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Interventions to Correct Misinformation About Tobacco Products

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Abstract

In 2006, the U.S. District Court held that tobacco companies had "falsely and fraudulently" denied: tobacco causes lung cancer; environmental smoke endangers children's respiratory systems; nicotine is highly addictive; low tar cigarettes were less harmful when they were not; they marketed to children; they manipulated nicotine delivery to enhance addiction; and they concealed and destroyed evidence to prevent accurate public knowledge. The courts required the tobacco companies to repair this misinformation. Several studies evaluated types of corrective statements (CS). We argue that most CS proposed ("simple CS's") will fall prey to "belief echoes" leaving affective remnants of the misinformation untouched while correcting underlying knowledge. Alternative forms for CS ("enhanced CS's") are proposed that include narrative forms, causal linkage, and emotional links to the receiver.

Keywords

tobacco; belief echoes; misinformation; corrective statements; narrative; emotion

Misinformation about tobacco products is ubiquitous in the public communication environment and has been a part of the marketing strategies of tobacco companies for decades. On August 17, 2006, the US District Court for the District of Columbia concluded that the big tobacco companies have "falsely and fraudulently" misled the public about

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tobacco products.[1] The Court has required the tobacco companies to redress these actions by carrying out and paying for a campaign correcting the misinformation.

In this manuscript we take up the question of how best to correct this persistent, ingrained misinformation about tobacco products. To do so, we describe (1) the kinds of misinformation promulgated by the tobacco companies; (2) the Court's decision and, specifically, the research conducted for the Court by Kelly Blake[2] to generate effective corrective statements (CS) to alter the misinformation from tobacco companies; (3) the bases for the persistence of misinformation in both its cognitive and affective dimensions; (4) the likely inadequacy of the correctives selected by the Court and, in turn, characteristics of "enhanced correctives" consistent with available research on persuasive communication. In the concluding section, we argue that enhanced correctives can be chosen that are consistent with the court's declaration that any corrective statements be "factual and uncontroversial."

Misleading Information from the Tobacco Industry

For over fifty years, the tobacco industry has created and dispersed misinformation and misleading information about the health risks posed by cigarettes to the public.[3] They have done so through using both explicit denials of the causal link between smoking and cancer and its addictiveness,[4–7] and implicit marketing tactics such as using ineffective medicinal menthol, high tech imagery, virtuous brand names and descriptors, and generating misleading data on tar and nicotine yields.[8] Analysis of trade sources and internal US tobacco documents indicates that tobacco companies knew of inherent deceptiveness and that such marketing tactics were purposefully developed to promote misperceptions.[8–10] Many of these incorrect beliefs persist as recent studies continue to show.[3]

This misinformation is promulgated via tobacco product marketing strategies as well as the inferences that consumers make and then circulate to others in the fast-moving new media world. Misinformation about tobacco products can be explicit or implicit. Explicit misinformation is information that is factually incorrect (eg, filtered cigarettes are less dangerous) while implicit misinformation invites inferences not explicitly stated (eg, "organic tobacco" implies "a healthier cigarette"). Such misinformation can mislead the public into underestimating the dangers or overestimating the benefits of various tobacco products, and threatens to undermine U.S. Food and Drug Administration's (FDA) regulatory efforts.

The courts react to 5 decades of misinformation

The U.S. District Court for the District of Columbia on August 17, 2006 supported most of the government's allegations that big tobacco companies had "falsely and fraudulently" denied that smoking causes lung cancer, that environmental smoke endangers the respiratory systems of children, that nicotine is highly addictive, that they had marketed low tar cigarettes as less harmful when they were not, that they marketed to children, that they had manipulated nicotine delivery to enhance addiction, and that they concealed and destroyed evidence in order to prevent accurate public knowledge[1] (see Table 1 for a summary of the court's findings).

The Court required corrective information to alter these misleading claims to be paid for by the tobacco companies. Four different types of corrective information for each of the 5 sets of misleading information were evaluated by Blake[2] on behalf of the Department of Justice and in response to the court's mandate. Blake[2] evaluated correctives on various outcomes in response to corrective formats generated by industry, National Cancer Institute (NCI), and tobacco control advocates (Tobacco-Free Kids Action Fund; American Cancer Society, American Heart Association; American Lung Association; Americans for Nonsmokers' Rights; National African American Tobacco Prevention Network, collectively known as the "intervenor group").

The major findings were that in comparisons across the 5 topics the corrective statements (CS) from NCI and the intervenor group were as effective or outperformed those from the industry and from the control condition (standard pack warning –a single sentence warning from the U.S. Surgeon General about the health drawbacks of smoking that currently appears on one of the narrow sides of each cigarette pack) on the ability to communicate the intended information as well as knowledge and attention. They meet basic evidence-based criteria for correctives summarized by Cook and Lewandowsky[11] including avoiding restating what is to be corrected, and offering CS that are clear, credible and simple. The industry versions were less effective than the other 2. See Table 2 and pages 58–66 of the Blake[2] report.

The exact wording of one of the correctives tested is found in Table 2. Although the correctives posed by the NCI and intervenor group generally outperformed the industry-suggested correctives in clarity, knowledge, and attention, in the following sections, we will provide an overview of the challenges of correcting misinformation and a mechanism through which these even the best performing correctives assessed in the Blake[2] study may be limited in their capacity to correct tobacco industry misinformation in the long term. The correctives tested by Blake[2] will be referred to as "simple CS" because they are only text-based and do not take advantage of any of the possible enhancements to be discussed below that might make them more effective. Before discussing enhanced CS, we take up the some of the challenges of correcting misinformation and the research necessary to meet those challenges.

The Challenges of Correcting Misinformation

Although correcting misleading information by offering comprehensible and plausible CS' would seem to be a simple and natural antidote to false claims, an increasing body of research suggests that even when corrections to debunk misleading information are conducted immediately, they often fail.[12] This research has been dubbed as the *continued influence effect*[10] or *belief echoes*[13] and has consistently found that corrections seldom eliminate reliance on misinformation, even when people believe, understand, and later recall the correction.[10,14,15]

Research on misinformation about health issues

In a classic case of false advertising, the belief that Listerine "prevents colds" was reduced somewhat after an experimental exposure to corrective advertising. However, the ad did not

bring beliefs that Listerine "prevents colds" back to baseline.[16] The belief persisted to a degree. Corrections about vaccination misinformation demonstrated that simple "no risk" messages led to elevated levels of perceived vaccination risk.[17] Widespread misinformation has influenced consumers' knowledge, beliefs, attitudes, and intentions including vaccination in the UK, Ireland, and the United States,[18,19] as well as food and nutrition misinformation.[20]

Even when misinformation is debunked immediately, simple, direct retractions are ineffective.[12] A single correction is often insufficient in reducing subjects' reliance on misinformation, despite the fact that they acknowledge and remember the correction itself. The correction of misinformation is not simply a matter of providing clearly worded alternative information from credible sources.[16,19] Educating the public with simple correctives to misinformation has never been the answer to influencing the public's health and is increasingly less so given the complexity, speed, narrow and self-interested reach of online communication and new media outlets.[12]

Interventions to correct misinformation about tobacco have a mixed record. Removing the misleading terms "light" and "mild" from cigarette packs in Australia, Canada, the United Kingdom, and the United States led to a temporary reduction in misleading beliefs about light cigarettes, followed by a recovery of misperceptions.[21] A simple ban on wording alone is inadequate, and reinforces the importance of public information campaigns for reducing misperceptions.[22] On the basis of the research literature on tobacco products as well as other behaviors,[16–22] we expect that misinformation about tobacco products will remain even in the presence of simple, clear corrective information.

Cognitive and affective components of belief echoes

Two aspects of belief echoes must both be considered, one more cognitive and one more affective. Cognitive echoes are represented by beliefs that are misleading but accepted even in the face of factual correction. Affective echoes refer to the attitudes and intentions implicated by misleading beliefs and their tendency to be sustained even after the factual, cognitive component of the belief is corrected. The attitudinal and behavioral impact of beliefs is recognized by most influential theories of attitude formation and behavior change.[23] So when beliefs are formed, for example, through misinformation, there are attitudinal consequences with affective implications in addition to knowledge-based cognitive changes. Research summarized by Cappella and Jamieson[24] (pages 70–77) has consistently shown that in many information-processing situations the knowledge components are stored independently of the affective components. Both the cognitive and affective components should be addressed by research and by CS' which seek to enhance the effect of corrective information as we propose here.

Study designs necessary to examine belief echoes

Emily Thorson[13] carried out a classic set of belief echo studies. In one of the studies, subjects either received no information (control), misinformation that was debunked immediately or misinformation that was not debunked. Both attitudes toward the person targeted by the misinformation and belief in the accuracy of the misinformation were

assessed. After debunking, the misinformation was disbelieved by almost everyone in that condition. However, their attitudes toward the person targeted by the misinformation – while more favorable than the attitudes of those in the misinformation-no debunking condition – were still more negative than the attitudes of persons in the no information control. In short, the debunking completely undermined acceptance of the misinformation – the cognitive component – but still did not completely alter the attitudinal component back to baseline – the affective component. To fully and fairly assess the presence of belief echoes requires versions of all 3 of Thorson's conditions.[13] Without appropriate controls for comparison, one may not be able to detect the affective remnants of the misinformation remaining even if the cognitive reactions to the misinformation have been washed away.

Why do belief echoes occur?

Explanations for cognitive aspects of belief echoes include accessibility, familiarity, and reactance. Repeated exposure can render misleading information more salient in people's minds[25,26] leading to the formation of attitudes and intentions with easily *accessible* and readily *retrievable* information.[27,28] Second, people will increasingly feel *familiar* with misleading accounts, and familiarity itself will then serve as a heuristic cue to assess the plausibility and validity of the claims.[29] Research on psychological reactance has shown that people generally dislike being told how to think or behave because such explicit demands are seen as a threat to their freedom.[30] Corrective messages, therefore, might be perceived as intrusive and trigger anger and counterarguments. The repetition of corrective information may increase the familiarity of the misleading claim, thus, unintentionally increase the assimilation of misinformation with the truth.[31]

Misinformation may also fit well into a mental model so that the misinformation may work well within a particular cognitive narrative. For example, the mental model which says that smoking is approved by one's social network may not be able to be altered by corrective messages focused on the health consequences of smoking.

Studies of Court-Ordered Corrective Statements

The Blake[2] study suggests that certain simple CS can be effective in a campaign aimed at righting tobacco companies' deceitful claims. The study does not deal with the nuances of belief echoes however. There is no condition in which misinformation alone is presented. At a minimum, the misinformation should be activated through priming.[32(p. 102)] Second, there needs to be 3 conditions compared – no misinformation, misinformation with CS and misinformation without CS – to insure that factors directly pertinent to behavioral outcomes – attitudes toward the behavior and intentions – can be appropriately compared. Third, the study focuses on knowledge and acceptance of misleading beliefs, not on attitudes or intentions toward smoking-relevant behaviors. It is these components where echoes can occur and persist even when misleading beliefs are rejected. Also, no follow-up occurred where the effects of corrective information might have worn off. Constraints required by the Court no doubt played a role in the testing that was permitted.

Despite the complexity and sophistication of Blake's[2] approach and the demands imposed by the courts on the evaluation, we expect court-directed CS to exhibit belief echoes,

priming,[32] and sleeper effects[33] (ie, immediate and delayed influence, respectively, of the misinformation itself by bringing it to the forefront of people's minds through repetition), undermining the short and long term impact of the CS even in the absence of any explicit counter-campaign by the tobacco companies.

Other studies of corrective statements

One of the proposals suggested to the courts for possible inclusion in the CS involved the use of a visual that was affectively positive, and neither graphic nor immediately pertinent to the verbal claims in the CS. This proposal was put forward for evaluation by intervenors based on the rationale that the tobacco companies would try to employ a distracting visual as a part of the CS'. Tangari, Kees, Andrews, and Burton[34] undertook a test of the 5 corrective statements in 4 contexts: no CS, CS without any visuals, CS with graphic visuals, and CS with distracting visuals. They studied both adult smokers and non-smokers.

All 3 CS conditions produced belief and attitudinal responses that were in the desired direction versus the control across themes. However, there was no evidence that the potential distracting visual undermined the CS, nor that the graphic, relevant visual enhanced the impact of the CS. The CS' were in general effective in the short term test here but there was no enhancement of their effect with graphic visuals. The graphic visuals deployed did not explicitly tie the theme to harm the individual (or a loved one) might experience. We comment on the importance of this linkage below.

Researchers at the Roswell Park Memorial Institute tested the use of evocative personal testimonials and also neutral images in addition to 3 versions of CS proposed by the Department of Justice, the defendants, and the intervenors group in the 2006 *United States v. Philip Morris* decision referenced above.[35] These 5 versions of corrective were assessed at baseline, immediately after exposure, and one week later on a variety of measures including evaluation of the CS, recall, knowledge, and beliefs about the risks of smoking. No control group was used. The 239 adult smokers from Buffalo, NY exhibited significant deficits in knowledge and beliefs about smoking at baseline. Results indicated that all 5 versions of the corrective statements produced the same trend in that they improved knowledge and corrected misperceptions initially, but diminished back to baseline levels within one week. The emotive message did attract visual attention, produced the highest level of affect, and was rated as the most persuasive. It was also better recalled one week later.[35]

The only study to assess the most recent version of the court-ordered CS' is that by Kollath-Cattano, Abad-Vivero, et al.[36] They had about 1400 adult smokers evaluate one of 5 corrective statements finalized by the court in November of 2012 (see Table 3). These finalized CS' have been appealed by the tobacco industry and so have yet to be disseminated.

The study did not include a control group but only assessed each of the 5 CS relative to one another on novelty, relevance, anger at the tobacco industry, and motivation to quit in the next 6 months. The key findings were that health effects on smokers received the highest scores on relevance and motivation to quit. In addition, the CS about manipulation of cigarette design to increase addictiveness received the highest score for anger at the industry.

Conclusions about the research on corrective statements

The research on the court-ordered CS indicates that those proposed by the intervenors and the DOJ have some short term positive effects on knowledge, recall, attention, and sometimes motivations to quit and the ability to encourage resistance to subsequent misinformation[2] although this last measure is simply a self-report of the ability to resist. For the most part, the studies have not been designed in a way to allow a test of belief echoes as they either lack an independent control group or avoid cuing misinformation from the tobacco companies (or both). So the research so far is unable to speak to the effects of belief echoes in which the most important predictors of behavior (attitudes and intentions) may not have been affected at all, or affected only short term or to a degree that is modest in comparison to a misinformed, uncorrected control.

The next set of studies needs to assess the possibility of belief echoes operating with appropriate designs involving controls and misinformation, longer term follow up, and measures that are more subtle but still valid. The concern is that simple CS will have limited effect and have little or no capacity to affect the underlying affective remnants of misinformation uncovered by belief echo research. This leads to our proposals to test enhanced CS versus simple CS in the hopes of having an impact on the affective remnants of misinformation and not just the cognitive beliefs about misinformation.

Enhanced Corrective Statements May Reduce Belief Echoes

The possibility of belief echo effects when corrective information responds to misinformation makes clear that there are no easy solutions to crafting enhanced CS. The research literature does offer promising directions for research into enhanced correctives. These directions include emotional appeals, narrative forms, and causal reasoning chains.

Engaging emotional response

A possible mechanism for belief echoes is that misinformation affects emotion-based outcomes such as attitudes and intention toward the behavior and simple CS fail to address these implicit roots. One response then is to provide emotional content to correctives.

The Roswell Park study reviewed above[35] indicated that all 5 versions of the corrective statements tested improved knowledge and corrected misperceptions initially, the emotive message also attracted visual attention, produced the highest level of affect, was rated as the most persuasive message, and was also better recalled one week later. So emotionally evocative messages help in processing the CS, but what form should the added emotion take?

Other research suggests that the image selected should include a person who is directly affected by the misinformation either through personal harm or harm to one's close others.[37–39] The tie between harm to self or loved ones and the misinformation should be explicit and clear. For example, some anti-smoking messages link consequences such as a hole in the throat (ie, a stoma), continued smoking and addiction as the smoker in the ad continues to smoke with smoke escaping through the stoma. By tying misinformation about the addictive capacities of cigarettes to these evocative, terrible consequences, the impact of

misinformation (ie, about addiction) on real people can be seen and appreciated. Without tying the misinformation to the personal consequences[40,41] in the emotional appeal, the effectiveness of the emotional visual could be reduced or even undermined.

Corrective information enhanced with a visual image showing harm which is directly connected to the misinformation should enhance the effectiveness of the corrective information. It is not simply the emotional images that matter in our opinion but the implicit argument about the linkage between the misinformation and personal consequences in the form of harm to self or loved ones.

Narrative reframing of the facts at issue

Another possible explanation for belief echoes is that misleading claims about tobacco use may be particularly difficult to correct because they have been well integrated into people's existing mental models. Research has shown that people default to complete and coherent stories, even inaccurate ones, to create what are perceived to be sensible interpretive frameworks.[15,16] They tend to fill gaps with information that is readily available, regardless of its truth value especially when this information is congruent with self-interests, values, or identities.[42] Cook and Lewandowsky[11] have emphasized the importance of including an explanatory framework as a part of the corrective message. Given the persuasive power of narratives[43,44] and their importance to the structuring of cognitive information,[45] deploying narrative forms to counter misinformation have the potential to meet the needs advocated by Lewandowsky et al.,[12] for a correct competing mental model that – when well-wrought -- also reduces reactance and defensiveness while engaging the audience's attention.

Using narrative to enhance correction is not only consistent with recommendations from the cognitive science literature but also from the study of narratives in general[46] and narratives about smoking.[36,38,47] In misinformation promulgated by the tobacco industry, there is a narrative "back story" that puts the facts into a context of human actions and motivations. The personalities, motivations, and interests and values of the industry can be a part of the way that correctives are communicated. In the correctives suggested by the courts, only the consequences – "we lied" – are presented with little of this narrative backdrop made known.

The history of tobacco companies' marketing decisions regarding, for example, low tar and light cigarettes, can be used to create a new mental model by crafting narratives describing the historical realities of the decisions made behind closed doors by the tobacco companies. Such a narrative can not only enhance engagement by making facts come alive but also can help the facts in a correction make sense as a part of a comprehensible narrative. Weaving the facts of the corrective statements with the back story about the tobacco industry's practices helps create enhanced narratives. We expect such narratives will reduce belief echo effects as well as persist over time due in part to the staying power of good stories.[45]

Causal reasoning in narrative accounts

When processing narratives, people build and organize unfolding events into a mental representation of the story, a mental model, consisting of causal chains that explain how events are related and caused by each other. Here we mean "cause" in its ordinary sense of

"bringing about an outcome," not scientific causality. For example, a person's greed can cause him to create a product that addicts its users.

When exposed to attempts to debunk misinformation, people's mental models are challenged. Refuted events and facts are often those perceived to be the cause of subsequent events and psychological changes in characters. They can be crucial for understanding the story.[48,49]

Corrections can create a coherence gap in the recipient's understanding. Since internal coherence is related to truth assessment, such gaps can lead to the rejection of the correction and continued reliance on misinformation.[12] A different approach is to present people with an alternative explanation that allows them to more easily doubt the original explanation.[48] Lewandowsky argues that an alternative explanation to the events would be adequate to cope with misinformation,[12] but our view is that if the explanation is embedded in an engaging narrative and –following Trabasso and Sperry[48] – this narrative is built around common sense causal linkages, it will be more useful in persuading recipients to abandon their reliance on the false explanation and to adopt the alternative account.

Based on the research and theory described above, we expect that all 3 elements of enhanced correction will be more effective in reducing belief echoes than simple corrective information. We have no hypotheses about which of the 3 enhanced correctives might be most effective. We do expect that enhanced CS to correct belief echoes will be more effective than simple CS' and have greater persistence over time. Future research and evaluation should examine the 3 elements of enhanced correctives separately and in combination.

Conclusion

One of the most significant court decisions against the tobacco industry reached in the past 2 decades holds that the misinformation and lies promulgated by the tobacco industry must be rectified by them. This decision poses very significant challenges for communication scholars and professionals, as well as marketers and public health advocates. The challenges are multiple. The most direct challenge is correcting the misinformation and false beliefs held by segments of the public in 5 different areas identified by the courts. The second challenge in the decision in U.S. vs. Philip Morris USA[1] is that the corrective statements (CS) be designed to thwart future deceptive marketing practices as well. The third challenge comes from the decision of the US Court of Appeals decision in May of 2009 to uphold the original decision by Judge Kessler but also requiring that the corrective information only contain "factual and uncontroversial information."[1]

Our approach to the challenge of the court's decisions is to advocate message development and testing for CS' that invite designs that (1) will show the presence of continued influence effects or belief echoes; (2) will test longer term effects on beliefs, knowledge and intentions; and (3) will create messages that include narrative structures, causal sequences, and emotional linkages. The first 2 of these conclusions are certainly consistent with the court's desires and intentions in their 2006 and 2009 decisions. However, the third

component – narrative, causal sequence, and emotion – would on its surface appear to fall outside the requirement that the CS be factual and uncontroversial. The court did not dictate what the limits of "factual and uncontroversial" might be and so approaches that might appear to fail these criteria would need a decision of the courts.

Consider 2 arguments about the use of emotionally evocative linkages and narrative that might have a chance of surviving the court's scrutiny: the CDC's TIPs campaign[50] and the court's own documents detailing the stories behind the tobacco industry's lies about and concealment of information that contradicted its public claims (these were heavily cited in Judge Kessler's decision). The TIPs campaign uses highly evocative images and personal stories about possible health effects of smoking. These cases are not fictional. They are the stories of real people experiencing often horrific consequences of their tobacco use. The emotionally evocative cases are true and, therefore, factual claims about the potential results of tobacco use. The point is simply that evocative and disturbing materials can indeed be factual. Whether the courts would accept such a conclusion is a matter for legal scholars and the courts.

The second line of narrative that is both fascinating and potentially persuasive is the set of background stories about the motives, duplicity, and general shenanigans of the tobacco industry as they hid the results of their own scientific studies, spied on and monitored the activities of their critics, and told bold-faced lies when testifying to Congressional and other fact-finding groups. These stories are almost unbelievable in their boldness but offer a causal account of how some of the lies and misleading information promoted by the tobacco industry were promulgated. These very stories are included as part of the background information in the 1,600 page decision offered by Judge Kessler. They are therefore factual, although would be seen as controversial by the tobacco industry. They are not controversial, however, in the sense that they are not in dispute any longer.

In the end, what we propose and are in the process of carrying out in our lab, are a series of studies on what we are calling enhanced corrective interventions directed at the tobacco industry's lies that will (1) allow the assessment of the remnants of misinformation even after it has apparently been eradicated (ie, belief echoes); (2) test the effects over time to insure that they have some staying power; (3) deploy factual and emotionally evocative, narrative-based correctives; and (4) do so in a scientifically justified objective manner.

The bottom line is that the reduction of socially consequential misinformation about tobacco produces is not likely to be reduced through simple CS because the key drivers of behavior – namely associated attitudes, behavioral beliefs and intentions – are ignored with simple CS. Simple correction can have a potential boomerang effect by intensifying the consequences of the misinformation through its (corrected) repetition. Instead, de-biasing interventions – enhanced CS – more powerful than simple corrections because they are "sticky" (that is memorable and less susceptible to attenuation) are proposed. Thus, the approach being proposed expands the science of correcting misleading information, providing specific guidance on how to deploy effective strategies to respond to both court-ordered correctives to misleading claims about tobacco products as well as future corrective needs.

Implications for Tobacco Regulation

In accordance with the U.S. District Court's 2006 ruling,[1] tobacco companies are required to pay for the circulation of court-approved corrective statements to alter the misleading claims they made about their product. In this paper, we make the case that simple corrective statements that are presently under consideration may fail to correct tobacco-related misinformation, and in some cases, may lead to stronger beliefs in the original misleading claims in the long run. Instead, we propose the use of specific strategies – engaging emotional response, narrative reframing of the facts at issue, and causal reasoning in narrative accounts – to create enhanced correctives are more likely to make an effective contribution to tobacco control.

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Table 1

United States of America v. Philip Morris USA, Inc., et al. Allegations and Decisions

Allegation	Ruling
Defendants have falsely denied, distorted and minimized the significant adverse health consequences of smoking.	Guilty – corrective statements required
The addictive properties of nicotine: Defendants denied and hid the addictive nature of nicotine.	Guilty – corrective statements required
Nicotine “manipulation”: The defendants falsely denied that they can and do control the level of nicotine delivered in order to create and sustain an addiction.	Guilty – corrective statements required
Defendants falsely marketed and promoted low tar/light cigarettes as less harmful than full-flavor cigarettes in order to keep people smoking and sustain corporate revenues.	Guilty – corrective statements required
Defendants have publicly denied what they internally acknowledged: that environmental tobacco smoke (ETS) is hazardous to nonsmokers.	Guilty – corrective statements required
From the 1950s to the present, different defendants, at different times and using different methods, have intentionally marketed to young people under the age of twenty-one in order to recruit “replacement smokers” to ensure the economic future of the tobacco industry.	Guilty – no corrective statements required; Defendants were required to reduce youth smoking by 6% per year between 2007and 2013 and they will be assessed $3,000for each youth above the target each year
The government has failed to prove by a preponderance of the evidence that defendants deliberately chose not to utilize or market feasible designs or product features that could produce less hazardous cigarettes.	Not Guilty -- no corrective statements required

Table 2 a

Correctives Tested by Blake[2]

Company	Proposed Corrective (Topic: The addictiveness of smoking and nicotine)
BATCo	Cigarette smoking and nicotine are addictive.
Philip Morris[b]	Cigarette smoking is addictive. The nicotine in cigarette smoke is addictive. It can be difficult to quit smoking, but this should not deter smokers who want to quit from trying to do so.
Lorillard[a]	The following statement is made by [Cigarette Manufacturer Name] pursuant to a Court order in United States of America, Civil Action No. 99–2496 (GK) (Order # 1015, Aug. 17, 2006, at 4; Final Op. at 1636) (on appeal). The Surgeon general has concluded: • Cigarettes and other forms of tobacco are addicting. Nicotine is the drug in tobacco that causes addiction. These conclusions are contained in the 1988 Surgeon general's Report. [Cigarette Manufacturer Name] encourages consumers to rely upon the conclusions of the Surgeon General in making decisions about smoking.
Interveners[c]	We told Congress under oath that we believed nicotine is not addictive. We told you that smoking is not an addiction and all it takes to quit is willpower. Here's the truth: • Smoking is very addictive. And it's not easy to quit. • We manipulated cigarettes to make them more addictive. • When you smoke, the nicotine actually changes the brain – that's why quitting is so hard. Paid for by [Cigarette Manufacturer Name] under order of a federal District Court.
Salter > Mitchell	Tobacco Companies testified before Congress that nicotine isn't addictive. Now a federal court is requiring them to tell the truth about smoking. Here's the truth: • The nicotine in cigarettes is highly addictive. Cigarettes can be harder to quit than heroin and cocaine. • Nicotine changes people's brains so they crave cigarettes the same way people want food when they're hungry and water when they're thirsty. • The result: people keep buying cigarettes long after they wish they had quit.
Control Message (current statement on cigarette packs)	SURGEON GENERAL'S WARNING: Smoking Causes Lung Cancer, Heart Disease, Emphysema, and May Complicate Pregnancy

[a] Blake[2] evaluated corrective statements proposed by Defendants BATCo, Philip Morris, RJ Reynolds, Lorillard; modified versions of those proposed in 2006 by the Public Health Interveners; and a separate set of statements prepared by the National Cancer Institute (NCI) in conjunction with the social marketing firm Salter>Mitchell (S>M), who was hired to conduct the focus groups in the first phase of corrective statement assessments. Thirty corrective statements were evaluated in the qualitative phase of assessment (6 statements for each of the 5 topic areas).

[b] Statement was tested in the qualitative assessment and performed well enough to be carried over and tested in the quantitative assessment

[c] Based on results of the qualitative and quantitative assessments, Blake recommended this statement for this topic.

Table 3

Final Corrective Statements to be Implemented[a]

Topic	Statement
Adverse health effects of smoking	A Federal Court has ruled that Philip Morris USA, R.J. Reynolds Tobacco, Lorillard, and Altria deliberately deceived the American public about the health effects of smoking, and has ordered those companies to make this statement. Here is the truth: • Smoking kills, on average, 1200 Americans. Every day. • More people die every year from smoking than from murder, AIDS, suicide, drugs, car crashes, and alcohol **combined**. • Smoking causes heart disease, emphysema, acute myeloid leukemia, and cancer of the mouth, esophagus, larynx, lung, stomach, kidney, bladder, and pancreas. Smoking also causes reduced fertility, low birth weight in newborns, and cancer of the cervix.
Addictiveness of smoking and nicotine	A Federal Court has ruled that Philip Morris USA, R.J. Reynolds Tobacco, Lorillard, and Altria deliberately deceived the American public about the addictiveness of smoking and nicotine, and has ordered those companies to make this statement. • Here is the truth: • Smoking is highly addictive. Nicotine is the addictive drug in tobacco. • Cigarette companies intentionally designed cigarettes with enough nicotine to create and sustain addiction. • It's not easy to quit. When you smoke, the nicotine actually changes the brain – that's why quitting is so hard.
Lack of any significant health benefit from smoking "low tar," "light," "ultra light," "mild," and "natural" cigarettes	A Federal Court has ruled that Philip Morris USA, R.J. Reynolds Tobacco, Lorillard, and Altria deliberately deceived the American public by falsely selling and advertising low tar and light cigarettes as less harmful than regular cigarettes, and has ordered those companies to make this statement. Here is the truth: • Many smokers switch to low tar and light cigarettes rather than quitting because they think low tar and light cigarettes are less harmful. They are **not.** • "Low tar" and filtered cigarette smokers inhale essentially the same amount of tar and nicotine as they would from regular cigarettes. • **All** cigarettes cause cancer, lung disease, heart attacks, and premature death – lights, low tar, ultra lights, and naturals. There is no safe cigarette.
Defendants' manipulation of cigarette design and composition to ensure optimum nicotine delivery	A Federal Court has ruled that Philip Morris USA, R.J. Reynolds Tobacco, Lorillard, and Altria deliberately deceived the American public about designing cigarettes to enhance the delivery of nicotine, and has ordered those companies to make this statement. Here is the truth: • Philip Morris USA, R.J. Reynolds Tobacco, Lorillard, and Altria intentionally designed cigarettes to make them more addictive. • Cigarette companies control the impact and delivery of nicotine in many ways, including designing filters and selecting cigarette paper to maximize the ingestion of nicotine, adding ammonia to make the cigarette taste less harsh, and controlling the physical and chemical make-up of the tobacco blend. When you smoke, the nicotine actually changes the brain – that's why quitting is so hard.
Adverse health effects of exposure to secondhand smoke (environmental tobacco smoke; ETS)	A Federal Court has ruled that Philip Morris USA, R.J. Reynolds Tobacco, Lorillard, and Altria deliberately deceived the American public about the health effects of secondhand smoke, and has ordered those companies to make this statement. Here is the truth: • Secondhand smoke kills over 38,000 Americans each year. • Secondhand smoke causes lung cancer and coronary heart disease in adults who do **not** smoke. • Children exposed to secondhand smoke are at an increased risk for sudden infant death syndrome (SIDS), acute respiratory infections, ear problems, severe asthma, and reduced lung function. There is no safe level of exposure to secondhand smoke.

[a]The Public Health Intervenors consisted of the following groups: Tobacco-Free Kids Action Fund, American Cancer Society, American Heart Association, American Lung Association, Americans for Nonsmokers' Rights, and National African American Tobacco Prevention Network.