (2017), McCright et al, (2016) Cook et al. (2017)

<sup>12</sup> Johnson, H. M., & Seifert, C. M. (1994). Sources of the continued influence effect: When misinformation in memory affects later inferences. *Journal of Experimental Psychology: Learning, Memory and Cognition*, 20(6) 1420–1436. <https://doi.org/10.1037/0278-7393.20.6.1420>

Therefore, we need to start educating students about the importance of “pre-bunking” as a tool to build resiliency against misinformation. Pre-bunking, also called inoculation, makes people aware of potential misinformation before it is presented, and has been proven to help people become more immune to misinformation. Inoculation, following the medical analogy, presents the subject with weakened examples of misinformation and warnings against misinformation, and causes the subject to produce “mental antibodies” and become more immune to the continued misinformation effect.<sup>13</sup>

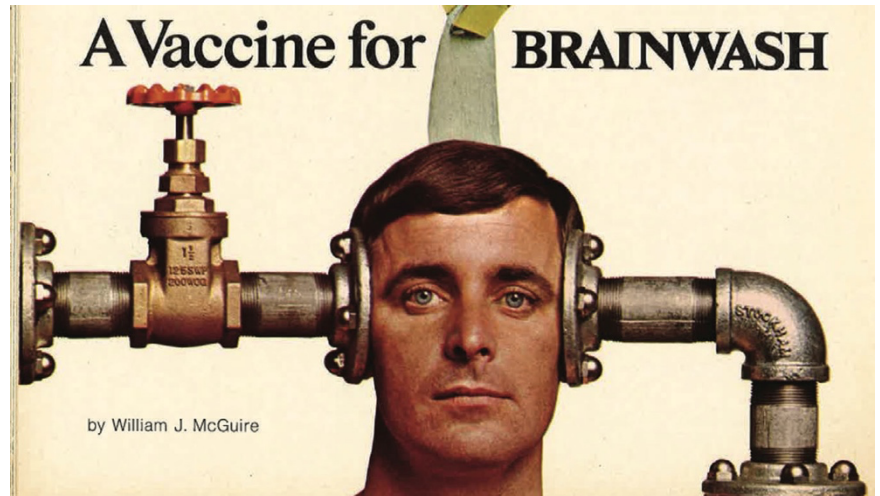


Figure 2: A vaccine for brainwash (McGuire, 1970)

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<sup>13</sup> Compton, J. (2013). Inoculation theory. In J. Dillard & L. Shen (Eds.), *The SAGE handbook of persuasion: Developments in theory and practice*. (pp. 220– 236). Thousand Oaks, CA: Sage.



## How do we create a "broad-spectrum vaccine" against misinformation?

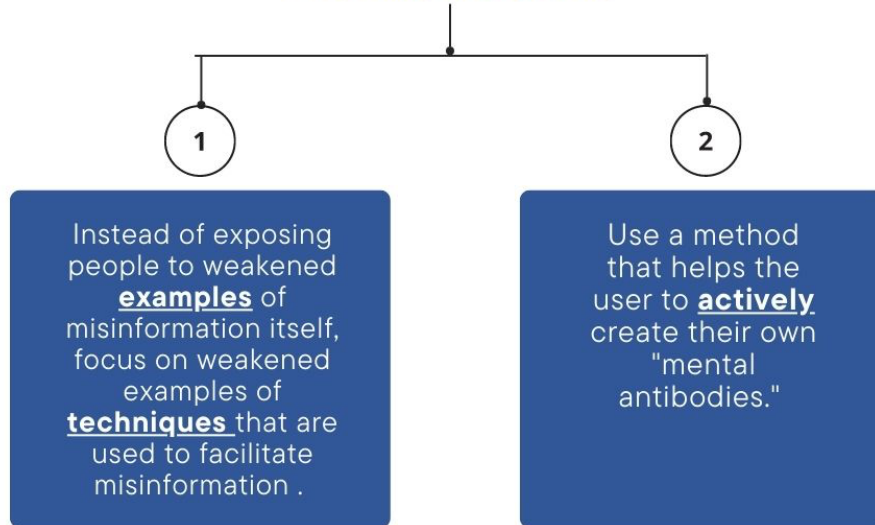


Figure 3: Roozenbeek, Jon, and Sander Van der Linden. "Good News about Bad News: Gamified Inoculation Boosts Confidence and Cognitive Immunity against Fake News." *Journal of Cognition*, vol. 3, no. 1, 2020, p. 2., <https://doi.org/10.5334/joc.91>.

One study created a real-world inoculation simulation in the form of an online game called "Bad News." The creators explained "the game exposes players to severely weakened doses of disinformation by *actively* letting them generate their own content... as it is impossible to cover all aspects of disinformation in detail in a 15 minute game, we chose to cover the (six) most common strategies."<sup>14</sup> About 15,000 subjects played the game, and by the end of the study, results showed a significant inoculation effect, and results showed *no* significant variation by ideology, age, gender, or education.

By incorporating the psychology of misinformation, pre-bunking, and creative solutions such as gamified learning into the learning standards for technology, students will be better prepared to resist misinformation, both in and out of the classroom.

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<sup>14</sup> Sander van der Linden and Jon Roozenbeek. (2020) *The Psychology of Fake News* <https://www.taylorfrancis.com/chapters/oa-edit/10.4324/9780429295379-11/psychological-inoculation-fake-news-sander-van-der-linden-jon-roozenbeek>

### **3. General Assembly appropriates funds to facilitate annual teacher and technology specialist training, and for the Kentucky Department of Education to fulfill the mandates set in the Media Literacy Now's model bill.**

The final key component of my policy recommendations is to provide sufficient funding to KDE to fulfill the tasks outlined in the Media Literacy Now bill. With consultation from KDE and the Kentucky Legislative Research commission, we could construct a viable estimate of what the costs would look like.

## **Discussion**

One of the most commonly used criteria for assessing policy recommendations is political feasibility. The role of misinformation in American political discourse is a very hot button issue right now, and we have become increasingly divided on how history and civics should be taught in public schools. The beauty of these recommendations is that they are not centered on history or defining a narrative as fact or fiction, but on giving students the tools to identify truth and bolster their resistance to misinformation in an increasingly digitized world. With the current General Assembly being conservative, I think it is reasonable to assume that they would be interested in giving our students the tools to identify and resist misinformation when they encounter it. The conservative majority may also serve as a barrier to enacting these recommendations, as we haven't seen many increases in education funding in the last several legislative sessions, especially for professional development for teachers.

One concern with these recommendations is that many public-school teachers have voiced that they are not interested in additional required compliance-based trainings. As the model bill requires at least one mandatory training per year be a "media literacy training with a focus on embedding critical evaluation into the curriculum aligned to existing learning standards." Hopefully this could be overcome by seeking input from teachers on how best to facilitate those trainings so that they are effective and offer flexible options such as remote trainings or night classes. Teacher input will be a critical portion of effectively implementing these new learning standards in a way that benefits all students.

## Conclusion

The threat that misinformation presents to our society and our democracy is substantial. By utilizing one of our greatest public resources, our schools, we can start mitigating the harm that misinformation is imposing. Lewandowsky and Van Der Linden said “Misinformation does not just misinform. It also undermines democracy by calling into question the knowability of information altogether. And without knowable information deliberative democratic discourse becomes impossible.” This perfectly captures why misinformation is a pressing issue, and why we need to work to bolster resistance to it now

**“Misinformation does not just misinform. It also undermines democracy by calling into question the knowability of information altogether. And without knowable information deliberative democratic discourse becomes impossible.”**