

# Expert Rebuttal Report of David T. Neal, Ph.D.

## Public Redacted Version

THE SUPERIOR COURT OF THE STATE OF ARIZONA  
IN AND FOR THE COUNTY OF MARICOPA

STATE OF ARIZONA, ex rel. MARK BRNOVICH, Attorney General	)	
	)	
<i>Plaintiff,</i>	)	Case No. CV2020-006219
v.	)	
	)	
GOOGLE LLC, a Delaware limited liability company,	)	
	)	
<i>Defendant.</i>	)	

**Expert Rebuttal Report of David T. Neal, Ph.D.,**  
**in Response to the Expert Report of Joel H. Steckel, Ph.D.**  
  
**June 27, 2022**

## **Table of Contents**

1. Background and Assignment.....	1
2. Summary of Conclusions Regarding Dr. Steckel’s Survey and Report.....	10
3. Fatal Flaw 1: Dr. Steckel’s survey methodology does not measure falsity or deceptiveness, nor does it map to the relevant legal standard for deception under the Arizona Consumer Fraud Act. ....	12
4. Fatal Flaw 2: Dr. Steckel’s Control Cell includes content that Plaintiff alleges is deceptive. As a result, the study’s Test versus Control Cell comparison is fatally confounded because both cells include allegedly deceptive content. ....	16
5. Fatal Flaw 3: Dr. Steckel’s Critical Stimuli were illegible or near-illegible and thus cannot provide a fair test of the accused text. ....	22
6. Fatal Flaw 4: Dr. Steckel’s design overwhelmed people in a “cognitive avalanche” that hid the alleged deception. His own data prove that most of his respondents abandoned the survey or did not read/retain the information put to them. ....	28
7. Fatal Flaw 5: Dr. Steckel misrepresents his Arizona findings, which actually show substantially more Control Cell respondents turning off Web & App Activity than Test Cell respondents. ....	33
8. Additional serious flaws in and observations regarding the Steckel Survey. ....	37
9. Reservation of Rights .....	40

I, Dr. David T. Neal, hereby declare as follows:

**1. Background and Assignment**

- 1.1. I submit this Expert Rebuttal Report in the matter of STATE OF ARIZONA, ex rel. MARK BRNOVICH, Attorney General, (hereinafter, “Plaintiff” or “State of Arizona”) v. GOOGLE LLC, a Delaware limited liability company, (hereinafter, “Defendant” or “Google”) in the Superior Court of the State of Arizona in and for the County of Maricopa.
- 1.2. I am an Executive in Residence at Duke University and Managing Partner of Catalyst Behavioral Sciences LLC, a research consulting firm specializing in the analysis of human decision making and consumer behavior, which includes extensive work in connection with consumer surveys.
- 1.3. At Catalyst Behavioral Sciences, I provide services for clients across a range of industries. Among others in the corporate sector, I act or have acted as a consultant regarding surveys, consumer behavior, marketing and advertising to Abbott, Bayer, Microsoft, Procter & Gamble, Intel, Johnson and Johnson, and Unilever. Among others in the public and non-profit sector, I act or have acted as a consultant regarding surveys and health behavior to the World Bank, The Bill and Melinda Gates Foundation, The Centers for Disease Control and Prevention (CDC), USAID, and the Surgeon General of the U.S. Army.
- 1.4. I have approximately twenty years of experience conducting consumer and other scientific surveys. I have been retained as an expert in a variety of trademark, patent, and false advertising matters. I have also testified as a

survey expert in federal court, the National Advertising Division (NAD), and the International Trade Commission (ITC) on multiple occasions. My Curriculum Vitae, attached as Appendix A, summarizes my education, peer-reviewed publications, and experience spanning both academic and commercial marketing research. My Curriculum Vitae also lists all cases in which I testified as an expert in a deposition or at trial during the previous four years.

- 1.5. In preparing this Rebuttal Report, I reviewed:
  - 1.5.1. The Expert Report of Dr. Joel H. Steckel, including associated Appendices and Dr. Steckel’s underlying survey data.
  - 1.5.2. Dr. Colin Gray’s May 4, 2022 Opening Report and his June 22, 2022 Rebuttal Report, including associated Appendices.
  - 1.5.3. Plaintiff’s Complaint for Injunctive and Other Relief and Defendant Google’s Answer to Plaintiff’s Complaint for Injunctive and Other Relief.
  - 1.5.4. The November 16, 2021 Declaration of Dr. Seth Nielson.
  - 1.5.5. The August 13, 2018 Associated Press Article titled “AP Exclusive: Google tracks your movements, like it or not.”
  - 1.5.6. Emails from Lori Arakaki of June 15, 2022 at 10:32 AM and June 17, 2022 at 12:24 PM bearing the subject line “RE: AZ v. Google - Google's Expert Reports.”
  - 1.5.7. Other materials as cited throughout this report.

- 1.6. I received a copy of Dr. Steckel’s report on Sunday June 12, 2022.<sup>1</sup> After observing that his survey data was missing from the submitted exhibits, I requested same via Counsel for Plaintiff.<sup>2</sup> I received Dr. Steckel’s data at the end of day June 13, 2022. Dr. Steckel’s report says that it addresses certain “hypothesized claims” in the May 4, 2022, report of Dr. Gray, but I understand that I was not authorized by Google to received Dr. Gray’s underlying report until the afternoon of June 13, 2022. I also requested a copy of the live link (or new link) to Dr. Steckel’s survey in order to investigate and confirm certain aspects of the design that could not be verified via the static screenshots, or the study data provided (e.g., randomization, branching, presentation times, etc.). I understand Plaintiff’s counsel made multiple requests for the survey link, but I finally was informed on June 17, 2022, that Dr. Steckel would not provide this information.
- 1.7. For the preparation of this report, I am being compensated at my customary rate of \$585 per hour by Plaintiff. Research assistants under my supervision are being compensated at their customary rates of \$125, \$120, and \$90 per

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<sup>1</sup> I understand that Plaintiff’s Counsel could not share Dr. Steckel’s report with report with me before then because the report was designated in its entirety as “Highly Confidential – Attorneys’ Eyes Only.” I don’t present to fully grasp the confidentiality concerns here, but I do not understand why a study that purports to evaluate publicly available settings and disclosures would require this kind of treatment. I understand that I was not authorized to review “Attorneys’ Eyes Only” materials until late afternoon on June 13, 2022.

<sup>2</sup> To my memory, this is the first time I have seen a survey expert fail to provide the data underlying their survey as part of their submitted report. The Federal Judicial Center’s Reference Guide on Survey Research (which Dr. Steckel cites) clearly requires that experts disclose the raw data underlying their opinions. See Shari S. Diamond, (2011). Reference guide on survey research. *Reference Manual on Scientific Evidence: Third*. I am advised by counsel that Arizona’s rules of civil procedure also require that an expert report must contain the data considered by the expert in forming their opinions.

hour. Compensation is not dependent in any way on the results of my work, my opinions, or the outcome of this matter.

- 1.8. I hold a Ph.D. in psychology from the University of Melbourne, Australia, awarded in 2005, and completed my post-doctoral training at Duke University, working in the psychology department and Fuqua School of Business. At Duke, I served as the Director of the Interdisciplinary Social Science Research Laboratories. I was then an assistant professor of psychology at the University of Southern California (USC). I have published extensively in the areas of consumer behavior and decision-making and have taught advanced research methods (including survey design), consumer behavior, and marketing courses at Duke University and USC. In 2012, I was the joint recipient (with Professor Wendy Wood) of the Park Outstanding Contributor Award presented by the Society for Consumer Psychology. This award recognizes the best peer-reviewed paper published each year in the *Journal of Consumer Psychology*.
- 1.9. Based on my review of Plaintiff’s Complaint, I understand Plaintiff alleges that Google has engaged in “widespread and systemic use of deceptive and unfair business practices to obtain information about the location of its users, including its users in Arizona.”<sup>3</sup>

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<sup>3</sup> Complaint for Injunctive and Other Relief, ¶ 1.

1.10. I am advised by Counsel that Plaintiff accuses Google of unlawful conduct under Arizona Revised Statutes (A.R.S.) 44-1522(A), which provides as follows:

The act, use or employment by any person of any deception, deceptive or unfair act or practice, fraud, false pretense, false promise, misrepresentation, or concealment, suppression or omission of any material fact with intent that others rely on such concealment, suppression or omission, in connection with the sale or advertisement of any merchandise whether or not any person has in fact been misled, deceived or damaged thereby, is declared to be an unlawful practice.

1.11. One aspect of this alleged unlawful conduct, in the form of a misrepresentation, concerns language used by Google to describe settings that control whether the physical location of users is, or is not, being tracked by Google. I understand that, for some period of time, Google informed users that “[w]ith Location History off, the places you go are no longer stored.” Plaintiff alleges “that this statement was blatantly false—even with Location History off, Google would surreptitiously collect location information.”<sup>4</sup>

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<sup>4</sup> Complaint for Injunctive and Other Relief, ¶ 8.



1.12. Importantly, I further understand Plaintiff contends that Google’s deceptive and unfair acts are multiple in nature, including a “diverse array of settings related to location tracking that makes it difficult if not impossible to understand the conditions in which Google will collect location data.”<sup>5</sup> These settings include but “extend well beyond its false Location History disclosure.”<sup>6</sup> Among others, I understand that some of these additional aspects of the alleged deceptive and unfair conduct include the following:

1.12.1. That even “[w]ith Location History off, Google continues to collect location information through Web & App Activity—a title that reveals nothing about the setting’s connection to harvesting location data.”<sup>7</sup>

1.12.2. That the name of the setting “Web & App Activity” is deceptive in that it does not inform users that location data is collected through that setting, especially considering that “Location History” discloses its location component.<sup>8</sup>

1.12.3. That “Google’s WiFi settings mislead users about Google’s collection and use of location information. There are two relevant settings—WiFi scanning and WiFi connectivity. Only the WiFi scanning setting is presented within location settings, which would lead a reasonable user to believe that turning it off would result in Google no longer discerning a user’s location through WiFi scans. But that is not true—even with WiFi

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<sup>5</sup> Complaint for Injunctive and Other Relief, ¶ 161(h).

<sup>6</sup> Complaint for Injunctive and Other Relief, ¶ 9.

<sup>7</sup> Complaint for Injunctive and Other Relief, ¶ 9(a).

<sup>8</sup> Complaint for Injunctive and Other Relief, ¶ 61.

scanning off, Google may still obtain location information from WiFi scans if WiFi connectivity is on.”<sup>9</sup>

1.12.4. That even if a user explicitly denies a specific Google app access to location data, that app may nonetheless “obtain location information from other Google apps and products that have been granted permission.”<sup>10</sup>

This occurs through “loopholes” in Google’s backend, a practice Google has known about for years.<sup>11</sup> Dr. Gray has identified this as a dark pattern.<sup>12</sup>

1.12.5. That Google “buries” location settings to obfuscate what limited controls users have over Google’s location collection practices, including by migrating or removing the location “master toggle” from the “Quick Settings” page on Android devices to boost the location “attach rate.”<sup>13</sup> I understand that Dr. Gray has recognized this behavior as a “dark pattern.”<sup>14</sup>

1.12.6. That Google’s setup flows, including by burying disclosures and suggesting that Location History is required to use Google products, are deceptive.<sup>15</sup> In Dr. Gray’s May 4, 2022 expert report, he characterizes Google’s setup flows as dark patterns.<sup>16</sup>

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<sup>9</sup> Complaint for Injunctive and Other Relief, ¶ 9c.

<sup>10</sup> Complaint for Injunctive and Other Relief, ¶ 9d.

<sup>11</sup> 11/16/2021 Nielson Declaration, ¶¶91-97.

<sup>12</sup> 5/4/2022 Gray Report at 34-35 .

<sup>13</sup> Complaint for Injunctive and Other Relief, ¶¶ 113-128.

<sup>14</sup> 5/4/2022 Gray Report at 27-31.

<sup>15</sup> 5/4/2022 Gray Report at 23-25.

<sup>16</sup> 5/4/2022 Gray Report at 23-24.

1.13. I understand that, even apart from how location information is collected, the State accused Google of unfair and deceptive conduct with respect to how the information is stored and exploited. Some of those allegations include for example:

1.13.1. That Google serves personalized ads based on user location, even when users disable Google Ads Personalization (“GAP”).<sup>17</sup> Even with GAP turned off, Google still geotargets ads down to the city or metro level.<sup>18</sup>

1.13.2. That Google turns users into “reporters” to determine the location of other users who have expressly denied location permissions to Google through IPGeo.<sup>19</sup> Through [REDACTED]

[REDACTED]<sup>20</sup> Users cannot control this behavior on their phones, and even if they could, they are completely unaware that this practice is taking place, a practice Dr. Gray has identified as a dark pattern.<sup>21</sup>

1.13.3. That Google collects user location as though “Off Means Coarse.”<sup>22</sup> Prior to 2019, Google interpreted users’ decision to turn off Device Location as “Off Means On.”<sup>23</sup> Following the Associated Press article, Google engaged in internal discussions regarding how it should interpret user’s

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<sup>17</sup> Complaint for Injunctive and Other Relief, ¶¶ 96-104.

<sup>18</sup> Complaint for Injunctive and Other Relief, ¶ 98.

<sup>19</sup> 11/16/2021 Nielson Declaration, ¶¶ 109-115.

<sup>20</sup> 5/4/2022 Gray Report at 27.

<sup>21</sup> 5/4/2022 Gray Report at 28.

<sup>22</sup> 5/4/2022 Gray Report at 35-36.

<sup>23</sup> 5/4/2022 Gray Report at 35-36.

choice to disable Device Location, and settled on an “Off Means Coarse” policy.<sup>24</sup> Through that policy, Google interprets Device Location off to mean a user really wants Google to know his or her location, just at a coarsened level.<sup>25</sup>

1.13.4. That despite a maze of settings purporting to give users control over the location data collected by Google, no combination of settings will prevent Google from collecting user location data, including through IPGeo.<sup>26</sup>

1.14. Based upon my review of Google’s Answer to the Complaint, I understand that Google generally denies that it has engaged in unlawful acts or practices.<sup>27</sup>

1.15. In ostensible support for certain of its positions, Google submitted the Expert Report of Dr. Joel H. Steckel, Ph.D.<sup>28</sup> As documented in his Report, Dr. Steckel conducted a survey (hereafter, the “Steckel Survey”) among 1,122 “respondents residing in the United States who (1) have a Google account (e.g., to access Gmail, Google Drive, etc.), and (2) have used their Google account in the past six months.”<sup>29</sup>

1.16. By way of brief summary, Dr. Steckel purported to use a test-control design in which respondents were assigned to view four different Information Pages (Location History page, Web & App Activity page, Personal Information page,

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<sup>24</sup> 5/4/2022 Gray Report at 35-36.

<sup>25</sup> 5/4/2022 Gray Report at 35-36.

<sup>26</sup> Complaint for Injunctive and Other Relief, ¶ 89.

<sup>27</sup> Google LLC’s Answer to the Complaint for Injunctive and Other Relief, ¶ 1.

<sup>28</sup> Expert Report of Professor Joel H. Steckel dated June 8, 2022. Hereafter “Steckel Report” or “Expert Report of Dr. Joel H. Steckel.”

<sup>29</sup> Expert Report of Dr. Joel H. Steckel, ¶ 56.

and YouTube Watch History page) from a hypothetical Google account before answering questions about which settings, if any, they would change in the hypothetical account.<sup>30</sup> In the Test Cell, respondents saw a version of the Location History page that included the allegedly deceptive language “[w]ith Location History off, the places you go are no longer stored.” In the Control Cell, this language was removed and replaced with “modified” language that Dr. Steckel contends corrects this specific aspect of alleged deception, holding else constant. Notably, other allegedly deceptive content cited in Plaintiff’s Complaint was present in both the Test and Control Cell stimuli (e.g., the allegedly deceptive name “Web & App Activity,” etc.).

1.17. In his Expert Report, Dr. Steckel concludes, among other things, that “the empirical findings from my test/control experiment undercut” the contention that ““users do not understand and are deceived by location tracking and settings.””<sup>31</sup>

1.18. At the request of Counsel for Plaintiff, once I received the report and data (and while waiting to see if I could get a link to the live survey), I conducted a scientific review of Dr. Steckel’s survey design, his underlying data, his data analysis, and the conclusions he drew in his Expert Report.

## **2. Summary of Conclusions Regarding Dr. Steckel’s Survey and Report**

2.1. I note at the outset that I respect Dr. Steckel, his training, and his academic accomplishments. Having said that, my review revealed multiple, highly

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<sup>30</sup> Steckel Survey, Q5 and Q6.

<sup>31</sup> Expert Report of Dr. Joel H. Steckel, ¶ 80.

significant, design flaws that render the survey, and hence Dr. Steckel’s conclusions, scientifically invalid and unreliable. Whether intended or not, the nature of each flaw worked systematically in favor of Defendant’s position in this matter, effectively nudging the survey towards a favorable outcome for Google. I identified multiple serious flaws, including a number of “fatal” flaws that, taken in isolation (and even more so when taken together), make it impossible to rely on the survey as a scientific test of the alleged deception. For purposes of this report, I categorized these into at least five fatal flaws, although I reserve the right to call out sub-issues separately (as many of the points stand on their own or relate to multiple flaws):

- 2.1.1. Fatal Flaw 1: Dr. Steckel’s survey methodology does not measure falsity or deceptiveness, nor does it map to the relevant legal standard for either under the Arizona Consumer Fraud Act, as I understand it.
- 2.1.2. Fatal Flaw 2: Dr. Steckel’s Control Cell includes content that Plaintiff alleges is deceptive. As a result, the study’s Test versus Control comparison is fatally confounded because both cells include allegedly deceptive content.
- 2.1.3. Fatal Flaw 3: Dr. Steckel’s Critical Stimuli were illegible or near-illegible, thus cannot provide a fair test of what people understand by the accused text.
- 2.1.4. Fatal Flaw 4: Dr. Steckel’s design overwhelmed people in a “cognitive avalanche” that hid the alleged deception. His own data

prove that most of his respondents abandoned the survey or did not read/retain the information put to them.

2.1.5. Fatal Flaw 5: Dr. Steckel misrepresents his Arizona findings, which actually show substantially more Control Cell respondents turning off Web & App Activity than Test Cell respondents.

2.2. In the Sections below, I elaborate on each of these fatal flaws. I also describe additional points and flaws in Dr. Steckel’s survey that I regard as serious.

**3. Fatal Flaw 1: Dr. Steckel’s survey methodology does not measure falsity or deceptiveness, nor does it map to the relevant legal standard for deception under the Arizona Consumer Fraud Act.**

3.1. First, I respectfully point out that Dr. Steckel’s entire survey methodology relies on an incorrect premise that renders it impossible for him to draw scientific conclusions regarding consumer deception. For example, in some settings, deception is a psychological state defined by what people perceive and understand.<sup>32</sup> It is not a behavior defined by what actions people do or do not take. Further, a statement is a misrepresentation if it is literally false—and that holds true regardless of what actions people do or do not take. Deviating from this, Dr. Steckel adopts the view that some of the alleged misrepresentations or deceptive conduct in this matter can be proven versus disproven in his study based on a pattern of results in which individual consumers do versus

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<sup>32</sup> David H. Bernstein and Bruce P. Keller “Survey Evidence in False Advertising Cases” in *Trademark and Deceptive Advertising Surveys: Law, Science, and Design*, p. 187-235 (Shari S. Diamond & Jerre B. Swann, eds. 2022).

don’t engage in a particular behavior (i.e., altering certain settings in their Google account). Since he observed no such change in respondents’ behavior across his Test vs. Control Cells, Dr. Steckel infers (wrongly) that Google users do not misunderstand and are not deceived by location tracking and settings.<sup>33</sup>

- 3.2. This is fatally flawed scientific reasoning because Dr. Steckel’s “behavioral” assumption (i.e., respondents changing a security setting vs. not changing it) maps to neither (a) any commonsense understanding of “misrepresentation” or “deception” nor (b) the definitions in the relevant consumer protection statute.
- 3.3. As I understand it, the Arizona Consumer Fraud Act defines any of the act, use or employment by any person of any of the following to be “unlawful”<sup>34</sup>:
- 3.3.1. “deception” or
  - 3.3.2. “deceptive act” or
  - 3.3.3. “deceptive practice” or
  - 3.3.4. “unfair act” or
  - 3.3.5. “unfair practice” or
  - 3.3.6. “fraud” or

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<sup>33</sup> Expert Report of Dr. Joel H. Steckel, ¶ 80.

<sup>34</sup> A.R.S. § 44-1522(A). I understand that, to qualify under the statute, the act, use or employment of such conduct must also be “in connection with the sale or advertisement of any merchandise.” A.R.S. § 44-1522(A). The issue is unrelated to my area of expertise, but for my background, I understand from Counsel that the State alleges that this various conduct was “in connection with” the sale/advertising of (i) Android devices that are pre-loaded with various Google software, apps and services, and (ii) other Google software, apps and services. For example, Dr. Nielson explains that “When a consumer purchases an Android device, he or she receives a device that Google uses to track that user’s location.” (Nielson 11-16-2021 Declaration, ¶ 29). Dr. Nielson also explains that there are other ways Google “can collect, store, and exploit location information from iOS users or users on any platforms, so long as the users are interacting with Google’s services.” (Nielson 11-16-2021 Declaration, ¶ 114).



- 3.3.7. “false pretense” or
  - 3.3.8. “false promise” or
  - 3.3.9. “misrepresentation” or
  - 3.3.10. “concealment, suppression or omission of any material fact with intent that others rely on such concealment, or omission”
- 3.4. As I understand it, the Arizona statute declares the foregoing conduct to be unlawful, “whether or not any person has in fact been misled, deceived or damaged thereby.”<sup>35</sup> In other words, the statute expressly does not require that individual consumers are psychologically deceived, let alone that consumers were caused to alter a behavior in response to allegedly deceptive material.
- 3.5. Dr. Steckel’s deviation from this standard psychological definition of deception in favor of a behavioral one is an extremely serious flaw because it means his survey simply misses the mark and measures the wrong thing. Indeed, his survey does not even purport to measure consumers’ perceptions or understanding of the allegedly deceptive content. Thus, he can draw no scientific conclusions on these topics.
- 3.6. This “behavioral assumption” also has far reaching consequences for the inferences Dr. Steckel seeks to draw, including inferences he draws regarding the “hypothesized claims” that he says his survey is designed to assess. Specifically, Dr. Steckel says that his study is intended to test the

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<sup>35</sup> A.R.S. § 44-1522.

“hypothesized claims” (which he attributes to Dr. Gray) “that ‘users do not understand and are deceived by location track and settings’ and that the ‘user deception [...] negatively impacts users’ ability to make information decisions about how location tracking is enabled or disabled across multiple control.”<sup>36</sup>

As explained above, however, the survey did not test, and was not designed to test, what people “understand” or whether they are “deceived.” Thus, Dr.

Steckel’s survey cannot test the hypothesized claims he attributes to Dr. Gray.

3.7. It is important to note that Dr. Steckel’s improper behavioral definition of deception also had the effect of “shifting the goal posts” dramatically in favor of the Defendant, by increasing the burden for inferring survey support for the alleged deception. This is one way in which Dr. Steckel’s design, whether intended or not, improperly pushed the survey results towards a favorable outcome for Google.

3.8. Critically, because of these various issues, Dr. Steckel cannot reach the key conclusion he offers in his report when he claims that “the empirical findings from my test/control experiment undercut” the contention that “‘users do not understand and are deceived by location tracking and settings.’”<sup>37</sup> Whether the disclosure is false, what users “understand,” or whether they are “deceived by location tracking and settings” is not something that was even tested in his survey, thus Dr. Steckel has no empirical basis from which to draw such conclusions.

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<sup>36</sup> Expert Report of Dr. Joel H. Steckel, ¶ 14.

<sup>37</sup> Expert Report of Dr. Joel H. Steckel, ¶ 80.

**4. Fatal Flaw 2: Dr. Steckel’s Control Cell includes content that Plaintiff alleges is deceptive. As a result, the study’s Test versus Control Cell comparison is fatally confounded because both cells include allegedly deceptive content.**

4.1. It is well accepted that the control stimulus in a deception or false advertising study must eliminate the allegedly deceptive content.<sup>38</sup> Indeed, that principle borrows from the more general scientific rule that a Test and Control Cell should generally differ from each other only with respect to the construct of interest (in this case, the presence vs. absence of alleged deception).<sup>39</sup> Put simply, if both the Test Cell and Control Cell include allegedly deceptive content, then the comparison of Test versus Control Cell results generally becomes meaningless. In short, a study of this kind becomes a comparison of two different kinds of deception, not a comparison of the presence versus absence of deception.

4.2. Precisely those circumstances apply to Dr. Steckel’s survey. That is, his Control Cell removes only a single aspect of the alleged deception while keeping multiple additional aspects of the alleged deception in place. Specifically, Dr. Steckel’s Control Cell merely removes a single phrase from the Test Cell (i.e., “[w]ith Location History off, the places you go are no longer stored”) and adds some minor additional text. Critically though, these minor

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<sup>38</sup> Shari S. Diamond, (2011). Reference guide on survey research. *Reference Manual on Scientific Evidence: Third*. p 398. Note, bolding added.

<sup>39</sup> Mike Rappeport “Design Issues and the Value of Multiple Controls” in *Trademark and Deceptive Advertising Surveys: Law, Science, and Design*, p. 262 (Shari S. Diamond & Jerre B. Swann, eds. 2022).

Control Cell changes leave untouched myriad additional aspects of the alleged deception. For example, Dr. Steckel’s Control Cell:

- 4.2.1. Retains the allegedly deceptive name “Web & App Activity,” despite that Plaintiff’s Complaint clearly alleges that the name itself deceives users.
  - 4.2.2. Retains a detailed description under Web & App Activity settings that the Plaintiff alleges to be deceptive. Specifically, the Information Page pertaining to “Web & App Activity” that Dr. Steckel used fails to disclose anywhere that a user’s location is tracked under that setting.
  - 4.2.3. Retains, and/or fails to address, all of the other aspects of deceptive and unfair conduct described in the Complaint, Dr. Gray’s Report, and Dr. Nielson’s Declaration.
- 4.3. More broadly, Dr. Steckel’s survey is simply not designed to account for the vast majority of the claims asserted in this case. Small examples that are assumed away or ignored are the difficulty for users to find the relevant settings, or “that Google’s UI” includes what Dr. Gray calls “dark patterns,” and that there are other settings that Google uses to collect location information.<sup>40</sup> Nor does Dr. Steckel account for the State’s allegations (as discussed by Dr. Gray) concerning Google’s practice of burying location settings and disclosures (including those that he purports to test) to obfuscate what limited controls users have over Google’s location collection practices.<sup>41</sup>

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<sup>40</sup> 5/4/2022 Gray Report at 1, 12.

<sup>41</sup> 5/4/2022 Gray Report at 24-25.

- 4.4. As another example, Dr. Gray looks at “certain aspects of Google’s disclosures and user interfaces” as they relate not just to the “collection,” but also the “use and exploitation of consumers’ location data.”<sup>42</sup> Dr. Steckel does not account for claims addressing how location data is “used” or “exploited.”
- 4.5. Dr. Gray claims that “Google’s UI ... would lead users to believe that, if they successfully navigate the various settings, they could prevent Google from tracking their location.” Dr. Gray points out, however, that “Google continues to track consumers’ location” even when they disable all of the relevant settings.<sup>43</sup> Again, these aspects of the alleged deception are simply not addressed by Dr. Steckel’s study.
- 4.6. I will not go through the various allegations of unlawful conduct, which are spelled out by the Complaint and other experts. I simply emphasize that the study employed by Dr. Steckel either employs these allegedly deceptive practices in both the test and control groups, or omits them entirely from his study. In either case, his Test versus Control design cannot draw any conclusions about the myriad allegations that are not varied across his two study cells.
- 4.7. Furthermore, by any reasonable metric, the preceding analysis shows that Dr. Steckel’s Control Cell includes multiple elements of allegedly deceptive content. As a result, Dr. Steckel simply cannot plausibly claim that his Control

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<sup>42</sup> 5/4/2022 Gray Report at 1.

<sup>43</sup> 5/4/2022 Gray Report at 1.

Cell captures a scenario in which Defendant’s allegedly deceptive content has been removed.

4.8. The failure to create a non-deceptive Control Cell renders Dr. Steckel’s Test versus Control comparisons essentially meaningless. Instead of capturing the presence (Test) versus absence (Control) of alleged deception, his study instead captures the presence versus of absence of different aspects, or types, of alleged deception. Such a study, however, does not provide the relevant data that an expert needs to determine whether something is, or is not, deceptive. Various noted authorities have described this issue as follows:

4.8.1. Professor Shari Diamond, discussing deception and false advertising surveys in The Federal Judicial Center’s *Reference Guide on Survey Research*, explains that (bolding added) “...respondents assigned to the experimental condition view an allegedly deceptive commercial, and respondents assigned to the control condition either view a commercial that **does not contain the allegedly deceptive material** or do not view any commercial.”<sup>44</sup>

4.8.2. Writing on controls in deception studies, Professor Jacob Jacoby similarly concluded (bolding added): “In many instances, the control communication may come from the same source and be for the same

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<sup>44</sup> Shari S. Diamond, (2011). Reference guide on survey research. *Reference Manual on Scientific Evidence: Third*. p 398. Note, bolding added.

product and brand, but be a version that **does not contain the allegedly deceptive or confusing verbiage.**<sup>45</sup>

4.8.3. In their chapter on surveys on deception and false advertising, Bernstein and Keller concur with both Diamond and Jacoby and note that (bolding added) “a good control should match the tested advertisement as closely as possible in every respect other than **the aspect of the test stimulus alleged to contain the misinformation.**”<sup>46</sup>

4.9. I note that Dr. Steckel may seek to argue that his goal was to isolate one specific aspect of alleged deception, while holding all other alleged aspects of deception constant. But, for several reasons, this argument does not hold either.

4.10. First, as detailed in Plaintiff’s Complaint, the alleged deception is “widespread and systemic”<sup>47</sup> and encompasses a “diverse array of settings related to location tracking.”<sup>48</sup> Given this very broad scope of alleged deception, it is highly improper to carve off a single accused misrepresentation (“with Location History off, the places you go are no longer stored”) and then seek to test whether that sentence, in isolation, adds additional deception over and above the effect of other allegedly deceptive content that was retained in the Control Cell. If such an approach was accepted, any survey expert working

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<sup>45</sup> Jacob Jacoby (2015). *Trademark surveys: Designing, Implementing, and Evaluating Surveys*. Vol 1. American Bar Association.

<sup>46</sup> David H. Bernstein and Bruce P. Keller, “Survey Evidence in False advertising Cases” in *Trademark and Deceptive Advertising Surveys: Law, Science, and Design*, 216-217 (Shari S. Diamond & Jerre B. Swann, eds. 2022). Note, bolding added.

<sup>47</sup> Complaint for Injunctive and Other Relief, ¶ 1.

<sup>48</sup> Complaint for Injunctive and Other Relief, ¶ 161(h).

for a Defendant could guarantee favorable results by simply dividing up a Plaintiff’s allegations into small sub-components (e.g., individual accused sentences within a much broader array of accused content) and then testing whether each isolated sub-component added significant deception over and above the combination of all other sub-components.

4.11. This approach, however, is the survey equivalent of a shell game.

Specifically, the allegedly deceptive content may indeed deceive consumers, yet this design would effectively conceal that fact by (a) slicing the accused content into smaller pieces which are then, piecemeal, compared (b) not against a control that captures the *absence* of deception, but against a control that captures the combined effect of all other deceptive elements, except the single piece that has been carved off.

4.12. Second, Dr. Steckel’s failure to use a proper control is especially problematic when measured against the “hypothesized claims” that he is purporting to evaluate. Citing page 12 of the May 4, 2022, Gray Report, Dr. Steckel says that his survey is intended to provide evidence concerning Dr. Gray’s “hypothesized claims” that “users do not understand and are deceived by location track and settings” and that the ‘user deception [...] negatively impacts users’ ability to make information decisions about how location tracking is enabled or disabled across multiple control.’”<sup>49</sup> But the issues discussed by Dr. Gray in the cited portion of his report have little (if anything)

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<sup>49</sup> 6/8/2022 Steckel Report ¶ 14.



to do with the specific content that Dr. Steckel varied across his test versus control. Thus, his survey design does not provide a test of the claims he attributes to Dr. Gray. For example:

- 4.13. The cited portion of Dr. Gray’s report does not appear to address the “Location History” disclosure that Dr. Steckel changes between his Test and Control group. Dr. Steckel is quoting from the section entitled “Google Internal Studies Confirmed That Users Do Not understand and Are Deceived,” which starts at the bottom of page 11 and continues through page 15.
- 4.14. Instead, the cited portion of Dr. Gray’s report discusses various internal Google studies showing (among other things) that (i) users do not understand how to find the various location history settings (including ones that are unmentioned and not tested by Dr. Steckel), (ii) users do not understand what these settings actually do as it relates to location, (iii) hiding disclosures under a “learn more” link can be deceptive because “users did not wish to engage with the ‘learn more’ link where additional location-related details could be found,” and (iv) the “user of a ‘slip/continue’ approach” also resulted in lack of understanding.”<sup>50</sup> Dr. Steckel’s survey simply does not address any of these issues, and so his survey cannot claim to provide an empirical test of these factors.

**5. Fatal Flaw 3: Dr. Steckel’s Critical Stimuli were illegible or near-illegible and thus cannot provide a fair test of the accused text.**

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<sup>50</sup> Expert Report of Dr. Colin Gray, May 4, 2022, p. 13

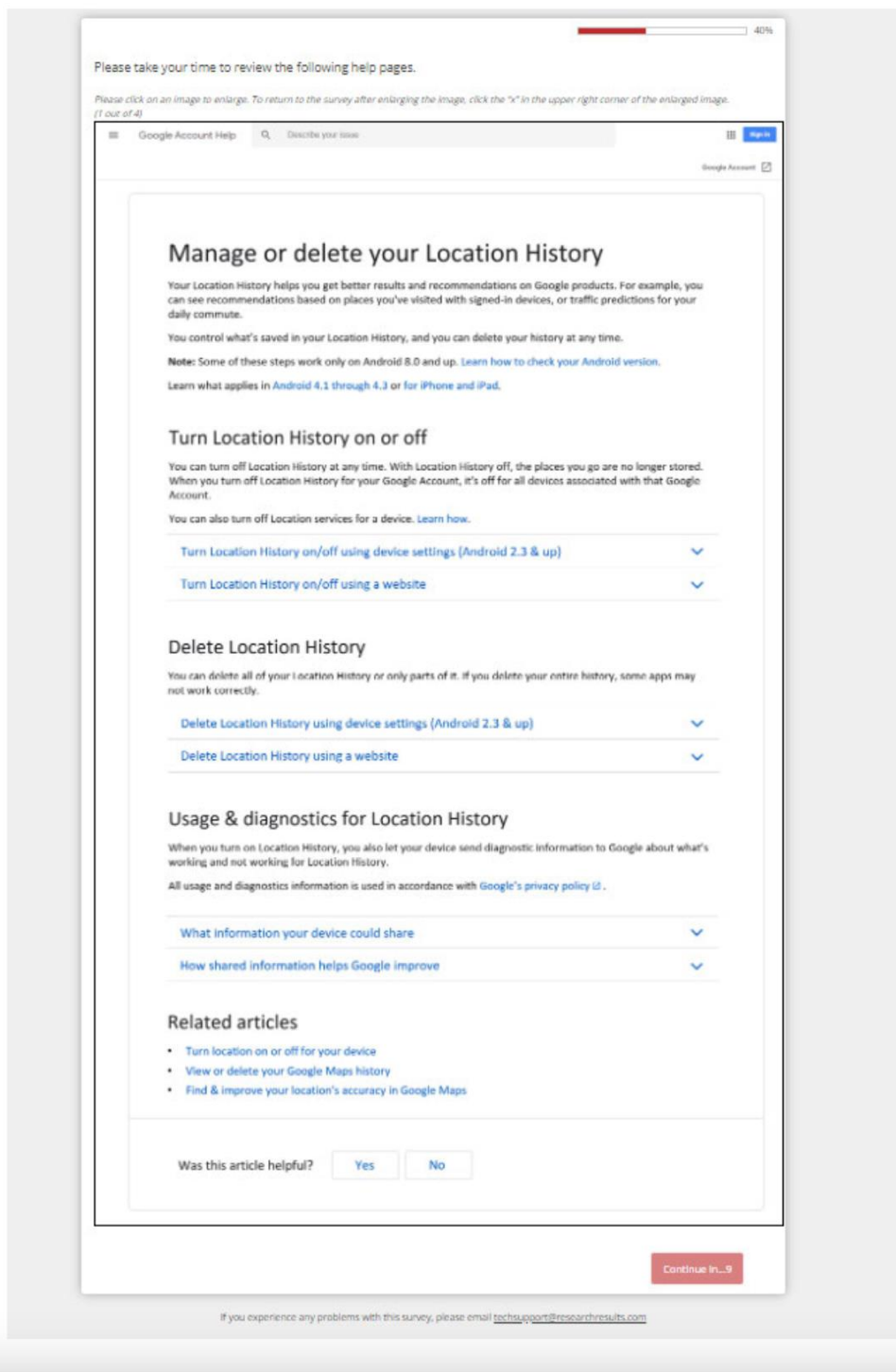
- 5.1. Dr. Steckel’s survey is predicated on an assumption that his Test Cell respondents were able to read the allegedly deceptive statement “[w]ith Location History off, the places you go are no longer stored.” Similarly, his survey assumes that his Control Cell were able to read the “modified” language added to that Control Cell, which Dr. Steckel contends corrects that isolated element of alleged deception (albeit still retaining other allegedly deceptive content).
- 5.2. These assumptions do not hold, of course, if survey respondents could not actually read this content. If the content was illegible or close to illegible, then the entire distinction between Dr. Steckel’s Test and Control Cells collapses because the content that differs between the two is not actually being perceived by the survey takers.
- 5.3. According to Dr. Steckel, “Screenshots of the survey as it appeared to respondents are included in **Appendix D**.”<sup>51</sup> Dr. Steckel also confirms that “**Appendix G**” represents “screenshots of the stimuli.”<sup>52</sup>
- 5.4. Shown below is D-13 to the Steckel Report, which shows the Location History Information Page presented to Test Cell respondents. This stimulus includes the allegedly deceptive sentence Dr. Steckel seeks to isolate (“With Location History off, the places you go are no longer stored.”). As can readily be seen, the image is extremely poor resolution.

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<sup>51</sup> Expert Report of Dr. Joel Steckel, ¶ 67.

<sup>52</sup> Expert Report of Dr. Joel Steckel, p 25 footnote 79.

## 2018 Location History Page



5.5. Worse still, D-12 to the Steckel Report shows the “modified” Location History Information Page presented to Control Cell respondents. This stimulus

includes the altered language Dr. Steckel contends corrects the allegedly deceptive sentence shown in the Test Cell (albeit retaining other allegedly deceptive content). As can readily be seen, however, this Control Cell stimulus is even poorer resolution than the Test Cell stimulus. In my view, this text can reasonably be described as illegible or nearly illegible.

## Amended Location History Page

Please click on an image to enlarge. To return to the survey after enlarging the image, click the "X" in the upper right corner of the enlarged image.  
(4 out of 6)

Google Account Help

Describe your issue

Google Account

### Manage or delete your Location History

Your Location History helps you get better results and recommendations on Google products. For example, you can see recommendations based on places you've visited with signed-in devices, or traffic predictions for your daily commute.

You control what's saved in your Location History, and you can delete your history at any time.

**Notes:** Some of these steps work only on Android 8.0 and up. [Learn how to check your Android version.](#)

[Learn what applies in Android 4.3 through 4.2 or for iPhone and iPad.](#)

#### Turn Location History on or off

You can turn off Location History at any time. When you turn off Location History for your Google Account, it's off for all devices associated with that Google Account.

You can also turn off Location Services for a device. [Learn how.](#)

Turn Location History on/off using device settings (Android 2.3 & up)

Turn Location History on/off using a website

#### When Location History is on

- Google only receives Location History for each device where you are signed in and you have Location Reporting turned on.
- You can change the Location Reporting setting for each device where you're signed in, and limit which devices provide location data to be included in Location History. If you want to change your Location History settings, you can choose to:
  - Report your location from only some of your devices, but not others.
  - Report your location from all your devices.
  - Turn off Location History for your Google Account. Your location won't be reported from any of your devices and you will not have new Location History recorded to your account.
- Your settings for other location services on your device, like Google Location Services, Location Sharing, and Find My Device, aren't changed.

#### When Location History is off

- Your device's locations will not be automatically saved to your Location History.
- Previous activity is not deleted from your Location History. You can [manually delete your Location History](#).
- Your settings for other location services on your device, like Google Location Services, Location Sharing, and Find My Device, aren't changed.
- Some location data may continue to be saved in other settings, like Web & App Activity, as part of your use of other services, like Search and Maps, even after you turn off Location History.

#### Delete Location History

You can delete all of your Location History or only parts of it. If you delete your entire history, some apps may not work correctly.

Delete Location History using device settings (Android 2.3 & up)

Delete Location History using a website

#### Usage & diagnostics for Location History

When you turn on Location History, you allow for your device send diagnostic information to Google about what's working and not working for Location History.

All usage and diagnostics information is used in accordance with [Google's privacy policy](#) (7).

What information your device could share

How shared information helps Google improve

#### Related articles

- Turn location on or off for your device
- View or delete your Google Maps history
- Find & improve your location's accuracy in Google Maps

Was this article helpful?

Yes

No

Continue

If you experience any problems with this survey, please email: [help@openresearchresults.com](mailto:help@openresearchresults.com)

- 5.6. The illegible, or near-illegible, location history pages stand in stark contrast to the disclosure pages for the other three settings, which are the same in both the test and control group. Those disclosure pages (shown D-11, D-12, and D-15) appear legible.
- 5.7. The same is true in **Appendix G**, which I understand represents only the stimuli that were shown. The stimuli for the two version of the Location History page are shown in G-1 and G-2 are the same illegible, or near-illegible, versions shown in **Appendix D**. Again, the stimuli for the other three pages (which do not change between the Control and Test group) are shown as legible on pages G-3 through G-5.
- 5.8. As noted above, I requested (through Counsel for Plaintiff) a link to Dr. Steckel’s survey. In reply, I understand that Dr. Steckel declined to provide the link, claiming it was no longer available.<sup>53</sup> I further understand that Dr. Steckel, instead simply re-confirmed (through Google’s counsel) as follows on June 15, 2022:

3. The survey employed by Dr. Steckel is fully captured via the appendices in his report. Specifically, the following:
- a. Screenshots of the survey for all questions (Appendix D)
  - b. Programming instructions (Appendix E)
  - c. Full images of the stimuli used in the survey (Appendix G)

- 5.9. Thus, as Dr. Steckel’s Appendix and communications through Counsel confirm, the critical text that differed across his Test and Control Cells was extremely poor resolution even to the extent of being functionally illegible.

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<sup>53</sup> See Section 8 for an additional discussion over my concerns regarding the refusal to provide a live link to the survey.

This is clearly a fatal flaw because, if respondents were unable to read the accused language in the Test Cell and/or the claimed “modified” language in the Control Cell, then the study cannot claim to have tested the impact of this language on respondents’ behavior.

5.10. I note that this concern holds true even if the language was technically legible, but just poor-quality resolution. A significant body of research in cognitive psychology has used difficult-to-read text (vs. easy-to-read text) as a manipulation of cognitive fluency, or processing ease.<sup>54</sup> A well-replicated finding in this area is that, when presented with hard-to-read (albeit technically legible) text, survey respondents will generally reject the content or decline to take an implied action due to the difficulty, or “disfluency,” of the reading process itself.<sup>55</sup> Thus, even if respondents were technically able to read some of Dr. Steckel’s poor quality text, the cognitive disfluency of reading it would, based on peer reviewed academic research, likely have stopped them from processing it and/or taking action on it.

**6. Fatal Flaw 4: Dr. Steckel’s design overwhelmed people in a “cognitive avalanche” that hid the alleged deception. His own data prove that most of his respondents abandoned the survey or did not read/retain the information put to them.**

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<sup>54</sup> For example, see Greifeneder, Rainer, Alexander Alt, Konstantin Bottenberg, Tim Seele, Sarah Zelt, and Dietrich Wagener. "On writing legibly: Processing fluency systematically biases evaluations of handwritten material." *Social Psychological and Personality Science* 1, no. 3 (2010): 230-237.

<sup>55</sup> For example, see Song, Hyunjin, and Norbert Schwarz. "If it's hard to read, it's hard to do: Processing fluency affects effort prediction and motivation." *Psychological science* 19, no. 10 (2008): 986-988.

- 6.1. As noted under the prior flaw, Dr. Steckel’s survey rests upon an assumption that people read and processed the allegedly deceptive content put to them.
- 6.2. Multiple data points, including Dr. Steckel’s own survey data (which was initially withheld), prove, however, that most people did not read or retain the information put to them. In addition, around 3 in 10 respondents abandoned the survey when presented with the multiple Information Pages.
- 6.3. First, I note that Dr. Steckel’s survey included a total of 2,068 words in the Test Cell and 2,279 words in the Control Cell.<sup>56</sup> In the Test Cell, Dr. Steckel included 12 allegedly deceptive words (“With Location History off, the places you go are no longer stored”) that were removed in the Control Cell (i.e., 12 accused words out of 2068 were removed). This amounts to 0.58% of all Test Cell words in the survey. In the Control Cell, Dr. Steckel added 224 words but only 35 of these words are explicitly related to the fact that Web & App Activity also tracks Google users’ location (“Some location data may continue to be saved in other settings, like Web & App Activity, as part of your use of other services, like Search and Maps, even after you turn off Location History”). This amounts to 1.54% of Control Cell words i.e., 35 out of 2,279).
- 6.4. Thus, with respect to the alleged deception Dr. Steckel seeks to isolate, his two cells differ by only ~1% of their respective content (0.58% added text in the Test; 1.54% added text in the Control). Stated differently (and even setting aside the

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<sup>56</sup> Note: This is a conservative estimate. To be favorable to Dr. Steckel, I assumed people only read one state at S4, only read the “Google Account” answer at S7, and only read the Information Pages once, despite them being presented multiple times.



illegibility problems), his Test and Control are essentially identical except for a minuscule fraction of their content that is buried in an avalanche of additional text that is identical in both cells and not directly related to the accused deception.

6.5. This is the survey equivalent of “hiding a needle in a haystack” and, whether by design or not, logically worked to dilute any possible differences between the Test and Control by distracting respondents. Indeed, 99% of what people saw was identical in both cells and also unrelated to the allegedly deceptive sentence (present in the Test but not Control) or the brief added disclosure regarding Web & App Activity tracking one's location (present in the Control but not Test).

6.6. Tellingly, Dr. Steckel himself refers to some of this content as a “distractor,”<sup>57</sup> and thus appears to concede that the purpose of the extraneous information was to “distract” participants from the allegedly deceptive content. That is improper if the goal of such a study is to determine whether people are misled by certain language, not to see if they are misled after first being distracted by hundreds or thousands of unrelated words.

6.7. Further compounding this, Dr. Steckel presents no evidence that real-world Google users commonly navigate to this “distractor” content when reviewing Location History or Web & App Activity pages inside their Google account. Thus, his design, in addition to hiding the alleged deception under an avalanche of irrelevant content, also fails to replicate the real-world marketplace.<sup>58</sup>

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<sup>57</sup> Expert Report of Dr. Joel H. Steckel, ¶ 59(a).

<sup>58</sup> Jerre B. Swann, “Survey Critiques” in *Trademark and Deceptive Advertising Surveys: Law, Science, and Design*, 382-383 (Shari S. Diamond & Jerre B. Swann, eds. 2022).

6.8. Strikingly, Dr. Steckel’s own survey data also prove that his respondents did not read and/or did not retain the information presented to them. This conclusion is evident through a simple analysis of respondents’ answers to Q3 in the Steckel Survey, which asked them to identify the general topic of the content they had ostensibly just reviewed in the four Information Pages.

6.9. Analysis of Q3 data:

6.9.1. After showing people the four Information Pages (i.e., Location History, Web & App Activity, YouTube Watch History, and Personal Information), the Steckel Survey presented Q3, which is reproduced below.

Q3. What of the following topics, if any, did the articles in the previous screens discuss? (*Select all that apply*) [**RANDOMIZE ORDER; KEEP “Don’t know / Unsure” LAST**]

- ☐ Location History
- ☐ Web and App Activity
- ☐ Youtube Watch History
- ☐ Personal Information
- ☐ Payment Settings [**TERMINATE**]
- ☐ Microphone Settings [**TERMINATE**]
- ☐ None of the above [**TERMINATE**]
- ☐ Don’t know / Unsure [**TERMINATE**]

6.9.2. First, I note that Dr. Steckel improperly allowed respondents to qualify for his survey even if they failed, at Q3, to identify entire pages of content that had been presented just moments earlier. Specifically, I re-analyzed the data for Q3 and found that only 42.5% of Dr. Steckel’s respondents (477 out of 1,122) correctly identified the four pages (i.e., Location History, Web & App Activity, YouTube Watch History, and

Personal Information) they had been asked to review mere seconds earlier. A clear majority (57.5%, or 645 out of 1,122) failed to identify one or more pages. These respondents clearly failed to read or retain the information they had just seen.

6.9.3. It is standard practice to exclude respondents who fail basic attention checks of this kind.<sup>59</sup> Dr. Steckel’s decision to retain these individuals is improper in the present circumstances because survey respondents paying so little attention that they could not even identify the general topic of the four Information Pages just reviewed cannot plausibly have reviewed the “needle in the haystack” of the accused content Dr. Steckel sought to test (a single 12-word sentence hidden in thousands of words). By retaining these respondents, Dr. Steckel added noise into his data. Whether intentionally or not, this further nudged the survey results towards a favorable finding for Google (see also Flaw 5 below).

6.10.     Analysis of respondents who only partially answered the survey:

6.10.1. Dr. Steckel’s data also reveal that 608 users were categorized as “Partial” under the “Status” variable. There is no explanation in the Steckel Report or Exhibits concerning these respondents nor an account of how they were classified as “partial.” The bulk of these

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<sup>59</sup> For a general discussion of this issue, see David Neal, “Psychological Considerations in Designing Trademark and False Advertising Survey Questionnaires” in *Trademark and Deceptive Advertising Surveys: Law, Science, and Design*, 273-290 (Shari S. Diamond & Jerre B. Swann, eds. 2022).

“partial” users—totaling 447 users<sup>60</sup>—appear to have dropped out while reviewing one of the four Information Pages, which means that they had otherwise qualified up to that point in the survey. For comparison, this is equivalent to roughly 40% of 1,122 “Qualified” users who are in Dr. Steckel’s study.

6.10.2. This data point suggests that a very substantial number of participants (roughly 3 in 10 if you compare the 447 figure to the 1122 “qualified” respondents) simply did not get through the overwhelming avalanche of information in the Information Pages.

6.11. In sum, by inundating survey respondents with an avalanche of information, the Steckel Survey made it all but impossible that people would process the presence versus absence of a handful of words reflecting the allegedly deceptive content at issue. In response to this overwhelming amount of information, the vast majority of survey respondents acted as you might expect—they either abandoned the survey altogether (as shown by Dr. Steckel’s “partial” respondent data) or continued but stopped reading and/or processing what was presented (as shown by Dr. Steckel’s Q3 data).

**7. Fatal Flaw 5: Dr. Steckel misrepresents his Arizona findings, which actually show substantially more Control Cell respondents turning off Web & App Activity than Test Cell respondents.**

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<sup>60</sup> This number is not reported by Dr. Steckel, but it can be calculated from the excel data but looking at “Partial” respondents with a “vdropout” value of 11, 12, 13 or 14.

7.1. Oddly, Dr. Steckel’s report and Exhibits do not actually present any of his survey results for the state of Arizona. Instead, Dr. Steckel merely asserts as follows in his report:<sup>61</sup>

The results of the WAA Study demonstrate that the decisions users make about whether to change the “Web & App Activity” setting, even when “Location History” is turned off, are not affected by the amended language presented in the Modified Location History Disclosure. As sensitivity analyses, I conducted the same key analyses for each of the following subsets: Arizona respondents only, excluding litigation aware respondents, and excluding laggards.<sup>106</sup> My conclusions remain the same after the sensitivity analyses.

7.2. With respect, this is incorrect and is a troubling misrepresentation of what the survey data actually show. Although Dr. Steckel did not actually report any numerical findings for Arizona users, I was able to analyze the results once the data was (belatedly) provided to me. In reality, if one looks at Arizona respondents who were unaware of any litigation and correctly identified the four Information Pages presented, 74.19% of Test Cell respondents (46 out of 62) who left “Location History” turned off decided to keep “Web & App Activity” on. In the Control Cell (which Dr. Steckel contends corrects the deception), only 57.97% of respondents (40 out of 69) who left “Location History” turned off decided to keep “Web & App Activity” on. Thus, there was a 16.22% net increase in Google users who turned off Web & App Activity in the Control (where the accused content was removed) than in the Test (where the accused content was present). This difference is statistically significant at  $p \leq .05$ .<sup>62</sup>

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<sup>61</sup> Expert Report of Dr. Joel H. Steckel, ¶ 78.

<sup>62</sup> Based on a chi-square test,  $\chi^2(1) = 3.811$ ,  $p = .05$

7.3. This 16.22% net increase in Control respondents turning off Web & App Activity is highly consequential for two reasons.

7.3.1. First, this result was, whether intentionally or not, effectively concealed in Dr. Steckel’s report by the fact that no numerical results and no data tables for Arizona were presented. Indeed, the raw data for Dr. Steckel’s survey were not even included with his original report and were only provided when I identified their omission and formally requested them. To my memory, this is the first time I have seen an expert submit a report without also disclosing their underlying survey data. The Federal Judicial Center’s Reference Guide on Survey Research clearly stipulates that experts must disclose the raw data underlying their opinions.<sup>63,64</sup> I understand that similar requirements apply in the State of Arizona.

7.3.2. Second, the 16.22% net increase in Control respondents turning off Web & App Activity is highly consequential because it shows that, notwithstanding Flaws 1-4, Dr. Steckel’s own data indicates that Arizona respondents who passed his quality controls are *still* more likely to turn off WAA when just the allegedly deceptive sentence he focusses on is removed--even in a nearly illegible format and even without accounting for all of the other alleged unfair and deceptive

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<sup>63</sup> Shari S. Diamond, (2011). Reference guide on survey research. *Reference Manual on Scientific Evidence: Third.*

<sup>64</sup> Relatedly, I note that I was unable to complete certain additional elements of my review because Dr. Steckel, to date, has declined to provide a copy of the live survey link.

constants). Thus, the conclusion supported for Arizona respondents is the opposite of the one Dr. Steckel offers in Paragraph 78 of his report. Specifically, if one adopts Dr. Steckel’s methodology (with all of its flaws that favor Google’s position) and results, the study actually shows that, holding constant other alleged deception, there is a statistically significant difference between the percentage of respondents who decide to keep “Location History” off and also keep “Web & App Activity” on in the Original 2018 Location History Disclosure Group and the Modified Location History Disclosure Group. I note, moreover, that a Test vs. Control net difference of 16.22% in a deception survey falls above the threshold I understand courts have routinely accepted as evidence of deception.<sup>65</sup>

7.3.3. To emphasize, I am not opining that Dr. Steckel’s control condition was *not* deceptive. As I stated above in Section 4, both conditions contained material that I understand the State alleges is deceptive. Additionally, as I discussed in Section 3, Dr. Steckel’s methodology fails to measure what it purports to measure: whether the disclosures are deceptive. Further, as discussed above, there are serious fatal flaws that nudged the survey results in favor in Google even with respect to the very limited value it offers.

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<sup>65</sup> Matthew G. Ezell & AnnaBelle Sartore, “Survey Percentages in Lanham Act Matters” in *Trademark and Deceptive Advertising Surveys: Law, Science, and Design*, 329 (Shari S. Diamond & Jerre B. Swann, eds., 2022).

**8. Additional serious flaws in and observations regarding the Steckel Survey.**

8.1. In addition to the fatal flaws identified above, Dr. Steckel’s survey, methodology and data suffer from a number of additional issues that warrant further comment here. Many of these points also buttress the individual flaws discussed above.

**8.2. Failure to provide a live link to the survey.**

8.2.1. In my opinion, Dr. Steckel’s refusal to provide a live study link when requested was improper. It prejudices my ability to test some and respond to some of his assertions. For example, in the absence of a live link, there were multiple aspects of the study that I was simply unable to investigate and verify (e.g., randomization, zoom functions, branching, presentation time minimums on survey stimuli, etc.). These aspects of the Steckel Survey cannot be verified through the Exhibits provided with his Expert Report, or even though the excel data that was belatedly produced. Moreover, Dr. Steckel’s decision on this issue conflicts with established practices in academia. In recent years, the fields of psychology and consumer behavior have been plagued by a “replication crisis” and numerous instances of fraudulent conduct in peer reviewed publications. In response to this crisis, it has become even more standard practice for academics to be very forthright and transparent in sharing their data and study materials with those reviewing their work. For example, in his capacity as an academic author or editor of peer reviewed journals, I would be deeply surprised if Dr. Steckel would agree



that authors can refuse to provide a functioning link to a fielded study, especially in the context of a legitimate scientific review.

8.3. Missing or stripped meta-data from the excel file provided.

8.3.1. I note that the survey data file provided by Dr. Steckel appears to have had all meta-data stripped, or at least none is present. It is unusual in my experience for this information to be absent and it means that it is impossible to know when the file was created, or if/when any changes to the file were made. The absent metadata is more concerning, given the refusal to provide a live link to the study, the failure to provide any data with the initial report, the failure to provide numerical findings corresponding to key conclusions, and the mischaracterization of key findings (e.g., findings for Arizona respondents).

8.4. Low ecological validity/failure to replicate marketplace conditions.

8.4.1. I also note that, to the extent Dr. Steckel’s survey is intended to assess readers’ comprehension of the stimuli (including the Location History help center page with the allegedly false statement), he has not constructed an appropriate context in the survey that plausibly replicates marketplace conditions. As a result, the study lacks ecological validity (i.e., is a poor match to the real world).

8.4.2. As I understand it from Dr. Steckel’s report, his goal was to represent “help pages” that may have been available in some way to users through

the Google website “support.google.com.”<sup>66</sup> It does not appear, however, that he provided stimuli or a user context that reproduces the actual user journey in a realistic way (e.g., the scenario users go through when setting up an account or a new smartphone, or while using apps or services on a smartphone). Presumably, users who reached these help pages were searching for more information on a particular topic. In contrast, the survey participants in Dr. Steckel’s survey were simply asked to review the stimuli, having received no motivation or context for doing so and no preceding imagery to capture a real-world user journey that would land them on those pages.

8.4.3. The low ecological validity of Dr. Steckel’s design is problematic because surveys of this kind should replicate marketplace conditions by placing survey respondents in the relevant real-world context, mindset, or motivational state that would apply when viewing the relevant information in reality.<sup>67</sup> Failure to replicate marketplace conditions in a survey can, I understand, be grounds for surveys receiving little or no weight by Courts.<sup>68</sup> The Steckel Survey, however, provides no context, mindset, or motivational state whatsoever to respondents and merely

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<sup>66</sup> Expert Report of Dr. Steckel, p. 25, footnote 79.

<sup>67</sup> G. Kip Edwards “The Daubert Revolution and Lanham Act Surveys” in *Trademark and Deceptive Advertising Surveys: Law, Science, and Design*, p. 343 (Shari S. Diamond & Jerre B. Swann, eds. 2022).

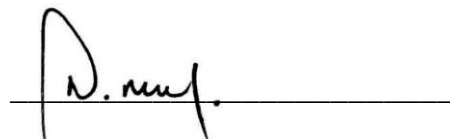
<sup>68</sup> Jerre B. Swann, “Survey Critiques” in *Trademark and Deceptive Advertising Surveys: Law, Science, and Design*, 382-383 (Shari S. Diamond & Jerre B. Swann, eds. 2022).

asks them to review multiple Information Pages in a cognitive and motivational vacuum.

8.4.4. Other aspects of Dr. Steckel’s survey raise similar ecological validity concerns. For example, as noted above, users in the Steckel Survey are not prompted to try and find the settings at issue and, in fact, I understand that Dr. Gray points out that the inability to find location-related settings is part of the alleged deception. Dr. Gray also points out that the WAA setting (and others) is on by default, and users are also not afforded a straightforward opportunity to disable it. By directly navigating his survey respondents to the relevant settings, the Steckel Survey fails to replicate the real-world challenge of finding how to disable location tracking in the first place, which I understand to be a component of the alleged deception.

## **9. Reservation of Rights**

9.1. This report is based on information currently available to me, and I reserve the right to amend or supplement this report and my opinions to the extent permitted, including when and if additional information or documents are made available to me. I also expect (and reserve the right) to provide demonstratives illustrating numbers, percentages, and other conclusions.

A handwritten signature in black ink, appearing to read "D. Neal", is written over a horizontal line.

David T. Neal, Ph.D.

June 27, 2022

# Appendix A

## Curriculum Vitae - David Neal, Ph.D.

**David T. Neal, Ph.D.**  
**Founding Partner**  
**Catalyst Behavioral Sciences LLC**  
**Executive in Residence, Duke University**

### Prior appointments

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2010-2013	Founding Partner, Empirica Research PTY LTD
2009-2011	Assistant Research Professor of Psychology University of Southern California
2006-2009	Director, Social Science Research Laboratories Duke University

### Education

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2006 – 2009	Postdoctoral Fellow Duke University, Psychology and Neuroscience
2001 – 2005	Ph.D. in Social Psychology, University of Melbourne, Australia. Dissertation: Automatic influences of stereotypes and affect on judgment and decision-making
1996 – 2000	B.A. (Hons) University of Melbourne Majors: Psychology, Philosophy

### Peer Reviewed Publications

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Neal, D. (2022). Psychological considerations in designing trademark and false advertising survey questionnaires. To appear in Shari S. Diamond & Jerre B. Swann (Eds.) *Trademark and Deceptive Advertising Surveys: Law, Science, and Design*.

Wood, W., Mazar, A., & Neal, D. (2021). Habits and goals in human behavior: Separate but interacting systems. *Perspective on Psychological Science*.

Townsend, C., Neal, D. T., & Morgan, C. (2019). The impact of the mere presence of social media share icons on product interest and valuation. *Journal of Business Research*, 100, 245-254.

Ascarza, E., Neslin, S. A., Netzer, O., Anderson, Z., Fader, P. S., Gupta, S., et al., (2018). In pursuit of enhanced customer retention management: Review, key issues, and future directions. *Customer Needs and Solutions*, 5(1-2), 65-81.

Carden, L., Wood, W., Neal, D. T., & Pascoe, A. (2017). Incentives activate a control mind-set: good for deliberate behaviors, bad for habit performance. *Journal of the Association for Consumer Research*, 2(3), 279-290.

- Labrecque, J. S., Wood, W., Neal, D. T., & Harrington, N. (2016). Habit slips: When consumers unintentionally resist new products. *Journal of the Academy of Marketing Science*, 1-15.
- Wood, W., & Neal, D. T. (2016). Healthy through habit: Interventions for initiating and maintaining health behavior change. *Behavioral Science and Policy*, 2(1), 71-83.
- Rothman, A. J., Gollwitzer, P. M., Grant, A. M., Neal, D. T., Sheeran, P., & Wood, W. (2015). Hale and hearty policies: How psychological science can create and maintain healthy habits. *Perspectives on Psychological Science*, 10(6), 701-705.
- Teyhen, D. S., Aldag, M., Centola, D., Edinborough, E., Ghannadian, J. D., Haught, A., Jackson, T., Kinn, J., Kunkler, K. J., Levine, B., Martindale, V.E., Neal, D. T., Snyder, L. B., Styn, M. A., Thorndike, F., Trabosh, V., & Parramore, D. J. (2014). Incentives to create and sustain healthy behaviors: Technology solutions and research needs. *Military Medicine*, 179, 1419-1431.
- Teyhen, D. S., Aldag, M., Edinborough, E., Ghannadian, J. D., Haught, A., Kinn, J., Kunkler, K. J., Levine, B., McClain, J., Neal, D. T., Stewart, T., Thorndike, F. P., Trabosh, V., Wesensten, N., & Parramore, D. J. (2014). Leveraging technology: Creating and sustaining changes for health. *Telemedicine and e-Health*, 20(9), 835-849.
- Teyhen, D. S., Aldag, M., Centola, D., Edinborough, E., Ghannadian, J. D., Haught, A., Jackson, T., Kinn, J., Kunkler, K. J., Levine, B., Martindale, V. E., Neal, D. T., Snyder, L. B., Styn, M. A., Thorndike, F., Trabosh, V., & Parramore, D. J. (2014). Key enablers to facilitate healthy behavior change: Workshop summary. *Journal of Orthopedic & Sports Physical Therapy*, 44, 378-387.
- Norton, M. I., Neal, D. T., Govan, C. L., Ariely, D., & Holland, E. (2014). The not-so-common-wealth of Australia: Evidence for a cross-cultural desire for a more equal distribution of wealth. *Analyses of Social Issues and Public Policy*, 14(1), 339-351.
- Neal, D. T., Wood, W., & Drolet, A. (2013). How do people adhere to goals when willpower is low? The profits (and pitfalls) of strong habits. *Journal of Personality and Social Psychology*, 104, 959–975.
- Neal, D. T., Wood, W., Labrecque, J., & Lally, P. (2012). How do habits guide behavior? Perceived and actual triggers of habits in daily life. *Journal of Experimental Social Psychology*, 48, 492–498.
- Moore, S. G., Neal, D. T., Fitzsimons, G., & Shiv, B. (2012). Wolves in sheep's clothing: When and how hypothetical questions influence behavior. *Organizational Behavior and Human Decision Processes*, 117, 168-178.
- Neal, D. T., Wood, W., Wu, M., & Kurlander, D. (2011). The pull of the past: When do habits persist despite conflict with motives? *Personality and Social Psychology Bulletin*, 37, 1428–1437.
- Neal, D. T., & Chartrand, T. L. (2011). Embodied emotion perception: Dampening and amplifying facial feedback modulates the accuracy of emotion perception. *Social and Personality Psychology Science*, 2, 673-678.
- Quinn, J., Pascoe, A., Wood, W., & Neal, D. T. (2010). Can't control yourself? Monitor those bad habits. *Personality and Social Psychology Bulletin*, 36, 499-512.
- Wood, W., & Neal, D. T. (2009). The habitual consumer. *Journal of Consumer Psychology*, 19, 579-592.
- Neal, D. T., & Wood, W. (2008). Automaticity *in situ*: Direct context cuing of habits in daily life. In E. Morsella, J.A., Bargh, & P.M. Gollwitzer (Eds.), *The Psychology of Action, Volume 2: Mechanisms of Human Action*. Oxford University Press.
- Neal, D. T., & Wood, W. (2008). Linking addictions to everyday habits and plans. *Behavioral and Brain Sciences*, 31, 455-456.
- Neal, D. T., Wood, W., & Pascoe, T. (2008). Triggers of real-world habits. *Proceedings of the Annual*

*Conference of the Association for Consumer Research*. Memphis, TN.

Wood, W., & Neal, D. T. (2007). A new look at habits and the habit-goal interface. *Psychological Review*, 114, 843-863.

Neal, D. T. (2007). Habit. In W.A. Darity (Ed.), *International Encyclopedia of the Social Sciences (2nd Ed.)*. Macmillan Reference, USA.

Neal, D. T., Wood, W., & Quinn, J. (2006). Habits: A repeat performance. *Current Directions in Psychological Science*, 15, 198-202.

Haslam, N., Bain, P., & Neal, D. T. (2004). The implicit structure of positive characteristics. *Personality and Social Psychology Bulletin*, 30, 529-541.

### **Other Publications** \_\_\_\_\_

Neal, D. T., Vujcic, J., Burns, R., Wood, W., & Devine, J. (2016). Nudging and Habit Change for Open Defecation: New Tactics from Behavioral Science. The World Bank Group & Catalyst Behavioral Sciences.

Neal, D. T., Vujcic, J., Hernandez, O., & Wood, W. (2015). The Science of Habit: Creating Disruptive and Sticky Behavior Change in Handwashing Behavior. Washington, D.C., USAID/WASHplus.

Cuddy, A. J. C., Govan, C. L., Neal, D. T., & Coster, A. (2012). "Qantas Luxury: Grounded Flights, First-class Pajamas, and Twitter Hashtags." Harvard Business School Case N9-912-026.

Neal, D. T., Govan, C., Norton, M., & Ariely, D. (2011a). Australian attitudes towards wealth inequality and the minimum wage.

Neal, D. T., Govan, C., Norton, M., & Ariely, D. (2011b). Australian attitudes towards wealth inequality and the progressive taxation.

### **Invited Keynotes and Presentations** \_\_\_\_\_

May 2022 CLE Webinar. Use of surveys in patent litigation. The San Francisco Intellectual Property Law Association (SFIPLA).

Nov 2021 Invited lecture. UNC-Chapel Hill. Masters in Applied Statistics

Oct 2021. Invited lecture. Abbott. Consumer Survey Design.

Aug 2021 Keynote Speaker: Habit Day Event.

Oct 2019 Speaker. R-SHOT: Results of the Zika Grand Challenge Experience. USAID. Washington, DC.

Nov 2018 Invited address. Habit, Behavior Change and the National Diabetes Prevention Program. The Centers for Disease Control and Prevention. Atlanta, GA.

Apr 2018 Speaker. Food as Medicine Conference. University of Pennsylvania.

Oct 2017 Guest speaker. Wharton Business School, University of Pennsylvania.

Aug 2017 Speaker. Habits Conference, University of Southern California

Mar 2017 Guest speaker. Miami Business School, University of Miami

Dec 2016 Keynote address. Physician Organization Exchange. Torrey Pines, CA.

Nov 2016 Keynote address. Norton Medical Group Summit. Louisville, KY.

Oct 2016 Guest speaker. Habit and Behavior Change. World Vision, Washington, DC.

Sep 2016 Guest speaker. GAIN Thought Leaders Discussion Event, Washington, DC.

Sep 2016 Moderator. Behavioral Economics and SBCC. Springboard for Health Communication.

May 2016 Guest speaker. Triennial Invitational Choice Symposia, Alberta, Canada.

Apr 2016 Keynote address. Health Leaders Media Population Health Exchange, Austin, TX.

Apr 2016 Expert panelist. Behavioral Economics in Reproductive Health Initiative, New Orleans, LA.

Feb 2016 Keynote address. SBCC Summit, Ethiopia, Africa.

Nov 2015 Guest speaker. USAID Nudges & Tactics to Reduce Open Defecation, Washington, DC.

Aug 2015 Keynote address. Health Leaders Media CFO Exchange, Colorado Spring, Texas.

Jan 2015 Presentation. Surgeon General of the US Army. Brain Health Consortium, Fairfax, Virginia.

Aug 2014 Presentation. Habit and behavior change. Cincinnati Children's Hospital.

May 2013 Keynote address. National Center for Women and Information Technology, Annual Summit. Tucson, AZ.

Jul 2012 Guest speaker. Control and the Absent Mind Conference, Essen, Germany.

Oct 2011 Keynote address. EUCognition Conference, Groningen, Netherlands.

Feb 2011 Symposium presentation. Society for Personality and Social Psychology Annual Conference, San Antonio, Texas.

Oct 2010 Colloquium presentation. Psychology Department. San Diego State University.

May 2008 Colloquium presentation. Department of Epidemiology and Health. University College London.

May 2008 Guest speaker. London School of Hygiene and Tropical Medicine.

Jan 2008 Symposium presentation. Society for Personality and Social Psychology Annual Conference, Albuquerque, NM.

**Testimony at Trial or Deposition\_\_\_\_\_**

RightQuestion, LLC, v. Samsung Electronics Co., LTD., and Samsung Electronics America, INC., United States District Court for the Eastern District of Texas, Marshall Division.

Luckenbach Texas, inc., v. Stewart Skloss, Stemma Loldings, L.P., Luckenbach Road Whiskey Wistillery, LLC, Luckenbach Whiskey, LLC, LRW Ventures, LLC, Frontier Spirits, LLC, and Pura Vida Spirits Company, LLC. United States District Court. Wester District of Texas, Austin Division.

Growmark, Inc., v. Hanse Orga GMBH. United States Patent and Trademark Office, The Trademark Trial And Appeal Board.

Deckers Outdoor Corporation v. Walmart Inc & Does 1-10. United States District Court. Central District of California.

Adidas America Inc. and Adidas AG v. Fashion Nova Inc. United States District Court. District of Oregon, Portland Division.

TherapeuticsMC v. Evofem Biosciences Inc. United States District Court Southern District Of Florida, West Palm Beach Division.

River Light V, L.P. and Tory Burch LLC, v. Olem Shoe Corp., United States District Court Southern District Of New York.

Solid 21, Inc. v. Richemont North America, Inc.; Richemont International, S.A.; and Montblanc-Simplo GMBH. United States District Court for the Southern District of New York.

D. H. Pace Company, Inc., D/B/A Overhead Door Company of Atlanta and Overhead Door Company of Kansas City v. OGD Equipment Company, LLC. United States District Court For The Northern District of Georgia, Atlanta Division.

Gree Inc. v. SuperCell OY. United States District Court for the Eastern District of Texas, Marshall Division.

Solid 21, Inc. v. Breitling U.S.A., Inc. and Breitling SA (a/k/a Breitling AG). United States District Court for the Southern District of Connecticut.

Gree Inc. v. SuperCell OY. United States District Court for the Eastern District of Texas, Marshall Division.

Oroville Dam Cases. Superior Court of California. County Of Sacramento.

American Airlines, Inc. v. Delta Airlines, Inc., United States District Court for the Northern District of Texas, Fort Worth Division.

Chooseco LLC, v. Netflix Inc. United States District Court for the District of Vermont.

Gree Inc. v. SuperCell OY. United States District Court for the Eastern District of Texas, Marshall Division.

Bluetooth SIG Inc. v. FCA US LLC. United States District Court for the Western District of Washington, Seattle Division.

Jam Cellars, Inc. v. The Wine Group LLC. United States District Court for the Northern District of California.

AWGI, LLC, Atlas Logistics, Inc. and Atlas Van Lines, Inc., V. Atlas Trucking Company, LLC., Atlas Logistics, LLC., and Eaton Steel Bar Company, Inc. United States District Court for the Eastern District of Michigan.

Solid 21, Inc. v. Ulysse Nardin, Usa Inc. A/K/A/ Ulysse Nardin, Inc.; Kering, S.A.; and Ulysse Nardin SA. United States District Court for the Southern District of Florida.

OGD Equipment Co. D/B/A Overhead Garage Door, LLLC, v. Overhead Door Corporation and Overhead Door Company Of Lubbock, Inc., United States District Court For The Eastern District of Texas, Sherman Division.

Corus Realty Holdings, Inc. v. Zillow Group, Inc., Zillow, Inc., and Trulia, LLC. United States District Court, Western District of Washington.

Dr. Mark A. Barry v. DePuy Synthes Products, Inc., Medical Device Business Services, Inc., and DePuy Synthes Sales, Inc. D/B/A/ Depuy Synthes Spine. United States District Court for the Eastern District of Pennsylvania.

Mahindra & Mahindra, LTD. and Mahindra Automotive North America, Inc. v. FCA US LLC. United States District Court for the Eastern District of Michigan.



RVCFloor Décor, Ltd., V. Floor & Decor Holdings, Inc. and Floor And Decor Outlets Of America, Inc., United States District Court For The Eastern District Of New York.

Ferring Pharmaceuticals Inc., Ferring B.V., and Ferring International Center S.A., v. Serenity Pharmaceuticals, LLC, and Reprise Biopharmaceutics, LLC, United States District Court For The Southern District Of New York.

D. H. Pace Company, Inc., D/B/A Overhead Door Company of Atlanta, v. Aaron Overhead Door Atlanta LLC, Jeremy Ryan Lucia, and Stephenie Lucia. United States District Court For The Northern District of Georgia, Atlanta Division.

Car-Freshner Corporation and Julius Samann LTD., v. American Covers LLC, F/K/A American Covers, Inc. D/B/A Handstands, Energizer Holdings, Inc., and Energizer Brands, LLC. United States District Court For The Northern District Of New York.

Energizer Brands, LLC v. Duracell U.S. Operations, Inc. United States District Court for the Eastern District of Missouri.

Mark A. Barry M.D., v. Medtronic, Inc. United States District Court for the Eastern District of Texas, Beaumont Division.

Edible Arrangements International LLC & Edible Arrangements LLC v. 1-800-Flowers.com, Inc., 800-Flowers, Inc. And June v. Delaney and David Delaney d/b/a Fruit Bouquet Staten Island. United States District Court, District of Connecticut.

Sanford L.P. (d/b/a/ DYMO) and DYMO B.V.B.A. v. Esselte AB, Esselte Leitz GMHB & Co. KG and Esselte Corporation. United States District Court Southern District of New York.

PEI International v. U-Haul International, United States District Court Middle District of Florida, Tampa Division.

**Teaching Experience** \_\_\_\_\_

University of Southern California (2009-2011)

Professor of Research Methodology

Duke University (2005-2009)

Research Fellow teaching Consumer Psychology and Research Methodology

**Expert Journal Reviewer** \_\_\_\_\_

Basic and Applied Social Psychology

European Journal of Social Psychology

Journal of Consumer Research

Journal of Marketing Research

Journal of Personality and Social Psychology

Journal of Experimental Social Psychology

Personality and Social Psychology Bulletin

Psychological Science

Social Influence

Social and Personality Psychology Compass

Social Cognition

**Awards and Fellowships** \_\_\_\_\_

The Centers for Disease Control and Prevention (2019-2023), Research Grant to Investigate Retention and Enrollment Predictors in the National Diabetes Prevention Program, \$1,515,000.

2012 Society for Consumer Psychology, Park Outstanding Contributor Award (jointly with Professor Wendy Wood)

NSF Major Equipment Grant (2008-2009), \$252,000. Co-PI.

Australian Postgraduate Award, 2001-2005, (\$60,000)