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Letter from the Editor

Siena Roberts, The Criminal Law Practitioner

Dear Readers,

Thank you for your interest in The Criminal Law Practitioner! On behalf of our Editorial Board and Staff, I am proud to share Volume 15, Issue 1 with you. This issue continues CLP's mission of producing interesting and timely criminal law content. For this issue, we have authors Alena Johnston and Dr. Amelia Shooter, Dr. Paraic Scanlon, and Sarah L. Cooper provide their unique insights on important issues for criminal law practitioners.

In "Fraud in Feeding Our Future: An Analysis of 'The Largest Pandemic Relief Fraud Scheme Yet,'" Johnston provides her in-depth analysis of the pending case of *United States v. Bock*, No. 0:22-cr-00223, 2022 WL 4547235 (D. Minn. 2022). Johnston uses her knowledge of the criminal legal system to analyze the current counts and their likelihood of success as the case proceeds. Johnston also specifically analyzes this case with the lens of the Federal Sentencing Commission Guidelines, making her piece pertinent for practitioners and scholars alike.

Shooter, Scanlon, and Cooper use an original data set in "Juror Certainty about Firearms Evidence: Examination Effects" to analyze how both cross and redirect-examination affected potential U.S. jurors' certainty about expert firearms evidence. Using a group of 114 participants, Shooter, Scanlon, and Cooper found results suggesting that firearm experts conveying high certainty create higher certainty in jurors and that cross-examination has a detrimental effect on this certainty, but redirect-examination does not reduce this detrimental effect. This article highlights the use of statistical data in analyzing issues facing criminal law practitioners and has useful insights to takeaways for criminal law professionals.

We would like to thank the authors for the time and effort they committed to producing their articles. On a personal note, I would like to offer my heartfelt appreciation for the hard work of the Editorial Board and Staff in not only spading and editing these articles, but supporting me through my tenure as Editor-in-Chief. I especially want to thank the outgoing Executive Editor, Equity & Inclusion Editor, Managing Publications Editor, Managing Design Editor, and Articles Editors for their care and time in preparing these articles for publication.

Finally, I would like to encourage you to visit our website, CrimLawPractitioner.org, to read our latest blog posts, criminal law practitioner profiles, and previous publications. If you are interested in publishing with The Criminal Law Practitioner or if you would like to be featured in our practitioner profiles, please reach out to us at clp@wcl.american.edu.

Sincerely,
Siena Roberts
Editor-in-Chief


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FRAUD IN FEEDING OUR FUTURE: AN ANALYSIS OF "THE LARGEST PANDEMIC RELIEF FRAUD SCHEME YET"

BY ALENA JOHNSTON

I. INTRODUCTION

Since the 1930s, the public school system in the United States has provided a distinct place for students to develop, learn, and grow.[1] Public schools level the playing field for students in academics, allowing them to receive an education at no direct cost.[2] However, students from economically disadvantaged backgrounds continue to face challenges, and their inability to secure nutritious meals can affect their ability to perform academically.[3]

In 1946, President Harry Truman signed the National School Lunch Act, forming the first Child Nutrition Program in the United States to remedy the food security issue.[4] The program was implemented as "a measure of national security, to safeguard the health and well-being of the Nation's children and to encourage the domestic consumption of nutritious agricultural commodities."[5] In its first year, this program allowed 7.1 million children to receive "low-cost or no cost lunches" every school day.[6] In 1968, the Special Food Service Program (SFSP) for Children, a three-year pilot program, was created to provide nutritious meals for children when school was not in session.[7] The program offered grants to each school district that provided meals to children after school and over the summer.[8] After the three-year program was up, the Child and Adult Food Care Program (CAFCP) was promulgated as a permanent part of the Child Nutrition Program to provide nutritious meals for "day care centers, day care homes, homeless shelters, adult day care centers."[9]

The primary purpose of these child nutrition programs was to allow the United States Department of Agriculture (USDA) to "help ensure that children receive nutritious meals and snacks that promote their health and educational readiness."[10] The Food and Nutrition Service (FNS) of the USDA administered the federal programs while state agencies operated the programs at the state level through agreements with local school food authorities.[11] Cash subsidies were given to participating school districts for every reimbursable meal they served to a student; in exchange, the school district provided a free or reduced price meal that met Federal food nutrition requirements to eligible students.[12]

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1 Wendy A. Paterson, *From 1871 to 2021: A Short History of Education in the United States,* BUFF. STATE UNIV. (Dec. 8, 2021), https://suny.buffalostate.edu/news/1871-2021-short-history-education-united-states#:~:text=The%20first%20public%20normal%20school,a%20minimum%20of%20four%20years.

2 Nancy Kober, *History and Evolution of Public Education in the US,* CENT. ON EDUC. POL'Y (2020), https://eric.ed.gov/?id=ED606970.

3 Carrine Deeds, *Food for Thought: How Food Insecurity Affects a Child's Education,* AM. YOUTH POL'Y F. (Aug. 24, 2015), https://aypf.wpenginepowered.com/blog/food-for-thought-how-food-insecurity-affects-a-childs-education/.

4 *History of School Lunch,* ILL. SCH. NUTRITION ASS'N (last accessed Nov. 15, 2022), https://www.ilsna.net/ilsna/resources/schoolnutrition/historyschoollunch.

5 *Id.*

6 *National School Lunch Program (NSLP) Fact Sheet,* USDA FOOD & NUTRITION SERV., U.S. DEP'T OF AGRIC. (last accessed Oct. 3, 2022), https://www.fns.usda.gov/nslp/nslp-fact-sheet [hereinafter *NSLP Fact Sheet*].

7 *History of School Lunch, supra* note 5.

8 *Id.*

9 *Id.*

10 *Child Nutrition Programs,* USDA ECON. RSCH. SERV. U.S. DEP'T OF AGRIC. (last accessed Nov. 13, 2022), https://www.ers.usda.gov/topics/food-nutrition-assistance/child-nutrition-programs/.

11 *NSLP Fact Sheet, supra* note 7.

12 *Id.*

Only certain organizations were allowed to participate in the programs.[13] Specifically, the SFSP only considered these entities eligible: "public or private nonprofit schools; units of local, municipal, county, tribal, or state government; private nonprofit organizations; public or private nonprofit camps; and public or private nonprofit universities or colleges."[14] These sites had to be sponsored by an organization that was approved through an application process and authorized to participate in the Federal Child Nutrition Program by the USDA.[15] To receive reimbursement from the federal government, sponsors had to monitor their sites and submit reimbursement claims to the state agency overseeing the program.[16] The USDA then provided federal reimbursement funds on a per-meal basis to the sponsors who subsequently paid a portion of it back to the sites.[17] The sponsor "retain[ed] 10 to 15 percent of the funds as an administrative fee in exchange for sponsoring the sites, submitting reimbursement claims, and disbursing the federal funds."[18] The SFSP was "the largest Federal resource available" to provide meals to children during off-school times.[19]

One in five—or 28.6 million—children in America currently live in households without consistent access to adequate food and rely on the Child Nutrition Program for nutritious meals.[20] The Child Nutrition Programs are essential to reduce food insecurity in the United States and meet the needs of those millions of children with inconsistent access to meals.[21] Before the Coronavirus pandemic (COVID-19), Children Nutrition Programs "amounted to $23.6 billion" in total federal expenditures.[22] The COVID-19 pandemic drastically changed the way that children were able to be educated and subsequently, fed.[23] When the pandemic closed schools, the federal government quickly changed food nutrition program processes to ensure that these children were able to continue to obtain healthy meals despite their inability to physically be in an educational facility.[24] The USDA "expanded the scope of both the National School Lunch Program… [and] the Summer Food Service Program."[25] At the time, the federal government started to waive administrative rules to combat the strain schools felt due to pandemic costs.[26] The USDA "waived some of the standard requirements for participation in the program" and "allowed for-profit restaurants to participate in the program, as well as allowed for off-site food distribution to

13 Deeds, *supra* note 4.
14 *Id.*
15 *How to Become a SFSP Sponsor,* USDA FOOD & NUTRITION SERV., U.S. DEP'T OF AGRIC. (Jun. 25, 2024), https://www.fns.usda.gov/sfsp/how-become-sponsor.
16 *DOJ Press Release*, *supra* note 1.
17 *Id.*
18 Indictment of Aimee Marie Bock at 3, United States v. Bock, No. 0:22-cr-00223, 2022 WL 4547235 (D. Minn. 2022) [hereinafter *Bock Indictment*].
19 Deeds, *supra* note 4.
20 School Meal Statistics, ILL. SCH. NUTRITION ASS'N, https://schoolnutrition.org/about-school-meals/school-meal-statistics/#school-meals-during-pandemic (last visited Oct. 3, 2022).
21 *Child Nutrition Programs*, *supra* note 11.
22 *Spending on USDA's Two Major School Nutrition Programs Dropped from 2019 to 2021 As Other Programs Filled Pandemic-Related Gaps,* ECON. RSCH. SERV., U.S. DEP'T OF AGRIC. (last updated Aug. 30, 2022), https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=104554.
23 Kevin McElrath, *Schooling During the Covid-19 Pandemic,* U.S. CENSUS BUREAU (Aug. 26, 2020), https://www.census.gov/library/stories/2020/08/schooling-during-the-covid-19-pandemic.html.
24 *See generally School Meal Statistics*, *supra* note 21.
25 *Child Nutrition Programs*, *supra* note 11.
26 McElrath, *supra* note 24.

children outside of educational programs."[27] The relaxation of standard requirements for participating in the Federal Child Nutrition Program combined with "the state government's stay-at-home order and telework policies made it more difficult to oversee the program,"[28] allowing for more programs to grow with little to no oversight. What was supposed to be a mechanism to continue feeding our future resulted in holes in the nutrition programs, giving individuals an opportunity to find a way to manipulate the system and profit off federal funds for their own personal gain.[29] Unfortunately, one such instance turned into what the Department of Justice alleges to be "the largest pandemic relief fraud scheme charged to date."[30]

This Article will discuss an expansive pandemic relief fraud scheme allegedly organized by Aimee Marie Bock, the subject of the case, *United States v. Aimee Marie Bock, et. al.,* who was indicted on September 20, 2022.[31] In section II, this Article discusses the scheme Bock, the founder and executive director of Feeding Our Future, a nonprofit dedicated to sponsoring sites for the Federal Child Nutrition Program, allegedly implemented to defraud the federal government out of 240 million dollars. In section III, Bock's history and what led her to be allegedly involved in the scheme is discussed. In section IV, this Article details the elements of the alleged crimes Bock is charged with (i.e., conspiracy to commit wire fraud, wire fraud, conspiracy to commit federal programs bribery, and federal programs bribery) and assesses the likelihood of a conviction. Finally, section V provides a background on the Federal Sentencing Guidelines and concludes with an analysis of the relevant factors that may appear in Bock's presentence report, if convicted, and how it may impact her ultimate potential sentence.

II. The Scheme

The charged scheme began with an organization, Feeding Our Future, a nonprofit in Minnesota "driven by a single goal: making participation in the USDA Child and Adult Care Food program safe and easy for community partners."[32] Aimee Marie Bock, executive director and founder of Feeding Our Future, and her employees recruited individuals and organizations to open Federal Child Nutrition Program sites in the state of Minnesota.[33] The Minnesota Department of Education (MDE) administers the federal funds associated with the Federal Child Nutrition Program.[34] In response to the relaxation of program requirements, Feeding Our Future "dramatically increased both the number of sites under its sponsorship as well as the amount of Federal Child Nutrition Program funds received by those sites."[35] These site operators allegedly falsely claimed to serve meals to thousands

27 *DOJ Press Release*, *supra* note 1.
28 *Bock Indictment*, *supra* note 19, at 3–4.
29 *DOJ Press Release*, *supra* note 1.
30 *Id*.
31 *Id.*
32 Scott McClallen, *FBI: Nonprofit Spent Tens of Millions From Children Hunger Program on Cars, Property,* THE CENTER SQUARE MINNESOTA (Mar. 10, 2022), https://www.thecentersquare.com/minnesota/article_270854ce-a074-11ec-9880-d341155f2af1.html.
33 *DOJ Press Release*, *supra* note 1.
34 *School Nutrition Programs,* MINN. DEP'T. OF EDUC., https://education.mn.gov/mde/dse/fns/snp/.
35 *Bock Indictment*, *supra* note 19, at 8.

of children a day, [36] and purportedly created and submitted false documentation of their fraud to Bock, who in turn submitted it to the MDE for reimbursement.[37] The indictment alleges that Bock and Feeding Our Future employees submitted fake attendance rosters for reimbursement to MDE[38] containing the names and ages of children site managers pretended to have served meals to, and fake invoices of food they pretended to have purchased.[39] After MDE "disbursed the fraudulently obtained Federal Child Nutrition Program funds to the individuals and entities involved in the scheme," Feeding Our Future reportedly retained 10 to 15 percent of the funds as an administrative fee.[40] On top of these administration fees, Bock and her employees allegedly received bribes and kickbacks from sites for their assistance in submitting the fraudulent material and defrauding the MDE of millions.[41] At the end of the scheme, Feeding Our Future "received nearly $18 million in … administrative fees" from sponsoring these sites' participation in the program.[42] Overall, Bock and 48 other individuals are alleged to have used the administrative fees and kickbacks associated with site sponsorship "to purchase luxury cars, houses, jewelry, and coastal resort property abroad."[43] Bock allegedly "oversaw this massive scheme carried out by sites under Feeding Our Future's sponsorship" where the organization "went from receiving and disbursing approximately $3.4 million in federal funds in 2019 to nearly $200 million in 2021."[44] The indictment alleges that by 2022, Feeding Our Future had "opened more than 250 sites throughout the state of Minnesota and fraudulently obtained and disbursed more than $240 million in Federal Child Nutrition funds" to site operators.[45]

Bock and Feeding Our Future's luck finally ran out when the "MDE attempted to perform necessary oversight regarding the number of sites and number of claims being submitted."[46] Bock tried to assure MDE that her sites were legitimate and when that did not work, attempted to rely on personal attacks to keep the federal funds flowing.[47] To keep the scheme afloat, Bock allegedly tried to "divert attention away from [the] fraudulent scheme by blaming MDE" for discrimination[48] against Feeding Our Future and unfairly scrutinizing their sites.[49] After MDE finally began denying new Feeding Our Future site applications, Bock filed a lawsuit against MDE for "denying the site applications due to racial animus in violation of the Minnesota Human Rights Act."[50] A Minnesota state judge determined that the MDE "hadn't gathered enough evidence to justify halting Feeding Our Future's federal payments" which resulted in a reinstatement of federal funds flowing into

36 *DOJ Press Release*, *supra* note 1.
37 *Bock Indictment*, *supra* note 19, at 8–9.
38 *Id.* at 8.
39 *Id.*
40 *Id.*
41 *Id.*at 9, 36.
42 *Id.* at 9.
43 *DOJ Press Release*, *supra* note 1.
44 *Id.*
45 *Id.*
46 *Id.*
47 *Bock Indictment*, *supra* note 19, at 10–11.
48 *Id.* at 10.
49 *Id.* at 10-11.
50 *Id.*

Bock's hands.[51] As a result of this adverse result, the MDE took the matter to the FBI who opened an investigation.[52] Shortly thereafter, federal agents raided Bock's residence, the Feeding Our Future workplace, and several entities associated with it.[53] After the FBI raid, Bock's attorney, Kenneth Udoibok, predicted that his client and her organization would "ultimately not be charged or indicted."[54]

On September 13, 2022, Bock and 48 others were indicted by the United States Attorney's Office for the District of Minnesota and charged with 61 counts of white collar crimes including wire fraud, federal programs bribery, and money laundering.[55] The Special Agent investigating this case stated that "[e]xploiting a government program intended to feed children at the time of a national crisis is the epitome of greed" and that the defendants in this case "chose to steal from the future" instead of provide for and feed them.[56]

Bock pleaded not guilty to the charges against her; however, new information continues to develop as former employees and site sponsors are tried.[57] On April 22, 2024, the first trial associated with Feeding Our Future began in Minneapolis, Minnesota, against seven site sponsors.[58] In the third week of trial, jurors heard from an employee of the organization, Hadith Ahmed.[59] Specifically, Hadith Ahmed, a former site supervisor who dubbed himself "Aimee Bock's right-hand man," attested that the organization was akin to a bank where sponsors came to collect money when needed.[60] He testified that Feeding Our Future was a "crazy" anchor for widespread fraud involving more than 200 people."[61] The jury ultimately convicted five of the seven site sponsors that were tried.[62]

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51 Joey Peters, *A Friendship, A Rivalry, A Federal Investigation,* SAHAN J. (Apr. 1, 2022), https://sahanjournal.com/news/feeding-our-future-investigation-aimee-bock-kara-lomen-minnesota/ [hereinafter *A Friendship, A Rivalry, A Federal Investigation*].

52 *Id.*

53 Joey Peters*, Feeding Our Future Director Blames Minnesota Department of Education of Food Aid Probe,* SAHAN J. (Feb. 1, 2022), https://sahanjournal.com/news/feeding-our-future-aimee-bock-interview/.

54 *Id.*

55 *DOJ Press Release*, *supra* note 1.

56 *Id.*

57 Torey Van Oot, *The Failure to Stop "Feeding Our Future" Fraud*, AXIOS (Jun. 14, 2024), https://www.axios.com/local/twin-cities/2024/06/14/the-failure-to-stop-feeding-our-future-fraud (detailing that Aimee Bock pleaded not guilty and has not accepted any criminal wrongdoing); Joey Peters, *Witnesses in Feeding Our Future Trial Saw Few to No Meals Served to Needy Children*, SAHAN J. (May 7, 2024), https://sahanjournal.com/policing-justice/feeding-our-future-trial-eyewitnesses-the-landing-shakopee/ (showcasing the depth of details still coming out about the alleged scheme).

58 Joey Peters, *Here's What You Need To Know About Feeding Our Future Trial*, SAHAN J. (May 20, 2024), https://sahanjournal.com/public-safety/feeding-our-future-trial-what-you-need-to-know/.

59 Joey Peters, *Former Feeding Our Future Employee Details 'Chaos,' Large-Scale Fraud That Earned Suspects Millions,* SAHAN J. (May 9, 2024), https://sahanjournal.com/policing-justice/feeding-our-future-trial-employee-testifies-aimee-bock/.

60 *Id.*

61 *Id.*

62 Matt Sepic, *Credit Report Lands Feeding Our Future Founder Back in Court on Alleged Pretrial Release Violation,* MPR NEWS (Oct. 2, 2024, 7:35 PM), https://www.mprnews.org/story/2024/10/02/new-loan-lands-feeding-our-future-founder-back-in-court-on-alleged-pretrial-release-violation.

III. The Alleged Ringleader: Aimee Marie Bock

In late 2022, Bock was released from custody, forced to surrender her passport, and agreed to not travel outside the state of Minnesota.[63] She pled not guilty to her federal charges and agreed to abide by certain pretrial release conditions.[64] Bock's attorney, Kenneth Udoibok, stated that her trial date "cannot come soon enough for the jury to hear her story."[65] Bock is set to go to trial in early 2025 as of the writing of this Article (December 2022).[66] Reporters allege that Bock is an "unlikely criminal mastermind" who describes herself as a "rule follower."[67] Before the indictment, Bock discussed "her career and efforts to expand the government's free meals program into Minnesota's East African community" in hope of avoiding criminal charges.[68]

Bock is not a newcomer to the Children Nutrition Programs and their processes.[69] She joined Providers Choice, a "nonprofit that bills itself as the 'largest sponsor' of government meal programs" in the United States in 2015.[70] Bock ultimately disassociated with Provider's Choice over a disagreement with the way it was run and eventually sued MDE to win approval for the right to start a new nonprofit to compete with Providers Choice.[71] She decided to call her new operation "Feeding Our Future."[72] Site operators in the area slowly started to move away from working with Providers Choice and join Bock as she "made sure she got every dollar she was entitled to by flagging problems on her reimbursement claims" and helping site operators through the process of getting started.[73] Bock was determined to make sure she continued to get administrative fees from her site operators and sources say she would stop at nothing to do so.[74] Sources claimed she made it "too easy for meal providers to cheat the system by approving falsified reimbursement forms listing hundreds of children who didn't exist."[75] Bock allegedly "was able to capitalize on her unusually strong relationships with the Somali community to create a staggeringly successful criminal enterprise, one in which immigrants were willing to spend hundreds of thousands of dollars to gain access to her money-making club" by becoming site operators.[76] The "word got out like fire" and many in the Somali community wanted to be part of the scheme.[77] Bock's scheme allegedly allowed "people who were running

63 WCCO Staff, *Feeding Our Future Head Aimee Bock Released from Custody*, CBS MINN. (Sept. 23, 2022, 11:36 AM), https://www.cbsnews.com/minnesota/news/feeding-our-future-head-aimee-bock-released-from-custody/.

64 Sepic, *supra* note 62.

65 *Id.*

66 *Id.*

67 Jeffrey Meitrodt & Kelly Smith, *For Feeding Our Future Leader, An Unlikely Path to Scandal*, MINN. STAR TRIB. (Sept. 24, 2022, 9:31 PM), https://www.startribune.com/for-feeding-our-future-leader-an-unlikely-path-to-scandal/600209906/.

68 *Id.*

69 *See* Peters, *supra* note 51.

70 Meitrodt & Smith, *supra* note 67.

71 Jeffrey Meitrodt, *Timeline of Feeding Our Future Investigation,* MINN. STAR TRIB. (Sept. 27, 2022, 8:50 PM), https://www.startribune.com/timeline-of-feeding-our-future-investigation/600210805.

72 Meitrodt & Smith, *supra* note 67.

73 *Id.*

74 *Id.*

75 *Id.*

76 *Id.*

77 Meitrodt & Smith, *supra* note 67.

the sites [that] had been living in Section 8 housing" to now live "in $1 million houses and driv[e] nice cars."[78] A member of the Somali community in that area described it to reporters as a "free for all."[79]

Despite the amount of money the federal government claims Bock stole, she maintains she did nothing wrong,[80] claiming the case "is an attack on the community" and "punishment for going against the grain."[81] Bock denies any affiliation to any criminal wrongdoing and states that reading "that all of [her] work . . . being twisted into something that it's not, is hard."[82] She believes that "the federal investigation is a result of the Department of Education retaliating against her for filing the 2020 lawsuit against the state" where she allegedly attempted to cover-up the fraud through discrimination claims.[83] Bock and her attorney, Udoibok, "allege that the fraud investigation is rooted in bad information that the Minnesota Department of Education sent to the FBI" by a previous, disgruntled coworker.[84] Bock is currently awaiting trial, and these allegations have not yet been substantiated.[85]

At the time this Article was written (December 2022), five individuals who were indicted alongside Bock had pled guilty to the scheme.[86] The individuals included four site owners and one employee of Feeding Our Future directly answerable to Bock.[87] The first individual, a site operator who used Feeding Our Future as its sponsor, pled guilty to one count of conspiracy to commit wire fraud and admitted he never served a single meal to children in Minnesota,[88] yet he admitted to collecting three million dollars in federal food aid money.[89] The second person, a Feeding Our Future employee who pled guilty to one count of conspiracy to commit wire fraud, admitted to accepting one million dollars in kickbacks in exchange for enrolling fraudulent sites in the food programs.[90] The third person, a site owner who pled guilty to one count of conspiracy to commit wire fraud, admitted to giving more than one hundred and fifty thousand dollars in bribes to Feeding Our Future employees.[91] The fourth and fifth individuals were also site operators who pled guilty to one count of conspiracy to commit wire fraud and one count of wire fraud.[92]

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78 *Id.*
79 *Id.*
80 *Id.*
81 *Id.*
82 Jon Blistein, *Minnesota Nonprofit Accused of Buying Luxury Cars, Vacation Homes with Millions Meant to Feed Hungry Kids,* ROLLING STONE (Sept. 20, 2022), https://www.rollingstone.com/culture/culture-news/minnesota-feeding-our-futures-alleged-fraud-scheme-indictment-aimee-bock-1234596585/.
83 Peters*, supra* note 51.
84 *Id.*
85 *Id.*
86 Alexandra Simon, *Fourth Guilty Plea in Feeding Our Future Scheme,* KARE 11 (Oct. 27, 2022, 11:46 AM), https://www.kare11.com/article/news/local/feeding-our-future-fourth-guilty-plea/89-f35f99d0-420b-4f88-8c0e-8f28737a991c.
87 *Id.*
88 Joey Peters*, Here's A List of Everyone Who Has Been Convicted in the Feeding Our Future* Case, SAHAN J. (Oct. 27, 2022), https://sahanjournal.com/public-safety/feeding-our-future-food-aid-fraud-investigation-guilty-pleas/ [hereinafter *Here's A List of Everyone Convicted in Feeding Our Future Case*].
89 Simon, *supra* note 86.
90 *Id.*
91 *Id.*
92 *Id.*

The alleged mastermind of this operation, Bock, faces seven counts including four different white-collar crimes and has given no indication to date that she intends to plead guilty.[93] Bock is charged with one count of conspiracy to commit wire fraud, four counts of wire fraud, one count of conspiracy to commit federal programs bribery, and one count of federal programs bribery.[94] As Bock is charged with federal crimes, if she is found guilty she will be sentenced using the Federal Sentencing Guidelines.[95]

IV. The Federal Sentencing Guidelines

The United States Sentencing Commission is an independent agency in the judicial branch of the Federal Government created as part of the Sentencing Reform Act of 1984 (SRA).[96] Congress promulgated the SRA primarily because at this time "each judge [was] left to apply his own notions of the purpose of sentencing."[97] Thus, federal judges "mete[d] out an unjustifiably wide range of sentences to offenders with similar histories, convicted of similar crimes, and committed under similar circumstances."[98] The Guidelines establish policies for federal courts and advise them of an appropriate punishment for offenders convicted of federal crimes.[99]

The Federal Sentencing Guidelines are used after every federal conviction.[100] The normal process after a conviction begins with a federal probation officer conducting a presentence interview with the defendant, assessing their conviction offenses, criminal conduct, personal history, financial circumstances, and any other information that may potentially be relevant to the court's sentencing decision.[101] After this has occurred, the probation officer creates a pre-sentence report containing information about the defendant, the statutory range of punishment, and a calculation of the relevant Sentencing Guidelines,[102] information that the court is able to use and rely on at the sentencing hearing.[103] At the hearing, the defendant and the state may present evidence and call witnesses to support their position regarding sentencing calculation.[104] Finally, the court will orally pronounce the sentence and memorialize it in a judgment.[105]

93 WCCO Staff, *supra* note 63.

94 *See Bock Indictment*, *supra* note 19, at 6, 32–35.

95 *Federal Sentencing: The Basics,* U.S. Sent'g Comm'n (last accessed Oct. 2, 2024), https://www.ussc.gov/guidelines/primers/federal-sentencing-basics.

96 *United States Sentencing Commission, Federal Register:* The Daily Journal of the United States Government (last accessed Nov. 20, 2022), https://www.federalregister.gov/agencies/united-states-sentencing-commission/.

97 *U.S. Sent'g Guidelines Manual*, § 2B1.1, n. 83 (U.S. Sent'g Comm'n 2021); S. Rep. No. 98-225, at 38 (1983), reprinted in 1984 U.S.C.C.A.N., 3182. The Senate Judiciary Committee's report (hereafter "Senate Report") is the primary legislative history of the SRA. *See* Mistretta v. United States, 488 U.S. 361, 366 (1989).

98 S. Rep. No. 98-225, at 38 (1983), reprinted in 1984 U.S.C.C.A.N., 3182.

99 Blistein, *supra* note 82.

100 *U.S. Sent'g Guidelines Manual*, Chapter 5, Pt. A (U.S. Sentencing Comm'n 2021).

101 *Federal Sentencing: The Basics* (last accessed Nov. 13, 2022), https://www.ussc.gov/sites/default/files/pdf/research-and-publications/research-projects-and-surveys/miscellaneous/201510_fed-sentencing-basics.pdf.

102 *Id.*

103 *Id.*

104 *Id.*

105 *Id.*

V. Analysis of the Counts Against Bock

Conspiracy to Commit Wire Fraud & Conspiracy to Commit Federal Programs Bribery

Likelihood of Success

For concision, this Article analyzes both conspiracy counts in the same section. The general conspiracy statute applies when "two or more persons conspire either to commit any offense against the United States, or to defraud the United States, or any agency thereof in any manner or for any purpose."[106] Under the 2023 Eighth Circuit Model Jury Instructions, conspiracy has four primary elements:

> (1) two [or more] people reached an agreement to commit the crime[s] of… ; (2) the defendant voluntarily and intentionally joined in the agreement, either at the time it was first reached or some later time while it was still in effect; (3) at the time the defendant joined in the agreement, the defendant knew the purpose of the agreement; and (4) while the agreement was in effect, a person or persons who had joined in the agreement knowingly did one or more acts for the purpose of carrying out or carrying forward the agreement. [107]

The first element will be met if the Government can prove beyond a reasonable doubt that Bock and another individual acted with the purpose to commit mail fraud or federal programs bribery. For the conspiracy to commit wire fraud count, the government alleges the object and purpose of the conspiracy was "to carry out a fraudulent scheme to obtain tens of millions of dollars in Federal Child Nutrition Program funds by submitting fraudulent claims that they were serving meals to thousands of children a day."[108] For conspiracy to commit federal programs bribery, the indictment alleges that the object and purpose of the conspiracy was for the "individuals and entities participating in the fraudulent scheme to obtain Federal Child Nutrition Program funds to pay bribes and kickbacks to Feeding Our Future Employees in exchange for Feeding Our Future's sponsorship of their participation in the Federal Child Nutrition Program."[109] There was allegedly an agreement between Bock, Feeding Our Future employees, and site operators to engage in this fraudulent scheme as all parties played an active and voluntary role in the scheme.[110] Bock allegedly sponsored these sites as well as provided fraudulent documentation to submit to the federal government and received kickbacks in return.[111] For this element, the Jury Instructions state that it is permissible to consider the "acts and statements of each person

106 *See* 18 U.S.C. § 371.

107 *Manual of Model Jury Instructions for the District Courts of the Eighth Circuit* at 130 (2023), https://juryinstructions.ca8.uscourts.gov/instructions/criminal/Criminal-Jury-Instructions.pdf [hereinafter *Eighth Circuit Model Jury Instructions*].

108 *Bock Indictment*, *supra* note 19, at 7.

109 *Id.* at 36.

110 *Id.*

111 *Id.*

alleged to be part of the agreement."[112] Bock and her employees allegedly worked together to recruit individuals and entities to participate in the fraud[113] and solicit and receive bribes and kickbacks from site operators they sponsored in a "pay-to-play scheme."[114] Bock was allegedly acting in concert upon an agreement with her employees and site operators to continue the fraud.[115]

For element three of the conspiracy counts, to show that the defendant knew the purpose of the agreement at the time they joined in the agreement, the jury instructions state that "a person knows the purpose of the agreement if she is aware of the agreement and does not participate in it through ignorance, mistake, carelessness, negligence or accident."[116] Although it is impossible to get into Bock's mind, reasonable conclusions can be drawn from facts alleged in the indictment. Bock allegedly solicited individuals to start sites under Feeding Our Future's watchful eye.[117] Bock reportedly engaged in email exchanges assisting these site operators with their fraudulent applications to get started.[118] She allegedly provided site instructors with fraudulent attendance rosters and invoices, actively submitted or instructed her Feeding Our Future employees to submit the false documentation to the federal government,[119] and reportedly willingly accepted kickbacks and bribes from the site operators just to continue the scheme.[120] Through the combination of all of her alleged actions, it seems that Bock may have known the purpose of the agreement.

Finally, element four of the crime of conspiracy can be proven by a showing that "one of the persons who joined the agreement took some act for the purpose of carrying out or forward the agreement."[121] For this element, the defendant does not personally have to commit an act in furtherance of the agreement because "conspiracy is a kind of 'partnership' so that under the law each member is an agent or partner of every other member and each member is bound by or responsible for the acts of every other member done to further their scheme."[122] Not only can Bock's individual acts be assessed for this element, all other members' of the conspiracies alleged acts can be analyzed as well. Bock, Feeding Our Future employees, and site operators all allegedly worked together to further this scheme. Bock directly corresponded via email to assist site operators in the federal application process,[123] and allegedly directly accepted bribes and kickbacks from these site operators in the form of federal funds for her assistance in helping them keep the scheme up.[124] The indictment alleges many other overt acts by her co-conspirators primarily including email

112 *Eighth Circuit Model Jury Instructions*, *supra* note 97.
113 *Bock Indictment*, *supra* note 19, at 4, 7, 9.
114 *Id.* at 9.
115 *Id.*
116 *Eighth Circuit Jury Instructions*, *supra* note 97, at 132.
117 *Bock Indictment*, *supra* note 19, at 7, 31.
118 *Id.* at 33.
119 *Id.* at 4, 8, 34.
120 *Id.* at 9.
121 *Eighth Circuit Model Jury Instructions*, *supra* note 97, at 132.
122 *Id.* at 133.
123 *Bock Indictment*, *supra* note 19, at 33.
124 *Id.* at 9.

correspondence and acceptance of various check amounts that further go to the burden of proof required for culpability on the two conspiracy counts.

Under the Eighth Circuit Jury Instructions, element two of the conspiracy standard, whether the accused joined the agreement to commit the crime, will be met if it is proven that the accused "voluntarily and intentionally participat[ed] in the unlawful plan with the intent to further the crime."[125] Even though "it is not necessary for [the jury] to find that the defendant knew all the details of the unlawful plan" to find her guilty of conspiracy, the Government alleges that Bock was aware of all the details of the unlawful plan.[126] She is alleged to have concocted the scheme herself and merely recruited individuals to help her perpetrate it.[127] For the second element, the instructions provide that a jury "should consider the elements of the crime" to help determine whether the defendant agreed to commit it.[128] Based on the details in the indictment and the several other potential co-conspirators who have also been indicted surrounding Bock, it appears the State could have a strong case against Bock.

The Eighth Circuit Jury Instructions provide that wire fraud includes four essential elements:

> (1) that the defendant voluntarily and intentionally devised or made up a scheme to defraud another out of… money… by means of material false representations or promises; (2) that the defendant did so with the intent to defraud; (3) the defendant used or caused to be used, an interstate wire communication, in furtherance of, or in an attempt to carry out, some essential step in the scheme; (4) that the scheme affected a financial institution.[129]

The State alleges Bock acted intentionally and willingly to commit this crime as she corresponded with site entities via email in order to help them with applications to set up a fraudulent site.[130] By allegedly corresponding with new site entities via email, it would be reasonably foreseeable for those individuals to also use email to respond back. The purpose of these interstate wire transfers based on the allegations was to defraud the federal program out of money.[131]

Under the Eighth Circuit Jury Instructions, federal programs bribery has four major elements:

> (1) defendant was an agent of an organization; (2) defendant corruptly embezzles, steals, or obtains by fraud something of value of $5,000 or more; (3) defendant corruptly gave,

[125] *Eighth Circuit Jury Instructions*, *supra* note 97, at 131.
[126] *Id.*
[127] *Bock Indictment*, *supra* note 19, at 9.
[128] *Id.*
[129] *Eighth Circuit Jury Instructions*, *supra* note 97, at 128.
[130] *Bock Indictment*, *supra* note 19, at 9.
[131] *Id.* at 1, 6–7.

> offered, or agreed to give anything of value to any person, with the intent to influence or reward an agent of an organization in connection with any business, transaction or series of transactions of that organization involving anything of value of $5,000 or more (4) the organization received benefits in excess of $10,000 in a one-year period pursuant to a federal program.[132]

Here, there were explicit overt acts that Bock allegedly engaged in showing her intentional willingness to further the crime, including directly accepting a check from a fraudulent entity in order to start their site in excess of $300,000.[133] It appears element two could be met as well as Bock allegedly voluntarily and intentionally joined the agreement both to commit wire fraud and federal programs bribery. As such, Bock could be convicted of both counts.

Sentencing Considerations

As the four elements of conspiracy to commit wire fraud and conspiracy to commit federal programs bribery could be proven, I will next discuss the sentencing calculation using the Federal Sentencing Guidelines for both count 1 and count 15.

The conspiracy to commit wire fraud count and conspiracy to commit federal programs bribery counts will likely be analyzed under § 2X1.1 Conspiracies, Attempts, and Solicitations of the Federal Sentencing Guidelines.[134] The base level offense for conspiracy is the same as the offense level from the substantive offense.[135] For wire fraud, § 2B1.1 provides a base level offense of 7.[136] For federal programs bribery, § 2C1.1 provides the necessary base offense level.[137] Because Bock is not a public official, the base offense level for federal programs bribery is 12. Under § 2X1.1(b) "Specific Offense Characteristics," Bock could get a 3-level decrease because she was charged with conspiracy, unless she or "a co-conspirator completed all the acts the conspirators believed necessary on their part for the successful completion of the substantive offense."[138] Based on the indictment, it seems as though Bock and her co-conspirators allegedly completed all the acts they believed necessary on their part for the successful completion of both wire fraud and federal programs bribery.[139] Even if it is found that the completion of the substantive alleged offenses (wire fraud and federal programs bribery) were interrupted or prevented by intercession of law enforcement authorities, it is likely that "no reduction of the offense level is warranted."[140] In Bock's circumstance, it appears she and her co-conspirators likely completed the necessary acts for the alleged underlying offense, however, even if it is

[132] *Eighth Circuit Jury Instructions, supra* note 97, at 240.
[133] *Bock Indictment*, *supra* note 19, at 40.
[134] *U.S. Sent'g Guidelines Manual*, § 2X1.1 (U.S. Sent'g Comm'n 2021).
[135] *Id.* § 2X1.1.
[136] *Id.* § 2B1.1.
[137] *Id.* § 2C1.1.
[138] *Id.*
[139] *See generally Bock Indictment*, *supra* note 19.
[140] *U.S. Sent'g Guidelines Manual*, § 2C1.1 (U.S. Sent'g Comm'n 2021).

found that she did not because she was caught by law enforcement, she still would likely not be entitled to the reduction. Because of this, Bock is likely not entitled to a 3-level decrease and would likely remain at a level 7 for her conspiracy to commit wire fraud count and a 12 for her conspiracy to commit federal programs bribery count.

Wire Fraud

Likelihood of Success

As mentioned above, the Eighth Circuit Jury Instructions provide that wire fraud includes four essential elements:

> (1) that the defendant voluntarily and intentionally devised or made up a scheme to defraud another out of money by means of material false representations or promises; (2) that the defendant did so with the intent to defraud; (3) that the defendant used or caused to be used an interstate carrier in furtherance of, or in an attempt to carry out, some essential step in the scheme; (4) that the scheme affected a financial institution.[141]

From the facts alleged in the indictment, it seems as though the four elements could be met, and it is possible that Bock could be convicted of all four counts of wire fraud.[142]

Regarding the first element, Bock allegedly voluntarily and intentionally made up a scheme to defraud the federal government of federal funds.[143] The Jury Instructions state that a "scheme to defraud includes any plan or course of action intended to deceive or cheat another out of money… by means of material false representations."[144] Bock's alleged "scheme to defraud" was her plan to deceive the federal program of funds through submitting materially false documentation in the form of site sponsorship applications, invoices, and attendance rosters.[145] Normally, a false representation is material "if it has a natural tendency to influence, or is capable of influencing, a decision of a reasonable person."[146] In this situation, Bock's alleged false representations were material as it was upon the basis of this reportedly fraudulent documentation that Feeding Our Future's sponsored sites continued to be approved to receive federal funds from the government.[147] The falsehoods in Bock's documents were allegedly intended to mislead administrators of the federal program and influence them to decide in Bock's favor. It appears element one of wire fraud is likely met.

For the second element, Bock allegedly acted with the intent to defraud. The Jury Instructions determine that acting with an intent to defraud normally means that a defendant

141 *Eighth Circuit Jury Instructions, supra* note 97, at 385.
142 *See generally Bock Indictment*, *supra* note 19.
143 *Id.*
144 *Eighth Circuit Jury Instructions, supra* note 97, at 152.
145 *Id.; Bock Indictment*, *supra* note 19, at 33–34, 40–42.
146 *Eighth Circuit Jury Instructions, supra* note 97, at 152.
147 *Bock Indictment*, *supra* note 19, at 8.

is acting "knowingly and with the intent to deceive someone for the purpose of causing some financial loss to another or bringing about some financial gain to oneself or another to the detriment of a third party."[148] Bock's alleged submission of fraudulent documentation to the MDE is likely to be evidence of her knowledge and intent to deceive. Bock allegedly knew that her scheme would bring about financial loss to the program to the detriment of many children in Minnesota who rely on the federal program for meals.[149] It appears Bock allegedly acted with an intent to defraud as she submitted fraudulent documentation in order to effectuate her scheme.

Element three of wire fraud requires that the defendant's scheme results in the use of an interstate wire. Under the Jury Instructions, for this element to be met, "it is sufficient if an interstate carrier was in fact used to carry out the scheme and the use of the interstate carrier by someone was reasonably foreseeable."[150] Bock used email as a method of communication between herself, her employees, and new site operators.[151] Under the mail fraud model Jury Instructions, "each separate use of the interstate carrier in furtherance of the scheme to defraud constitutes a separate offense."[152] Bock's indictment lists four separate alleged wire uses and charges her with four counts associated with those uses.[153] Three of the emails are from Bock to MDE regarding opening new sites sponsored by Feeding Our Future.[154] The final email was one that Bock sent to a site operator regarding starting their allegedly fraudulent business, providing them with fraudulent meal counts and a fake roster. Each email listed could constitute a separate wire fraud charge as they furthered the scheme, and the use of the interstate carrier was reasonably foreseeable.[155]

The fourth element of wire fraud is that the scheme affected a financial institution.[156] Under the Guidelines, a financial institution includes "associations that provide pension, disability, or other benefits to large numbers of persons."[157] This element is likely met as Bock's scheme allegedly defrauded the Child Nutrition program out of 240 million dollars.[158] If proven, the substantial amount of federal funds, that Bock was allegedly able to defraud the federal program out of likely affected that financial institution. It appears the fourth element is likely met, and Bock could be found guilty of the four counts of wire fraud that she is charged with if the prosecution is able to prove the facts alleged in the indictment.

Sentencing Considerations

Wire fraud is governed by § 2B1.1 of the Federal Sentencing Guidelines.[159] The base offense level here is 7. Regarding specific offense characteristics, Bock would likely receive a 26-level increase as Feeding Our Future received and disbursed more than 240

148 *Eighth Circuit Jury Instructions, supra* note 97, at 153.
149 *Bock Indictment*, *supra* note 19, at 8.
150 *Eighth Circuit Jury Instructions*, *supra* note 97, at 153–54.
151 *See generally Bock Indictment*, *supra* note 19.
152 *Eighth Circuit Jury Instructions*, *supra* note 97, at 378.
153 *Bock Indictment*, *supra* note 19, at 33–35.
154 *Id.*
155 *Id.*
156 *Id.*
157 *U.S. Sent'g Guidelines Manual*, § 2B1.1 (U.S. Sent'g Comm'n 2021).
158 *DOJ Press Release*, *supra* note 1.
159 *U.S. Sent'g Guidelines Manual*, § 2C1.1 (U.S. Sent'g Comm'n 2021).

million dollars in federal funds.[160] Bock would likely receive another 2-level increase as her alleged offense involved a misrepresentation that she was acting on behalf of a charitable, educational, religious, or political organization, or a government agency,[161] and Bock used a charitable non-profit organization to commit the alleged fraud.[162] Bock likely could receive another 2-level increase as she allegedly derived more than one million dollars in gross receipts from one or more financial institutions because of the offense,[163] as she allegedly derived more than 240 million dollars in gross receipts from the federal government in her fraud.[164] Given the above, it is likely that each of Bock's alleged mail fraud counts would be valued at level 37, placing her in the category level prompting a likely lengthy prison sentence.

Federal Programs Bribery

Likelihood of Success

The Eighth Circuit Jury Instructions provide that federal programs bribery has four major elements:

> (1) defendant was an agent of an organization; (2) defendant corruptly embezzles, steals, or obtains by fraud something of value of $5,000 or more; (3) defendant corruptly gave, offered, or agreed to give anything of value to any person, with the intent to influence or reward an agent of an organization in connection with any business, transaction or series of transactions of that organization involving anything of value of $5,000 or more (4) the organization received benefits in excess of $10,000 in a one-year period pursuant to a federal program.[165]

The elements of federal programs bribery seem to be met in Bock's case. The Jury Instructions assert that an agent is "a person authorized to act on behalf of the organization."[166] Bock seems to fit this description as she was the founder and executive director of the organization.[167] Regarding the second element, Bock allegedly obtained through fraud much more than five-thousand dollars during her scheme. For the third element, Bock allegedly received bribes and kickbacks from site operators in excess of five-thousand dollars in order to allow them to continue to be part of her fraud.[168] Regarding the fourth and final element, Bock allegedly received benefits well in excess of ten-thousand dollars

[160] *Id.*; *Bock Indictment*, *supra* note 19, at 9.
[161] *Id.* at 4.
[162] *Id.*
[163] *Id.* at *9.*
[164] *Id.*
[165] *Theft or Bribery Concerning Programs Receiving Federal Funds,* LEGAL INFO. INST. (last accessed Dec. 5, 2022), https://www.law.cornell.edu/uscode/text/18/666.
[166] *Eighth Circuit Jury Instructions, supra* note 97*,* at 233.
[167] *Id.*
[168] *Id.*

from the federal program.[169] It seems as though there is strong facts in support of the federal programs bribery count against Bock.

Sentencing Considerations

As noted above, federal programs bribery is assessed using Section 2C1.1 of the Federal Sentencing Guidelines.[170] The base level offense is 12.[171] Regarding the "Specific Offense Characteristics," Bock was only charged with one bribe so she would likely not receive the 2-level increase.[172] There are no facts to support that Bock undertook any actions with public officials so she will likely not get any special offense characteristic increases. In all, her alleged federal programs bribery offense likely will not have any enhancements and will stay at the base level: 12.[173]

Adjustments

The next step in calculating Bock's potential sentence is determining if any adjustments should be made using Chapter Three of the Federal Sentencing Guidelines.[174]

Regarding victim adjustments, Bock could get a four-level increase as she allegedly knew or should have known that the victims of the offenses were vulnerable victims, and the offense involved a large number of vulnerable victims.[175] A vulnerable victim is defined by the Guidelines to be "a person (A) who is a victim of the offense of conviction and (B) who is usually vulnerable due to age, physical or mental condition, or who is otherwise particularly susceptible to the criminal conduct."[176] Under this definition, the children that were not able to take advantage of the federal program in Minnesota because of Bock's purported scheme would likely be considered vulnerable victims. Bock likely could get an upward adjustment based on her alleged role in the offense as well.[177] Because Bock was allegedly an organizer or leader of a criminal activity that involved five or more participants, she could get a four-level increase.[178] As Bock does not have a criminal history, there will be no points assessed to her pre-sentence report in that regard.[179]

Sentencing Table

Because of the adjustments, Bock could receive an eight-level increase to each of her counts.[180] For the alleged conspiracy to commit wire fraud and conspiracy to commit federal programs bribery, Bock could be at the base level offense plus eight levels. This

169 *Id.*
170 *U.S. Sent'g Guidelines Manual*, § 2C1.1 (U.S. Sent'g Comm'n 2021).
171 *Id.*
172 *U.S. Sent'g Guidelines Manual*, § 2C1.1 (U.S. Sent'g Comm'n 2021).
173 *Id.* § 2B1.1.
174 *Id.* § 1B1.
175 *Id.* § 2B1.1.
176 *Id.* § 2B1.1.
177 *Bock Indictment*, *supra* note 19, at 4.
178 Id.
179 *U.S. Sent'g Guidelines Manual*, § 2B1.1 (U.S. Sent'g Comm'n 2021). *See* Meitrodt & Smith, *supra* note 68 (detailing that prior to this indictment, Aimee Marie Bock's record contained no more than a speeding ticket).
180 *U.S. Sent'g Guidelines Manual*, § 2B1.1 (U.S. Sent'g Comm'n 2021).

results in her potentially being placed at level fifteen for the conspiracy to commit wire fraud count and level twenty-three for the conspiracy to commit federal programs bribery count.[181] Bock could rise to an offense level of forty-five for each of her four wire fraud counts. And finally, for Bock's alleged federal programs bribery count, she could be at an offense level as high as twenty.[182] Using the sentencing table, Bock could be in Zone D if she was convicted on all counts. [183] Her conspiracy to commit wire fraud count could yield eighteen to twenty-four months.[184] The conspiracy to commit federal programs bribery count could put her at the forty-six to fifty-seven month range. Her alleged wire fraud charges correspond to life on the sentencing guideline chart.[185] Finally, Bock's alleged federal programs bribery charge could result in a sentence of thirty-three to forty-one months.

VI. Conclusion

Aimee Marie Bock is currently charged with the largest pandemic relief fraud scheme to date.[186] Because of her background, she was very familiar with how the federal program operated and knew exactly how to take advantage of it for her own personal gain.[187] She began a nonprofit, Feeding Our Future, where she could systematically start her alleged scheme.[188] Bock started using Feeding Our Future to sponsor reportedly fraudulent sites where she continuously submitted false documentation on their behalf to the federal government in order to get federal funds,[189] and allegedly recruited numerous individuals from the Somali community in Minnesota to help her with the scheme [190] while pocketing hundreds of thousands of dollars in kickbacks from these site operators for her assistance.[191] In total, Bock allegedly defrauded the Child Nutrition Program out of 240 million dollars.[192] Bock is facing seven felony charges against her for this scheme, and if convicted, could face serious jail time.[193]

It took two years for federal authorities to catch Bock in her alleged scheme, which raises questions about how many other individuals were taking advantage of the lack of oversight and lax regulations of this federal program during COVID-19. Given the extent of Bock's alleged scheme, the federal government's oversight over these programs is paramount to prevent opportunities for other individuals to misappropriate funds.

Criminal law practitioners will likely see more cases like Bock's in the near future as "the Department of Justice has brought federal fraud-related charges against at least 2,191 individuals or entities in cases involving COVID-19 relief programs, consumer

181 *Id.* § 2B1.1.
182 *Id.*
183 *U.S. Sent'g Guidelines Manual*, Chapter 5, Pt. A (U.S. Sent'g Comm'n 2021).
184 *Id.*
185 *Id.*
186 *DOJ Press Release*, *supra* note 1.
187 Peters, *supra* note 51.
188 *Bock Indictment*, *supra* note 19, at 4.
189 *Id.* at 8. *See also, supra* note 67.
190 *Id.* at 7.
191 *Id.* at 12.
192 *Id.* at 9.
193 *Id*. at 33–34.

scams, and more," as of June of 2023.[194] Nearly half of these individuals were found guilty or liable, and "[c]ourts have ordered prison terms up to 10 years or more and restitution up to $60 million or more" for these individuals and entities.[195] The Fraud in Feeding Our Future trials, including Bock's, are excellent examples of how the COVID-19 pandemic resulted in an increase "in the number of fraud-related charges, including schemes by individuals and large complex syndicates" as well as how courts and juries are viewing these cases.[196] Looking closely at Bock's charges and the sentences of her co-conspirators appears illustrative of how courts will continue to apply the Federal Sentencing Guidelines to what seems to be a growing number of entities and individuals charged with and, in some cases, convicted of, defrauding the United States government.

[194] *COVID-19: Insights from Fraud Schemes and Federal Response Efforts,* U.S. GOV'T ACCOUNTABILITY OFF. (Nov. 14, 2023), https://www.gao.gov/products/gao-24-106353.
[195] *Id.*
[196] *Id.*


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JUROR CERTAINTY ABOUT FIREARM EVIDENCE: EXAMINATION EFFECTS

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Abstract

Firearms examiners can evaluate associations between suspect ammunition and ammunition test-fired by a suspect firearm by microscopically comparing tool-marks on both projectiles. This practice has been criticized, including by the National Academy of Sciences, yet firearms examiners routinely testify as experts in the United States. Jurors must determine the weight of expert evidence, which lawyers can aim to discredit on cross-examination or rehabilitate on redirect-examination. Using online vignettes, the authors investigated how both cross and redirect-examination affected potential U.S. jurors' certainty about expert firearms evidence. Participants (n=114) were asked to rate their certainty (on a scale of 0-100) about the validity of three expert statements – Very Certain *(an exact match)*, Certain *(a match to a reasonable degree of certainty)*, and Uncertain *(evidence is unsuitable for comparison)* – when assigned to one of three conditions. These conditions were a judicial instruction about weighing the evidence (control condition); a cross-examination referencing criticism of firearms evidence; and a redirect-examination (following the cross-examination) referencing the routine admission of firearms evidence. Analysis was undertaken both between groups and between the statements given to each group. Results suggest that experts conveying high certainty create higher certainty in jurors, cross-examination has a detrimental effect on this certainty, but redirect-examination does not reduce this detrimental effect.

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INTRODUCTION

Firearms identification is a specialized sub-set of the broader field of tool-mark identification.[1] It is premised on the idea that, when the hard metal of an internal part of a firearm connects with the softer metal of ammunition, it makes a tool-mark on the ammunition.[2] Tool-marks fall into three categories—class, sub-class and individual characteristics[3]—which firearms examiners compare to evaluate association, for example whether tool-marks present on ammunition found at a crime scene are the same as those present on ammunition test-fired from a suspect firearm.[4]

The Association of Firearms and Toolmark Examiners (AFTE), the leading professional organization in the field, has developed a *Theory of Identification*, which "provide[s] the conceptual basis for comparing toolmarks for the purpose of identifying them as having a common source."[5] Based on this theory, there are four categories of examination outcomes firearms examiners can use: 'identification,' 'inconclusive,' 'elimination,' and 'unsuitable for examination.'[6] An identification refers to there being a certain level of agreement regarding characteristics, suggesting the tool-marks were produced by the same tool.[7] An examiner can testify to these conclusions in legal proceedings, if they qualify as an expert witness[8] and a trial judge determines their testimony is admissible considering, typically, the factors outlined by the United States Supreme Court in *Daubert v. Merrell Dow Pharmaceuticals*.[9]

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1 John H. Dillon Jr., *Firearms Examiner Training Module 13: Toolmark Identification* (July 13, 2023), https://nij.ojp.gov/nij-hosted-online-training-courses/firearms-examiner-training/module-13.

2 Adina Schwartz, *Challenging Firearms and Toolmark Identification—Part One*, 32 THE CHAMPION 10, 12 (Oct. 2008).

3 *Id.* at 12. With reference to Schwartz, the authors have summarized this previously. Dr. Sarah L. Cooper & Dr. Páraic Scanlon, *Juror Assessment of Certainty About Firearms Identification Evidence*, 40 U. ARK. LITTLE ROCK L. REV. 95, 97-98 (2017) ("Class characteristics result from design factors and are determined prior to manufacture, which means they are 'distinctively designed features' and will be present on every tool in that class. By contrast, individual characteristics are unique to a particular tool and consist of purportedly random, microscopic imperfections and irregularities present on the tool's surface. Subclass characteristics straddle the line between class and individual characteristics. Subclass characteristics arise when manufacturing processes create batches of tools that are similar to each other but distinct from other tools of the same class.").

4 *See* NAT'L RSCH. COUNCIL OF THE NAT'L ACADS., STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD 152–53 (Nat'l Academies Press 2009), https://nap.nationalacademies.org/catalog/12589/strengthening-forensic-science-in-the-united-states-a-path-forward [hereinafter STRENGTHENING],

5 *Firearms Examiner Training: AFTE Range of Conclusions*, NAT'L INST. OF JUST. (July 12, 2023), https://nij.ojp.gov/nij-hosted-online-training-courses/firearms-examiner-training/module-13/afte-range-conclusions#identification.

6 *Id.*

7 *Id.*

8 *See generally* FED. R. EVID. 702 (An expert must have knowledge, skill, experience, training, or education and able to demonstrate to the court their expertise will more likely than not help the factfinder understand the evidence or determine a fact at issue, and that their opinion is based on sufficient facts and data, and reliable principles and methods, which have been reliably applied).

9 *Daubert v. Merrell Dow Pharms*., 509 U.S. 579, 593–94 (1993). *Daubert* set out factors for trial judges to consider when determining admissibility, namely whether the relevant method: can or has been tested; has a known or potential error rate; has been subject to peer review; has standards controlling its operation; and is generally accepted within the relevant community. Currently, *Daubert* generally governs the admissibility of scientific expert evidence. See Alice B. Lustre, Annotation, *Post-Daubert Standards for Admissibility of Scientific and Other Expert Evidence in State Courts*, 90 A.L.R. 5th 453 (2001) (listing the states that follow *Daubert*).

Firearms evidence has been subject to criticism. Critiques have included concerns about the validity of claims that tool-marks made by firearms are unique and reproducible,[10] the lack of a precisely defined process for analysis,[11] and that the scientific knowledge base for analysis is limited.[12] Concerns are not, however, shared equally across all stakeholders,[13] and investment in research has yielded results that mean the discipline can now report stronger claims in terms of validity.[14] Nonetheless, uncertainty remains. Over the last 20 years, several U.S. courts have addressed this criticism by restricting expert testimony, including preventing experts from testifying there is a match "to the exclusion of every other firearm in the world," and only permitting testimony like, for example, a match can be concluded "more likely than not" or "to a reasonable degree of certainty."[15]

At trial, jurors must determine the weight of expert testimony. Cooper and Scanlon have investigated juror certainty of association when presented with various statements by a qualified firearms examiner in a trial setting.[16] On presenting potential jurors with 12 different expert statements, their first study (n=107), found a significant main effect for certainty, with increased participant certainty generally resulting from increased expert certainty.[17] Their second study (n=437) provided potential jurors with more context about the considered limitations of firearms evidence, incorporated through cross-examination.[18] They found cross-examination can have a strong influence on juror decision-making, particularly when experts express their conclusions in certain terms.[19] They concluded that more research "on the sequence of interaction between lawyer and witness"[20] would be valuable, noting a "natural next step in the sequence …would be for the opposing lawyer to 'rehabilitate' a witness."[21]

This article presents the authors' third study, which investigated the effect of redirect-examination on juror certainty. To set the legal context for the study, Part I outlines criticism

[10] Paraic Scanlon, et al., *Juror Certainty about Expert Firearms Identification Evidence and the Impact of Cross-Examination*, 31 S. CAL. INTERDISC. L.J. 92 (2022) (citing NAT'L RSCH COUNCIL OF THE NAT'L ACADS., BALLISTIC IMAGING 3 (Daniel L. Cork et al. eds., Nat'l Academies Press 2008), https://nap.nationalacademies.org/catalog/12162/ballistic-imaging).

[11] *Id.*

[12] *Id.*

[13] *Id.* at 92–93 (citing Cooper & Scanlon, *supra* note 3, at 100–01). *See generally* David L. Faigman, et al., MOD. SCI. EVIDENCE: L. AND SCI. EXPERT TESTIMONY § 34:10, 11 (West 2023-2024 ed.);

[14] *See* Innocence Project, *Ten Years Later: The Lasting Impact of the 2009 NAS Report*, INNOCENCE PROJECT, https://innocenceproject.org/lasting-impact-of-2009-nas-report/ [hereinafter *Ten Years Later*] (saying that investment in research has led to evidence showing 'improved levels of validity', with firearm comparisons taking strong steps toward achieving foundational validity status).

[15] *See* Cooper & Scanlon, *supra* note 3, at 96, 108 (summarizing numerous court responses between 2005 and 2012); *see also* Scanlon, et al., *supra* note 10, at n.11 (referencing caselaw taking similar approaches post-2020); see also Commonwealth v. Escobar, 229 N.E.3d 579, 601 (Mass. 2024) (holding from 2024 where the Supreme Judicial Court of Massachusetts discusses expert phrases "to a reasonable degree of ballistic certainty" and "reasonable degree of scientific certainty").

[16] Cooper & Scanlon, *supra* note 3, at 95, 117.

[17] *Id.* at 96.

[18] *See* Scanlon, et al., *supra* note 10, at 91.

[19] *Id.* at 103

[20] *Id.* at 105.

[21] *Id.*

of firearms evidence in the new millennium and summarizes how courts have addressed concerns about reliability by curtailing expert testimony, but also relying on staples of the U.S.' common law adversarial justice system, namely precedent, cross-examination, and juror-decision-making to reconcile concerns in favor of admissibility. Part II describes the authors' study design, analysis, and results, which suggests that experts conveying high certainty create higher certainty in jurors, but cross-examination has a detrimental effect on this certainty and redirect-examination does not reduce this detrimental effect. Part III reflects on these results in the context of previous studies, the 'tool' of redirect-examination, and science education and training for lawyers. The authors conclude *inter alia* that layering existing quantitative research with qualitative data capturing the lived experience of jurors and lawyers would yield a richer understanding of this critical courtroom dynamic.

PART I – FIREARMS EVIDENCE: CRITICISM AND COURT RESPONSES

Firearms evidence has been admitted in U.S. courts for over one hundred years,[22] with Garrett, et al. summarizing its treatment as follows:

> [J]udges' initial skepticism of the new methodology quickly transformed into near-universal acceptance, largely because confident experts displayed dazzling new technology, terminology, and techniques. But after decades of rote acceptance of the assumptions underlying firearms comparison evidence, judicial engagement and skepticism in the technique have surged. Of the judicial rulings discussing this kind of evidence that we reviewed for our comprehensive online database, more than half were penned after 2010.[23]

The increase in judicial scrutiny parallels widely publicized concerns about the reliability of firearms evidence in national reports. The National Academy of Sciences (NAS) has twice reported on the reliability of firearms evidence, starting with Ballistic Imaging in 2008, a report commissioned by the National Institute of Justice to assess the potential benefits of creating a computerized national ballistics database for aiding criminal investigations.[24] For that report, the NAS carried out a reliability review of the AFTE technique, finding that "the validity of the fundamental assumptions of uniqueness and reproducibility of firearms-related toolmarks has not yet been fully demonstrated."[25] In 2009, the NAS published *Strengthening Forensic Science in the United States: A Path Forward (Strengthening)*, a report commissioned by the United States Congress to chart an agenda for progress across the field of forensic science.[26] The report concluded that

[22] *See* Brandon L. Garrett, et. al., *Judging Firearms Evidence and the Rule 702 Amendments,* 107 JUDICATURE 40, 43–44 (2023) (discussing reported cases involving firearms comparison dating back to the 1870s).
[23] *Id.* at 41.
[24] *See* NAT'L RSCH COUNCIL, BALLISTIC IMAGING 1-2 (Daniel L. Cork et al. eds., Nat'l Academies Press 2008).
[25] *Id.* at 81.
[26] *See* STRENGTHENING, *supra* note 4, at xix.

"not enough is known about the variabilities among individual tools and guns,"[27] which limited the probative value of such evidence in court.[28] The findings from *Strengthening* led President Obama to commission the President's Council of Advisors on Science and Technology (PCAST) to report on whether further steps could be taken to "help ensure the validity of forensic evidence used in the Nation's legal system."[29] The group concluded "firearms analysis currently falls short of the criteria for foundational validity…"[30]

Progress has been made towards achieving foundational reliability in the firearms field.[31] Several studies continue to yield deeper understanding,[32] and the National Institute of Justice has invested heavily in research,[33] including funding *The Science Behind Firearm and Tool-mark Examination*[34] *and operationalizing a Forensic Science Strategic Research Plan*, which includes investment in "research to assess the fundamental scientific basis of forensic analysis."[35] Despite this, there remains uncertainty about the reliability of firearms evidence, mostly surrounding conclusions conveying individualization, due to the subjective nature of interpreting comparisons.[36]

Lawyers have brought this uncertainty to the courts, including reference to the NAS and PCAST reports.[37] A review of appellate cases shows that at least 159 decisions have cited at least one of these three reports in relation to firearms or toolmark evidence, between 2008 (the publication of *Ballistic Imaging*) and 2023.[38] Lawyers have argued, for example,

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27 *Id,* at 154.

28 *Id.* at 154–55.

29 PRESIDENT'S COUNCIL OF ADVISORS ON SCI. AND TECH., *Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods*, at x (2016) [hereinafter PCAST REPORT].

30 *Id.* at 112.

31 *Ten Years Later*, *supra* note 14.

32 Colonel (Ret.) Jim Agar, *The Admissibility of Firearms and Toolmarks Expert Testimony in the Shadow of PCAST,* 74 BAYLOR L. REV. 93, 119–126 (2022) (describing several studies between 2009 and 2016).

33 *Ten Years Later*, *supra* note 14 ("Over the past ten years, the National Institute of Justice has spent more than $123 million on grants to address the research needs outlined in the NAS report, including improving accuracy and reliability of methods and quantifying measures of uncertainty.").

34 Nancy Ritter, *The Science Behind Firearm and Tool Mark Examination*, 274 NAT'L INST. JUST. J. 20 (2014).

35 *See* NAT'L INST. OF JUST., *Forensic Science Strategic Research Plan*, 2022-2026 (2022), https://nij.ojp.gov/topics/articles/forensic-sciences-strategic-research-plan-2022-2026#strategic-priority-ii-support-foundational-research-in-forensic.

36 *See* Dillon Jr., *supra* note 1 ("Currently the interpretation of individualization/identification is subjective in nature, founded on scientific principles and based on the examiner's training and experience."). *See also* Tanyarara Mustavi & Lirieka Meintjes van der Walt, *Ensuring the Reliability of Fire-Arm Identification Evidence*, 23 POTCHEFSTROOM ELEC. L.J. 1, 17–18 (2020).

37 Amelia Shooter, *100 Years of the National Research Council: A Critical Examination of Judicial References to Forensic Science NAS Reports* (Nov. 2019).

38 The case law data is on file with the authors (data correct as of 4 April 2024). *See* Sarah L. Cooper & Amelia Shooter, *A Case for Conceptualizing Science Literacy for Lawyers*, 13 AM. U. CRIM. L. PRAC. 5 (2022) [hereinafter *A Case for Conceptualizing Science Literacy*] (providing an explanation which we then widened to account for the adjusted time period and the inclusion of STRENGTHENING, BALLISTIC IMAGING AND PCAST REPORT); *see also Garrett v. Commonwealth*, 534 S.W.3d 217, 217 (Ky. 2017); *State v. Harper*, 821 N.W.2d 412, 414 (Wis. Ct. App. 2012); *State v. Celaya*, No 2. CA-CR 2013-0554-PR, 2014 WL 4244049, at *5–6 (Ariz. Ct. App., Aug. 27, 2014).

the reports represent new evidence[39] and render proffered firearms evidence inadmissible.[40] Courts, however, have generally been reluctant to find firearms evidence inadmissible,[41] although "long-entrenched judicial acceptance has eroded."[42] This is evident by some courts restricting the degree of certainty that experts may express in their conclusions.[43] For instance, by requiring that phrases like "there is an exact match"[44] be replaced with phrases such as a match can be made "more likely than not"[45] or "to a reasonable degree of certainty."[46] A few courts have barred certainty-based conclusions entirely.[47] Nonetheless, an "overwhelming acceptance" of firearm identification remains.[48]

An analysis of case law suggests that U.S. courts rely on three staples of the common law adversarial legal system to help resolve the relevant uncertainty.[49] First, courts consistently refer to *precedent*, finding the longstanding admissibility of firearms evidence as a reason to uphold admissibility decisions.[50] A recent example is *Welsh v. Commonwealth*, where the court considered that "the [Virginia] Supreme Court has long recognized firearm and ballistics testing as a reliable method used by expert witnesses to explain how a particular firearm can leave individualized markings on discarded ammunition shell casings."[51] This overriding principle has led many courts to dismiss petitioners' admissibility challenges, with the absence of authority to the contrary hampering lower courts to find otherwise.[52] Several courts have explicitly referred to precedent from specific cases, such as the court's

[39] *See, e.g.*, *United States v. Nascimento*, No. CRIM.A. 03-10329-PBS, 2009 WL 3297273, at *2 (D. Mass. Oct. 9, 2009) (regarding BALLISTICS IMAGING); *In re Pers. Restraint of Trapp*, 165 Wash. App. 1003, 1004–05 (2011) (regarding STRENGTHENING).

[40] *See, e.g.*, *United States v. Richardson*, No. 19-20076-JAR, 2024 WL 961228, at *4 (D. Kan. Mar. 6, 2024) (discussing STRENGTHENING AND PCAST REPORT in the context of an admissibility challenge).

[41] *See generally* Sarah L. Cooper, *Judicial Responses to Challenges to Firearms-Identification Evidence: A Need for New Judicial Perspectives on Finality*, 31 T.M. COOLEY L. REV. 457 (2014) [hereinafter *Judicial Responses*]

[42] Garrett, et al., *supra* note 22, at 47.

[43] Note some commentators have expressed concerns this practice substitutes expert opinion with judicial opinion. Agar, *supra* note 32, at 179 ("Unfortunately, the limitations imposed by the courts in recent firearms expert identification cases seek to do far more. They edit or make substantive and material changes to the expert's testimony, fundamentally altering or deleting the expert's opinion and substituting the judge's opinion instead").

[44] Although note such phrasing has been permitted. Cooper & Scanlon, *supra* note 3, at 103–104 ("Some courts have continued to allow testimony that conveys absolute conclusions.").

[45] *United States v. Glynn*, 578 F.Supp.2d 567, 575 (S.D.N.Y. 2008).

[46] *United States v. Diaz*, No. CR 05-00167 WHA, 2007 WL 485967, at *13 (N.D. Ca. Feb. 12, 2007).

[47] Garrett, et al., *supra* note 22, at 47 (citing *People v. Winfield*, No. 15-CR-1406601, at 32-34 (Cir. Ct. Cook Cnty. Ill. Feb. 8, 2023)).

[48] *Id.*

[49] *A Case for Conceptualizing Science Literacy for Lawyers*, *supra* note 38.

[50] Fidelity to precedent is an indicator of courts realizing the 'legal process vision.' *See* Amelia Shooter, *supra* note 37. An early example of firearms being admitted into evidence is *People v. Ellis*, 206 P. 753, 758 (Cal. 1922).

[51] *Welsh v. Commonwealth*, 890 S.E.2d 845, 852–54 (Va. App. 2023).

[52] *See, e.g.*, *Curry v. Haynes*, No. 3:22-CV-5493-LK-DWC, 2023 WL 3902314 at *13, (W.D. Wash. May 11, 2023) (noting "courts around the country have 'universally held that toolmark analysis is generally accepted.'"); *People v. Melcher*, No. A125507, 2011 WL 4432935 at *12 (Cal. Ct. App. Sept. 23, 2011); *People v. Rodriguez*, 2017 Il App (1st) 141379 ¶ 52; *Jones v. U.S.*, 27 A.3d 1130, 1137 (D.C. 2011).

reference to the application of Daubert admissibility factors in *Garrett v. Commonwealth*,[53] *United States v. Otero*,[54] and *Ficklin v. Commonwealth*.[55]

Precedent is the law's way of tying everything to the past – a practice that can be at odds with scientific progression.[56] Notably in *Strengthening*, the NAS acknowledged the role of precedent in this context,[57] and described current approaches as "seriously wanting."[58] Furthermore, the PCAST Report said more is to be understood about scientific criteria for validity, if "firearms analysis is [to be] allowed in court."[59] Both reports, however, made it clear admissibility was the province of the courts.[60]

Second, courts defer to *cross-examination* at trial, affirming that "[v]igorous cross-examination [and] presentation of contrary evidence… are the traditional and appropriate means of attacking shaky but admissible evidence."[61] A defining practice of the U.S. adversarial system,[62] cross-examination follows direct examination, which involves the lawyer proffering expert evidence presenting the narrative of that evidence, for example "they will design questions to elicit an expert's qualifications, experience, methods, and findings (for example, how a firearms examiner made their comparison between suspect and test-fired ammunition)."[63] Cross-examination is an opportunity for the opposing lawyer to challenge that evidence through asking questions that "highlight limitations in an opposing expert's methods and findings."[64] This questioning could involve limitations associated with firearms evidence as reported by the NAS and PCAST, for instance. Ground covered in cross-examination, however, can be re-examined by the proffering lawyer on redirect-examination.[65] Keeping with the examples just given, a proffering lawyer wanting to reassert the value of firearms evidence could logically re-examine the witness to explain away the limitations elicited through cross-examination, for example by asking the witness

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53 *Garrett v. Commonwealth*, 534 S.W.3d 217, 221 (Ky. 2017) ("We note that ballistics testimony has been allowed by this Court since at least 1948.").

54 United States v. Otero, 849 F. Supp. 2d 425, 438 (D.N.J. 2012), aff'd, 557 F. App'x 146 (3d Cir. 2014) (excluding ballistic evidence "would contravene well-settled precedent . . . in evaluating the admissibility of expert testimony.").

55 *Ficklin v. Commonwealth*, No. 2020-SC-0573-MR, 2022 WL 3640906 at *3 (Ky. Aug. 18, 2022) (This decision frequently cited both *Garrett* and *Otero* in determining whether the trial court had erred in denying an *in limine* motion to limit the firearms examiner's ability to testify "[w]ith certainty.").

56 Sarah L. Cooper, *Forensic Science Identification Evidence: Tensions Between Law and Science*, 16 J. PHIL. SCI. L. 1, 9 (2016) [hereinafter *Forensic Science Identification Evidence*].

57 STRENGTHENING, *supra* note 4, at 107 ("[T]he courts often 'affirm admissibility citing earlier decisions rather than facts established at a hearing.'")

58 *See id*. at 13.

59 PCAST REPORT, *supra* note 29, at 112.

60 *Id.* at 4 ("Judges' decisions about the admissibility of scientific evidence rest solely on legal standards; they are exclusively the province of the courts and PCAST does not opine on them."). STRENGTHENING, *supra* note 4 at 190 ("whether or not a forensic procedure is sufficient under the rules of evidence governing criminal and civil litigation raises difficult legal issues that are outside the realm of scientific enquiry," which was the primary focus of the report).

61 *Daubert v. Merrell Dow Pharms.*, 509 U.S. 579, 596 (1993).

62 Again, reliance on cross-examination i.e., the competence of the lawyer carrying out their role, reflects the legal process vision. *See* Shooter, *supra* note 37.

63 *A Case for Conceptualizing Science Literacy for Lawyers*, *supra* note 38.

64 *Id.*

65 *Cross examination*, LII/LEGAL INFO. INST., https://www.law.cornell.edu/wex/cross_examination#:~:text=Cross%2Dexamination%20gives%20the%20opposing,or%20a%20lack%20of%20credibility.; Redirect Examination, LII/Legal Info. Inst., https://www.law.cornell.edu/wex/redirect_examination.

to confirm limitations reported have been addressed in subsequent studies, or that the NAS and PCAST reports do not speak directly to the admissibility of examiners' conclusions.

The system's reliance on cross-examination can be seen in many cases involving firearms evidence. Cooper analyzed several cases involving claims about the reliability of firearms evidence and found, to resolve such claims, "courts emphasize …defense counsels' ability to weed out frailties in forensic evidence via cross-examination."[66] To illustrate, *State v. Raynor* demonstrated that limitations of firearms evidence are to be elicited during cross-examination, leaving the jury the ability to determine its weight.[67] Similarly, in *United States v. Lee*, the court found that firearms evidence is widely accepted and "cross examination… is the appropriate remedy to counter the criticisms.[68]

Third, courts accept jury decisions, finding that where a jury has been exposed to the limitations of firearms evidence, they are equipped to determine the weight of that evidence, and their decisions should stand.[69] *United States v. Brown* took the approach that given the longstanding admissibility of firearms evidence, the defendant's challenges were issues that could have been raised through cross-examination, and therefore, the ultimate decision lay with the jury.[70] Similarly, in *Williams v. United States*, despite acknowledging that the expert's conclusions expressing no doubt that the suspect bullets were fired by the defendant's gun were unreliable, the court nonetheless found allowing the statement did not amount to a plain error, as the jury was entitled to weigh the firearms evidence against other circumstantial evidence. As such, the court was reluctant to displace the outcome.[71]

This all sets the scene for the authors' study. Firearms evidence, through the testimony of examiners, is routinely admitted into criminal proceedings as expert evidence. Notwithstanding progress in the field, there remain concerns about the reliability of this evidence, as reported by leading bodies like the NAS and PCAST. Courts have responded by curtailing expert testimony, but also favoring admissibility by relying on precedent (i.e., the long-standing admissibility of firearms evidence) and the role of lawyers and jurors to cross-examine and weigh the evidence, to favor admissibility. As such, it is important to investigate juror certainty about expert firearms testimony when exposed to various expert statements, cross-examination (and redirect-examination), and references to reported criticism and precedent (regarding admissibility).

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66 *Judicial Responses*, *supra* note 41, at 487; *Jones v. United States*, 27 A.3d 1130 (D.C. 2011), *Garrett v. Commonwealth*, 534 S.W.3d 217 (Ky. 2017), as modified (Dec. 20, 2017). *United States v. McCluskey*, No. CR 10-2734 JCH, 2013 WL 12335325 (D.N.M. Feb. 7, 2013).

67 *State v. Raynor*, 181 Conn. App. 760, 771 (2018) (noting that the firearms examiner had discussed the limitations of the evidence, leaving the jury free to determine its weight).

68 *United States v. Lee*, No. 19 C 641, 2022 WL 3586164, at *3 (N.D. Ill. Aug. 22, 2022).

69 Shooter, *supra* note 37, at 187–88.

70 *United States v. Brown*, 973 F.3d 667, 704 (7th Cir. 2020) ("Expert testimony is still testimony, not irrefutable fact, and its ultimate persuasive power is for the jury to decide.").

71 *Id.* at 746.

PART II - RESEARCH DESIGN, ANALYSIS AND RESULTS[72]

Quantitative research in this area has shown a consistent pattern for jurors' certainty based on expert statements. McQuiston-Surrett and Saks asked participants to rate a forensic odontology expert's intended certainty (on a scale of one to one hundred using four phrases taken from the American Board of Forensic Odontology.[73] They concluded, "[f]orensic expert witnesses cannot simply adopt a term, define for themselves what they wish it to mean, and expect judges and juries to understand what they mean by it."[74] More specifically, they found that the qualitative language of expert testimony effected potential jurors, with their certainty decreasing as follows – a *match; consistent with; reasonable scientific certainty; and probable*.[75] McQuiston-Surrett and Saks later examined certainty statements in the context of microscopic hair analysis, finding again that lay participants were susceptible to qualitative information from an expert.[76]

These studies informed Cooper and Scanlon's investigation into juror certainty (on a scale of one to one hundred) through about twelve different qualitative expert statements referenced in case law involving firearms evidence. Similarly, they found more certain statements from experts - e.g. *an exact match, a reasonable degree of professional certainty* – were linked to participants scoring higher for their own certainty than for expert statements that were less certain in their language - e.g. more likely than not, inconclusive, unsuitable.[77] Cooper and Scanlon suggested this certainty could be influenced by adding context, like highlighting criticism about firearms evidence through cross-examination.[78] As such, using the same scale, their follow-up study asked potential jurors to rate their certainty about a forensic match based on various expert statements, but this time one group was given a cross-examination phrase pointing out issues with the scientific underpinnings of firearms evidence.[79] Kovera, McAuliff, and Hebert had previously found that cross-examination failed to highlight issues with validity of scientific evidence,[80] but later work by Austin and Kovera found that jurors informed about methodological flaws or validity standards in DNA evidence through cross-examination were able to distinguish between 'quality' of evidence.[81] Cooper and Scanlon's second study showed a significant decrease in juror certainty when exposed to cross-examination, particularly when an expert

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72 All study materials and results data are on file with the authors.

73 Dawn McQuiston-Surrett & Michael J. Saks, *Communicating Opinion Evidence in the Forensic Identification Sciences: Accuracy and Impact*, 59 HASTINGS L.J. 1159, 1161–62 (2008) [hereinafter *Communicating Opinion Evidence*].

74 *Id.* at 1163.

75 *Id.* at 1162.

76 Dawn McQuiston-Surrett & Michael J. Saks, *The Testimony of Forensic Identification Science: What Expert Witnesses Say and What Factfinders Hear*, 33 LAW & HUM. BEHAV., 436, 436 (2009) [hereinafter *Testimony of Forensic Identification Science*]. *See* Cooper & Scanlon, *supra* note 3, at 95.

77 Cooper and Scanlon, *supra* note 3, at 115.

78 *Id.* at 117.

79 Scanlon, et al., *supra* note 10, at 99.

80 Margaret Bull Kovera, Bradley D. McAuliff & Kellye S. Hebert, *Reasoning About Scientific Evidence: Effects of Juror Gender and Evidence Quality on Juror Decisions in a Hostile Work Environment Case*, 84 J. APPLIED PSYCH. 362, 372 (1999).

81 Jacqueline L. Austin & Margaret Bull Kovera, *Cross-Examination Educates Jurors About Missing Control Groups in Scientific Evidence*, 21 PSYCH. PUB. POL'Y. & L. 252, 261 (2015).

had conveyed their conclusions in very certain terms.[82] As such, they posited that cross-examination can be a useful tool in influencing jury decision-making.[83] Garrett, Scurich and Crozier have more recently examined this question,[84] finding that cross-examination of the witness had a small but measurable impact, particularly on language that was specific and narrow in scope, like "the defendant's gun cannot be excluded as the gun that fired the bullet recovered at the crime scene."[85]

This leads to the instant study. Legal and psychological literature points to cross-examination being a common and useful part of expert witness discourse, and that jurors rely on this to add context to the expert evidence presented. To understand this process further, the next stage of expert witness testimony needs to be examined: redirect examination. By including a further group of potential jurors who are given this full context, we can investigate if redirect-examination can ameliorate the effect of cross-examination on juror certainty.

Hypotheses

The study was designed so that participants would rate their certainty about three different expert statements – Very Certain *(an exact match)*, Certain *(a match to a reasonable degree of certainty)*, and Uncertain *(evidence is unsuitable for comparison)* – when assigned to one of three conditions. These conditions were a judicial instruction about weighing expert evidence (the control condition); cross-examination referencing criticism of firearms evidence; and a follow-up redirect-examination referencing the longstanding admission of such evidence.

We hypothesized that:

1. Lower levels of participant certainty for expert statements would be measured in the cross-examination condition than the judicial instruction condition.

2. Participants in the redirect-examination condition would have higher certainty compared to those in the cross-examination condition.

3. Higher participant certainty would be recorded for more certain expert statements *(an exact match and a match to a reasonable degree of certainty)* while uncertain expert statement *(evidence is unsuitable for comparison)* would induce low levels of participant certainty.

[82] Scanlon, et al., *supra* note 10, at 101–02.
[83] *Id.* at 103.
[84] Brandon L. Garrett, Nicholas Scurich & William E. Crozier, *Mock Jurors' Evaluation of Firearm Examiner Testimony*, 44 L. HUM. BEHAV. 412 (2020).
[85] *Id.* at 415.

Method

Design

The experiment was designed as a mixed, quasi-experiment. The within-subjects independent variable was the expert statement, which had three levels – Very Certain *(exact match)*, Certain *(reasonable degree of certainty)*, Uncertain *(unsuitable for comparison)* – meaning each participant was presented with three identical vignettes but differing expert statements as presented below. The between-subjects independent variable was the Examination Level, also on three levels (Judicial Instruction, Cross-examination, Redirect-examination), meaning the vignettes for each participant were consistent. A certainty judgment on a 0-100 scale for each vignette was used to measure Participant Certainty as the measured dependent variable.

Participants

Our participant sample consisted of n=114 members of the US public (mean age = 31.3, age range = 18-79; 43 male, 68 female, 1 prefer not to say) who volunteered to participate in the study online and were randomly and blindly assigned to one of three groups (control, n=40; cross-examination, n=36; Redirect-examination, n=38). The participants were recruited using snowball sampling through the authors' professional and social networks. There was no incentive offered for participants to take part. To be eligible to take part in the study, participants needed to qualify for federal jury service in the U.S.[86] Participants were required to respond to all exclusion criteria in a screening questionnaire presented prior to the beginning of the study phase, and to agree to all to continue.

Materials and Procedure

Once screening was completed, participants were given an instruction to picture themselves as a juror for a criminal trial. They were then shown, in a randomized order, three short vignettes of a case that involved a firearm owned by the defendant. The vignettes took the form of a court transcript beginning with a case description. It was explained that the state prosecution had called a qualified firearms examiner to testify as to whether tool-marks present on suspect ammunition found at the scene of the crime matched tool-marks produced when the defendant's gun was test-fired. For all groups, the judge explained the case and role of the jury, with this exchange following:

***Prosecutor**: Did you compare the tool-marks found on the ammunition recovered from the crime scene with tool-marks present on ammunition test-fired from the Defendant's gun?*

***Expert**: Yes, I did.*

[86] Namely to be a United States citizen; be at least 18 years of age; reside primarily in the judicial district for one year; be adequately proficient in English to satisfactorily complete the juror qualification form; have no disqualifying mental or physical condition; not currently be subject to felony charges punishable by imprisonment for more than one year; never have been convicted of a felony.

***Prosecutor**: Is there a specific method that you used for conducting this comparison?*

***Expert**: I used a comparison microscope to visually compare the tool-marks present on the ammunition from the crime scene and those present on test-fired ammunition from the defendant's gun. I did this to see if there was any similarity. There are two types of tool-marks I look for – striations and impressions, which are created when a gun is fired. These tool-marks can be divided into class, sub-class and individual characteristics, so I looked for these.*

***Prosecutor**: Are there professional guidelines for making conclusions?*

***Expert**: Yes, there are. There are widely known guidelines that tool-marks examiners like myself use when making conclusions.*

For the Cross-examination and Redirect-examination Groups, this exchange was added:

The examiner is then cross-examined by the defense lawyer:

***Defense**: You said there are widely known guidelines for making your conclusion. Have those guidelines been subject to criticism by the scientific community?*

***Expert**: I am aware of some criticism, but that is to be expected.*

***Defense**: But isn't it true, and I quote, that the National Academy of Sciences has reported "The best guidance available for the field of tool-mark identification, does not even consider, let alone address, questions regarding variability, reliability, repeatability, or the number of correlations needed to achieve a given degree of confidence."*

***Expert**: I accept it's true that this criticism exists.*

For the Redirect-examination Group, there was an additional final exchange:

The prosecutor asks some follow-up questions:

***Prosecutor**: Although you accept that this criticism exists, is it not true that conclusions produced following the comparison method and guidelines you used continue to be admitted as evidence in court?*

***Expert**: That is correct. Examiners like myself routinely testify in legal proceedings.*

***Prosecutor**: In summary then, criticism of the field naturally exists, but the firearms examiner community continues to utilize the comparison method and conclusion guidelines you used, and courts continue to accept expert testimony from Tool-marks Examiners, like yourself?*

***Expert**: That is correct.*

The expert was asked to give their conclusion on completion of the courtroom exchanges. These conclusions were based on the authors' previous published results and labelled as Very Certain (*"exact match"* - Conclusion 1); Certain (*"reasonable degree of certainty in the ballistic field"* - Conclusion 2), and Uncertain (*"unsuitable for comparison"* - Conclusion 3). Participants were then instructed to base their certainty only on the presented vignette and conclusion, and to score their certainty that the suspect ammunition was fired from the defendant's firearm using a scale from 0 for Least Certain to 100 for Most Certain.

Results

Data Analysis

A 3(Level of Examination)x3(Expert Statement) mixed ANOVA was carried out to examine the between- and within-participant effects. Bootstrapped Bonferroni-corrected t-tests and bootstrapped repeated-measures t-tests were used to examine specific differences between the groups and statements; in line with the study hypotheses, higher participant certainty would be linked to expert statements in more certain language, cross-examination would lower that certainty for all the statements compared to the judicial instruction condition; and that redirect-examination would have a positive effect in comparison to cross examination.

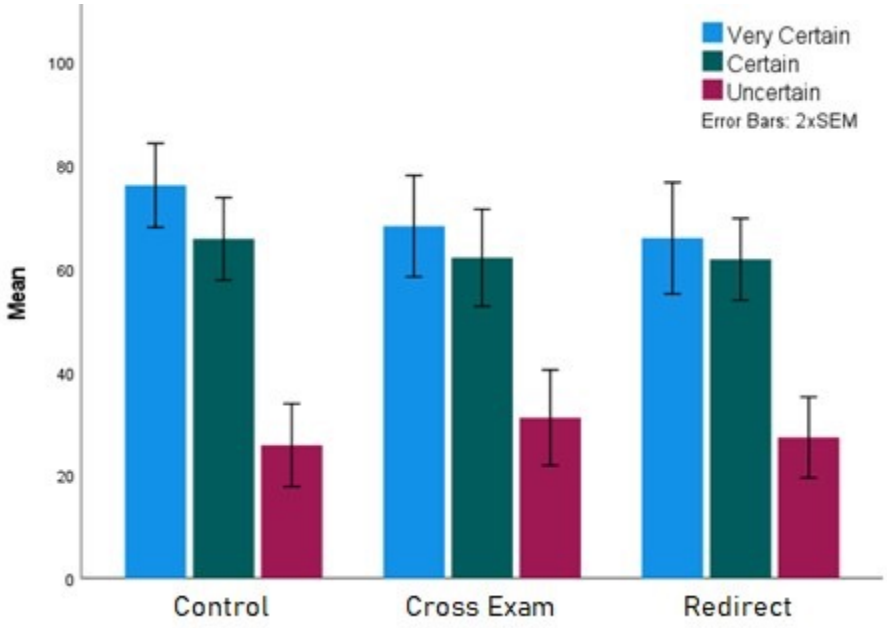
Descriptive Statistics

The means and Standard Deviations for each of the conditions are presented in *Table 1* and *Figure 1*. Participants judged the more certain expert phrases highest in all groups. Expert judgment that evidence was unsuitable for comparison resulted in the lowest scores. The control group scored higher than the other groups for both the Very Certain and Certain phrases, and lower in response to the Uncertain phrase. Means were similar for Cross-examination and Redirect-examination groups across conditions.

Table 1: Mean and Standard Deviations differences for each condition for participant certainty

Statement	Control Means (SD)	Cross-exam Means (SD)	Redirect-exam Means (SD)
Very Certain	76.78 (25.05)	67.23 (29.33)	66.65 (32.25)
Certain	62.69 (24.41)	55.77 (25.29)	59.89 (23.66)
Uncertain	23.35 (23.79)	29.11 (25.41)	21.13 (23.39)

Figure 1: Mean and Standard Deviations differences for each condition for certainty Inferential Statistics and Hypotheses Findings



The mixed ANOVA showed a main effect for statement (F[1.517, 168.4]=122.74, p<0.001, □2p=0.525), but not for group (p=0.665), and no interaction effect between group and statement was found (p=.334). A Greenhouse-Geisser correction was implemented as the assumption of sphericity was violated.[87] This partially matches the prediction from Hypothesis 1 and allows for further examination of Hypothesis 3.

[87] Sphericity is the concept that variability in the differences between the levels being compared are near to equal. If they are not, as in this case, a statistical correction is added to ensure the results are clearly comparable. *See* David M. Lane, *The Assumption of Sphericity in Repeated-Measures Designs: What It Means and What to Do When It Is Violated*, 12 THE QUANTITATIVE METHODS OF PSYCH. 114, 114–15 (2016)

Control Condition (Judicial Instruction)

T-test comparisons within the Judicial Instruction group showed that the Very Certain statement *(exact match)* scored significantly more certainty than the Certain statement *(reasonable degree of certainty)* (t[39]=2.667, p=0.006). Likewise, the Very Certain statement elicited significantly more participant certainty than the Uncertain statement *(unsuitable for comparison)* (t[39]=9.721, p<0.001). Finally, a comparison between Certain and Uncertain statements also showed a significant difference (t[39]=8.451, p<0.001). This pattern is as predicted in Hypothesis 3, with qualitatively more certain statements eliciting higher certainty responses.

Cross-examination Condition

For within the cross-examination group the Very Certain statement was again judged significantly more certain than the Certain statement (t[35]=2.355, p=0.012) and the Uncertain statement (t[35]=5.709, p,0.001). The Certain statement (t[35]=5.027, p<0.001) also scored as significantly more certain than the Uncertain statement. This is predicted in Hypothesis 3, with the more certain statements eliciting more certain responses but in comparison to the less certain statements.

Redirect-examination Condition

Finally, we can examine the Redirect group. The Very Certain statement was again judged significantly more certain than the Uncertain statement (t[37]=6.058, p<0.001) but not compared to the Certain statement (p=0.134). The Certain statement (t[37]=7.709, p<0.001) scored as significantly more certain than the Uncertain statement. Again, this is partially predicted by Hypothesis 3 with the two more certain statements eliciting more certain responses in participants compared to the least certain expert statement.
Between groups, no significant differences were found between the control, cross-examination, and redirect-examination groups for the Very Certain, Certain and Uncertain expert statements. This was not predicted by Hypothesis 1 or 2. As such it can be concluded that overall, the certainty of the expert had a significant impact on that of participants, particularly the uncertain statement, but the level of examination had a less clear impact.

PART III: DISCUSSION

Our discussion of the results is organized around three points, namely previous studies, redirect-examination, and science education and training for lawyers.

Previous Studies

The overall patterns and trends are mainly as expected. The more certain expert phrases led to higher certainty scores in the potential jurors, and less certain phrases induced lower certainty scores in the participants. This is particularly clear in terms of the least certain phrase – that the evidence is unsuitable for comparison – with participant scores significantly lower across all conditions. The gap between the two more certain

phrases – that there is an *exact match* and that a match can be made to a *reasonable degree of certainty* – is much narrower across the three conditions. There is also a visible effect of cross-examination, with the exact match phrase especially showing lower certainty in participants following cross-examination. The other phrases are less effected. These results mirror previous research in the area,[88] including from the authors.[89] Garrett et al's recent work found a smaller effect for cross-examination and suggested that narrow phrases are likely necessary to evoke such an effect, which also is shown by these results.[90] Instantly, this decrease is relatively small, not reaching statistical significance, implying cross-examination here has at best a weak effect on potential juror certainty, again echoing Garrett et al's findings.[91]

A further pattern that continues in the instant study from Cooper and Scanlon's previous work is the variance evident in the Very Uncertain expert phrase - *"The suspect ammunition is unsuitable for comparison with ammunition test-fired from the Defendant's gun."* AFTE have used phrasing around unsuitability for comparison to mean the expert is not confident to make a comparison for over 30 years, with the implication that jurors should therefore not feel certainty about association based on such evidence. However, in each of our three studies, groups presented with this statement show average scores from 21-29% in terms of certainty.[92] While a certain amount of natural variation is expected in diverse participant groups, the consistency of this scoring across groups and conditions is notable. In each study, participants have no context of the crime committed or the characteristics of the defendant, expert, or lawyers, instead relying on only one piece of evidence – the expert statement. If the expert states that the materials provided to them are unsuitable for comparison, it is logical that the AFTE assumption is that jurors will discount the evidence. However, these studies suggest some potential jurors do not do so, chiming with ideas that expert statements, including those of firearms examiners, can be confusing to jurors.[93] It would be useful to investigate if this is an issue of understanding the statement's intent, or coming to a judgment independent of that evidence, or some other reason entirely. Either conclusion would point to a considerable issue for expert testimony.

Redirect-Examination

Redirect-examination "is an advocacy tool designed to explain, correct, and modify as well as further develop evidentiary points that were originally drawn out in

[88] *See e.g.*, *Communicating Opinion Evidence*, *supra* note 73, at 1159; *Testimony of Forensic Identification Science*, *supra* note 76, at 436; Austin & Kovera, *supra* note 81; William C. Thompson & Nicholas Scurich, *How Cross-Examination on Subjectivity and Bias Affects Jurors' Evaluations of Forensic Science Evidence*, 64 J. FORENSIC SCI. 1 (2019).

[89] Scanlon, et al., *supra* note 10.

[90] Garrett, Scurich & Crozier, *supra* note 84, at 423.

[91] *Id.* at 419-420.

[92] Cooper & Scanlon, *supra* note 3, at 111; Scanlon, et al., *supra* note 10, at 107.

[93] Bonnie Lanigan, *Firearms Identification: The Need for A Critical Approach to, and Possible Guidelines for, the Admissibility of "Ballistics" Evidence*, 17 SUFFOLK J. TRIAL & APP. ADVOC. 54, 71 (2012) ("Phrases such as "a reasonable degree of ballistic certainty" could be confusing to jurors.").

cross-examination."[94] It aims to restore the "credit"[95] of a witness to the factfinder, driven by a "desire for the advocate to rehabilitate his or her witness."[96] An interesting aspect of our findings, therefore, is that providing potential jurors with additional context through redirect-examination did not seem to have the expected result of ameliorating the effect of cross examination, small though it was. Instead of increasing the certainty of the potential jurors, redirect-examination seems to have little effect, with very similar scores to the cross-examination group, and remaining considerably below the control group scores, particularly for the Very Certain (*exact match*) statement. While there is research available on the effect of redirect-examination on eyewitnesses and technical expert witness re-examination, for example in Valuation,[97] there is little on forensic experts. As such, the instant study suggests more research is required.

> Critical to future research is appreciating the connection between redirect-examination and cross-examination. There are some basic, universal rules to consider, as Manarin describes: "If there has been no cross-examination then, *ipso facto*, there can be no re-examination. Also, the scope of the redirect examination 'will be limited to what the cross-examiner chooses to raise during his' or her questioning of the witness."[98]

Instantly, the authors shaped the cross-examination condition to reference the NAS' for two reasons. One, to reflect the reality of lawyers using the NAS' reporting to highlight considered limitations in firearms evidence in court settings. We were curious if the reference would impact juror certainty, noting that courts tend to be pulled by legal process drivers (i.e., precedent, cross-examination, jury decision-making) to the detriment of *Strengthening*,[99] the report being quoted from in the cross-examination condition. Two, referencing the report meant there was, technically, a wide latitude for re-direct examination. In the redirect-examination condition, the authors elected for the proffering lawyer to re-examine a point relating to precedent – the routine admissibility of firearms evidence – because of how prevalent this factor is in courts determining admissibility. We were curious if it would be as influential on potential jurors. However, we recognize there are many other routes we could have taken for both the cross-examination and re-direct-examination conditions. For instance, we could have worded the same issues

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94 Brian Manarin, *A Study of Re-Examination: How American Concepts Compare on the International Common Law Stage*, 35 AM. J. TRIAL ADVOC. 361, 363 (2011).

95 *Id.*

96 *Id.* at 364.

97 G.K. Babawale, *The Making of Expert Witness: The Valuers' Perspective*, 9 (2) ATBU J. OF ENV'T TECHN. 99, 105–106 (2016).

98 Manarin, *supra* note 94, at 363.

99 Amelia Shooter & Sarah L. Cooper, *A Template for Enhancing the Impact of the National Academy of Sciences' Reporting on Forensic Science*, 8 BR. J. AM. LEG. STUD. (SPECIAL ISSUE) 443 (2019), https://sciendo.com/article/10.2478/bjals-2019-0009 [hereinafter *A Template for Enhancing*].

differently for both conditions (e.g., given more background information about the NAS report being quoted from in cross-examination or explicitly referred to the report's title), and employed different overall strategies (e.g., not focused the redirect-examination condition on precedent, but progress concerning validity in the field). This all suggests that more investigation is needed to determine strategies for effective cross-examination and redirect-examination in context, to explore to what extend jurors might be influenced by certain styles and topics, for instance.

Notably, cross-examination is often the focus of discussion in this field because of how it has been described as "the traditional and appropriate means of attacking shaky but admissible evidence."[100] As explained *supra*, courts place emphasis on cross-examination, including when admitting firearms-identification evidence. The instant study shows, however, redirect-examination, is deserving of attention too, especially considering that it has been described as "perhaps the most difficult advocacy skill to acquire."[101] This is because redirect-examination requires a lawyer to act "on the heels of cross-examination."[102] They must think quickly and carefully to devise non-leading questions for their witness, who may be reeling, without any prior discussion,[103] and while trying "not to make a bad situation even worse."[104] This leads to our final discussion point, namely supporting lawyers to optimize their performance.

Science Education and Training for Lawyers

To be effective in the space investigated by the instant study, lawyers need to skillfully navigate an intersection of law and science; a set of disciplinary boundaries that can be fraught with challenges.[105] They need not only legal acumen – to know what is within the bounds of cross and redirect-examination in a legal sense – but also a strong working knowledge of the relevant forensic discipline (in this case, firearms) to devise questions within those boundaries.[106]

Assuming lawyers have the former, focus should be on supporting them with the latter. Lawyers "make key calls about scientific evidence at all stages of its journey through the criminal justice system . . . ",[107] yet it has long been recognized they need support with science. Generally, lawyers are not scientists and law schools are "black hole[s]"[108]

100 Lustre, *supra* note 9, at 596 (citing *Goldman v. Healthcare Mgmt. Sys., Inc.*, 559 F.Supp.2d 853 (W.D. Mich. 2008)).
101 Manarin, *supra* note 94, at 372 (citing John A. Olah, *The Art & Science of Advocacy* 9-44 (1995)).
102 *Id.*
103 *Id.*
104 *Id.*
105 *Forensic Science Identification Evidence*, *supra* note 54, at 3.
106 David L. Faigman & Claire Lesikar, *Organized Common Sense: Some Lessons from Judge Jack Weinstein's Uncommonly Sensible Approach to Expert Evidence*, 64 DEPAUL L. REV. 421, 424 (2015) (emphasis added). Specifically, "[t]he process of translating scientific knowledge for legal use requires some degree of scientific literacy and an understanding of the sum and substance of the law."
107 Shooter & Cooper, *supra* note 38, at 21.
108 Jessica D. Gabel, *Forensiphilia: Is Public Fascination with Forensic Science A Love Affair or Fatal Attraction?*, 36 NEW ENG. J. ON CRIM. & CIV. CONFINEMENT 233, 255–58 (2010).

for science and mathematics education.[109] This places lawyers "at a disadvantage when confronted with scientific evidence…."[110], and "ill-equipped to speak the language of science."[111] Training for lawyers engaging with forensic science is "clear[ly] important"[112] and a considerable provision has amassed,[113] yet there remains concern about the lack of mandatory, continuing, and assessed training on offer to lawyers.[114] All told, the instant study re-enforces points made by the authors previously in this area, namely that lawyers likely require higher levels of science literacy[115] - the "knowledge and disposition needed to engage with science,"[116]. Research should target understanding lawyers' relationship with this concept, noting the criminal justice system's consumption of forensic identification techniques, like firearms evidence, make for a compelling case study.[117]

CONCLUSIONS

Our study attempted to create a simple yet realistic mock case extract. However, as an online study with limited context, it obviously did not account for all the complexities present in a real trial setting. This rich context is important for fuller understanding, but answering the fundamental question required us to limit that context for increased experimental control.[118] Ultimately, designing a study that takes fuller account of these complexities may improve validity. In addition, participants in this study may not truly represent a community sample, and while the study is sufficient for generalization, a greater number of participants would provide a more representative sample.

Considering this study, there are several options for future research into how jurors interpret expert firearms evidence. In the first place, the ongoing variance in responses to the uncertain expert statement requires investigation. While this may be a simple statistical quirk, the consistency of the mean and variance across hundreds of potential jurors and various levels of analysis suggest there is something deeper occurring. It is important to understand the reason behind some participants scoring their certainty in the evidence as

[109] *Id.* For a review of forensic science provision in law schools, *see* Brandon L. Garrett et. al., *Forensic Science in Legal Education*, 51 J. L. & EDUC. 1 (2022).

[110] Frederic I. Lederer, *Scientific Evidence—An Introduction*, 25 WM. & MARY L. REV. 517, 519-20 (1984) (citing Howard T. Markey, *Jurisprudence or "Juriscience"?*, 25 WM. & MARY L. REV. 525, 529-32 (1984)).

[111] Gabel, *supra* note 108, at 258.

[112] NAT'L COMM'N ON FORENSIC SCI., *Reflecting Back— Looking Toward the Future*, (2017) at 9 ("The Training on Science and the Law subcommittee was one of the first subcommittees created by the Commission. It was charged with the task of looking at training lawyers and judges on forensic science. What became clear over time was that this training was important…"), https://www.justice.gov/media/899496/dl?inline=.

[113] Shooter & Cooper, *supra* note 38, at 23.

[114] STRENGTHENING, *supra* note 4, at 234. ("However, these courses are not mandatory, there is no fixed routine of continuing education in legal practice with regard to science, and there are no good ways to measure the proficiency of judges who attend these programs.").

[115] Shooter & Cooper, *supra* note 38, at 23–24 (citing generally to COMM. ON SCI. LITERACY AND PUB. PERCEPTION OF SCI., *Science Literacy: Concepts, Contexts, and Consequences* (Nat'l Acads. Press 2016)). *See also* Scanlon, et al, *supra* note 10, at 104.

[116] COMM. ON SCI. LITERACY AND PUB. PERCEPTION OF SCI., *Science Literacy: Concepts, Contexts, and Consequences* 27 (Nat'l Acads. Press 2016).

[117] Shooter & Cooper, *supra* note 38, at 21–25.

[118] *See generally* Herman Aguinis & Kyle J. Bradley, *Best Practice Recommendations for Designing and Implementing Experimental Vignette Methodology Studies*, 17 ORG. RSCH. METHODS 351 (2014).

high (relatively speaking), when their only explanation evidence comes from an expert who rates their own certainty as low. A lack of understanding of the statement, a discounting of expertise, independent reasoning, or some further reason could be at play. Second, greater attention should be paid to the critical role of lawyers and the skills they need to fulfill that role effectively in context. With the justice system placing such a strong emphasis on cross-examination to influence how jurors weigh evidence, other legal mechanisms – such as re-examination – have been somewhat overlooked. Based on the understanding that these advocacy hallmarks of the adversarial system are permanent features, lessons may be learned from exploring the impact of different strategies on jurors in context. Third, thought should be given to how we can layer current quantitative understanding with qualitative methods i.e., action research that engages jurors and lawyers to understand their lived experience in this space. Research into all these areas is key to deepening our understanding of this important courtroom exchange.


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