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IS THE INTERNET ROTTING OKLAHOMA LAW?

Lee F. Peoples*

I. INTRODUCTION

Internet research is omnipresent in the lives of most people.¹ Smart phones are quickly consulted to verify facts, check the weather, look up movie times, or perform a number of other tasks without hesitation. The word “Google” entered the lexicon as the name of a popular search engine but is now used as a verb to describe searching for information on the Internet.² The sheer amount of information available online is mind-boggling. The two-hundred terabytes of information currently searchable in Google represents only 0.004 percent of the total size of the Internet.³

The lure of quickly and easily locating information online is very tempting to appellate jurists especially when confronting incomplete appellate records or factually complex cases. Adding to this temptation is the increasing number of citations to Internet resources appearing in briefs filed with appellate courts.

Traditionally, judges do not search online for facts related to cases before them. Jurists embody the “passive role of a neutral decision maker.”⁴ However, judicial Internet research into the facts of cases before courts is on the rise.⁵ Whether or not this research is legally permissible depends on a number of factors including the type of information acquired, its source, how it is used, and when it was acquired.⁶ Independent judicial re-

* Frederick Charles Hicks Professor of Law and Law Library Director. I would like to thank Timothy Gatton, Head of Reference, Oklahoma City University Law Library, for his assistance researching this article and Claire DeMarco, Research Librarian, Harvard Law School Library for her assistance with questions relating to Perma.cc. Any errors or omissions are the author’s sole responsibility. This article is dedicated to Emma and Amelia.

1. As of June, 44.3% of the world’s population were using the Internet. *Internet Growth Statistics*, INTERNET WORLD STATS (December 2, 2015, 2:28 PM), <http://www.Internetworldstats.com/emarketing.htm> [<http://perma.cc/U7P4-F6RZ>].

2. *Definition of Google*, GOOGLE, <https://www.google.com/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=define%3A%20google> [<https://perma.cc/STF6-H2BB>].

3. *Do You Know How Big the Internet Really Is?*, WEBSITE MAGAZINE (Jul. 22, 2014), <http://www.websitemagazine.com/content/blogs/posts/archive/2014/07/22/do-you-know-how-big-the-Internet-really-is-infographic.aspx> [<http://perma.cc/S632-N83W>].

4. Layne S. Keele, *When the Mountain Goes to Mohammed: The Internet and Judicial Decision-Making*, 45 N.M. L. REV. 125, 126 (2014) citing Mont. Code of Jud. Conduct R. 2.9(C) (2008).

5. Elizabeth G. Thornburg, *The Lure of the Internet and the Limits on Judicial Fact Research*, 38 No. 4 LITIGATION 41, 42 (2002).

6. Elizabeth G. Thornburg, *The Curious Appellate Judge: Ethical Limits on Independent Research*, 28 REV. LITIG. 131, 142 (2008).

search into the facts of cases pending before a court potentially violates the rules of evidence, due process rights, the Sixth and Seventh Amendments, and the traditions of the adversarial system.

The citation of Internet resources in judicial opinions has additional consequences beyond the legal issues noted above. The content of webpages changes rapidly. Information available online today is easily changed or made unavailable tomorrow. Previous studies have demonstrated that “an alarming number of Internet resources cited in legal materials no longer work.”⁷ If these disappearing resources were cited to support the logic or reasoning of an appellate judicial opinion, researchers may justifiably question the opinion’s authoritativeness. The unavailability of important sources cited in appellate judicial opinions has the potential to weaken *stare decisis* and threatens the stability and growth of the law.

Part I of this article will examine the ethical, procedural, evidentiary, and common law rules governing independent Internet research by the Oklahoma appellate judiciary. A proposed amendment to Oklahoma’s Code of Judicial Conduct is offered to ensure that independent judicial factual research does not violate the rights of litigants. Part II presents the results of a study of citations to Internet resources in appellate judicial opinions and briefs. The prevalence of link and reference rot in opinions and briefs is examined. Link rot refers to a link that does not retrieve any information. Reference rot refers to a link that functions but does not retrieve the information it was cited for. Part III discusses the consequences of link and reference rot in Oklahoma appellate opinions and briefs. The article concludes with recommendations for improvement.

The purpose of this article is not to criticize the substance of appellate opinions or briefs, their authors, or the Oklahoma appellate courts. These findings and suggestions are offered to make cited sources more accessible, to aid the development of Oklahoma law, and help ensure its long-term stability.

II. INDEPENDENT JUDICIAL INTERNET RESEARCH AND DECISION MAKING

Appellate judicial opinions cite Internet resources for a variety of reasons.⁸ Internet resources are cited with some frequency in briefs and other pleadings filed with Oklahoma appellate courts.⁹ In some instances Oklahoma appellate courts cite Internet resources discovered through independent legal or factual Internet research.

Traditionally, appellate courts do not look for facts beyond the trial court record and briefs filed on appeal. When an appellate judge is confronted with a record lacking additional facts needed to resolve a case, the correct procedure is to “remand the case to the

7. Lee F. Peoples, *Internet Citations in Oklahoma Attorney General’s Opinions*, 107 LAW LIBR. J. 348 (2015) [hereinafter Peoples, *Internet Citations in Okla. Att’y Gen. Opinions*].

8. Raizel Liebler and June Liebert, *Something Rotten in the State of Legal Citation: The Life Span of A United States Supreme Court Citation Containing an Internet Link (1996-2010)*, 15 YALE J. L. & TECH. 273, 279 (2013).

9. See section III. D *infra*.

trial court with directions to find the facts.”¹⁰ Independent judicial research into the facts of a case has been cited as grounds for appeal in cases long predating the Internet.¹¹

The practice of judges conducting Internet researching and including their findings in opinions is controversial.¹² The majority of citations to Internet resources for factual information in Oklahoma appellate opinions appear to have been cited first by the trial court or by the litigants in court filings. In a small number of opinions examined in this study (twelve out of eighty-two) the appellate court conducted independent factual research on the Internet and included a citation to an Internet resource in the opinion.¹³

Independent judicial research is governed by a variety of sources including rules of judicial ethics, evidentiary rules, constitutional and procedural principles, and basic principles of adversarial justice.¹⁴ Concern over “the growing temptation to do factual research” lead the American Bar Association’s Joint Commission to Evaluate the Code of Judicial Conduct to issue an amendment to the Code in 2007.¹⁵ Model Code Rule 2.9(C) was amended to state that “[a] judge shall not investigate facts in a matter independently, and shall consider only the evidence presented and any facts that may properly be judicially noted.”¹⁶ Comment 6 provides that “[t]he prohibition against a judge investigating the facts in a matter extends to information available in all mediums, including electronic.”¹⁷

Oklahoma adopted a modified version of Rule 2.9(C) in 2011.¹⁸ Italicized text is used to indicate where Oklahoma’s rule differs from the ABA Model Code.

A judge shall not investigate facts in a matter independently, and shall consider only the evidence presented and any facts that may properly be judicially noticed. *While a judge shall not independently investigate facts in a case, and shall consider only the evidence presented, a judge may seek information of a general nature that does not bear on a disputed evidentiary fact or influence the judge’s opinion of the substantive merits a specific case.*

Comment:

10. HARVEY D. ELLIS, JR. & CLYDE A. MUCHMORE, 5 OKLA. PRAC., APPELLATE PRACTICE § 15:156 (Supp. 2015) citing *Darrow v. Spencer*, 1978 OK 107, ¶13, 581 P.2d 1309, 1313–14; *Bramble v. Caywood*, 1944 OK 45, 146 P.2d 587, 591; *Brown v. Nicholson*, 1997 OK 32, ¶13, 935 P.2d 319, 323; *Pugh v. Gilbreath*, 1977 Okla. Civ. App. 46, ¶11, 571 P.2d 1241, 1244.

11. *Trappe v. Freeborn*, 1955 OK 259, 288 P.2d 1105, 1107 (“Plaintiff complains that the trial court made independent research and discovered additional evidence which was the basis of the judgment.”) *See also Sanders v. State*, 96 Okla. Crim. 397, 398, 256 P.2d 205, 207 (1953).

12. For a small sampling of the relevant issues *see*: David J. Dansky, *The Google Knows Many Things: Judicial Notice in the Internet Era*, COLO. LAW. 19 (2010); Lee F. Peoples, *The Citation of Blogs in Judicial Opinions*, 13 TUL. J. TECH. & INTELL. PROP. 39 (2010) [hereinafter Peoples, *Citation of Blogs*]; and, Lee F. Peoples, *The Citation of Wikipedia in Judicial Opinions*, 12 YALE J. L. & TECH. 1 (2010) [hereinafter Peoples, *Citation of Wikipedia*].

13. *See* section III for a complete explanation of the methodology used to locate these judicial opinions. The physical case files of relevant appellate cases were examined to determine if the Internet resource(s) cited in the opinions were cited first in a filing by a party or by the trial court. Cases files were not examined for opinions citing Internet resources for legal research or factual information that was cited to support dicta.

14. Thornburg, *The Curious Appellate Judge: Ethical Limits on Independent Research*, *supra* note 6, at 135.

15. *Id.*

16. *Id.*

17. *Id.*

18. The rule is codified in the Code of Judicial Conduct at OKLA. STAT. tit. 5 ch. 1, app. 4, Code of Jud. Conduct, Canon 2.9(C) (2015). The rule became effective April 15, 2011.

[6] The prohibition in the rule against a judge investigating the facts in a case independently or through a member of the judge's staff extends to information in all mediums, including electronic ones.

[7] *The prohibition does not apply to a judge's effort to obtain general information about a specialized area of knowledge that does not include the application of such information in a specific case.*¹⁹

The version of Rule 2.9 adopted by Oklahoma gives judges additional leeway beyond the ABA Model Code to conduct factual investigations of a limited scope. Oklahoma is not the only state to adopt a modified version of the ABA Model Code. The version adopted by Montana allows courts "to examine online criminal records, driving records, and court records."²⁰ Judges in Connecticut may conduct independent research as long as they are not "serving as factfinders."²¹ The version adopted in Delaware did not include a prohibition on independent judicial factual investigation.²² Missouri's version did not specifically mention research using electronic mediums.²³

A. *Independent Judicial Research into Legislative Facts*

By allowing judges to "seek information of a general nature that does not bear on a disputed evidentiary fact," Oklahoma's Rule 2.9(C) affirms the longstanding practice of judges conducting independent research into "legislative facts." Legislative facts are "general and do not concern the immediate parties."²⁴ The Evidence Subcommittee Notes accompanying the Oklahoma Evidence Code provisions on judicial notice state that legislative facts are "not properly within the sphere of the rules of evidence."²⁵ The commentary incorporates the position of Professor Kenneth Culp Davis "that judge made law would stop growing if judges, in thinking about questions of law and policy, were forbidden to take into account the facts they believe, as distinguished from facts which are 'clearly' . . . within the domain of the dispute."²⁶

Professor Leo Winery offers an additional explanation in his treatise OKLAHOMA EVIDENCE:

It is appropriate for the courts to consider pertinent data in the process of legal reasoning and in developing and shaping the content of the law without being restricted to the requirement of indisputability which is more appropriately applied to matters of fact which are disputed by the parties. In such cases the judicial notice of legislative facts is governed by the developing common law and not [the evidence code].²⁷

Oklahoma appellate opinions have cited Internet resources when conducting independent judicial research into legislative facts. In *Thomas v. Wheat*, the Oklahoma Court

19. *Id.*

20. Keele, *supra* note 4, at 127 (citing Mont. Code of Jud. Conduct R. 2.9(C) (2008)).

21. *Id.* at 128 (citing Conn. Code of Jud. Conduct R. 2.9(C) (2011)).

22. *Id.* at 127 (citing DEL. JUDGES' CODE OF JUD. CONDUCT R. 2.9 (2008)).

23. *Id.* (citing MO. CODE OF JUD. CONDUCT R. 2-2.9 (2013)).

24. Evidence Subcommittee's Note to OKLA. STAT. tit. 12, § 2202 (2015)(citing Professor Kenneth Culp Davis' classic treatise, ADMINISTRATIVE LAW, 296 (1972)).

25. *Id.*

26. *Id.*

27. LEO H. WINERY, 2 OKLA. PRAC., OKLA. EVIDENCE § 6.02 (Supp. 2015).

of Civil Appeals remanded a trial court's summary judgment ruling to resolve factual issues.²⁸ The case involved a worker hit by an errant golf ball while painting a house adjacent to a golf course. The appellee claims to have warned the painter by yelling "fore" after hitting a hook shot. The court conducted its own research into the meaning of the word "fore" and cited the website of the United States Golf Association and the website About.com.²⁹

Although the Opinion was issued before Rule 2.9(C) came into effect, the court's independent Internet research would have been permitted by the rule. The meaning of the word "fore" was not in dispute in the case, was a "legislative fact," and could be independently researched by the court under the evidentiary doctrine discussed above. A review of the appellate record reveals that the court could have cited a definition of the word "fore" cited by the Appellee in a trial court filing instead of conducting independent research to define the term.³⁰

Several Oklahoma appellate opinions issued after the effective date of Rule 2.9(C) include citations to Internet resources for legislative facts discovered through independent judicial research. The opinion in *National American Ins. Co. v. Gerlicher Co., LLC* cited the website of the EFIS Industry Members Association for a definition of EFIS.³¹ The case involved a dispute over whether insurance policy language provided coverage for EFIS material. The definition of EFIS material was not at issue in the case and would be considered "information of a general nature that does not bear on a disputed evidentiary fact."³²

The Oklahoma Supreme Court has cited Internet resources when conducting independent research into legislative facts. In *State ex. rel. Oklahoma Bar Ass'n v. Zannotti*, the Court cited statistics about the impact and frequency of domestic violence in Oklahoma.³³ The case involved disciplinary action against a lawyer who pled no contest to charges of domestic violence involving a client he was having a sexual relationship with. The statistics were cited to support the opinion's reasoning that incidents of domestic violence are on the rise and it is "incumbent on the Court to protect the public by sending a message to other lawyers that this misconduct is considered a serious breach of a lawyer's ethical duty and will not be tolerated."³⁴ This independent research into background facts not at issue in the case is permissible under Rule 2.9(C) and is consistent with the use of

28. *Thomas v. Wheat*, 2006 Okla. Civ. App. 106, 143 P.3d 767.

29. *Thomas*, 2006 Okla. Civ. App. 106, ¶ 3, 143 P.3d 767 at 768.

30. Plaintiff's Response and Objection to Defendant's Motion for Summary Judgment, CJ-2002-5326 (Nov. 23, 2005).

31. 2011 Okla. Civ. App. 94, ¶ 2, 260 P.3d 1279, 1280. *See also*, *Bank of Am., N.A. v. Moody*, 2014 Okla. Civ. App. 105, ¶ 8 (citing an online version of a handbook for the Home Affordable Modification Program (HAMP) for a general explanation of how the HAMP program works. This fact was of a general nature and did not bear on a disputed evidentiary fact in the case. Accordingly, the court's independent judicial factual research was permissible under Rule 2.9).

32. OKLA. STAT. tit. 5 ch. 1, app. 4, Code of Jud. Conduct, Canon 2.9(C) (2015).

33. 2014 OK 25, 330 P.3d 11, 17, citing CENTERS FOR DISEASE CONTROL AND PREVENTION, NATIONAL INTIMATE PARTNER AND SEXUAL VIOLENCE SURVEY 2010 SUMMARY REPORT (2010) available at http://www.cdc.gov/violenceprevention/pdf/cdc_nisvs_overview_insert_final-a.pdf [<http://perma.cc/GX2A-7A5W>].

34. *Zannotti*, 2014 OK 25, ¶ 24, 330 P.3d at 17.

legislative facts by appellate courts when framing legal rules and dealing with law and policy questions.³⁵

B. *Independent Judicial Research into Adjudicative Facts*

The rules of evidence, judicial ethics, due process concerns, and traditions of the adversarial system prohibit independent judicial research into adjudicative facts. In contrast to legislative facts, adjudicative facts “are facts about the parties” and “must be ascertained from formal proof.”³⁶ Rule 2.9(C) allows judges to seek information of a general nature but specifically limits judges from seeking information bearing on a disputed evidentiary fact. The term “disputed evidentiary fact” is synonymous with the term “adjudicative fact.”³⁷ By using the language “disputed evidentiary fact” the rule restricts judges from conducting independent research into adjudicative facts.³⁸

A 1953 opinion of the Oklahoma Criminal Court of Appeals established a prohibition against independent judicial research into adjudicative facts. In *Sanders v. State*, a pilot was prosecuted for operating an aircraft under the influence of alcohol.³⁹ The trial judge conducted independent factual research into an adjudicative fact in the case. During sentencing the trial judge stated on the record that he contacted the airport control tower to determine how many and what type of planes used the airport on a regular basis.⁴⁰ The appellate court concluded that the trial judge’s private inquiry into this adjudicative fact was “fundamental and reversible error” and could not be judicially noticed.⁴¹ The opinion establishes a historical precedent that judges should not independently research adjudicative facts.⁴²

35. Thornburg, *The Curious Appellate Judge: Ethical Limits on Independent Research*, *supra* note 6, at 152.

36. *State ex rel. Blankenship v. Freeman*, 1968 OK 54, 440 P.2d 744, 758.

37. See ROBERT FITZPATRICK, ET AL., 38 MASS. PRAC., ADMINISTRATIVE LAW & PRACTICE § 312 (2015)(equating disputed evidentiary facts with adjudicative facts) See also, Keele, *supra* note 4, at 147 (facts about the parties are adjudicative facts).

38. The term “disputed evidentiary fact” is also found in an early version of Oklahoma’s Code of Judicial Conduct. Before its amendment in 2011, the Code required judicial disqualification when a judge had personal knowledge of “disputed evidentiary facts.” OKLA. STAT. tit. 5 ch. 1, app. 4, Code of Jud. Conduct, Canon 3(E)(1)(a) (2000). The language was adopted from the ABA Model Code of Judicial Conduct. Interpretations of the term “disputed evidentiary fact” from other jurisdictions reinforce the term’s synonymy with adjudicative facts. See *In re Yengo*, 371 A.2d 41 (N.J. 1977) (disqualifying a judge who inspected property that was the subject matter of litigation); *Vaughn v. Shelby Williams of Tennessee Inc.*, 813 S.W. 2d 132 (Tenn. 1991)(a judge may not make an off the record investigation of a case); *In re Marriage of Donely*, 819 S.W. 2d 98 (Mo. App. 1991)(disqualification was required where a judge conducted an unrecorded interview with a child during a custody proceeding); and, *Plunkett v. Plunkett*, 757 S.W. 2d 286 (Mo. App. 1988)(disqualification required where a judge interviewed a child in chambers without counsel present).

39. 96 Okla. Crim. App. 397, 398, 256 P.2d at 207 (1953).

40. *Id.*

41. *Id.* at 209. In *Sanders v. State*, the Criminal Court of Appeals reviewed transcripts of the trial court’s sentencing of a defendant who plead guilty to operating an aircraft under the influence of alcohol. The opinion states that traffic conditions at the airport were “common knowledge of which the court might have taken judicial notice.” However, the court’s private inquiry into the traffic conditions at the airport was “fundamental and reversible error.” Professor Leo Winery explains that the judge in *Sanders v. State* could not take judicial notice of the amount of traffic at the airport if this information was personally obtained from the control tower. WHINERY, *supra* note 27, at § 4.02.

42. The case of *Trappe*, 1955 OK 259, 288 P.2d 1105, 1107 is a historical example of an appeal on the grounds that the trial court’s judgment was based on independent judicial research into the facts of the case.

Appellate judicial research into facts not found in the appellate record is generally prohibited. Oklahoma appellate courts are permitted to decide questions left unresolved by trial courts only when “material facts are undisputed and remain on the record.”⁴³ However, Oklahoma appellate courts “will not make first-instance determinations of disputed law or fact issues. That is the trial court’s function.”⁴⁴ When an Oklahoma appellate court is unable to resolve an issue because the appellate record lacks necessary facts, the case should be remanded to the trial court with instructions to determine the missing facts.⁴⁵

C. *Judicial Notice of Adjudicative Facts*

Judicial notice “involves the acceptance of a matter of law or fact as true” and has been called a “substitute for proof by evidence.”⁴⁶ Legal scholars have documented an increase in courts taking judicial notice of Internet resources.⁴⁷ Studies have found an inconsistent application of judicial notice rules to Internet sources in courts from other jurisdictions.⁴⁸

Judicial notice of adjudicative facts is governed by the Oklahoma Evidence code. To be judicially noticed, an adjudicative fact must meet the following standard set out in the evidence code. Facts must “not be subject to reasonable dispute in that it is either: (1) [g]enerally known within the territorial jurisdiction of the trial court; or (2) [c]apable of accurate and ready determination by resort to sources whose accuracy cannot reasonably be questioned.”⁴⁹

The evidence code allows judicial notice to be taken at any stage in a proceeding.⁵⁰ Generally, this means notice of adjudicative facts may be taken by a trial or appellate court.⁵¹ However, Oklahoma appellate courts have refused to take judicial notice of facts “which are not part of the record on appeal or were not before the trial court when its decision was made.”⁵²

Limited exceptions allow appellate courts to take judicial notice of court dockets and records,⁵³ of prior related appellate proceedings,⁵⁴ and of a courts “own records in litigation interconnected with an appeal [before the court].”⁵⁵

Independent judicial research into adjudicative facts raises due process concerns and is not in keeping with the traditions of the American legal system. When judges conduct

43. ELLIS & MUCHMORE, *supra* note 10, at § 15:155 (2014 ed.) citing *Williams v. Frey*, 1938 OK 280, 78 P.2d 1052.

44. *Id.* citing *Bivins v. State ex rel. Oklahoma Memorial Hosp.*, 1996 OK 5, ¶19, 917 P.2d 456, 464.

45. *Id.* citing *Darrow v. Spencer*, 1978 OK 107, ¶13, 581 P.2d 1309, 1313–14.

46. WHINERY, *supra* note 27, at § 4.01.

47. Keele, *supra* note 4, at 157.

48. Thornburg, *The Curious Appellate Judge: Ethical Limits on Independent Research*, *supra* note 6, at 161.

49. OKLA. STAT. tit. 12, § 2202 (2015).

50. *Id.* at § 2203 (c).

51. WHINERY, *supra* note 27, at § 7.06.

52. EMMA V. ROLLS, JEAN E. GILES, & LAURIE W. JONES, OKLAHOMA TRIAL PRACTICE, § 6:9 (2009).

53. ELLIS & MUCHMORE, *supra* note 10, at § 12:2 (2014 ed.) citing Sup. Ct. Rule 1.1(d).

54. *Id.* citing *Timmons v. Royal Globe Ins. Co.*, 1985 OK 76, ¶8 n. 8, 713 P.2d 589, 592 n. 8.

55. *Id.* citing *Smith v. Hines*, 2013 OK 65, ¶2.

independent research into adjudicative facts without giving the parties notice or an opportunity to be heard, they run the risk of violating the parties' due process rights.⁵⁶ Appellate courts must be cautious to not invade the fact-finding province of the jury by locating and using adjudicative facts. Doing so could violate a litigant's Sixth or Seventh Amendment jury trial rights.⁵⁷ Independent judicial fact-finding runs contrary to the traditions of the American legal system which relies on the adversarial process to resolve factual disputes.⁵⁸ The Wright and Miller treatise cautions American jurists to not behave like "French magistrate[s] and embark on a personal fact finding expedition, however deficient the efforts of counsel may appear."⁵⁹

D. *Examples of Judicial Research into Adjudicative Facts*

The Supreme Court appears to have conducted independent judicial research into an adjudicative fact in the case of *West v. Board of County Commissioners of Pawnee County*.⁶⁰ The appeal arose from a wrongful death jury trial resulting in a damage award less than \$8,000. Appellant argued that the jury "ignored testimony key to determining the appropriate damages award for his daughter's wrongful death."⁶¹ Appellant presented evidence at trial that the deceased would have been expected to earn \$192,000 over a period of years.

The opinion includes several scenarios of what the deceased could have earned based on minimum wage calculations. The Court notes that it obtained the amount of minimum wage as of the decedent's date of death and trial date from the website Infolplease.com and the website of the United States Department of Labor.⁶² This information was used to calculate the deceased's expected earnings at \$107,120 and \$150,800. A review of the Court file revealed that these websites were not cited by the trial court or either party to the appeal. The opinion held that the small size of the jury's award demonstrated passion and prejudice and the case was remanded for a new trial on the issue of damages.

The case provides an example of the Supreme Court conducting independent judicial research into an adjudicative fact. The minimum wage amounts the Court obtained from the websites pertain to the deceased's expected earnings. The amount of expected earnings was a disputed evidentiary fact at trial.

The Court's research could be permissible under Rule 2.9 as it falls under the Rule's exception of not influencing "the judge's opinion of the substantive merits [of] a specific case."⁶³ The information obtained from the websites does not appear to have changed the

56. Thornburg, *The Curious Appellate Judge: Ethical Limits on Independent Research*, *supra* note 6, at 192-93.

57. *Id.* at 160-61.

58. *Id.* at 138.

59. 21B CHARLES ALAN WRIGHT & ARTHUR R. MILLER, FEDERAL PRACTICE AND PROCEDURE § 5102.1 (2d ed. 1990).

60. The appellate case file and record were reviewed. It is possible that these websites were cited by one of the parties in oral argument.

61. *West v. Bd. of Cnty. Comm'rs of Pawnee Cnty.*, 2011 OK 104, ¶ 13, 273 P.3d 31, 36.

62. *Id.* ¶ 20, 273 P.3d at 38.

63. OKLA. STAT. tit. 5 ch. 1, app. 4, Code of Jud. Conduct, Canon 2.9(C) (2015).

outcome of the case. The appellate record contained evidence that the deceased could have expected to earn \$192,000 during her life. The Court's hypothetical calculations based on information obtained from the Internet were both below this amount. The appellate Court did not award the appellant a specific amount of damages based on the minimum wage amounts obtained from the websites. The case was remanded for a new trial on damages. On remand both parties will have the opportunity to present evidence about expected earnings and make objections about earning calculations.

Alternatively, the Opinion explains that expert testimony regarding damages was not presented at trial and was not required because "the element of damages lies within the common knowledge of lay persons."⁶⁴ In citing the Internet for the minimum wage amounts, the opinion makes a fair assumption that the jury would have known the amount of minimum wage on the date of trial. According to scholar Elizabeth Thornburg, certain facts are "part of the judicial reasoning process [and] beyond the scope of the judicial notice rule."⁶⁵ These facts include "basic cultural information" and are analogous to jurors being allowed to evaluate evidence in light of "common knowledge."⁶⁶ Thornburg's understanding of judicial notice could exempt the Court's Internet research into the amount of minimum wage from the requirements of judicial notice and Rule 2.9.⁶⁷

Independent judicial research into adjudicative facts appears in several Oklahoma Supreme Court opinions issued before Rule 2.9 went into effect.⁶⁸ Limits on independent judicial research found in the rules of evidence and the common law were applicable to judicial research conducted before Rule 2.9's enactment. Additionally, independent judicial factual research occurring before the rule's effective date was governed by Canon 3 of Oklahoma's Code of Judicial Conduct. Canon 3(B)(6) states that "[a] judge should not initiate, nor consider ex parte communications."⁶⁹ The Canon does not specifically mention independent judicial factual research. However, the Canon's prohibition on ex parte communication could be interpreted to prohibit independent judicial research. As scholar Edward Cheng noted, "the tenor of the ethics rules seems to discourage [independent] judicial research."⁷⁰

The Oklahoma Supreme Court conducted independent research into an adjudicative fact in *In re Estate of Speers*.⁷¹ The case involved a will contest. One of the issues before

64. *West*, 2011 OK 104, ¶ 20, 273 P.3d 31, 38.

65. Thornburg, *The Curious Appellate Judge: Ethical Limits on Independent Research*, *supra* note 6, at 150.

66. *Id.*, *West*, 2011 OK 104, ¶ 20, 273 P.3d 31, 38.

67. *See Sanders v. State*, 96 Okla. Crim. 397, 398, 256 P.2d 205, 209 (1953) (noting that if traffic conditions at the airport were common knowledge within the territorial jurisdiction of the court, they could be judicially noticed). *See also WHINERY*, *supra* note 27, at § 4.02.

68. Thirty-seven out of the eight-two opinions citing Internet resources were issued prior to the effective date of Rule 2.9.

69. OKLA. STAT. tit. 5 ch. 1, app. 4, Code of Jud. Conduct, Canon 3(E)(b)(6) (2000). Oklahoma's Code of Judicial Conduct became effective November 1, 1997 and was superseded April 15, 2011 by OKLA. STAT. tit. 5 ch. 1, app. 4, Code of Jud. Conduct (2015). Prior versions of the Code of Judicial Conduct contained similar provisions prohibiting ex parte communications.

70. Edward K. Cheng, *Independent Judicial Research in the Daubert Age*, 56 DUKE L.J. 1263, 1293 (2007). The commentary to the 1990 ABA Model Code of Judicial Conduct specifically states that "A judge must not independently investigate facts in a case and must consider only the evidence presented." Oklahoma did not incorporate this commentary into its Code of Judicial Conduct.

71. *In re Estate of Speers*, 2008 OK 16, ¶ 14, 179 P.3d 1265.

the Court was whether there was sufficient evidence to support the trial court's finding that there were two subscribing witnesses to the will. One of the witnesses to the will in question was deceased. 50 OKLA. STAT. tit. § 43 requires the death or absence of a subscribing witness to a will to be satisfactorily shown to the court when a will is contested. The opinion notes that the only evidence in the appellate record of the witnesses' absence was oral testimony that the second witness to the will was deceased. The Supreme Court found that "the trial court could not, as a matter of law, have made the requisite statutorily required finding that [the witness'] death was satisfactorily shown" based only on the oral testimony of the second witness.⁷²

In a footnote the opinion states, "[e]vidence of Walton's death was readily available to the appellee. A quick search of the Social Security Death Index shows that Walton died on August 15, 2000 and that her last place of residence was Atoka, Oklahoma. <http://ssdi.rootsweb.com/cgi-bin/ssdi.cgi>."⁷³ A review of the Court file revealed that neither party to the appeal cited the SSDI website. The information found at the cited website was adjudicative in nature and bears on the disputed evidentiary fact of whether the trial court had sufficient evidence to make the required statutory finding of the death or absence of a subscribing witness to the will.

The opinion's conclusion that the trial court erred as a matter of law was not impacted by information obtained from the website. The Court's reference to the website was merely a suggestion that appellee could have satisfied the required statutory showing by citing the website. The Court did not use the information obtained from the SSDI to change the outcome of the appeal. The Court reversed the trial court's decision and remanded the case with instructions to not admit the will to probate.

Another example of independent judicial research into an adjudicative fact is found in *In re Initiative Petition No. 379, State Question 726*.⁷⁴ In this case the Supreme Court invalidated an initiative petition for a number of reasons including illegal participation by out of state petition circulators. Article 3 § 1 of the Oklahoma Constitution requires circulators of an initiative to be *bona fide* Oklahoma residents. The opinion notes that the proponent of the initiative petition took the approach that if circulators came into the state with the intention of staying for the duration of the petition drive or could provide an address within the state, they were considered state residents. The opinion points out that this position is not supported by Oklahoma law. The Court cites the proponent's website to demonstrate that it "represents itself as an organization armed with the essential elements of a campaign including knowledge of local law."⁷⁵

The residency of circulators employed by the proponent was an adjudicative fact at issue in the case. The Court cited the proponent's website for statements about its knowledge of local campaign law. These statements are adjudicative facts about a party to the case. However, the opinion's reference to the website was not essential to the opinion's conclusion.

72. *Id.* ¶ 14, 179 P.3d at 1271.

73. *Id.* ¶ 13 n. 18, 179 P.3d 1265, 1270 n. 18.

74. *In re Initiative Petition No. 379, State Question No. 726*, 2006 OK 89, 155 P.3d 32.

75. *Id.* ¶ 18, 155 P.3d at 41.

These cases provide examples of the Oklahoma Supreme Court conducting independent research into adjudicative facts. The independent research conducted in these cases does not appear to have altered the substantive outcome of any of these cases. This distinguishes these opinions from the trial court judge in the *Sanders v. State* case who not only conducted independent judicial research into an adjudicative fact by contacting the airport control tower, but also used the information to change the outcome of the case before him.⁷⁶

These examples of the Oklahoma Supreme Court's independent research into adjudicative facts are similar to the approach espoused by Judge Richard Posner of the United States Court of Appeals for the Seventh Circuit. Judge Posner is a proponent of judges conducting factual research on the Internet. He suggests that judicial clerks should "Google the parties and do other online research to help them [and the judge] understand the parties, the commercial or other context of the case, and the activities of the parties or others that gave rise to the case."⁷⁷ Posner contends that judges should be conducting independent judicial research into background material, legislative facts, and "coloring-book facts" which he describes as "facts designed to make a judicial opinion a little more vivid and colorful than that which lawyers and judges are accustomed."⁷⁸

Legal scholars argue that Posner's "description of such background facts in some cases falls better within the ambit of the traditional definition of adjudicative facts."⁷⁹ In an unpublished manuscript Judge Posner admits that in one opinion he conducted Internet research that "could well be regarded as adjudicative facts. But the purpose of obtaining and publishing them was not to sway or bolster the outcome; it was to provide a fuller picture of the crime and the crime scene."⁸⁰

In re Speers and *In re Initiative Petition No. 379, State Question 726*, the Oklahoma Supreme Court followed Judge Posner's advice to Google the parties. The information the Court located and included in the opinions provided a fuller understanding of the parties and the facts that gave rise to the cases. The independent judicial research appearing in *West v. Board of County Commissioners of Pawnee County* resulted from a specific search for the amount of the minimum wage at the time of trial. This research is similar to the "background research" that Judge Posner contends law clerks should be doing to help a judge understand the context of a case.⁸¹

E. Independent Judicial Legal Research

Judges have traditionally been permitted to research the legal issues arising in cases before them and to cite and rely upon legal authority not cited by parties.⁸² All Oklahoma

76. *Sanders v. State*, 96 Okla. Crim. 397, 398, 256 P.2d 205, 209 (1953).

77. Richard A. Posner, *Judicial Opinions and Appellate Advocacy in Federal Courts - One Judge's Views*, 51 DUQ. L. REV. 3, 20 (2013).

78. *Id.* at 12.

79. Keele, *supra* note 4, at n. 56 (2014) and Frederick Schauer, *The Decline of "The Record": A Comment on Posner*, 51 DUQ. L. REV. 51, 57 (2013).

80. Thornburg, *The Lure of the Internet and the Limits on Judicial Fact Research*, *supra* note 5, at 47.

81. Posner, *supra* note 77, at 20.

82. This tradition differs from the practice in England. See Keele, *supra* note 4, at 170 citing Ruggero J. Aldisert, *The English Appellate Process: A Distant Second to our Own?*, 75 JUDICATURE 48 (1991).

appellate courts routinely discuss conducting independent legal research in judicial opinions.⁸³ A wide variety of Internet based legal research resources were cited in the appellate opinions examined in this study. Opinions cited online sources of a Native American tribal code,⁸⁴ state⁸⁵ and federal⁸⁶ administrative law materials, pending legislation,⁸⁷ and law review articles.⁸⁸

In addition to a court's common law prerogative to conduct independent legal research, the Oklahoma Evidence Code requires courts to take judicial notice of "the common law, constitutions and public statutes in force in every state, territory and jurisdiction of the United States" and gives courts the option of taking judicial notice of "law of less notoriety."⁸⁹ Nevertheless, the parties to an appeal are not relieved of the obligation to support their arguments with legal authority. Oklahoma Supreme Court Rule 1.11(k) requires assignments of error to be supported by authority and the failure to do so generally waives the asserted error.⁹⁰

The ability to conduct independent legal research is necessary for Oklahoma courts to perform their constitutional duty of administering justice without delay.⁹¹ Courts should utilize Internet legal research resources to perform this duty as efficiently as possible. The Court of Civil Appeals opinion in *BAC Home Loans Servicing, L.P. v. White* provides an illustrative example.⁹² In this case a homeowner objected to a foreclosure on the grounds that the plaintiff was not the present holder of the mortgage. The mortgage contained a clause designating Mortgage Electronic Registration Systems (hereinafter MERS) as the mortgagee. The opinion notes this fact pattern "has generated much national controversy" and cited several appellate court opinions from other states finding MERS lacked enforceable rights and did not own the promissory note secured by the mortgage.⁹³

83. *Abla v. State ex rel. Alcoholic Beverage Control Bd.*, 1970 OK 8, 463 P.2d 968, 968 ("Independent legal research is often necessary and justified"), *Parsons v. Childers*, 1990 Okla. Crim. App. 16, 789 P.2d 243, 244 ("Our research indicates that our holding today is consistent with those jurisdictions which have addressed the issue. Where the legislature has granted the state the authority to appeal, an appeal will lie."), *In re Stratton ex rel. Kelley*, 2004 Okla. Civ. App. 35, ¶ 7, 90 P.3d 566, 568 ("Our research reveals few Oklahoma cases relevant to the facts and issue presented in this case.")

84. *Bittle v. Bahe*, 2008 OK 10, 192 P.3d 810, 813 (citing an online version of the Absentee Shawnee Tribe of Oklahoma's tribal code).

85. *L'ggrke v. Sherman*, 2009 OK 80, ¶ 3, 223 P.3d 383, 384 (citing an online version of the Oklahoma State Department of Corrections Policy Guidelines).

86. *Howard v. Zimmer, Inc.*, 2013 OK 17, ¶ 5, 299 P.3d 463, 476 (citing the online docket of the Federal Drug Administration) and *Cline v. Oklahoma Coal. for Reprod. Justice*, 2013 OK 93, 313 P.3d 253, 261 (citing guidance from the FDA).

87. *M.A.W. v. State*, 2008 Okla. Crim. App. 16, ¶ 5, 185 P.3d 388, 390 (citing various Oklahoma legislative bills available at the website of the Oklahoma legislature).

88. *BAC Home Loans Servicing, L.P. v. White*, 2011 Okla. Civ. App. 35, ¶ 8, 256 P.3d 1014, 1017 (citing the Social Science Research Network for the online version of a law review article).

89. OKLA. STAT. tit. 12, § 2201 (2015).

90. OKLA. Ct. R. 1.11(k) (2015).

91. OKLA. CONST. art. 2 § 6.

92. *BAC Home Loans Servicing, L.P.*, 2011 Okla. Civ. App. 35, 256 P.3d at 1014.

93. *BAC Home Loans Servicing, L.P.*, 2011 Okla. Civ. App. 35, ¶ 8, 256 P.3d at 1017, citing *Landmark Nat'l Bank v. Kesler*, 289 Kan. 528, 216 P.3d 158 (2009); *Mortgage Electronic Registration System v. Southwest Homes of Arkansas*, 2009 Ark. 152, 301 S.W.3d 1; *Bellistri v. Ocwen Loan Servicing, LLC*, 284 S.W.3d 619 (Mo.Ct.App. 2009); and *Mortgage Electronic Registration Systems, Inc. v. Saunders*, 2 A.3d 289 (Me. 2010).

The court cited a forthcoming law review article appearing on the Social Science Research Network to explain the operation of MERS.⁹⁴ This article and cases from other jurisdictions were used to support the opinion's holding that "in Oklahoma it is not possible to bifurcate the security interest from the note. An assignment of the mortgage to one other than the holder of the note is of no effect."⁹⁵

Law review articles delving into contemporary legal issues can be useful to judges.⁹⁶ Unfortunately, the traditional law review publication process is extremely slow.⁹⁷ In recent years many legal scholars have adopted the practice of uploading forthcoming articles to websites and institutional repositories to quickly disseminate their ideas to judges and other legal decision makers. Judges can ensure their research includes the most current legal scholarship by accessing forthcoming articles using these websites.

F. Independent Judicial Research into Areas of Expert and Scientific Knowledge

Oklahoma appellate courts are permitted to conduct independent research in matters involving expert or scientific knowledge. The Oklahoma Evidence Code requires that expert testimony be the "product of reliable principles and methods."⁹⁸ In *Taylor v. State*⁹⁹ the Court of Criminal Appeals explained that trial court judges must act as gatekeepers to ensure that scientific evidence is reliable. The opinion indicated that a trial court should consider whether a scientific technique has been subjected to peer review and publication and whether a theory has gained general acceptance in the scientific community.¹⁰⁰

In *Davenport v. State*, the Court of Criminal Appeals explained that appellate courts are similarly obligated to perform this gatekeeping function. The reliability of expert witness testimony regarding a particular syndrome was at issue in *Davenport v. State*.¹⁰¹ The trial court conducted a hearing to determine the reliability of the syndrome but no record was made of the hearing.¹⁰² The Court of Criminal Appeals conducted its own research into the reliability of the syndrome noting, "[t]his Court has the right to make an independ-

94. Christopher L. Peterson, *Two Faces: Demystifying the Mortgage Electronic Registration System's Land Title Theory*, 53 WM. & MARY L. REV. 111 (2011) (available at <http://ssrn.com/abstract=1684729>).

95. *BAC Home Loans Servicing, L.P.*, 2011 OK CIV APP 35, ¶ 10, 256 P.3d at 1017.

96. *But see* CHIEF JUSTICE OF THE UNITED STATES JOHN G. ROBERTS, JR., INTERVIEW AT FOURTH CIRCUIT COURT OF APPEALS ANNUAL CONFERENCE, available at www.c-span.org/video/?300203-1/conversation-chief-justice-roberts [<http://perma.cc/YL35-M4Z>] at approx. 30:40 (June 25, 2011) ("Pick up a copy of any law review that you see and the first article is likely to be, you know, the influence of Immanuel Kant on evidentiary approaches in 18th-century Bulgaria, or something, which I'm sure was of great interest to the academic that wrote it, but isn't of much help to the bar."). *See also* Orin S. Kerr, *The Influence of Immanuel Kant on Evidentiary Approaches in 18th-Century Bulgaria*, 18 GREEN BAG 2D 251 (2015).

97. Adam Liptak, *When Rendering Decisions, Judges Are Finding Law Reviews Irrelevant*, N.Y. TIMES, Mar. 19, 2007 (the slow publication process of law reviews "feel[s] as ancient as telegrams, but slower"); Peoples, *Citation of Blogs*, *supra* note 12 at 80.

98. OKLA. STAT. tit 12 § 2702 (2015).

99. *Taylor v. State*, 1995 Okla. Crim. App. 10, 889 P.2d 319, 329-30.

100. *Id.*

101. *Davenport v. State*, 1991 Okla. Crim. App. 14, 806 P.2d 655, 658.

102. *Id.* The Court of Criminal Appeals admonished the bench and bar to make records of similar hearings in the future.

ent search of appropriate medical and legal doctrines to determine if the syndrome is generally accepted and meets the proper test. From our research, we find that it is a generally accepted doctrine.”¹⁰³

Oklahoma appellate courts are permitted to conduct independent judicial research into scientific facts in the context of judicial notice. Section 2202(B)(2) of the Evidence Code permits judicial notice of scientific facts without expert testimony when the facts at issue are “capable of accurate and ready determination by resort to sources whose accuracy cannot reasonably be questioned.”¹⁰⁴ In the pre-Internet era Oklahoma appellate courts have cited medical dictionaries and scientific journals to support taking judicial notice of scientific facts under Section 2202.¹⁰⁵

Several cases examined in this study provide examples of Oklahoma appellate courts conducting independent research on the Internet into matters of scientific knowledge. In *Parris v. Limes*, the Court of Civil Appeals conducted independent research into medical literature to clarify a statement made in a pathologist’s affidavit.¹⁰⁶ The opinion cited an article appearing in the Archives of Pathology & Laboratory Medicine to support the proposition that it is common knowledge that unnecessary removal of a healthy prostate does not ordinarily occur absent negligence.¹⁰⁷

G. Dictionary Research

The use of dictionaries by appellate courts has generated a good deal of discussion among legal scholars.¹⁰⁸ Oklahoma appellate courts have cited online dictionaries to define terms at issue in cases before them. When terms are not defined by a statute, Oklahoma appellate courts are to give the terms the “meaning as attributed to them in ordinary and

103. *Davenport*, 1991 Okla. Crim. App. 14, 806 P.2d 655, 658.

104. WHINERY, *supra* note 27, at § 6.11.

105. *Id.* (citing *Smith v. State*, 32 Okla. Crim. App. 247, 240 P. 656 (1925) (taking notice of a legislative definition of narcotic drugs); *Jefferson v. State*, 34 Okla. Crim. App. 56, 244 P. 460 (1926) (taking notice of the definition of heroin from DORLAND’S MEDICAL DICTIONARY); and cases taking notice of the reliability of blood, urine, and breathalyzer tests based on articles appearing in scientific literature. *Allen v. State*, 585 P.2d 1390 (Okla. Crim. App. 1978), *Toms v. State*, 95 Okla. Crim. App. 60, 239 P.2d 812 (1952), *Penny v. State*, 410 P.2d 553 (Okla. Crim. App. 1966), and *Edwards v. State*, 544 P.2d 60 (Okla. Cr. 1975).

106. *Parris v. Limes*, 2009 Okla. Civ. App. 19, ¶ 17, 284 P.3d 1128, 1134.

107. Archives of Pathology & Laboratory Medicine, June 2006; 130:811–816 (available at http://findarticles.com/p/articles/mi_qa3725/is_200606/ai_n_17189011 [<http://perma.cc/L5J8-TJXF>]). The court did not expressly state that it was taking judicial notice of this fact. See note 174 *infra*.

108. See Samuel A. Thumma; and Jeffrey L. Kirchmeier, *The Lexicon Has Become a Fortress: The United States Supreme Court’s Use of Dictionaries*, 47 BUFF. L. REV. 227, 290 (1999) (critiquing the United States Supreme Court for not establishing guidelines regarding the use of dictionaries); Jeffrey L. Kirchmeier & Samuel A. Thumma, *Scaling the Lexicon Fortress: The United States Supreme Court’s Use of Dictionaries in the Twenty-First Century*, 94 MARQ. L. REV. 77, 78 (2010) (providing a comprehensive compilation of the use of dictionaries since the Court began); Fritz Snyder, *Legislative History and Statutory Interpretation: The Supreme Court and the Tenth Circuit*, 49 OKLA. L. REV. 573, 599 (1996) (discussing the United States Court of Appeals for the Tenth Circuit’s use of dictionaries).

usual parlance.”¹⁰⁹ Oklahoma appellate courts have cited legal and other dictionaries numerous times in the performance of this function.¹¹⁰ Online dictionaries are cited in appellate opinions to define a variety of terms including the VAS pain scale,¹¹¹ “employ,”¹¹² “voluntary,”¹¹³ “cave,”¹¹⁴ and “behalf.”¹¹⁵ The use of print and online dictionaries to determine a term’s ordinary meaning is similar to a court conducting legal research.

In *Tucker v. New Dominion*, the Oklahoma Supreme Court cited print and electronic sources to define and determine the pronunciation of the name Hrdy.¹¹⁶ The case presented the question of whether the misspelling of the name Olinka Hrdy as Olinka Hardy in notices filed with the Oklahoma Corporation Commission rendered an order invalid for violating the due process rights of Ms. Hrdy.¹¹⁷ In deciding the case, the Oklahoma Supreme Court employed the doctrine of *idem sonans*. The doctrine prevents “a variant spelling of a name in a document from voiding the document if the misspelling is pronounced the same way as the true spelling.”¹¹⁸

In applying the doctrine to the case, the Court cited print dictionaries and the website Inogolo.com for the pronunciation of Hrdy in the Czech language.¹¹⁹ The Court found that Hrdy and Hardy sounded “sufficiently similar to be *idem sonans*.”¹²⁰ None of the cited sources appeared in the appellate record. The Court’s use of print and online dictionaries was required to apply *idem sonans* and is similar to the use of dictionaries to determine the ordinary usage of terms in numerous other cases.¹²¹ The Court did not take judicial notice of the print or online dictionaries, but instead took judicial notice of the sound of Hrdy as a fact within the common knowledge or capable of accurate and ready determination by resort to sources whose accuracy cannot reasonably be questioned.¹²² The Court held that Hrdy’s successors in interest were bound by the order of the Corporation Com-

109. Riffe Petroleum Co. v. Great Nat. Corp., Inc., 1980 OK 112, 614 P.2d 576.

110. A search of the WestlawNext database for the terms “dictionary & define” returned 1,163 results in a database of Oklahoma appellate cases.

111. AmeriResource Group v. Gibson, 2008 OK 33, ¶ 11, 183 P.3d 1006, 1010.

112. Am. Airlines, Inc. v. State, ex rel. Oklahoma Tax Comm’n, 2014 OK 95, ¶ 46, 341 P.3d 56, 68.

113. Scott v. Oklahoma Secondary Sch. Activities Ass’n, 2013 OK 84, ¶ 21, 313 P.3d 891, 897.

114. Broom v. Wilson Paving & Excavating, Inc., 2015 OK 19, ¶ 8, 356 P.3d 617, 636.

115. B. of Cnty. Comm’rs of Delaware Cnty. v. Ass’n of Cnty. Comm’rs of Oklahoma Self-Ins. Grp., 2014 OK 87, ¶ 12, 339 P.3d 866, 869.

116. Tucker v. New Dominion, L.L.C., 2010 OK 14, 230 P.3d 882.

117. Olinka Hrdy was Oklahoma’s first modern artist. She collaborated with Frank Lloyd Wright and painted art deco murals for the architecturally significant Riverside Studios in Tulsa, Oklahoma. The case is of particular interest to the author who supported Oklahoma City University School of Law Library Professor Jennifer Prilliman in her efforts to restore and preserve two of Hrdy’s murals discovered during the renovations of Oklahoma City University School of Law’s building at 800 North Harvey Avenue in Oklahoma City. The murals represent two thirds of known extant Hrdy murals. See OKLAHOMA CITY UNIVERSITY SCHOOL OF LAW: GROWING FORWARD, BOB BURKE AND LEE PEOPLES (Forthcoming 2016, copy on file with author).

118. BLACK’S LAW DICTIONARY 862 (Tenth Edition).

119. Hrdy, INOGOLO, <http://inogolo.com/pronunciation/Hrdy> [<http://perma.cc/E9MT-949B>].

120. Tucker, 2010 OK 14, ¶ 16, 230 P.3d 882, 887.

121. See cases discussed under the section “Dictionary Research” *supra*.

122. Tucker, 2010 OK 14, 230 P.3d 882. This case is an exception to the general rule that appellate courts do not take judicial notice of adjudicative facts.

mission notwithstanding the misspelling of her name. The Tucker case is significant because it creates an exception to the general rule that appellate courts are prohibited from taking judicial notice of adjudicative facts.

The Oklahoma Supreme Court cited Merriam-Webster's online Medical Dictionary in the case of *AmeriResource Group v. Gibson*.¹²³ The opinion cited the dictionary for the definition of the VAS scale commonly used for pain evaluation. The online medical dictionary was not cited in the context of judicial notice or the Court's gatekeeping function. The VAS scale was not at issue in the case. The Court's independent citation of the online medical dictionary for a technical term makes the opinion more easily understandable and is in line with the approach of Judge Posner who adds independent judicial research to his opinions to make them more readable.¹²⁴

In *Wilder v. Oklahoma Tax Commission*, the Court of Civil Appeals considered a taxpayer's appeal of an order of the tax commission disallowing the use of a tax credit for a low speed electric vehicle (LSV).¹²⁵ The statutory language of the tax credit at issue specifically excluded "golf carts." During administrative proceedings, the tax commission determined the LSV was a golf cart based on Internet research and other evidence. The Court of Civil Appeals opinion notes that the term golf cart is not defined in Oklahoma statutes or "most dictionaries printed within the last twenty years."¹²⁶ The opinion cites several online sources to define golf cart including Merriam Webster's online dictionary, golfink.com, dictionary.com, thefreedictionary.com, and others.¹²⁷ It is unclear from the language of the opinion and the appellate record whether the court conducted this research independently or relied upon extensive research conducted by the policy division of the Oklahoma Tax Commission.

The Court of Criminal Appeals cited Wikipedia to define the slang expression "drinking the Kool-Aid" in the case of *Pryor v. State*.¹²⁸ The opinion reversed a criminal conviction based on inflammatory emotional appeals made by the prosecutor during clos-

123. *AmeriResource Group v. Gibson*, 2008 OK 33, ¶ 11, 183 P.3d 1006, 1010. The Court did not expressly state that it was taking judicial notice of the definition.

124. Posner, *supra* note 77, at 11.

125. *Wilder v. Oklahoma Tax Comm'n*, 2012 Okla. Civ. App. 91.

126. *Id.* at ¶ 29. Interestingly a search of statutes from various other states revealed that Kansas and South Dakota statutorily define the term "golf cart." See KAN. STAT ANN. § 8-1495 (2015) and S.D. CODIFIED LAWS § 32-14-13 (2015). There is historical precedent for Oklahoma borrowing statutory language from both jurisdictions. See ORBEN J. CASEY, AND JUSTICE FOR ALL: THE LEGAL PROFESSION IN OKLAHOMA, 1821-1989 66 (1989). A search of print dictionaries returned definitions for the term "golf cart." See MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 538 (11th Ed) "a motorized cart for carrying golfers and their equipment over a golf course." THE NEW OXFORD AMERICAN DICTIONARY 727 (2nd Ed) "a small motorized vehicle for golfers and their equipment."

127. See *Golf Cart*, MERRIAM-WEBSTER, <http://www.merriam-webster.com/dictionary/golfcart> [<http://perma.cc/KW7M-YXPT>]; DICTIONARY.COM, <http://dictionary.reference.com/browse/golf+cart> [<http://perma.cc/8QLC-R3QH>]; THE FREE DICTIONARY, <http://www.thefreedictionary.com/golf+cart> [<http://perma.cc/4GUC-LVF8>], *The History of Golf Carts*, GOLFLINK http://www.golfink.com/facts_18499_history-golf-carts.html [<http://perma.cc/E7QN-TH9Z>]; *A History of Golf Carts*, GOLF GUIDE TODAY, <http://golfguidetoday.info/?p=305>; "Golf Carts," http://topics.info.com/Golf-Carts_1582 [<http://perma.cc/88GS-9X9K>]; *Low Speed Vehicles*, GSA, <http://www.gsa.gov> [<http://perma.cc/FXH8-T2DN>].

128. *Pryor v. State*, 2011 OK CR 18, ¶ 6 254 P.3d 721, 723.

ing arguments. One such statement was “if you’ve been drinking the Kool-Aid you’ll probably walk her.”¹²⁹ Wikipedia is an online encyclopedia that can be edited by anyone. A study conducted in 2010 found that over 400 federal courts had cited Wikipedia and some had taken judicial notice of Wikipedia content or decided motions based on Wikipedia entries.¹³⁰ Wikipedia entries can be “opportunistically edited” by a client or lawyer to create or edit content supporting a particular position at issue in a case.¹³¹

Oklahoma Appellate Courts have been restrained in their citation to Wikipedia. The citation in *Pryor v. State* appears to be the only citation in any Oklahoma judicial opinion to Wikipedia. Wikipedia is frequently updated and is a good source for definitions of slang terms and references to popular culture that may not appear in print dictionaries until their use is well-established.¹³² Wikipedia has been cited by other state appellate courts and federal district courts for definitions of slang terms.¹³³

H. Expanding Independent Judicial Research

The version of Model Rule 2.9 adopted by Oklahoma is one of the most permissive in the nation.¹³⁴ Oklahoma added specific language to the ABA Model Rule allowing judges to “seek information of a general nature that does not bear on a disputed evidentiary fact or influence the judge’s opinion of the substantive merits [of] a specific case.”¹³⁵ The rule also allows judges to “obtain general information about a specialized area of knowledge that does not include the application of such information in a specific case.”¹³⁶

The discussion of independent judicial research above demonstrates that Oklahoma appellate courts have taken a conservative approach towards independent research into adjudicative facts. This approach is prudent and should become the normative practice of the appellate judiciary. An expansive application of Rule 2.9 could violate a litigant’s due process rights, Sixth or Seventh Amendment jury trial rights, and contravene the adversarial traditions of the American legal system.¹³⁷

Legal scholars contemplate judges taking a more expansive role in conducting independent research into adjudicative facts. Elizabeth Thornburg contends that Rule 2.9(C)’s reference to judicial notice opens a loophole allowing judges to independently investigate

129. *Id.*

130. Peoples, *Citation of Wikipedia*, *supra* note 12, at 36.

131. R. Jason Richards, *Courting Wikipedia*, TRIAL, Apr. 2008, at 63. See KAREN ELTIS, COURTS, LITIGANTS AND THE DIGITAL AGE: LAW, ETHICS AND PRACTICE 31, 39 (2012) for an example of “ill-intentioned individuals calculatingly planted inaccuracies and dis-information on Wikipedia, with the intent to mislead and influence a particular outcome in a dispute.”

132. Peoples, *Citation of Wikipedia*, *supra* note 12, at 31.

133. See *People v. Hawlish*, No. G036077, 2007 WL 915149, at 6 n.5 (Cal. Ct. App. Mar. 27, 2007) (citing Wikipedia for the definition of “tweaking”); *Riches v. Pitt*, No. 07-14615, 2007 WL 4547844, at 8 n.2 (E.D. Mich. Dec. 19, 2007) (citing Wikipedia for the definition of “phreakers”); and, *Bragg v. Linden Research, Inc.*, 487 F. Supp. 2d 593 (E.D. Pa. 2007) (citing Wikipedia for the definition of “avatar”).

134. Keele, *supra* note 4, at 128. The version of Rule 2.9 adopted in Connecticut only limits judges serving as factfinders from conducting independent research.

135. OKLA. STAT. TIT. 5 CH. 1, APP. 4, Code of Jud. Conduct, Canon 2, Rule 2.9(C) (2015).

136. *Id.*

137. Thornburg, *The Curious Appellate Judge: Ethical Limits on Independent Research*, *supra* note 6, at 138, 160-161, 192-93.

adjudicative facts as long as the facts meet the judicial notice requirement of being “generally known or ‘capable of accurate and ready determination by resort to sources whose accuracy cannot be reasonably questioned.’”¹³⁸

The Oklahoma Supreme Court independently conducted Internet research of an adjudicative fact and took judicial notice of that fact in *Tucker v. New Dominion* as discussed above.¹³⁹ Technically, the Court did not take judicial notice of an Internet resource but instead noticed the fact that the pronunciation of Hrdy and Hardy are *idem sonans*. The Court’s Internet research and judicial notice of an adjudicative fact in *Tucker* was required to apply the doctrine of *idem sonans* and is comparable to the use of dictionaries to define terms in other cases.

Expanding the application of this “loophole” could be problematic. As explained below in the section on link rot, websites often become inaccessible for a variety of reasons. An Internet resource that is inaccessible would not meet the judicial notice standard of being “capable of accurate and ready determination.”¹⁴⁰ Similarly, website content that changes because of reference rot could not meet the judicial notice standard of a source “whose accuracy cannot be reasonably questioned.”¹⁴¹ Additionally, the widespread application of this “loophole” would contravene the existing practice of Oklahoma appellate courts refusing to take judicial notice of facts “which are not part of the record on appeal or were not before the trial court when its decision was made.”¹⁴²

Courts in other jurisdictions have adopted a more lax approach to the requirements of facts being “generally known or capable of accurate and ready determination by resort to sources whose accuracy cannot be reasonably questioned.”¹⁴³ A recent law review article on the subject notes “courts are not just using the Internet to confirm intuitions of which they were already planning to take judicial notice—presumably, generally-known facts—but they are also turning to sources on the Internet to take judicial notice more often.”¹⁴⁴

A basic procedural safeguard should be used if Oklahoma appellate courts adopt a more expansive approach to researching and using adjudicative facts from the Internet. Rule 2.9 should be amended to require judges to disclose their independent research of adjudicative facts and provide the parties with an opportunity to object or provide supplemental information.¹⁴⁵ Amending the rule to include a notice and comment provision could help alleviate concerns over violating parties’ rights of due process, Sixth or Seventh Amendment jury trial rights, and the traditions of the American legal system.

138. *Id.* at 136 (quoting Fed. R. Evid. 201(b)).

139. *Tucker v. New Dominion, L.L.C.*, 2010 OK 14, ¶ 15, 230 P.3d 882, 886.

140. OKLA. STAT. TIT. 12 § 2202(b)(2) (2015).

141. *Id.*

142. ROLLS ET AL., *supra* note 52.

143. OKLA. STAT. tit. 12 § 2202 (b)(2) (2015); *see Keele, supra* note 4, at 157.

144. Keele, *supra* note 4, at 157.

145. A similar approach has been advocated by Thornburg, *The Curious Appellate Judge: Ethical Limits on Independent Research*, *supra* note 6, at 191 (explaining specific changes to evidentiary rules that may be required in the event that Rule 2.9(C) is modified to provide notice to parties when judges conduct independent research). A similar approach is also advanced in Keele, *supra* note 4, at 168.

An illustrative example of providing parties notice and a chance to comment on independent judicial research into adjudicative facts comes from the Eastern District of New York. In this case a federal trial court conducted independent research into adjudicative facts in an unfair competition case.¹⁴⁶ The trial judge issued a preliminary memorandum inviting the parties to be heard on the “propriety of taking judicial notice and the tenor of the matter noticed.”¹⁴⁷ In a published opinion reviewing the practice, Chief Judge Weinstein found the procedure complied with the spirit of the Federal Rules of Evidence on judicial notice and had “the advantage of reducing the possibility of egregious errors by the court and increases the probability that the parties may believe they were fairly treated, even if some of them are dissatisfied with the result.”¹⁴⁸ Although this case did not involve Internet research, it provides an example of the success of providing parties with notice and an opportunity to comment on independent judicial research into adjudicative facts.

The discussion above centered on whether Oklahoma appellate courts *can* conduct independent factual research using the Internet. So far, Oklahoma appellate courts have been restrained in conducting independent factual research on the Internet. The remainder of the article will examine the question of whether Oklahoma appellate courts *should* conduct this research. The impermanent nature of the Internet warrants caution when Internet resources are cited in judicial opinions. The next section will explore the perils of citing Internet resources in judicial opinions. The citation of Internet resources in appellate briefs will also be examined. Further, a course of action to mitigate the harm caused when these links fail will be described.

III. THE TRANSIENT NATURE OF THE INTERNET

Internet citations first appeared in legal materials in the late 1990s.¹⁴⁹ A high percentage of these citations no longer work. No one can “predict what links will rot, even within individual Supreme Court cases. The Internet’s ephemeral nature means websites can be available today – and gone tomorrow.”¹⁵⁰

Link and reference rot are to blame for the disappearance of cited Internet resources. As discussed above, link rot refers to a link that no longer displays anything. A rotten link typically retrieves a “404 not found” error page.¹⁵¹ Reference rot describes a link that “still works but the information referenced by the citation is no longer present, or has changed.”¹⁵²

Link and reference rot occur for a number of reasons. Links, otherwise known as URLs, are references to content maintained by others, many with no interest in ensuring that links continue to function indefinitely.¹⁵³ URLs fail when websites are reorganized

146. *Bulova Watch Co. v. K. Hattori & Co.*, 508 F. Supp. 1322 (E.D.N.Y. 1981).

147. *Id.* at 1328.

148. *Id.* at 1328-29.

149. See Peoples, *Internet Citations in Okla. Att’y Gen. Opinions*, *supra* note 7, at 348.

150. Liebler & Liebert, *supra* note 8, at 277.

151. Jonathan Zittrain et al., *Perma: Scoping and Addressing the Problem of Link and Reference Rot in Legal Citations*, 127 HARV. L. REV. F. 165, 170 (2014) http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2329161.

152. *Id.* at 166.

153. *Id.* at 165.

and URL addresses change.¹⁵⁴ Link rot can occur when a website owner forgets to renew a domain registration, deletes content from a site, or simply loses interest in maintaining a website.¹⁵⁵ Reference rot can occur when a website owner makes minor changes to content or makes updates to provide more current information.¹⁵⁶

A. *Study Methodology and Results*

Judicial opinions citing Internet resources were located by searching the WestlawNext database Oklahoma State Cases.¹⁵⁷ The search query used to locate opinions citing Internet resources was ADV: WWW HTTPS HTTP WEBSITE INTERNET “WEB PAGE[.]”

This search returned a total of 183 opinions.¹⁵⁸ Opinions that merely contained a search term but did not cite an Internet resource for factual information or to support the logic or reasoning of the opinion were removed from the dataset. After culling the dataset, a total of eighty-two opinions citing an Internet resource for factual information or to support the logic or reasoning of the opinion remained.¹⁵⁹

The first citation to an Internet resource in an Oklahoma appellate judicial opinion appeared in 1998.¹⁶⁰ The eighty-two opinions citing Internet resources over the past seventeen years comprise 2.5% of all appellate opinions published during the time period as depicted below in Figure 1. Oklahoma appellate opinions cite Internet resources less frequently than opinions of the Supreme Court of the United States (SCOTUS). Internet resources were cited in 14% of the SCOTUS opinions issued from 1996 – 2001.¹⁶¹ Oklahoma appellate courts cite Internet resources at a slightly greater frequency than appellate courts in other states. The citation rate of Internet resources in appellate opinions ranged from 1.58% to 0.001% in studies examining opinions from Texas, Washington, Kentucky, and New York.¹⁶²

154. Peoples, *Internet Citations in Okla. Att’y Gen. Opinions*, *supra* note 7, at 348.

155. *Id.*

156. Zittrain et al., *supra* note 151.

157. The language of this section and methodology used to locate opinions and the discussion in this section was adapted from Peoples, *Internet Citations in Okla. Att’y Gen. Opinions*, *supra* note 7. The WestlawNext Oklahoma State Cases database includes the following: Supreme Court of the Territory of Oklahoma: 1890 – 1907; Court of Appeals of Indian Territory: 1895 – 1907; Supreme Court: begins with 1907; Court of Criminal Appeals: begins with 1908; Court of Civil Appeals: begins with 1967; and, Court of the Judiciary: begins with 1968.

158. Search results as of May 26, 2015.

159. *Id.*

160. *Mills v. Grotheer*, 1998 OK 33, 957 P.2d 540.

161. Liebler & Liebert, *supra* note 8, at 297.

162. Arturo Torres, *Is Link Rot Destroying Stare Decisis As We Know It? The Internet-Citation Practice of the Texas Appellate Courts*, 13 J. APP. PRAC. & PROCESS 269, 276-277 (2012) (finding a 1.58% citation rate to Internet resources in Texas appellate opinions between the years of 1998-2011); Tina S. Ching, *The Next Generation of Legal Citations: A Survey of Internet Citations in the Opinions of the Washington Supreme Court and Washington Appellate Courts, 1999-2005*, 9 J. APP. PRAC. & PROCESS 387, 391 (2007) (finding a 0.6% citation rate to Internet resources in Washington appellate opinions between the years of 1999-2005); Michael Whiteman & Jennifer Frazier, *Internet Citations in Appellate Court Opinions: Something’s Rotting in the Commonwealth*, 76 KY. BENCH & BAR 22, 22 (Jan. 2012) (finding a 0.006% citation rate to Internet resources in Kentucky appellate opinions between the years of 2000-2011); Kelly C. Aldrich, *Web Cites: When Courts Cite to URLs: A Study of Washington and New York Cases*, 27 LEG. REF. SERV. Q. 203 (2008) (finding a 0.001% citation rate to Internet resources in New York appellate opinions between 1998-2006). Additional research was conducted to

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Figure 1
Citations to Internet Resources in Oklahoma Appellate Judicial Opinions

Year	Total Opinions Citing Internet	Number of Supreme Court Opinions Issued	Supreme Court Opinions Citing Internet	% of Opinions Citing Internet	Number of Court of Criminal Appeals Opinions Issued	Court of Criminal Appeals Opinions Citing Internet	% of Opinions Citing Internet	Number of Court of Civil Appeals Opinions Issued	Court of Civil Appeals Opinions Citing Internet	% of Opinions Citing Internet
1998	1	133	1	1%	77	0	0%	196	0	0%
2003	1	107	1	1%	26	0	0%	108	0	0%
2004	2	106	1	1%	37	0	0%	104	1	1%
2005	1	92	1	1%	31	0	0%	112	0	0%
2006	5	99	2	2%	50	1	2%	155	2	1%
2008	6	105	4	4%	30	2	7%	115	0	0%
2009	11	97	6	6%	32	2	6%	107	3	3%
2010	8	92	5	5%	28	1	4%	145	2	1%
2011	8	105	3	3%	31	2	6%	128	3	2%
2012	10	113	5	4%	16	2	13%	112	3	3%
2013	12	109	8	7%	20	2	10%	113	2	2%
2014	11	118	7	6%	17	2	12%	109	2	2%
2015 ¹⁶³	6	35	4	11%	8	0	0%	60	2	3%
Total	82	1311	48	4%	403	14	3%	1564	20	1%

The total number of links found in all opinions was 105.¹⁶⁴ Sixty-six Internet resources were cited for factual information. Thirty-nine Internet resources were cited to support the logic or legal reasoning of the opinion.

Each link was checked to verify that it still worked. The content displayed at webpages was checked to determine if it suffered from reference rot (not containing the information it was cited for). Advanced Internet search techniques were used to try and locate cited webpages that were inaccessible due to link rot (not displaying any content).

determine the total number of cases issued by the appellate courts of these states to arrive at the percentages stated. It is likely the percentage of opinions citing Internet resources in these states has increased in the years since these studies were conducted.

163. As of May 26, 2015.

164. Several of the eighty-two opinions citing Internet resources cited multiple Internet resources.

Initial results revealed that fifty out of the 105 links cited in opinions did not work. This high failure rate can be explained because of the way WestlawNext formats links. WestlawNext occasionally inserts extra spaces into links causing them to fail when cut and pasted into an Internet browser. For example, *Crownover v. Keel* cites the United States Postal Service website for what a certified mail receipt verifies.¹⁶⁵ The link is displayed as follows in WestlawNext, note the additional space after the “://” symbols:

https:// store.usps.com/store/browse/productDetailSingleSku.jsp?productId=P_FORM_3800.

Out of the fifty links that initially failed, eighteen could be made to work by removing extra spaces inserted by WestlawNext. WestlawNext’s practice of inserting extra spaces into links may be obvious to an Internet savvy researcher; but, an average or unsophisticated researcher may give up after retrieving an error message.¹⁶⁶

The actual failure rate of links in appellate opinions was determined to be 30% (thirty-two out of 105 links did not work) after correcting for link failures caused by WestlawNext’s insertion of spaces. This failure rate is lower than the rate found in most other studies of judicial opinions: Kentucky Appellate Courts (47% failure rate); Texas Appellate Courts (39% failure rate); Washington State (40% failure rate among published judicial opinions).¹⁶⁷ The failure rate of links in Oklahoma appellate opinions is slightly higher than the failure rate of links in U.S. Supreme Court opinions (29% percent failure rate) and published judicial opinions in New York State (27%).¹⁶⁸

Seventeen years of data demonstrate that older links fail at a higher rate than younger links. Links in opinions from 1998-2005 have a failure rate of 50%, links in opinions from 2006-2010 have a failure rate of 37%, and links in opinions from 2011-2015 have a failure rate of 27%. These results are similar to studies finding that links in Oklahoma attorney general’s opinions, judicial opinions from other jurisdictions, and law review articles are more likely to fail as they age.¹⁶⁹

165. 2015 OK 35, ¶ 5 n. 2, 357 P.3d 470, 480 n. 2 (Winchester, J., dissent).

166. See the studies discussed *infra* about the lack of basic Internet research skills among members of the general public, law students, and lawyers.

167. Whiteman and Frazier, *supra* note 162, at 22; Torres, *supra* note 162, at 281; Aldrich, *supra* note 162, at 227.

168. Liebler & Liebert, *supra* note 8, at 26. *But see* Zittrain et al., *supra* note 151, at 175 (noting a 49% reference rot rate in links found in U.S. Supreme Court opinions); Aldrich, *supra* note 162, at 227.

169. Peoples, *Internet Citations in Okla. Att’y Gen. Opinions*, *supra* note 7, at 353; see Torres, *supra* note 162, at 282 (“As a whole, the data show an upward trajectory of link rot with the passage of time.”); see Zittrain et al., *supra* note 151, at 167 (citing an early study conducted by Mary Rumsey finding a “steady decrease in working links” in law review articles). *But see* Liebler & Liebert, *supra* note 8, at 298-99 (“Based on statistical tests, we found no clear relationship between the time elapsed since a link was cited and whether the link still works.”).

Figure 2
Failure Rate of Links in Appellate Judicial Opinions (1998 - 2015)

Year	Number of Links in Opinions	Number of Failed Links ¹⁷⁰	Failure Rate	Multi-Year Averages
1998	1	1	100%	
2003	1	0	0%	
2004	2	0	0%	
2005	1	1	100%	50%
2006	5	2	40%	
2008	6	3	50%	
2009	11	5	45%	
2010	8	1	13%	37%
2011	8	4	50%	
2012	10	3	30%	
2013	12	2	17%	
2014	11	4	36%	
2015 ¹⁷¹	6	0	0%	27%
TOTAL	82	26	37%	

B. Link Rot in Appellate Judicial Opinions

Twenty-nine of the thirty-two links that did not function could be made to work by conducting additional searching. The technical ability required to locate the missing information ranges from novice to expert level.

Basic Internet searches can be used to discover some sources cited with a rotten link in judicial opinions. In *Parris v. Limes*, discussed *supra*, the opinion of the court cited an article from the Archives of Pathology and Laboratory Medicine.¹⁷² The *Parris* opinion cited the article to clarify an expert witnesses' statement. The article supported part of the opinion's reasoning that it is common knowledge that unnecessary removal of a healthy prostate does not ordinarily occur absent negligence.¹⁷³ The link provided in the opinion does not return the cited article but instead pulls up a search engine page for

170. Links that failed due to WestlawNext inserting extra spaces were not included.

171. Through May 26, 2015.

172. 2009 Okla. Civ. App. 19, ¶ 14 n. 5, 284 P.3d 1128, 1134 n. 5.

173. *Id.* (citing Archives of Pathology & Laboratory Medicine, June 2006; 130:811–816 (available at http://findarticles.com/p/articles/mi_qa3725/is_200606/ai_n17189011)). The court did not expressly state that it was taking judicial notice of this fact.

“Search.com.”¹⁷⁴ A Google search for the title of the article returns a copy from the journal’s website.¹⁷⁵

The opinion in *Bittle v. Bahe* cites a website for the tribal ordinances of the Absentee Shawnee Tribe.¹⁷⁶ The link provided in the opinion retrieves a webpage under construction that includes some information in French but not the cited tribal ordinance.¹⁷⁷ A Google search for “Absentee Shawnee Tribal Ordinance” does not immediately return the tribal code cited in the Court’s opinion. A researcher with some legal research experience might try searching for the “tribal code” instead of the term “tribal ordinance” used in the opinion. A search for “Absentee Shawnee Tribal Code” returns several sources of the cited provision including the Tribe’s website, the National Indian Law Library website, and the University of Oklahoma College of Law Tribal Code Project website.¹⁷⁸

The *Bittle* opinion does not include the text of the tribal code at issue. Instead it paraphrases the code section at issue as “provide[ing] that the tribal corporations may sue and be sued.”¹⁷⁹ While the paraphrased information is helpful, researchers who want to view the actual text of the tribal code in context will encounter some difficulty, as described in the preceding paragraph. The author of the opinion had no way of knowing the link included for the tribal code would succumb to link rot when it was included in the opinion. Including the actual text of the tribal code at issue would insure that future researchers could accurately view the cited tribal code provision.

More advanced searching skills are required to fix rotten links in other appellate opinions. In *Moore v. Oklahoma Employment Securities Commission*, the opinion cites the School Board Precedent Manual for a definition of good cause for terminating an employee.¹⁸⁰ The opinion distinguished the definition found in the Manual from applicable case law cited by the parties. The Manual and the definition it contained were important to the court’s reasoning.¹⁸¹

The link provided for the manual is: http://www.ok.gov/oesc_web/OESC/UI_Precedent—Manual/.¹⁸² The link returns a “Error 404” page.¹⁸³ A savvy researcher can modify the link to make it operational by changing the “-” character to a “_” character.

174. *Parris*, 2009 Okla. Civ. App. ¶ 14 n. 5, 284 P.3d at 1134. The link provided in the opinion is http://findarticles.com/p/articles/mi_qa3725/is_200606/ai_n17189011. *Id.* When entered into the Chrome browser the link resolves to <http://www.search.com/search> [<http://perma.cc/3YNM-D3AQ>].

175. *Homepage*, ARCHIVES OF PATHOLOGY, <http://www.archivesofpathology.org/> [<http://perma.cc/C6G6-NB5C>].

176. 2008 OK 10, ¶ 4 n. 2, 192 P.3d 810, 813 n. 2 (citing http://www.njrc.org/ccfo/lder/absentee_shawnee_tribalcodemenu.htm).

177. *Id.* (citing [<http://perma.cc/3ZPV-272C>]).

178. *Id.* (citing <http://www.absenteeshawneetribe-nsn.gov/Constitution.aspx> [<http://perma.cc/VPQ4-DVV5>]; <http://www.narf.org/nill/tribes/absentee.html> [<http://perma.cc/ZQP5-BRWN>]; <http://thorpe.ou.edu/codes/absshaw/> [<http://perma.cc/B3GT-ZZ4F>]). The correct tribal code provision is found under Corporations at Section III, 101. http://www.narf.org/nill/codes/absentee-shawnee/corporations_ch_1.html [<http://perma.cc/Y6HQ-29QW>].

179. *Id.* 2008 OK ¶ 4, 192 P.3d at 813.

180. 2013 Okla. Civ. App. 46, ¶ 15, 301 P.3d 885, 890.

181. *Id.*

182. *Id.*

183. *See Id.* (citing http://www.ok.gov/oesc_web/OESC/UI_Precedent—Manual/ [<http://perma.cc/2JBM-YNXX>]).

The modified link returns the Manual cited in the opinion.¹⁸⁴ Not many researchers have the knowledge or ability to modify links. Many researchers would simply give up after receiving the “Error 404” page. The unavailability of the Manual may frustrate researchers wanting to examine the logical underpinnings of the court’s reasoning.

The initial unavailability of the cited source is somewhat mitigated by the opinion’s quotation of relevant language from the Manual. Researchers who want to view the source in context and examine other potentially relevant provisions of the Manual may be frustrated by the source’s unavailability. Researchers unable to view the entire source cited in an appellate judicial opinion may lose confidence in the opinion’s underlying analysis and reasoning.

The opinion in *L’grke v. Sherman* cites the online version of several sections of the Oklahoma State Department of Corrections Policy Manual.¹⁸⁵ The opinion concludes that the Department of Corrections violated its own policies in not forwarding an inmate his legal mail.¹⁸⁶ The violations were significant enough that the Supreme Court recalled a previously issued Court of Criminal Appeals Mandate and allowed the appellant to file out of time.¹⁸⁷

A researcher attempting to view the Manual sections as cited in the opinion will be taken to “Error 404” pages.¹⁸⁸ The Manual may be retrieved using the Internet Archive’s Wayback Machine.¹⁸⁹ The Wayback Machine is a digital archive of 450 billion webpages.¹⁹⁰ To locate the Manual a researcher must know that the Wayback Machine exists and know how to use it. A researcher unfamiliar with the Wayback Machine would assume the Manual is simply not available. The quotation of language from the Manual in the opinion mitigates the rotten link provided to the Manual.

The unavailability of the complete Manual to all but the most expert researcher makes it difficult to view the cited language in the context of other provisions of the Manual. A researcher may want to view other provisions of the manual to better understand the meaning of the terms cited or locate provisions relating to their applicability. Researchers unable to view the cited Manual may lose confidence in the logical underpinnings of the *L’grke* opinion.

A concurring opinion in *Cossey v. Cherokee Nation Enterprises, LLC*, cites a treatise available online for a historical discussion of the Cherokee tribe’s judicial system and

184. *Moore*, 2013 Okla. Civ. App. 46, 301 P.3d 885.

185. 2009 OK 80, ¶¶ 3 n. 2, 6, 223 P.3d 383, 384-85 (citing <http://www.doc.state.ok.us/Offtech/op030117.pdf> [<http://perma.cc/2TLZ-MVLS>]; <http://www.doc.state.ok.us/Offtech/op030120.pdf> [<http://perma.cc/MF8Z-S83D>]).

186. *Id.*

187. *Id.*

188. *Id.* (citing <http://www.doc.state.ok.us/Offtech/op030117.pdf> [<http://perma.cc/2TLZ-MVLS>] and <http://www.doc.state.ok.us/Offtech/op030120.pdf> [<http://perma.cc/MF8Z-S83D>]).

189. <http://www.doc.state.ok.us/Offtech/op030117.pdf> may be accessed in the Internet Archive at <https://perma.cc/SQY8-BWXZ>. <http://www.doc.state.ok.us/Offtech/op030120.pdf> may be accessed in the Internet Archive at <https://perma.cc/BTT7-L6XC>.

190. See *Homepage*, WAYBACK MACHINE, <https://archive.org/web/>. The discussion of the Internet Archive’s Wayback Machine is adapted from Peoples, *Internet Citations in Okla. Att’y Gen. Opinions*, *supra* note 7, at 352.

courthouses.¹⁹¹ The development of the tribe's court system was a legal issue in the case.¹⁹² As stated in the concurring opinion "[w]hether tort claim litigation infringes upon tribal self-government could depend upon whether the tribe has established an appropriate court system."¹⁹³ The link provided in the concurring opinion does not lead to the treatise.¹⁹⁴ A savvy researcher with some knowledge of Oklahoma digital historical archives can locate the treatise in the Oklahoma Historical Society's *Chronicles of Oklahoma*.¹⁹⁵ The *Chronicles* began as a quarterly magazine devoted to the history of Oklahoma.¹⁹⁶ An average researcher confronting the rotten link in the concurring opinion could not be reasonably expected to know that the treatise is available in the *Chronicles of Oklahoma*.

C. Reference Rot in Appellate Judicial Opinions

The opinions discussed in the previous section contain examples of link rot.¹⁹⁷ Link rot can be extremely frustrating for a researcher attempting to view cited language in context or verify exactly what a cited source says. Researchers examining Oklahoma appellate judicial opinions will also be frustrated by reference rot.

Reference rot describes a link that "still works but the information referenced by the citation is no longer present, or has changed."¹⁹⁸ Studies have found that 70% of links in Harvard law journals and 50% of links in U.S. Supreme Court opinions were afflicted with reference rot.¹⁹⁹ By comparison, links in Oklahoma appellate judicial opinions have a lower rate of reference rot. Ten percent of links in appellate judicial opinions suffered from reference rot.²⁰⁰ This reference rot rate is comparable with the 13% of links in Oklahoma attorney general opinions that have succumbed to reference rot.²⁰¹

The opinion *In re Reinstatement of Raichle* involved the reinstatement of a lawyer to the practice of law.²⁰² The opinion notes that the Oklahoma Bar Association (OBA) conducted an investigation to determine if the petitioner had engaged in the unauthorized practice of law during the term of his suspension.²⁰³ The investigation revealed that the website of a law firm the petitioner was associated with "could be construed to reflect that

191. *Cossey v. Cherokee Nation Enterprises, LLC*, 2009 OK 6, ¶¶ 30-32, 212 P.3d 447, 479 (Kauger, J., concurring in part) (citing George O'Dell, Professor of Anthropology, "Saline Courthouse," www.personal.utulsa.edu; O'Dell, "Cherokees Fund Restoration Project for Historic Courthouses," *NATIVE AMERICAN TIMES* (retrieved Oct. 30, 2008)).

192. *Cossey*, 2009 OK ¶ 13, 212 P.3d at 457.

193. *Id.*, 2009 OK ¶ 30, 212 P.3d at 479 (Kauger, J., concurring in part).

194. *Test Page*, Red Hat Enterprise, <http://perma.cc/T4LD-UWZV?type=live>.

195. See Omer L. Morgan, *The Saline Courthouse Massacre*, *CHRONICLES OF OKLAHOMA* <http://digital.library.okstate.edu/chronicles/v033/v033p087.pdf> [<http://perma.cc/ZRT9-6GYK>].

196. Editorial, Volume 1, No. 1, *CHRONICLES OF OKLAHOMA*, (Jan. 1921) <http://digital.library.okstate.edu/Chronicles/v001/v001p003.html> [<http://perma.cc/8UME-BCZW>].

197. Adapted from Peoples, *Internet Citations in Okla. Att'y Gen. Opinions*, *supra* note 7, at 352.

198. Zittrain, et al., *supra* note 151, at 166.

199. Peoples, *Internet Citations in Okla. Att'y Gen. Opinions*, *supra* note 7, at 363 (citing Zittrain, et al., *supra* note 151, at 166).

200. Ten out of the 105 Internet links in Oklahoma appellate judicial opinions suffered from reference rot.

201. Peoples, *Internet Citations in Okla. Att'y Gen. Opinions*, *supra* note 7, at 363.

202. 2003 OK 71, ¶ 1, 77 P.3d 1032, 1033.

203. *Id.* 2003 OK ¶ 4, 77 P.3d at 1033.

the petitioner was a current member of the OBA.”²⁰⁴ The opinion does not include a URL for the law firm website. A Google search returned the website as it currently exists, not as the court viewed it when the opinion was issued in 2003.²⁰⁵ The current version of the website does not contain any information about the petitioner. However, a researcher familiar with the Wayback Machine can use it to pull up a version of the firm’s website in 2002 which includes biographical data about the petitioner.²⁰⁶

The opinion in *In re Initiative Petition No. 379, State Question 726*, discussed *supra*, includes a reference to the proponent of the initiative petition’s website.²⁰⁷ The proponent took the legal position that if circulators came into Oklahoma with the intention of staying for the duration of the petition drive or could provide an address within the state, they were considered state residents.²⁰⁸ The opinion notes this is not a correct interpretation of Oklahoma law and cites the proponent’s website as evidence that it portends to have “essential elements of a campaign including knowledge of local laws.”²⁰⁹ The website as cited in the opinion is accessible but does not contain any mention of the proponent having knowledge of local laws.²¹⁰ The absence of this statement from the website is mitigated by the fact that the opinion included a verbatim quotation from the website.²¹¹ However, researchers who attempt to verify this information or read other portions of the website to place the quotation in context are unable to view the website as it existed at the time the court viewed it.

Embry v. Innovative Aftermarket Sys. L.P. involved a claim of bad faith against a gap insurance provider.²¹² The opinion quotes a description of gap insurance from the defendant’s website. The description forms part of the opinion’s reasoning that the gap insurance contract at issue in the case involved “the special relationship necessary to support tort recovery for bad faith.”²¹³ The defendant’s website no longer includes the exact statement referenced in the opinion. In the *Embry* opinion, as in the *Initiative Petition* opinion, discussed *supra*, the verbatim quotation of the language at issue in the opinion preserves the website content for the use of future researchers.²¹⁴

A final illustrative example of reference rot is found in *CPT Asset Backed Certificates, Series 2004-EC1 v. Cin Kham*.²¹⁵ The opinion quotes several passages from the website of the Mortgage Electronic Registration Systems Inc. (MERS). Unfortunately the opinion does not provide a URL for the website, instead referring to it as “MERS web

204. *In re Reinstatement of Raichle*, 2003 OK 71, ¶ 4, 77 P.3d 1032, 1033.

205. *See Homepage*, SIMMONS HANLY CONROY, <http://www.simmonsfirm.com> [<http://perma.cc/JF92-9UP4>].

206. *See Attorneys and Staff*, SIMMONS HANLY CONROY, <https://perma.cc/ZA25-P2Q9>.

207. 2006 OK 89, ¶ 18 n. 41, 155 P.3d 32, 41 n. 41 (citing <http://directdemocracy.com/>).

208. *Id.*

209. *Id.*

210. The website <http://directdemocracy.com/> was accessible during the fall of 2015 but no longer functioned as of December 3, 2015. Archived versions of the website are available through the Internet Archive. https://web.archive.org/web/*/www.directdemocracy.com [<https://perma.cc/WE2W-4G3U>].

211. *Id.*

212. *Embry v. Innovative Aftermarket Sys. L.P.*, 2010 OK 82, ¶¶ 0, 9, 247 P.3d 1158, 1158, 1160.

213. *Id.* 2010 OK ¶ 9, 247 P.3d at 1160.

214. *Id.*

215. *See* 2012 OK 22, ¶ 4, 278 P.3d 586, 588.

page overview.”²¹⁶ A Google search for MERS returned what appears to be the website of the Mortgage Electronic Registration Systems Inc. None of the quoted passages can be located on the MERS website. Researchers attempting to view the cited language in context may have difficulty determining what website the opinion was citing because the opinion does not include a URL.²¹⁷ Researchers who are able to locate the MERS website will discover that the language quoted in the opinion no longer exists on the website.

D. Internet Resources Cited in Appellate Briefs

Examining Internet citations in briefs filed with Oklahoma appellate courts is helpful in understanding how the appellate courts use the Internet. An appellate court may decide to cite an Internet resource because it is cited in a brief filed with the court. Alternatively, an Internet resource cited in a brief may impact the court’s thinking without being cited in the court’s opinion.

The search used to locate Oklahoma appellate judicial opinions citing Internet resources was duplicated to locate briefs citing Internet resources. The search was run in the WestlawNext database of Oklahoma Briefs.²¹⁸ The search returned a total of 192 briefs citing an Internet resource for factual information or to support the logic or reasoning of the brief. The total number of links found in all briefs was 224.

WestlawNext’s Oklahoma Briefs database contains selected briefs filed with the Oklahoma Supreme Court, with coverage beginning in 2007.²¹⁹ The database does not include briefs filed with Oklahoma’s two additional appellate courts. The database contains selected briefs and, thus, not all briefs filed with the Oklahoma Supreme Court are included. For example, forty-eight Supreme Court opinions citing an Internet resource were included in the data set for this study. The WestlawNext Oklahoma Briefs database includes briefs for only twenty-three of the forty-eight Supreme Court Opinions.²²⁰

The Oklahoma Briefs database does not include every brief filed in a particular appellate case. The database contained only forty-nine briefs for the twenty-three Supreme Court opinions with briefs available in WestlawNext. Reviewing the dockets for these cases on OSCN.net revealed that a total of 237 briefs were filed in these twenty-three cases. On average the WestlawNext Oklahoma Briefs database contains only twenty percent of the actual briefs filed in an Oklahoma Supreme Court case.

The study data reveals an interesting pattern in the citation of Internet resources in Oklahoma appellate judicial opinions. The Oklahoma Supreme Court cites Internet resources less frequently when compared with attorneys writing appellate briefs to the Court. From 1998 to 2015 only forty-eight Oklahoma Supreme Court opinions cited an Internet resource for factual information or to support the logic or reasoning of the opinion. In contrast, 192 briefs available in the WestlawNext Oklahoma Briefs database from 2007 to 2015 cited Internet resources for factual information or to support the logic or reasoning

216. *Id.* 2012 OK ¶ 4 n. 6, 278 P.3d at 588 n. 6.

217. *See id.*

218. ADV: WWW HTTPS HTTP WEBSITE INTERNET “WEB PAGE”.

219. *Oklahoma Briefs*, WESTLAWNEXT.

220. A separate search was performed to verify if briefs were available for each opinion examined in this study. The search described *supra* at note 218 was not used because it could potentially exclude briefs that do not cite an Internet resource. *Id.*

of a brief. The number of all briefs citing Internet resources during this time period is likely much higher, as the WestlawNext Oklahoma Briefs database contains only “selected briefs.” Also, the sample size of briefs available in WestlawNext covers only eight years while the sample size of Oklahoma Supreme Court opinions examined in this study is over twice as large at seventeen years.

An illustrative example of the Supreme Court’s restraint in citing Internet resources can be found in the opinion in *Cline v. Oklahoma Coalition for Reproductive Justice*.²²¹ The *Cline* case involved a challenge to an Oklahoma law requiring abortion drugs to be administered according to FDA requirements.²²² The case attracted public attention and was eventually appealed to the Supreme Court of the United States. Briefs filed with the Oklahoma Supreme Court contained no less than nine citations to Internet resources. Briefs filed in the subsequent appeal to the Supreme Court of the United States contained no less than twenty-eight citations to Internet resources.²²³ In its opinion, the Oklahoma Supreme Court cited just one website as a source for an FDA Information Sheet at issue in the case.²²⁴

Another example of the Oklahoma Supreme Court’s restraint is found in the case of *State ex rel. Protective Health Servs. State Dep’t of Health v. Vaughn*.²²⁵ In the *Vaughn* case, the Court cited the State Department of Health’s website. However, the Court noted that the citation was for “illustrative purposes only”²²⁶ and that the Court “do[es] not rely on these pages in reaching our decision today.”²²⁷

E. Link and Reference Rot in Appellate Briefs

Initially, sixty-three out of the 224 links cited in briefs did not work. Many of these links failed because WestlawNext inserted extra spaces into the links. Of the sixty-three that initially failed, forty-four could be made to work by removing extra spaces inserted by WestlawNext leaving nineteen links that did not work. Sixteen of these nineteen Internet resources could be located by conducting advanced Internet searching, leaving only three links that could not be located.

221. 2013 OK 93, 313 P.3d 253.

222. *Id.* See also *Cline v. Okla. Coal. for Reprod. Justice*, SCOTUS BLOG, <http://www.scotusblog.com/case-files/cases/cline-v-oklahoma-coalition-for-reproductive-justice/> [<http://perma.cc/X49A-W8T7>].

223. Citations to Internet resources in briefs filed with the Oklahoma Supreme Court include: Respondents Answer Brief at 9, *Cline*, 2013 OK 93, 313 P.3d 253, 2013 WL 5806204 (seven citations to Internet resources) and Petitioners’ Reply Brief, *Id.* at 2013 WL 5806205 (two citations to Internet resources). Citations to Internet resources in briefs filed with the Supreme Court of the United States include: Brief of Amici Curiae of the Family Research Council and Alliance Defending Freedom in Support of Petitioners at ii, 2013 WL 1412082 (eight citations to Internet resources); Brief of Amici Curiae Dr. John Thorp, M.D., FACOG; Dr. John Seeds, M.D., FACOG; The American Association of Pro-Life Obstetrician and Gynecologists (AAPLOG); The Christian Medical & Dental Association (CMDA); and the Catholic Medical Association (CMA) in Support of Petitioners, 2013 WL 1491671 (five citations to Internet resources); Amicus Curiae Brief of 79 Oklahoma Legislators in Support of Petitioners, *Cline v. Oklahoma Coalition for Reproductive Justice*, 2013 WL 1491672 (U.S.) (eight citations to Internet resources); and, Brief Of Women And Families Hurt By RU-486 As Amici Curiae In Support Of Petitioners, *Cline v. Oklahoma Coalition for Reproductive Justice*, 2013 WL 1450985 (U.S.) (eight citations to Internet resources).

224. *Cline*, 2013 OK ¶ 21 n. 20, 313 P.3d at 261 n. 20.

225. See 2009 OK 61, 222 P.3d 1058.

226. *Id.* 2009 OK ¶ 12 n. 12, 222 P.3d at 1065 n. 12

227. *Id.*

The rate of link rot in WestlawNext's Oklahoma Briefs database was one percent (three out of 224 links did not work). This figure seems low when compared with the thirty percent link rot rate for links in Oklahoma appellate judicial opinions discussed above in Section III B. However, a direct comparison between briefs and judicial opinions is not valid given the incompleteness of the WestlawNext Oklahoma Briefs database which contains only mixed coverage of briefs filed with the Supreme Court and excludes briefs filed with Oklahoma's two additional appellate courts. Additionally, a direct comparison is not possible because the Oklahoma Briefs database covers only eight years while Oklahoma appellate opinions have been citing Internet resources for the past seventeen years. In reality, the actual rate of link rot in Oklahoma appellate briefs is likely much higher.

Additional research was conducted to determine how many Internet resources cited in Oklahoma appellate briefs suffered from reference rot. Reference rot is used to describe a link that is functional but that does not return the information it was cited for.²²⁸ Research revealed that 147 of the 221 Internet resources cited in appellate briefs contained the information they were cited for. The remaining seventy-four websites, or thirty-three percent, did not contain the information they were cited for and suffered from reference rot. Although a direct comparison is not completely valid, this rate is much higher than the ten percent reference rot rate found in Oklahoma appellate judicial opinions. The actual rate of reference rot is likely much higher in light of the incompleteness and limited time frame covered by the WestlawNext Oklahoma Briefs database.

Link and reference rot in Oklahoma appellate opinions and attorneys' briefs is frustrating to members of the legal profession and the general public. Link and reference rot hinder the ability of the judiciary to locate cited resources cited in briefs and to view them in context. Researchers who encounter link or reference rot in an opinion or brief may legitimately question the authoritativeness of the opinion or brief that cited the link.

F. Skills Required to Locate Information Hidden by Link or Reference Rot

As explained in the preceding sections, advanced Internet searching was conducted to locate Internet resources cited in appellate opinions and briefs but made inaccessible by link or reference rot.²²⁹ The level of skill required to locate these otherwise inaccessible resources varied from expert to novice level. The general public, lawyers, and judges may not possess the skills required to locate these resources.

Decades of research has demonstrated a lack of Internet research skills among all segments of the population. A 2002 study found that many Internet users did not have even basic skills or the ability to formulate a simple Internet search.²³⁰ A 2010 study refuted the perception that "young users are generally savvy with digital media."²³¹ The study found "considerable variation . . . even among fully wired college students when it comes

228. Zittrain et al., *supra* note 151.

229. This section was adapted from Peoples, *Internet Citations in Okla. Att'y Gen. Opinions*, *supra* note 7, at 356.

230. Eszter Hargittai, *Beyond Logs and Surveys: In-Depth Measures of People's Web Use Skills*, 53 J. AM. SOC'Y INFO. SCI. & TECH. 1239, 1243 (2002).

231. Eszter Hargittai, *Digital Na(t)ives? Variation in Internet Skills and Uses Among Members of the "Net Generation"*, 80 SOC. INQUIRY 92, 108 (2010).

to understanding various aspects of Internet use. Moreover, these differences are not randomly distributed. Students of lower socioeconomic status, women, students of Hispanic origin, and African Americans exhibit lower levels of Web know-how than others.”²³²

Other studies demonstrate that lawyers and law students do not possess advanced Internet research skills. A 2011 study found that sixty percent of law students did not validate information retrieved from free websites.²³³ A study of nearly 3,600 law students revealed that “it was unclear if the respondents understood that reliability might be an issue with the sources that they use.”²³⁴ The research abilities of recent law school graduates was critiqued in another study concluding that “[l]egal professionals in particular are critical of new lawyers’ research skills; they say that these new lawyers are unprepared to conduct legal research and that their research skills are unsophisticated.”²³⁵

The research skills of more experienced lawyers are also lacking. A recent study found that “[e]mployers, particularly those with more years in practice, rely on new attorneys to be research experts.”²³⁶ One attorney commented “I really have a huge reliance on [the person] . . . doing my research for me because I don’t do it.”²³⁷ Another study found a “decline in the research competency of legal practitioners” and found “a gap in the research skills and knowledge of legal resources among attorneys in general, not just new associates.”²³⁸

The advanced Internet searching conducted in this study to locate information hidden by link or reference rot does not excuse the harm caused by including inaccessible sources in appellate opinions or briefs. Many lawyers, law students, and the public at large do not have the Internet searching skills to locate information made inaccessible by link or reference rot. When these researchers come across a link in an appellate opinion or brief they will likely assume the source is unavailable. As explained in the next section, links to unavailable sources can diminish confidence in the law, weaken *stare decisis*, and hinder the development of the law.

232. *Id.*

233. Aliza B. Kaplan & Kathleen Darvil, *Think [and Practice] Like a Lawyer: Legal Research for the New Millennials*, 8 LEGAL COMM. & RHETORIC: JALWD 153, 167 (2011).

234. Michelle M. Wu & Leslie A. Lee, *An Empirical Study on the Research and Critical Evaluation Skills of Law Students*, 31 LEGAL REFERENCE SERVS. Q. 205 (2012).

235. Kaplan & Darvil, *supra* note 233, at 156. In response, the American Association of Law Libraries first created *Competencies and Standards for Law Student Information Literacy* (approved July 2012), <http://www.aallnet.org/Archived/Leadership-Governance/policies/PublicPolicies/policy-lawstu.html> [<http://perma.cc/T9WX-FTKU>], then reformulated them as *Principles and Standards for Legal Research Competency* in 2013, see PRINCIPLES AND STANDARDS FOR LEGAL RESEARCH COMPETENCY (2013) <http://www.aallnet.org/Documents/Leadership-Governance/Policies/policy-legalrescompetencybody.pdf> [<http://perma.cc/NUG4-XJ6F>]; see also Ellie Margolis & Kristen E. Murray, *Say Goodbye to the Books: Information Literacy as the New Legal Research Paradigm* (Temple Univ. Legal Stud. Research Paper Series No. 2012-34), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2125278 [<http://perma.cc/9JCC-AL3D>]. This and other portions of this section were adapted from Peoples, *Internet Citations in Okla. Att’y Gen. Opinions*, *supra* note 7, at 356.

236. Susan C. Wawrose, *What Do Legal Employers Want to See in New Graduates? Using Focus Groups to Find Out*, 39 OHIO N.U. L. REV. 505, 532 (2013).

237. *Id.*

238. Christina Elizabeth Peura, *Electronic Legal Research Tools: An Examination of the Resources Available, Training of New Attorneys, and Employer Expectations*, 33 LEGAL REFERENCE SERVS. Q. 269, 277, 282 (2014).

IV. THE CONSEQUENCES OF LINK AND REFERENCE ROT

Link and reference rot in appellate briefs and opinions diminish public confidence in the legal system.²³⁹ As explained by Collen Barger:

When . . . a court purportedly bases its understanding of the law or the law's application to case facts upon a source that cannot subsequently be located or confirmed, the significance of the citation to that source becomes more ominous. If present readers of the opinion cannot determine how much persuasive weight was or should be accorded to the unavailable source, they have little reason to place much confidence in the opinion's authoritativeness.²⁴⁰

Transparency and accountability are core values of the common law system. The Canadian legal scholar Karen Eltis provides the following example from a decision of the Supreme Court of Canada: "Reasons for judgment are the primary mechanisms by which judges account to the parties and to the public for the decisions they render. The courts frequently say that justice must not only be done but must be seen to be done."²⁴¹ In the context of judges citing unreliable information, Eltis notes:

Public access to the court's "thought process" is an integral element of the much-cherished value of transparency and forms the basis for the public's confidence in the judiciary. These "thought processes," however, cannot be subject to proper scrutiny—be it public, academic, or appellate—unless the sources that nourish it are clearly and verifiably identifiable.²⁴²

Citations to authority in appellate briefs and opinions that have succumbed to link and reference rot are harmful to the doctrine of *stare decisis*. For centuries the sources cited in appellate briefs and opinions were readily accessible.²⁴³ Citations in these documents have traditionally been to a "stable universe of settled sources."²⁴⁴ These settled sources consisted of print materials that are "essentially fixed for all time."²⁴⁵ Citations to sources in a brief or legal opinion are more than just a reference to the source's content. They send a signal to the reader of the nature of the authority upon which a statement is based.²⁴⁶

When sources cited for something important in an appellate opinion are unavailable due to link or reference rot, a component of the opinion vanishes as well.²⁴⁷ Lawyers, judges, or members of the public who are unable to access the sources cited in support of the brief or opinion's conclusion may reasonably question the document's validity. The

239. This section is adapted from Peoples, *Internet Citations in Okla. Att'y Gen. Opinions*, *supra* note 7, at 358.

240. Coleen M. Barger, *On the Internet, Nobody Knows You're A Judge: Appellate Courts' Use of Internet Materials*, 4 J. APP. PRAC. & PROCESS 417, 429–30 (2002).

241. ELTIS, *supra* note 131, at 31.

242. *Id.* (footnote omitted).

243. Michael Whiteman, *The Death of Twentieth-Century Authority*, 58 UCLA L. REV. (DISCOURSE) 27, 32 (2010).

244. Peoples, *Citation of Wikipedia*, *supra* note 12, at 36 (quoting Robert C. Berring, *Legal Information and the Search for Cognitive Authority*, 88 CAL. L. REV. 1673, 1675 (2000)).

245. *Id.*

246. Paul Axel-Lute, *Legal Citation from Theory to Practice*, 75 LAW LIBR. J. 148 (1982).

247. Whiteman & Frazier, *supra* note 162, at 22; *see also* MICHIGAN APPELLATE OPINION MANUAL at 50 (noting "the inability of future readers to view and learn more about the material cited in an opinion undermines the precedent.").

inaccessibility of these sources undermines the brief or opinion's authority and introduces instability and uncertainty into the law.²⁴⁸ As Michael Whiteman explains, "legal arguments are constructed on a foundation of supporting authorities, and, like any construction, they can fail if their foundation is not secure."²⁴⁹ Courts may no longer be able to "let the decision stand if the cited authority is no longer available."²⁵⁰

The unavailability of sources cited in appellate briefs and opinions will slow the development of the law. "Citations leave bread crumb trails for future readers allowing them to retrace the logical steps of an argument. Accurate and complete citations are essential for unpacking legal arguments, advocating for their expansion or contraction in future cases, and for developing the law."²⁵¹ An essential component of lawyering is analogizing and distinguishing sources cited in primary legal authority.²⁵² When cited sources are unavailable, it becomes difficult or impossible for lawyers to develop creative legal arguments based on the missing sources.²⁵³

Several judicial opinions included rotten links referencing material at state and federal government websites. In *Hicks v. State ex rel. Oklahoma Dept. of Corrections* the opinion cites a Department of Corrections PDF document for the definition of a request and a grievance.²⁵⁴ The link provided in the opinion returns a "404 error" message.²⁵⁵ In *West v. Board of County Commissioners of Pawnee County*, the Oklahoma Supreme Court cited the United States Department of Labor website for information used to calculate a potential damage award based on lost wages.²⁵⁶ The link included in the *West* opinion returns a file not found error page.

It is unfortunate to discover rotten links to government information given the statutory mandates for state and federal governments to provide access to information via the Internet. The purpose of the federal E-Government Act of 2002 is to "increase access to Government information and increase citizen participation in Government."²⁵⁷ The Act mandates that federal agencies "use information technology to engage the public in the development and implementation of policies and programs."²⁵⁸ Similarly, the State of Oklahoma has enacted laws and appropriated funds to provide constituents with state of the

248. MICHIGAN APPELLATE OPINION MANUAL at 48.

249. *Id.* at 33.

250. Eric J. Magnuson & Samuel A. Thumma, *Prospects and Problems Associated with Technological Change in Appellate Courts: Envisioning the Appeal of the Future*, 15 J. APP. PRAC. & PROCESS 111, 122–23 (2014).

251. Peoples, *Citation of Wikipedia*, *supra* note 12, at 36.

252. Aldrich, *supra* note 162, at 220.

253. MICHIGAN APPELLATE OPINION MANUAL 50 (noting "an opinion with a citation that cannot be examined in full may result in an incorrect understanding of the opinion").

254. *Hicks v. State ex rel. Oklahoma Dep't of Corr.*, 2009 Okla. Civ. App. 91, ¶ 2, 227 P.3d 1097, 1098.

255. *Id.* (citing www.doc.state.ok.us/offtech/op090124.pdf). Links to DOC webpages cited in other appellate judicial opinions suffered from link rot. See *L'ggrke*, 2009 OK 80, ¶¶ 3, 6, 223 P.3d 383, 385; *Starkey v. Okla. Dept. of Corrections*, 2013 OK 43, ¶ 52, 305 P.3d 1004, 1023.

256. *West*, 2011 OK 104, ¶ 20 n. 2513, 273 P.3d 31, 38 n. 256.

257. Pub. L. No. 107-347, § 2(a)(2).

258. *Id.* at § 202(e).

art electronic commerce and Internet tools.²⁵⁹ The public's access to information and ability to participate in government is diminished when state and federal websites succumb to link or reference rot.

V. RECOMMENDATIONS²⁶⁰

Appellate judges and attorneys have no control over the longevity or stability of the Internet resources they cite. Websites are reorganized over time and links change; content is updated, revised, or removed entirely; organizations responsible for websites change focus or are dissolved. Judges and attorneys can reduce the chances that cited links will suffer link or reference rot or link rot by carefully choosing which links to include in their opinions and briefs.

Keeping an archival copy of any Internet resource cited for important factual information or to support the logic or reasoning of a brief or judicial opinion is the most prudent course of action.

The Judicial Conference of the United States released *Guidelines on Citing to, Capturing, and Maintaining Internet Resources in Judicial Opinions/Using Hyperlinks in Judicial Opinions* in 2009.²⁶¹ The Guidelines were developed following the Judicial Conference's adoption of a policy that "all Internet materials cited in final opinions be considered for preservation and that each judge should retain the discretion to decide whether the specific cited resource should be captured and preserved."²⁶²

The guidelines urge judges to evaluate Internet sources using the same criteria that apply to traditional media, including accuracy, scope of coverage, objectivity, timeliness, authority, and verifiability.²⁶³ When citing an Internet source, judges are urged to select sources that "should be stable and likely to remain accessible using the citation the judge employed when originally visiting the site."²⁶⁴ The Guidelines recommend that any Internet resource that is "fundamental to the reasoning of the opinion and refers to a legal authority or precedent that cannot be obtained in any other format" be preserved as part of a court's opinion on the Case Management / Electronic Case Files (CM/ECF) system.²⁶⁵

A 2014 symposium titled "404/File Not Found: Link Rot, Legal Citation and Projects to Preserve Precedent" produced a set of "linking best practices" that may be helpful in preserving access to Internet resources cited in Oklahoma appellate briefs and judicial

259. OKLA. STAT. tit. 62, § 34.24 (2015).

260. Portions of this section are adapted from Peoples, *Internet Citations in Okla. Att'y Gen. Opinions*, *supra* note 7, at 370.

261. Letter from James C. Duff to Chief Judges, JUDICIAL CONFERENCE OF THE UNITED STATES, 1 (May 22, 2009), <https://perma.cc/QJL3-AQFH?type=pdf>. As noted with irony by Liebler & Liebert, an Internet search for the guidelines returns a page that has succumbed to link rot. Liebler & Liebert, *supra* note 8, at 291.

262. Letter from James C. Duff, *supra* note 260 (internal quotation marks omitted).

263. *Id.* at 1–2.

264. *Id.* *Bluebook* Rule 18.2.2 takes a similar approach, urging citation "to the most stable electronic location available." *The Bluebook: A Uniform System of citation*, Rule 18.2.2 (19th ed. 2010).

265. Letter from James C. Duff, *supra* note 261, at 2.

opinions.²⁶⁶ The best practices suggest only linking to essential resources, avoiding linking to resources that are likely to disappear or change, and not linking deeply into websites as these links frequently break.²⁶⁷

Linking to webpages instead of PDF documents is also encouraged by the best practices. In general, webpages are more stable than PDFs for a variety of reasons. The appellate judicial opinions examined in this article contained links to twenty-one PDF documents. Nine of the cited PDFs suffered link rot. Eighteen of the cited PDFs suffered reference rot. The appellate briefs examined herein cited fifty-four PDF documents. Forty of the cited PDFs suffered link rot and twelve suffered reference rot. The high failure rate of links to PDFs in Oklahoma appellate briefs and opinions validates the linking best practices' advice to avoid linking to PDFs.

A potential solution to the problem of link and reference rot is to print paper copies of Internet resources cited in appellate briefs and judicial opinions and preserve copies in the court's files. Oklahoma Supreme Court Rules require parties citing "additional authorities" to provide paper copies to the court.²⁶⁸ Several of the appellate briefs and opinions examined in this study included printed copies of cited Internet resources as attachments to briefs or as part of the appellate record.²⁶⁹ This approach is helpful but is not the best solution to the problems caused by link and reference rot. Paper copies kept on file with the Supreme Court Clerk are not quickly and readily accessible by researchers who must travel to the clerk's office to view them. Additionally, paper copies will fail to capture any sound, video, or software files included in any cited Internet resource.²⁷⁰

Several of the Oklahoma appellate opinions discussed in this study mitigate the impact of link or reference rot by paraphrasing or quoting language from a cited Internet resource.²⁷¹ The paraphrased or quoted language is effectively preserved forever in the text of the court's opinion. This language can be helpful to a researcher who encounters link or reference rot. However, paraphrased or quoted language is no substitute for a researcher who wants to examine the language in context. Internet resources that cannot be

266. *Linking Best Practices*, in 404/FILE NOT FOUND: LINK ROT, LEGAL CITATION AND PROJECTS TO PRESERVE PRECEDENT 14 (Oct. 24, 2014), <http://www.law.georgetown.edu/library/404/upload/Master-document-handout.pdf> [perma.cc/KW86-JFBK].

267. *Id.* at 15.

268. OKLA. STAT. tit. 12 ch. 15, app. 1, Sup. Ct. R. 1.11(K)(3) (2015). The rules also require parties to provide copies of "statutes or rules not promulgated in Oklahoma," (Rule 1.11 I(1)) and decisions not included in the National Reporter System. (Rule 1.11 L.).

269. See Appellant's Brief in Chief, Wells Fargo, N.A., Plaintiff/Appellee, v. Frank C. Ling, Wen X. Fan, Defendants/Appellants., John Doe, Jane Doe, Defendants., JP Morgan Chase Bank, N.A., Defendant, Appellee., 2014 WL 8094863 (Okla.), at *8; Neloms v. State, 2012 Okla. Crim. App. 7, 274 P.3d 161 (noting a defense exhibit that included printouts of evidence relevant to a prosecution for pornography); *Swift v. Serv. Chem., Inc.*, 2013 Okla. Civ. App. 88, 310 P.3d 1127 (noting cited Internet materials that were included as an exhibit to a brief).

270. Similar criticisms have been made of the U.S. Supreme Court's practice of keeping print copies of cited Internet resources. See Liebler & Liebert, *supra* note 8, at 300.

271. See, e.g., Bittle v. Bahe, 2008 OK ¶ 4, 192 P.3d at 813; CPT Asset Backed Certificates, Series 2004-EC1 v. Cin Kham, 2012 OK 22, 278 P.3d 586, 588; *Moore*, 2013 Okla. Civ. App. ¶ 15, 301 P.3d at 890; In re Initiative Petition No. 379, State Question No. 726, 2006 OK 89, ¶ 18, 155 P.3d 32; *Embry v. Innovative Aftermarket Sys. L.P.*, 2010 OK 82, ¶ 9, 247 P.3d 1158, 1160.

examined in full because of link or reference rot “may result in an incorrect understanding of the opinion.”²⁷²

The best solution to combat link and reference rot in Oklahoma appellate briefs and judicial opinions is to store copies of cited Internet resources in a digital archive. This will ensure perpetual access to any Internet resources cited in a brief or appellate opinion. The most stable digital archive currently available is Perma. Perma was created by the Harvard Library Innovation Lab. It is currently used by nearly fifty percent of American law schools and by courts in Colorado, Indiana, Maryland, Massachusetts, Michigan, and the Virgin Islands.²⁷³ A description of how Perma works is available on its homepage.²⁷⁴

When a user creates a Perma.cc link, Perma.cc archives a copy of the referenced content, and generates a link to an unalterable hosted instance of the site. Regardless of what may happen to the original source, if the link is later published by a journal using the Perma.cc service, the archived version will always be available through the Perma.cc link.²⁷⁵

Members of the general public can create Perma links that are preserved for two years. Courts, libraries, and law journals acting as “vesting organizations” are given the power to permanently archive web content using Perma. The technical infrastructure and governance of Perma is distributed among libraries around the world. “[S]o long as any library or successor within the system survives, the links within a Perma architecture will remain.”²⁷⁶ Perma’s collaborative approach to governance and physical storage of archival copies is superior to several other for-profit web archival solutions.²⁷⁷

Future Oklahoma appellate opinions citing Internet resources should adopt a parallel citation format. The citation should include the original link to the Internet resource and a link to the version stored in the Perma archive. An illustrative example comes from a recent opinion of the Michigan Supreme Court. The Michigan Supreme Court has been archiving cited Internet resources with Perma since 2014. Note that the citation includes the webpage’s original link and a link to the version saved in the Perma archive.²⁷⁸

A researcher who clicks the Perma link in *Detroit Edison Co. v. Dep’t of Treasury* will retrieve a version of the webpage captured close to the date it was viewed by the court. See Figure 3 for an example. The survey is time-and-date stamped June 19, 2015, 2:32 pm, the same day that the opinion notes it was accessed by the court. This stamp gives researchers assurance that they are viewing the webpage as it looked when it was viewed by the court.

272. MICHIGAN APPELLATE OPINION MANUAL 50, <http://courts.mi.gov/Courts/MichiganSupremeCourt/Documents/MiAppOpManual.pdf> [<http://perma.cc/R8AY-XZ5E>].

273. *Id.*; E-mail from Claire DeMarco, Research Librarian, Harvard Library, Cambridge, Mass. (Feb. 18, 2015, 09:22 CST) (on file with author).

274. *See Homepage*, PERMA, <https://perma.cc/>.

275. *About Perma*, PERMA.CC, <https://perma.cc/about> [<http://perma.cc/8RWN-734R>] (last visited Aug. 24, 2015).

276. Zittrain et al., *supra* note 151, at 167.

277. WEBCITE, <http://www.webcitation.org/> [<http://perma.cc/TTH6-X3PZ>]; ARCHIVE-IT, <https://www.archive-it.org/> [<https://perma.cc/M7G7-BV8Y>].

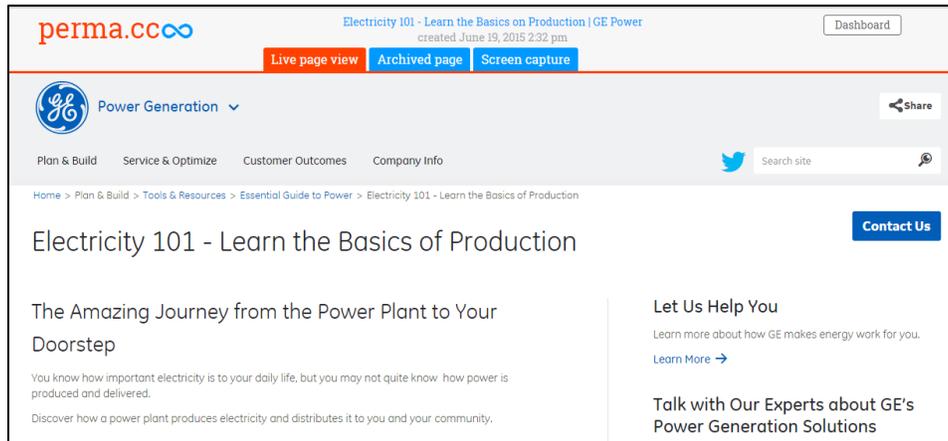
278. *See* *Detroit Edison Co. v. Dep’t of Treasury* 869 N.W.2d 810, 827 n. 12 (Mich. 2015) (citing an Internet resource: General Electric, *Electricity 101—Learn the Basics of Production* <https://powergen.gepower.com/plan-build/tools-resources/power-generation-basics/electricity-101.html> [<http://perma.cc/95UD-MQD3>] (accessed June 19, 2015)).

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Figure 3
Perma Archived Webpage with Time and Date Stamp



Some changes to applicable court rules may be required if the Oklahoma appellate courts become a Perma vesting organization. In light of the prevalence of link and reference rot in Internet resources cited in attorneys' briefs, Oklahoma Appellate Courts should consider adopting a rule requiring attorneys to archive Internet resources cited in briefs using Perma. Oklahoma Appellate courts may wish to provide additional guidance to attorneys, judges, or court staff regarding specific websites to avoid, best practices for formatting citations, and other stylistic preferences.

Guidelines adopted by the Michigan and Virgin Islands supreme courts provide examples of potential rule changes. The Supreme Court of the Virgin Islands amended its Style Guide to include the following rule on Internet citations:

As with all other citations, references to sources found on the Internet must provide enough information to allow the reader to locate the material. If there is a concern that the material on the website may change, the citation should refer to the archived version of the website created through the Supreme Court's [Perma.cc](https://perma.cc) account. The styles described in *Bluebook* Rule 18 and its various sub-components should be followed when citing to the several types of online sources (e.g., dynamic webpages/websites, blogs, etc.) described in *Bluebook* Rule 18.1. Example: Dwyer Arce, *US House approves Puerto Rico status referendum bill*, JURIST (Apr. 30, 2010), <http://perma.cc/L2RE-54AS>.²⁷⁹

The *Bluebook* rule cited in the Virgin Islands Style Guide was updated in the summer of 2015. The 20th edition of the *Bluebook* encourages archiving Internet sources using a reliable archival tool and includes a Perma archival URL as an example.²⁸⁰ The inclusion of a Perma archival URL as an example indicates that Perma satisfies the *Bluebook* definition of a "reliable tool."

279. <http://www.visupremecourt.org/wfData/files/Order%20Amending%20IOPs%20Final.pdf> [<https://perma.cc/WEQ5-EHRG>].

280. *The Bluebook*, *supra* note 264, Rule 18.2.1(d).

The Michigan Supreme Court's *Appellate Opinion Manual* notes that "the Reporter's Office now attempts to archive Internet materials cited in published opinions."²⁸¹ The Manual recommends not citing websites that require subscriptions or payments, websites containing video, and long articles split between multiple webpages.²⁸² These particular sources can be difficult to archive. The Manual provides specific examples of how to cite blogs and lengthy URLs.²⁸³

The rules adopted by the Virgin Islands and Michigan Supreme Courts are internal rules meant to guide the judiciary and their staff in drafting opinions.²⁸⁴ The rules technically do not apply to attorneys submitting briefs to the courts. However, careful appellate practitioners should take note of the rules and draft their briefs in accordance with the courts' stated preferences.²⁸⁵ The rules provide helpful examples that could be adopted in Oklahoma to ensure the long-term stability of resources cited in appellate briefs and judicial opinions.

VI. CONCLUSION

Oklahoma appellate courts have been thoughtful in their citation of Internet resources in their opinions. Oklahoma appellate judicial opinions cite to the Internet less frequently than the Supreme Court of the United States but more frequently than other state appellate courts.²⁸⁶ The version of Rule 2.9 adopted by Oklahoma gives appellate courts significant discretion to conduct independent research using the Internet. Parties should be given notice and an opportunity to respond when appellate courts conduct independent research into adjudicative facts. This simple safeguard will help alleviate potential violations of due process rights, Sixth and Seventh Amendment jury trial rights, and will help uphold the traditions of the American legal system.

Oklahoma judges and lawyers should be aware of link and reference rot when citing Internet resources in their work. Thirty percent of the links included in Oklahoma appellate opinions have succumbed to link or reference rot. This failure rate is lower than rates of link rot found in other state judicial opinions but slightly higher than the failure rate of links found in U.S. Supreme Court opinions. The rate of reference rot in Oklahoma appellate opinions is lower than instances of reference rot in Harvard law journals or U.S. Supreme Court opinions.

281. By Administrative Order No. 2014-22 the Michigan Supreme Court rescinded the *Michigan Uniform System of Citation* and replaced it with the *Michigan Appellate Opinion Manual*. The Order "encourages others to use" the Manual. See *id.* http://courts.mi.gov/Courts/MichiganSupremeCourt/rules/court-rules-admin-matters/Administrative%20Orders/2014-38_2014-11-05_formatted%20order_AO%202014-22.pdf [<http://perma.cc/C7UG-F6LM>]. The introduction to the *Michigan Appellate Opinion Manual* states "we expect the manual may also be of interest to those who prepare pleadings and filings for submission to the Courts." See <http://courts.mi.gov/Courts/MichiganSupremeCourt/Documents/MiAppOpManual.pdf> [<http://perma.cc/R8AY-XZ5E>]; See also Amy M. Krieg, *Michigan Supreme Court Adopts New Citation Manual*, ICLE Community (Nov. 11, 2014, 3:43 PM), <http://community.icle.org/blogs/amy-m-krieg/2014/11/11/michigan-supreme-court-adopts-new-citation-manual> [<http://perma.cc/X8D9-Z2HY>].

282. Krieg, *supra* note 281.

283. *Id.*

284. *Id.*

285. Michigan Supreme Court, *supra* note 281.

286. See Section III. A. *Study Methodology and Results* and accompanying footnotes.

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The prevalence of link rot in briefs filed with the Oklahoma Supreme Court is extremely low. However, thirty percent of links included in appellate briefs suffer from reference rot. More research is needed to completely understand the instances of link and reference rot in Oklahoma appellate briefs.

The authority of Oklahoma appellate judicial opinions is weakened when a source cited for something important in the opinion is unavailable due to link or reference rot. The transparency and accountability of the work of the judicial branch can be harmed when sources succumb to link or reference rot. Disappearing sources weaken *stare decisis* and hamper the development of the law.

The Oklahoma appellate courts should follow the example set by courts in Colorado, Indiana, Maryland, Massachusetts, Michigan, and the Virgin Islands and archive Internet sources cited in their opinions using the Perma digital archive. Including a parallel citation to the archival copy in each opinion would eradicate link and reference rot from Oklahoma appellate judicial opinions. An appellate court rule should be adopted requiring attorneys to archive cited Internet sources using the Perma archive and to include parallel citations to the archival copy in all court filings.