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# Get on Board for the Ride of Your Life! The Ups, the Downs, the Twists, and the Turns of the Applicability of the "Gatekeeper" Function to Scientific and Non-Scientific Expert Evidence: Kumho's Expansion of Daubert

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**GET ON BOARD FOR THE RIDE OF YOUR LIFE! THE UPS, THE DOWNS, THE TWISTS, AND THE TURNS OF THE APPLICABILITY OF THE “GATEKEEPER” FUNCTION TO SCIENTIFIC AND NON-SCIENTIFIC EXPERT EVIDENCE : KUMHO’S EXPANSION OF DAUBERT**

*“No one will deny that the law should in some way effectively use expert knowledge wherever it will aid in settling disputes. The only question is as to how it can do so best.”*<sup>1</sup>

I. INTRODUCTION

The prosecution proceeds with its case by calling Dr. Evan Wilson.<sup>2</sup> On the witness stand, Dr. Wilson is deemed an expert in congenital diseases.<sup>3</sup> With an impressive curriculum vitae, Dr. Wilson testifies that he has tailored his research, experimentation, and publications to cystic fibrosis.<sup>4</sup> In another courtroom, the prosecution announces that its next witness is Detective Charles Smith, an expert in gang<sup>5</sup> formalities. Detective Smith testifies that his 22 years on the force have provided him

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<sup>1</sup> Learned Hand, *Historical and Practical Considerations Regarding Expert Testimony*, 15 HARV. L. REV. 40, 40 (1901).

<sup>2</sup> This is a fictitious fact pattern presented for illustrative purposes only.

<sup>3</sup> A “congenital disease” is one that “result[s] from one’s hereditary or prenatal environment.” WEBSTER’S NEW WORLD DICTIONARY 308-09 (College ed. 1966).

<sup>4</sup> Cystic fibrosis, also known as mucoviscidosis, is a hereditary disorder which attacks the respiratory and digestive systems. See *Cystic Fibrosis Index of On-line Resources* (last modified Oct. 25, 1998) <<http://vmsb.csd.mu.edu/~5418ukasr/cystic.html>>. This disease affects the exocrine (mucus and sweat) glands and results in thick mucus formation in the lungs which subjects the individual to chronic lung infections. See *id.* It occurs in approximately one in 2500 Caucasians and usually appears in early childhood. See *Cystic Fibrosis* (visited on Mar. 1, 2000) <[http://health.yahoo.com/health/Diseases\\_and\\_Conditions/Disease\\_Feed\\_Data/Cystic\\_Fibrosis](http://health.yahoo.com/health/Diseases_and_Conditions/Disease_Feed_Data/Cystic_Fibrosis)>. There is no cure for cystic fibrosis and death usually occurs as a result of pulmonary complications. *Id.* About half of those children infected with this disease live beyond the age of twenty, and only a few live beyond the age of thirty-five. *Id.*

<sup>5</sup> A gang can be defined as a group of three or more individuals with the following three characteristics: (1) they share a common identity, usually through a gang name; (2) they adopt and use certain signs, symbols and/or colors; and (3) they individually or collectively engage in criminal activity. Robert Walker, *Gangs or Us* (visited on Mar. 1, 2000) <<http://www.gangorus.com/>>.

with numerous occasions to witness gang initiations<sup>6</sup> and gang meetings.

Despite the categorization of these witnesses as “experts,”<sup>7</sup> there is a subtle distinction between them: Dr. Wilson is an expert in a scientific field, whereas Detective Smith is an expert in a non-scientific field.<sup>8</sup> At first glance, this distinction does not seem relevant; however, the scientific and non-scientific distinction has created turmoil in the courts’ determination of the admissibility of

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<sup>6</sup> Joining a gang it is often referred to as “blood in - blood out,” which means that in order to join the gang, the individual must either shed his own blood or someone else’s blood. *Id.* There are many activities that a gang may use to induct an individual into the gang. *Id.* Some of the activities used as initiation include: (1) “beat in,” which involves the inductee proving his self-worth by enduring a severe beating by other gang members for a certain period of time; (2) armed robbery, where the inductee must commit an armed robbery and possibly shoot the victim for no reason; (3) “sex in,” where female inductees have intercourse with multiple members of the gang (this may be in lieu of a beating); (4) murder, where the inductee must murder an innocent victim, a rival gang member, or a police officer. *Id.* An individual may also incur a violent response if he wants to leave the gang because most gangs require a lifetime membership. *Id.* Often the individual may be forced to endure a “beat out” or some may even face death, also known as “blood out.” *Id.*

<sup>7</sup> “In this modern age, an ‘expert’ is found in any field, no matter how esoteric. The cost may be high to employ the expert, but it may well be higher not to employ one. Indeed, counsel who chooses to proceed without an expert may be flirting with malpractice.” *Id.* (quoting Melvin Belli, a famed criminal lawyer).

As our society continues to grow and advance in the technological and scientific areas, there will be many new areas that will be unfamiliar to the average juror; hence, the utilization of experts will become even more prevalent. *See* Edson McClellan, Comment, *Sharpening the Focus on Daubert’s Distinction Between Scientific and Nonscientific Expert Testimony*, 34 SAN DIEGO L. REV. 1719, 1721 (1997) (stating that the use of expert testimony has increased proportionately with the increase in technology in society). The classified section of the September, 1999 issue of the *American Bar Journal*, which was comprised of 162 advertisements, 119 of which were advertisements from experts soliciting work, illustrates the expansion of the use of experts. *Id.* The array of expertise varied from construction consultants to bicycle accident reconstruction artists to airplane cabin injury investigators. *Id.*

<sup>8</sup> To differentiate between scientific and non-scientific experts, some scholars have stated that judges should determine whether the expert testimony is testable. *See* David L. Faigman, *Making the Law Safe for Science: A Proposed Rule for the Admission of Expert Testimony*, 35 WASHBURN L.J. 401, 407 (1996). These scholars believe that this would be the appropriate indicator because testability is a strong indicator of whether something is scientific. *See* KARL POPPER, *CONJECTURES AND REFUTATIONS: THE GROWTH OF SCIENTIFIC KNOWLEDGE* 37 (5th ed. 1989). However, in theory, replication is possible with almost any expert testimony, either scientific or non-scientific. *See* Kimberly M. Hrabosky, *Kumho Tire v. Carmichael: Stretching Daubert Beyond Recognition*, 8 GEO. MASON L. REV. 203, 229 (1999). Instead, the courts should look to the underlying body of knowledge supporting the expert’s testimony to determine if its foundation is scientific or non-scientific. *Id.*

expert testimony.<sup>9</sup>

Although the expert<sup>10</sup> witness is a valuable tool in our judicial system,<sup>11</sup> judges continue to grapple with the admissibility of their testimony at trial, and often struggle with the proper admissibility standard to apply to both scientific and non-scientific expert testimony.<sup>12</sup> Without an expert's assistance, many complicated and obscure topics would not receive a proper and correct explanation.<sup>13</sup> Despite the necessity of expert testimony, the admissibility of this testimony must

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<sup>9</sup> The difference between scientific and non-scientific evidence primarily stems from where the expert received his or her expertise in a particular field. Edward J. Imwinkelried, *The Next Step After Daubert: Developing a Similarly Epistemological Approach to Ensuring Reliability of Non-Scientific Expert Testimony*, 15 CARDOZO L. REV. 2271, 2289 (1999) (“Nonscientific experts are ‘experientially qualified.’ Their experience largely is their expertise.”). See also Jennifer Laser, Note, *Inconsistent Gatekeeping in Federal Courts: Application of Daubert v. Merrell Dow Pharmaceuticals, Inc. to Nonscientific Expert Testimony*, 30 LOY. L.A. L. REV. 1379, 1415 (1997) (“Many nonscientific experts derive their expertise from years of experience in a particular field.”).

<sup>10</sup> An “expert” is a person who has special skills or knowledge in a field. WEBSTER’S NEW WORLD DICTIONARY 512 (College ed. 1966). See also KATHEY M. VERDEAL, THE FIVE DIMENSIONS OF SCIENTIFIC TESTIMONY 121 (Carl B. Meyer ed. 1999) (articulating that an expert must not only be an expert in a particular field, but also an expert communicator and an expert persuader).

There are many different fields in which an expert can belong. Marilee M. Kapsa and Carl B. Meyer, *Scientific Experts: Making Their Testimony More Reliable*, 35 CAL. W. L. REV. 313, 315 (1999). Moreover, various fields, such as medicine, law, and engineering, require one to obtain a license before one is able to practice. See *American Board of Preventive Medicine Inc.*, (last modified Mar. 22, 2000) <<http://www.abprevmed.org/infobook.htm>> (outlining the requirements to become certified, such as graduating from an accredited medical school, holding an active license as a physician, some postgraduate training and experience, and at least two years of practically full-time training or practice in the speciality field).

<sup>11</sup> The scientific expert witness was first used during the Roman Empire. SUETONIUS, THE LIVES OF THE CAESARS BOOK I, 111-13 (J.C. Rolfe trans. 1960). The first documented forensic report appears to be that of Antisius, who was asked to examine the corpse of Julius Caesar and opined that only one of the twenty-three sword wounds was deadly, specifically the one perforating his thorax. *Id.*

The use of expert witnesses is necessary as our society continues to make advances in scientific, technological, and other various areas. See McClellan, *supra* note 7, at 1721 (asserting that the use of expert testimony has increased proportionately with the increase in technology in society).

<sup>12</sup> See *infra* notes 37-43, 51, 62-71 and accompanying text.

<sup>13</sup> See Kristina L. Needham, Note, *Questioning the Admissibility of Nonscientific Testimony After Daubert: The Need for Increased Judicial Gatekeeping to Ensure the Reliability of All Expert Testimony*, 25 FORDHAM URB. L.J. 541, 545 (1998) (stating that experts are an invaluable tool who clarify and illustrate complex issues for judges and juries). See also Kapsa, *supra* note 10, at 318 (stating that experts have specialized

nonetheless be reconciled with the relevancy and reliability requirements for all types of evidence.<sup>14</sup>

However, it is not clear whether both scientific and non-scientific expert testimony should be held to the same reliability and relevancy standards.<sup>15</sup>

To resolve this issue, the United States Supreme Court embarked on a journey to create standards for admitting both scientific and non-scientific expert testimony.<sup>16</sup> The evolution of this

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education and skills and some must even obtain professional licenses, thus illustrating that their expertise surpasses the knowledge of layman).

However, it should be noted that there is a significant difference between the quest for truth in the laboratory as compared to the quest for truth in the courtroom. See Nicholas Targ and Elise Feldman, *Courting Science: Expert Testimony After Daubert and Carmichael*, 33 NAT. RESOURCES AND ENV'T 507, 507 (1999). Scientific results are continually reviewed and revamped; whereas, the law does not have this luxury. *Id.* Legal issues are generally subjected to a time constraint which results in a quick and final resolution. *Id.* Thus, science may only provide a present understanding, not certainty. *Id.* Law demands from science certainty at a specific time. *Id.* Hence, judges rather than the "scientific community" determine the quality of scientific evidence that is admitted into evidence. *Id.* Despite a judge's lack of expertise in the scientific arena, a judge has the expertise to satisfy the goals and standards of the legal system. *Id.* Thus, "good" scientific evidence relates to our goals and standards in the judicial system, which may not be the values of the scientific community. *Id.*

<sup>14</sup> Determining the reliability of an expert witness' testimony, two questions must be asked: (1) is the expert qualified to give an opinion?; and (2) is the expert reliable? See Kapsa, *supra* note 10, at 318. The latter question, a question of fact, was generally determined by the jury. *Id.* However, with the advent of *Daubert*, *Joiner*, and *Kumho*, this determination rests in the hands of the judge. *Id.*

<sup>15</sup> Judges required the proponent of scientific expert testimony to show that it was reliable before it would be admitted; however, this heightened scrutiny was not applied to non-scientific expert testimony. See Hrabosky, *supra* note 8, at 205. The proponents of non-scientific expert testimony must merely satisfy the traditional relevancy rule that the testimony must assist the trier of fact. *Id.* In contrast, scientific expert testimony was subject to a more rigorous analysis under the *Frye* "general acceptance" test. *Id.*; see also John William Strong, *Language and Logic in Expert Testimony, Limiting Expert Testimony by Restrictions of Function, Reliability, and Form*, 71 OR. L. REV. 349, 362-63 (1992) ("The two rules (*McCormick* relevancy and *Frye* test) operated in two almost mutually exclusive areas, the one being applied to expert testimony and the other to what was called 'scientific evidence' "); Imwinkelried, *supra* note 9, at 2280-81 (stating that most courts "adopted a laissez-faire attitude toward the reliability of the propositions underlying non-scientific expert testimony").

<sup>16</sup> See *infra* notes 88-96. The Supreme Court is not the only entity that requires a heightened level of detail in regards to expert testimony. Lee Radford, *Developments in the Law of Evidence Relating to Governmental Scientific Issues*, 42 ADVOC. 15, 16 (1999). Specifically, the Federal Rules of Civil Procedure require "a written report prepared and signed by the witness" which must include "a complete statement of all opinions to be expressed and the basis and reasons therefor" and "the data or other information considered by the witness in forming the opinions." FED. R. CIV. P. 26(a)(2)(B). Hence, these reports must provide not only conclusions, but also a detailed explanation of the rationale for those conclusions. See Radford, *supra* at 16. Complying with Rule

journey, as demonstrated by *Daubert v. Merrell Dow Pharmaceuticals Inc.*,<sup>17</sup> *General Electric Co. v. Joiner*,<sup>18</sup> and *Kumho Tire Co., Ltd. v. Carmichael*,<sup>19</sup> illustrates the Court's recognition that all admissible expert testimony must achieve a certain level of reliability and relevance.<sup>20</sup>

This Comment examines the history of scientific and non-scientific expert evidence,<sup>21</sup> its current status,<sup>22</sup> and the future of scientific and non-scientific evidence based on recent court decisions.<sup>23</sup> Part II explores the background of these issues by examining the earlier standard for admitting expert testimony,<sup>24</sup> the effect of Congress' promulgation of the Federal Rules of Evidence,<sup>25</sup> and the influential cases in this area.<sup>26</sup> Part III analyzes the importance of subjecting non-scientific expert testimony to the same rigors as scientific expert testimony.<sup>27</sup> Lastly, Part IV predicts

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26(a)(2)(B) will assist those experts in overcoming the *Daubert* reliability requirements by focusing the court's attention on the scientific theories advanced, and thus demonstrating the basis of their conclusions. *Id.*

<sup>17</sup> *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993); *see infra* Part II.C.

<sup>18</sup> *General Elec. Co. v. Joiner*, 522 U.S. 136 (1997); *see infra* Part II.D.

<sup>19</sup> *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137 (1999); *see infra* Part II.E.

<sup>20</sup> *See infra* Parts II-IV.

<sup>21</sup> *See infra* Part II.

<sup>22</sup> *See infra* Part III.

<sup>23</sup> *See infra* Part IV.

<sup>24</sup> *See infra* notes 37-43, 49-51 and accompanying text.

<sup>25</sup> *See infra* notes 52-58 and accompanying text.

<sup>26</sup> *See infra* notes 59-96 and accompanying text.

<sup>27</sup> *See infra* notes 97-144 and accompanying text.

the future of expert evidence.<sup>28</sup>

## II. BACKGROUND

In an effort to understand the impact of *Daubert*, *Joiner*, and *Kumho* on the field of expert testimony, it is imperative to examine the factors that led the United States Supreme Court to address this particular issue.<sup>29</sup> The controversy began with *Frye v. United States*,<sup>30</sup> a decision from the District of Columbia that outlined a test for admitting expert testimony.<sup>31</sup> Many years later, Congress enacted the Federal Rules of Evidence, which also provided guidance for the admission of expert testimony.<sup>32</sup> Confusion erupted because Evidence Rule 702 clashed with the decision in *Frye*.<sup>33</sup>

### A. *The General Acceptance Test in Frye*

From the middle of the 19<sup>th</sup> century until the beginning of the 20<sup>th</sup> century, the general standard for determining the admissibility of expert testimony rested on the assumption that experts had superior knowledge and training.<sup>34</sup> The court imputed this expertise to the expert based on his

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<sup>28</sup> See *infra* notes 145-155 and accompanying text.

<sup>29</sup> See *infra* Part II.A., II.B.

<sup>30</sup> See *infra* Part II.A.

<sup>31</sup> See *infra* notes 36-43 and accompanying text.

<sup>32</sup> See *infra* Part II.B.

<sup>33</sup> See *infra* notes 50-58 and accompanying text.

<sup>34</sup> Even recent cases illustrate that the courts routinely permit testimony from witnesses who qualify as experts because of their specialized knowledge or experience. See *Moran v. Ford Motor Co.*, 476 F.2d 289, 291 (8th Cir. 1973) (holding that an owner and operator of a body and fender shop who had been in the auto repair business for eighteen years and who had frequently examined wrecked cars possessed sufficient knowledge and practical experience to testify as to whether a particular ball joint of the car's suspension system was defective); *Stempel v. Chrysler Corp.*, 495 F.2d 1247, 1248 (5th Cir. 1974) (allowing a professional engineer who had

or her qualifications and success in his or her profession.<sup>35</sup> Despite the lack of any blatant problems with this standard, the Court of Appeals for the District of Columbia, in *Frye v. United States*,<sup>36</sup> enunciated a test for determining the admissibility of scientific evidence.<sup>37</sup>

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investigated approximately 1,800 accidents involving vehicles testify on the design of a padded dashboard, even though he had no practical experience in designing automobile dashboards himself); *Rocky Mountain Helicopters, Inc. v. Bell Helicopters Textron*, 805 F.2d 907, 919 (10th Cir. 1986) (authorizing a witness, who had a doctorate degree in metallurgical engineering and experience investigating helicopter accidents, to testify as to the faulty design in a helicopter rotor); *Noel v. United Aircraft Corp.*, 342 F.2d 232, 235-36 (3d Cir. 1964) (permitting an assistant chief flight engineer with eleven years of experience, who had investigated approximately thirty cases of airplane engine overspeed and had reviewed hundreds of other cases in air force reports, testify as an expert in an airplane crash case). *See also* Imwinkelried, *supra* note 9, at 2278 (listing numerous experts who gained their specialized knowledge through experience, including auctioneers, bankers, railroad brakeman, business persons, carpenters, farmers, security guards, and trapshooters).

<sup>35</sup> The courts have traditionally viewed expert testimony with skepticism. *See* Hrabosky, *supra* note 8, at 204. At common law, the courts' skepticism stemmed from the belief that any witness willing to come forward to testify had biases towards one of the parties. *See* Jeffrey S. Parker, *Daubert's Debut: The Supreme Court, the Economics of Scientific Evidence, and the Adversarial System*, 4 SUP. CT. ECON. REV. 1, 9 (1995). However, with the advent of various institutional safeguards (i.e., impeachment, cross-examination, and the personal-knowledge rule), the courts' skepticism toward testimonial evidence abated. *Id.* at 10-11. With this confidence in the adversarial system and the evidentiary standards, the courts accepted the need for testimonial evidence. *Id.*

<sup>36</sup> *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923). The defendant was subjected to a systolic blood pressure deception test ("lie detector test") prior to trial. *Id.* at 1013. Defendant's attorney then sought to offer, as an expert, the scientist who conducted the test on the defendant to testify as to the results. *Id.* at 1014. However, the trial court did not permit his testimony. *Id.* Defense counsel then proffered to have the scientist conduct the test in the presence of the jury. *Id.* The court also refused this evidence. *Id.* The defendant was then convicted of murder. *Id.* The defendant appealed his conviction based on the exclusion of the expert testimony, but to no avail. *Id.* The appellate court affirmed his conviction because it did not believe that the systolic blood pressure deception test had gained significant scientific recognition. *Id.*

<sup>37</sup> The *Frye* test was primarily created to ensure that the courts were admitting reliable scientific evidence. *See* *United States v. Addison*, 498 F.2d 741, 743-44 (D.C. Cir. 1974) ("The requirement of general acceptance in the scientific community assures that those most qualified to assess the general validity of a scientific method will have the determinative voice."). *See also* *People v. Barbara*, 255 N.W.2d 171 (Mich. 1977). The Court stated:

It therefore is best to adhere to a standard [*Frye*] which in effect permits the experts who know most about a procedure to experiment and to study it. In effect, they form a kind of technical jury, which must first pass on the scientific status of a procedure before the lay jury utilizes it in making its findings of fact.

*Id.* at 194.

Additional rationales for the creation of the *Frye* test include: (1) promotion of uniform decisions by eliminating differing judicial interpretations; and (2) preventing the placement of too much emphasis on the scientific evidence to determine its validity. *See* *People v. Kelly*, 549 P.2d 1240, 1244-45 (Cal. 1976) (stating that "it may well promote a degree of uniformity of decision."); *Reed v. State*, 391 A.2d 364, 371-72 (Md. 1978) (declaring

In *Frye*, the Court stated that the trial judge must determine whether the scientific evidence at issue had gained sufficient recognition in the scientific community to justify admitting the evidence.<sup>38</sup>

This standard required judges to differentiate among scientific principles that had attained sufficient recognition and scientific principles that had not achieved this status.<sup>39</sup> The Court articulated what is known as the “general acceptance”<sup>40</sup> test, which requires a two-part analysis: (1) identifying the field in which the underlying principle falls;<sup>41</sup> and (2) determining whether the proffered evidence is

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that “without the *Frye* test or something similar, the reliability of an experimental scientific technique is likely to become a central issue in each trial in which it is introduced.”).

<sup>38</sup> *Frye*, 293 F. at 1014.

<sup>39</sup> In determining whether a scientific principle has garnered general acceptance, the burden of proof lies with the proponent. *Murray v. State*, 692 So.2d 157, 161 (Fla. 1997). The proponent generally illustrates acceptance of the scientific theory via expert testimony. See PAUL C. GIANNELLI & EDWARD J. IMWINKELRIED, SCIENTIFIC EVIDENCE 23 (3d ed. 1999). Despite the proponent’s ability to use expert testimony, various courts have applied additional qualifications. One qualification includes the use of corroborating evidence. See *Kelly*, 549 P.2d at 1248 (questioning “whether the testimony of a single witness alone is ever sufficient to represent, or attest to, the views of an entire scientific community regarding the reliability of a new technique”); *Commonwealth v. Topa*, 369 A.2d 1277, 1282 (Pa. 1977) (holding that the “testimony of one expert . . . cannot satisfy [the *Frye*] standard”). Other courts require that impartial experts testify as to the general acceptance of a scientific theory. See *People v. Tobey*, 257 N.W.2d 537, 539 (Mich. 1977) (rejecting scientific evidence because expert who testified as to its general acceptance was not “disinterested and impartial”).

Another method a proponent could use to illustrate general acceptance of a scientific theory is scientific and legal publications. See *Commonwealth v. Blasioli*, 713 A.2d 1117, 1126-27 (Pa. 1998) (allowing the Commonwealth to use evidence which included citations to numerous scientific texts and journals).

<sup>40</sup> Although the Court articulated the “general acceptance” test, it failed to succinctly define what the test entailed. See Paul C. Giannelli, *The Admissibility of Novel Scientific Evidence: Frye v. United States, A Half-Century Later*, 80 COLUM. L. REV. 1197, 1208 (1980) (citing cases applying the *Frye* test and demonstrating the courts’ divergence in interpreting what constituted “general acceptance”). Compare *People v. Williams*, 331 P.2d 251 (Cal. 1958) (upholding the admissibility of evidence because the test had “been generally accepted by those who would be expected to be familiar with its use”) with *United States v. Addison*, 498 F.2d 741, 745 (D.C. Cir. 1974) (holding voiceprint evidence inadmissible because it had not been accepted by the “scientific community as a whole”).

<sup>41</sup> See *People v. Collins*, 405 N.Y.S.2d 365, 368 (N.Y. Sup. Ct. 1978) (“At the threshold of determining whether the technique meets the test of acceptance in the scientific community, is the question of defining that community.”). See also *State v. Jones*, 922 P.2d 806, 809 (Wash. 1996) (en banc) (“[T]he relevant inquiry, however, is acceptance by scientists, not by the courts or legal commentators.”). However, determining the proper scientific field may be difficult because many scientific techniques do not fall into only one specific field.

generally accepted in this field.<sup>42</sup> The Court stated the “general acceptance” test as follows:

Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained acceptance in a particular field in which it belongs.<sup>43</sup>

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Giannelli, *supra* note 40, at 1208. Professor Giannelli stated:

Deciding what is the proper field to which a novel test belongs is in itself a chore. Most novel tests represent new approaches to the solution of old problems by a process which is unknown, or belongs to a different field. Because of this, the person developing a novel test frequently finds himself on the fringes of his scientific discipline and perhaps overlapping into other disciplines.

*Id.* at 1208 n.68 (quoting Professor Moenssens). *See also* Jeffrey D. Menicucci, Comment, *Stylistic Evidence in the Trial of Patricia Hearst*, 1977 ARIZ. ST. L.J. 387, 399 (1977) (“A discipline such as stylistics contains elements from many established sciences - such as mathematics, computer science, psychology, and linguistics . . .”).

<sup>42</sup> In determining whether the proffered evidence is generally accepted in its field, one must discern what constitutes general acceptance in a particular field. *See* J. RICHARDSON, MODERN SCIENTIFIC EVIDENCE 164 (2d ed. 1974) (opining that the *Frye* standard requires acceptance by a “substantial majority”). The “substantial majority” standard should be differentiated from the “substantial acceptance” test, which has been utilized by some courts, because acceptance may be substantial without representing a majority of scientists in a particular field. *See* *United States v. Williams*, 443 F.Supp. 269, 273 (S.D.N.Y. 1977) (stating acceptance by a “substantial section of the scientific community”); *Commonwealth v. Devlin*, 310 N.E.2d. 353, 356 n.3 (Mass. 1974) (stating “substantial authority” required).

<sup>43</sup> *Frye*, 293 F. at 1014. The “general acceptance” test has infiltrated a multitude of fields. *See* *United States v. Kilgus*, 571 F.2d 508, 510 (9th Cir. 1978) (applying *Frye* to forward looking infrared system); *United States v. Addison*, 498 F.2d 741, 743 (D.C. Cir. 1974) (citing *Frye* to aid in the determination of the admissibility of voiceprint evidence); *United States v. Stifel*, 433 F.2d 431, 436 (6th Cir. 1970) (using *Frye* to determine admissibility of neutron activation analysis); *Lindsey v. United States*, 237 F.2d 893, 896 (9th Cir. 1956) (applying *Frye* standard to the use of sodium pentothal); *United States v. Bruno*, 333 F. Supp. 570, 574 (E.D. Pa. 1971) (using *Frye* with chromatographic analysis of ink); *People v. Palmer*, 145 Cal. Rptr. 466, 472 (1978) (citing *Frye* when evaluating the scanning electron microscopic analysis); *People v. Slone*, 143 Cal. Rptr. 61, 68 (1978) (utilizing *Frye* with bitemark comparison evidence); *People v. Lauro*, 398 N.Y.S.2d 503, 507 (N.Y. Sup. Ct. 1977) (citing *Frye* to

This “general acceptance” test provided the first procedural barrier to the admission of scientific evidence and expert testimony.<sup>44</sup> Under this test, some evidence or testimony may have been excluded if it was not generally accepted in its particular field.<sup>45</sup> This resulted in an impediment to the introduction of novel evidence that had not had time to gain acceptance in its respective field.<sup>46</sup>

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determine admissibility of trace metal detection technique); *State v. Smith*, 362 N.E.2d 1239, 1246 (Ohio 1976) (citing *Frye* to declare that Harrison-Gilroy technique, which applies to gunshot residue tests, is not generally accepted); *Watson v. State*, 219 N.W.2d 398, 403 (Wis. 1974) (utilizing *Frye* when evaluating hair analysis); *Rivers v. Black*, 68 So.2d 2, 4 (Ala. 1953) (applying *Frye* to drunkometer).

<sup>44</sup> See Daniel A. Klein, Annotation, *Reliability of Scientific Technique and its Acceptance Within Scientific Community as Affecting Admissibility, at Federal Trial, of Expert Testimony as to Result of Test or Study Based on Such Technique – Modern Cases*, 105 A.L.R. FED. 299, 317-19 (1991 & 1999 Supp.). The *Frye* “general acceptance” test effectively protects against the possibility of prejudicial effects of testimony which is based on unproven hypothesis. *Id.* However, this test is too vague and excludes a lot of probative information from the jury’s evaluation. See *United States v. Downing*, 753 F.2d 1224, 1236 (3d Cir. 1985).

<sup>45</sup> See, e.g., Paul B. Tyler, *The Kelly-Frye “General Acceptance” Standard Remains the Rule for Admissibility of Novel Scientific Evidence: People v. Leahy*, 22 PEPP. L. REV. 1274, 1275-76 (1995) (stating that the “general acceptance” standard was stringent and may exclude novel, but nevertheless valid, expert knowledge); see also *United States v. Addison*, 498 F.2d 741, 743 (D.C. Cir. 1974) (stating that the *Frye* test retards admission of proof based on new methods of investigation by requiring that they attain sufficient currency and status to gain general acceptance).

<sup>46</sup> Regardless of the widespread judicial acceptance, the *Frye* test has come under attack for varying reasons. See generally GIANNELLI, *supra* note 39, at 27. One criticism of the *Frye* test concerns the determination of what should be categorized as “scientific” for purposes of this test. See 22 C. WRIGHT and K. GRAHAM, FEDERAL PRACTICE AND PROCEDURE 87 n.10 (1977) (“What is ‘scientific evidence’ to which the test applies? When a witness testifies that he saw the defendant throw a rock at the victim, the inferences to be drawn from this testimony involve a number of principles of physics, but few courts would apply the *Frye* test.”) The Supreme Court of Iowa succinctly stated the difficulty in ascertaining what “scientific” evidence is:

Despite [the *Frye* test’s] apparent simplicity, distinguishing “scientific” evidence from other areas of expert testimony is a difficult determination in many instances . . . . The instant case illustrates this difficulty of classifying evidence as scientific or non-scientific. The defendant says the study of blood flight characteristics is itself a science. The witness, on the other hand, testified it was based primarily upon physics and mathematics, which impart accuracy and predictability to the study.

*State v. Hall*, 297 N.W. 2d 80, 85 (Iowa 1980) (citations omitted).

Critics also argue that the *Frye* test serves as a barrier to the admission of reliable evidence. See Symposium, *Introduction to New Scientific Methods in Court*, LAW ENFORCEMENT, SCIENCE & TECHNOLOGY 957, 958 (S.A. Yefsky ed. 1967) (“A literal reading of *Frye v. United States* would require that the courts always await the passing of a ‘cultural lag’ during which period the new method will have had sufficient time to diffuse through

This inability to address new theories contributed to *Frye's* extinction, but more importantly it demonstrated the difficulties in devising the proper test for determining the admissibility of expert testimony.<sup>47</sup>

### *B. Rule 702 of the Federal Rules of Evidence*

In 1975, Congress promulgated the Federal Rules of Evidence in an effort to create a universal set of rules for judges and attorneys to apply to evidentiary matters.<sup>48</sup> Despite Congress' good intentions when it codified the rules, discord erupted in relation to Rule 702,<sup>49</sup> which deals with

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scientific discipline and create the requisite body of scientific opinion needed for acceptability.”). *See also* Coppelino v. State, 223 So.2d 68, 75 (Fla. App. 1968) (Mann, J. concurring) (“[S]ociety need not tolerate homicide until there develops a body of medical literature about some particular lethal agent.”).

Although *Frye* has many critics, it also has proponents who support its validity. These proponents proffer three arguments in defense of the *Frye* “general acceptance” test: (1) the test guarantees that “a minimal reserve of experts exists who can critically examine the validity of a scientific determination in a particular case”; (2) the test promotes uniformity in decisions; and (3) the test eliminates time-consuming hearings to determine the validity of innovative techniques. *United States v. Addison*, 498 F.2d 741, 744 (D.C. Cir. 1974) (citing the first rationale behind maintaining the *Frye* test); *People v. Kelly*, 549 P.2d 1240, 1244-45 (Cal. 1976) (articulating the second reason for maintaining the *Frye* test); *Reed v. State*, 391 A.2d 364, 371 (Md. 1978) (“Without the *Frye* test or something similar, the reliability of an experimental scientific technique is likely to become a central issue in each trial in which it is introduced, as long as there remains serious disagreement in the scientific community over its reliability.”).

<sup>47</sup> *See infra* notes 50-76, 89-95 and accompanying text.

<sup>48</sup> Specifically, the Federal Rules of Evidence expanded the class of experts who may testify; expanded the subjects proper for expert testimony; expanded the formats in which an expert may testify; allowed experts to base their opinions on certain otherwise inadmissible evidence; and relaxed the requirement of disclosure of the basis of the expert's testimony. FED. R. EVID. 702-705.

<sup>49</sup> FED. R. EVID. 702. Rule 702 states: “[i]f scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.” *Id.*

The language of Rule 702 expanded the admissibility of expert testimony in a multitude of ways. *See* Major Victor Hansen, *Rule of Evidence 702: The Supreme Court Provides a Framework for Reliability Determinations*, 162 MIL. L. REV. 1, 10 (1999). First, the expert can testify on any subject without limitation. *Id.* at 11. Illustrative of this point is that the rule permits expert testimony on scientific, technical, or specialized knowledge. *Id.* Specialized knowledge encompasses a wide array of topics; hence, illustrating the expansive nature of this rule. *See* *United States v. Anderson*, 851 F.2d 384 (D.C. Cir. 1988) (permitting expert testimony on how pimps operate); *United States v. Alexander*, 849 F.2d 1293 (5th Cir. 1988) (holding expert testimony on head dimension measurements admissible); *United States v. Cruz*, 797 F.2d 90 (2d Cir. 1986) (allowing a government agent to testify about the use of food stamps

the admissibility of expert evidence.<sup>50</sup> Specifically, the problem resulted because of Congress' failure to incorporate into the text of Rule 702 the "general acceptance" test announced in *Frye*.<sup>51</sup>

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in narcotics sales); *United States v. Rackley*, 742 F.2d 1266 (8th Cir. 1984) (authorizing the demonstration of a drug sniffing dog).

Additionally, Rule 702 requires that the party seeking to introduce the expert testimony show that it will assist the trier of fact. *See Hansen, supra*, at 11. This contributes to the expansion of expert testimony by eliminating the high standard of proof the admitting party must hurdle. *Id.* Moreover, the expert does not need to achieve his expertise via formal education. *Id.* The rule recognizes other methods of obtaining expertise: training, experience, knowledge, education, or skill. *Id.*

Also, Rule 701 promotes the expansive nature of Rule 702 by not restricting experts' testimony to opinions. *Id.* at 12. Before the enactment of Rule 702, experts were generally limited to opinion testimony. *Id.* Hence, with these liberalizations expert testimony will more frequently infiltrate the courtroom. *Id.*

<sup>50</sup> In addition to Rule 702, there are numerous rules that the trial judge may use when evaluating expert testimony. The trial judge must utilize Rule 401 which defines relevant evidence: "[r]elevant evidence" means evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence." FED. R. EVID. 401. The court must also look to Rule 403 which provides for a balancing test which weighs the relevance of the testimony against the unfair prejudice or confusion of the issues: "[a]lthough relevant, evidence may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence." FED. R. EVID. 403. Next, the judge could look to Rule 703 which outlines the foundational requirements of Rule 702:

The facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by or made known to the expert at or before the hearing. If of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject, the facts or data need not be admissible in evidence.

FED. R. EVID. 703. Another rule that the judge can look to is Rule 706 which permits the court to appoint its own expert witness:

The court may on its own motion or on the motion of any party enter an order to show cause why expert witnesses should not be appointed, and may request the parties to submit nominations. The court may appoint any expert witnesses agreed upon by the parties, and may appoint expert witnesses of its own selection.

FED. R. EVID. 706(a).

<sup>51</sup> FED. R. EVID. 702. Furthermore, Rule 703, the foundational requirement of Rule 702, fails to impose a "general acceptance" requirement. *See* FED. R. EVID. 703. *See also* *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 589 (1993). In *Daubert*, the Court stated that:

Given the Rules' permissive backdrop and their inclusion of a specific rule on expert testimony that does not mention "general acceptance," the assertion that the Rules somehow assimilated *Frye* is unconvincing. *Frye* made "general acceptance" the exclusive test for admitting expert scientific testimony. That austere standard, absent from and incompatible with the Federal Rules of Evidence, should not be applied in federal trials.

Moreover, neither the Advisory Committee Notes to Congress,<sup>52</sup> nor the legislators during floor debates made any mention of *Frye* or the “general acceptance” test.<sup>53</sup> Because it failed to mention the “general acceptance” test when it enacted the Federal Rules of Evidence, Congress left the courts in a quandary.<sup>54</sup> Do the courts continue to apply the test outline in *Frye*, or do they apply the newly enacted Federal Rules of Evidence?<sup>55</sup> Some courts continued to apply the “general acceptance”

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*Id.*; Edward J. Imwinkelried, *The Standard for Admitting Scientific Evidence: A Critique from the Perspective of Juror Psychology*, 100 MIL. L. REV. 99, 105 (1983) (“Nowhere is *Frye* codified. You never see the phrase “general acceptance” in the context of the admissibility of scientific evidence anywhere in the Federal Rules.”).

<sup>52</sup> See Effie J. Chan, *The “Brave New World” of Daubert: True Peer Review, Editorial Peer Review, and Scientific Validity*, 70 N.Y.U. L. REV. 100, 108 (1995) (citing PROPOSED FEDERAL RULES OF EVIDENCE WITH SUPREME COURT ADVISORY COMMITTEE’S NOTES, H.R. 5463 JUDICIARY COMMITTEE REPORT AND AMENDMENTS TO FEDERAL RULES OF CIVIL AND CRIMINAL PROCEDURE 116-17 (John R. Schmertz, Jr. ed. 1974)). See also 3 JACK B. WEINSTEIN and MARGARET A. BERGER, WEINSTEIN’S EVIDENCE ¶ 702[03], at 702-16 (1988 & Supp. 1993) (interpreting silence as abandonment of *Frye* and arguing that “the silence of Rule 702 and its drafters may arguably be regarded as tantamount to an abandonment of the general acceptance standard.”). But see *United States v. Downing*, 753 F.2d 1224, 1234 (3d Cir. 1985) (“Neither the text of the Federal Rules of Evidence nor the accompanying notes of the advisory committee . . . explicitly set forth the appropriate standard by which the admissibility of novel scientific evidence is to be established.”); 2 STEPHEN A. SALTZBURG and MICHAEL M. MARTIN, FEDERAL RULES OF EVIDENCE MANUAL 15 (5th ed. 1990) (interpreting silence as a retention of *Frye* and noting that “it was highly unlikely the Advisory Committee and the Congress intended to overrule the vast majority of cases excluding such evidence as lie detectors without explicitly stating so.”); GIANNELLI, *supra* note 39, at 28-29 (“The adoption of the Federal Rules of Evidence has not resolved the uncertain status of the *Frye* test. . . . The issue is simply ignored in the Advisory Committee’s Notes, congressional committee reports, floor debates, and hearings.”); GIANNELLI, *supra* note 39, at 29 (“Proponents of *Frye* can argue that because *Frye* was the established rule prior to the adoption of the Federal Rules and because there is no indication in the legislative history suggesting that *Frye* has been superceded, the general acceptance test remains intact.”).

<sup>53</sup> See Chan, *supra* note 52, at 108 (citing 94th Cong., 1st Session, Federal Rules of Evidence: Text & Legislative History (Comm. Print 1975)).

<sup>54</sup> See *infra* notes 56-57 and accompanying text.

<sup>55</sup> See, e.g., *Christophersen v. Allied-Signal Corp.*, 939 F.2d 1106, 1110 (5th Cir. 1991) (applying both the *Frye* test and the Federal Rules); *United States v. Two Bulls*, 918 F.2d 56, 60 (8th Cir. 1990) (holding that “Rule 702 and *Frye* both require the same general approach to the admissibility of new scientific evidence”); *United States v. Gillespie*, 853 F.2d 475, 480 (9th Cir. 1988) (determining that “evidence that does not qualify under *Frye* must be excluded”); *United States v. Shorter*, 809 F.2d 54, 60 (D.C. Cir. 1987) (stating that “*Frye* is still the law in this Circuit”); *United States v. Solomon*, 753 F.2d 1522, 1526 (9th Cir. 1985) (citing the *Frye* test as the proper standard for admissibility of evidence based on a novel scientific technique).

test, while others argued that the Federal Rules displaced the *Frye* test.<sup>56</sup> In response to this lack of consistency, the United States Supreme Court finally broke its silence and articulated a formal standard for admitting expert evidence.<sup>57</sup>

### C. *Daubert v. Merrell Dow Pharmaceuticals*

A watershed moment in the field of scientific evidence occurred when the United States Supreme Court decided *Daubert v. Merrell Dow Pharmaceuticals*<sup>58</sup> and announced that Rule 702

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<sup>56</sup> See *supra* note 55; *infra* note 61 and accompanying text. See also WEINSTEIN, *supra* note 52, at 702-39 n.12 (listing federal circuits that “still predicate the admission of scientific evidence on general acceptance in the community”). See generally Richard B. Racine et al., *The Battle Over Science in the Courtroom*, 42 FED. LAW. 36, 38 (1995) (illustrating the differing approaches used in the courts).

<sup>57</sup> See Giannelli, *supra* note 40, at 1230 n.257. Professor Giannelli states that:

Even if a court found that Congress did not intend to overrule *Frye* by enacting the Federal Rules, the tension between *Frye* and the Federal Rules should, at the very least, cause some judicial reevaluation of the general acceptance standard. Since *Frye* is a judicial creation and there is no evidence Congress intended to retain it, it could be overruled by the courts.

*Id.* See also Racine, *supra* note 56, at 38. Because the *Frye* test and Rule 702 use different standards to determine the admissibility of scientific evidence, the evidence admitted or excluded will vary greatly. *Id.* That is, under the *Frye* test some evidence may be admitted, whereas under Rule 702 the same evidence may be excluded. *Id.* This divergence in views was in need of a resolution and hence, *Daubert* was granted certiorari to resolve this dispute. *Id.*

<sup>58</sup> *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). This case erupted when two minor children and their parents sued Merrell Dow Pharmaceuticals, Inc. *Id.* at 582. Both of these children were born with severe birth defects, which they allege resulted from their mothers’ ingestion of Bendectin, an anti-nausea drug marketed by Merrell Dow. *Id.* Merrell Dow motioned for summary judgment claiming that Bendectin does not cause birth defects in humans. *Id.* To support its motion, Merrell Dow introduced an affidavit of a well-credentialed expert, who stated that he had reviewed all of the information published on Bendectin and that there was no evidence that Bendectin caused malformations in fetuses. *Id.* All of his information resulted from tests based on human statistics. *Id.* To combat Merrell Dow’s expert, Daubert presented testimony of eight well-credentialed experts. *Id.* at 583. All of Daubert’s experts relied on animal-cell studies, live-animal studies, and chemical structure analysis. *Id.* The District Court granted Merrell Dow’s summary judgment motion because Daubert’s expert testimony failed to meet the “general acceptance” standard. *Id.* The Court reasoned that expert evidence, in regards to Bendectin, must be based on epidemiological evidence due to the significant amount of epidemiological data on the subject. *Id.* The Court of Appeals affirmed the District Court’s decision and declared that “expert opinion based on methodology that diverges ‘significantly from the procedures accepted by recognized authorities in the field . . . cannot be shown to be generally accepted as reliable technique.’” *Id.* at 584.

The Supreme Court granted certiorari to determine the correct standard for admitting expert testimony. *Id.* at 585. The Court determined that the “general acceptance” test, outlined in *Frye*, was no longer the proper test to determine the admissibility of expert testimony. *Id.* at 587. Specifically, the Court stated that the Federal Rules of

of the Federal Rules of Evidence<sup>59</sup> superseded the 70-year-old *Frye* test.<sup>60</sup> The Court thus displaced the “general acceptance” test and created a more elaborate analysis for admitting scientific

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Evidence provide the proper standard to determine the admissibility of expert testimony. *Id.*

<sup>59</sup> See *supra* Part II.B.

<sup>60</sup> *Daubert*, 509 U.S. at 587. The Court does take into consideration common law in its determination as to the applicability of later enacted federal rules. *Id.* at 588. However, upon examining Rule 702, there is no mention of “general acceptance” as a prerequisite to admissibility, nor is there any mention of *Frye* in the drafting history of Rule 702. *Id.* Therefore, the Court concluded that the *Frye* standard was incompatible with the Federal Rules of Evidence. *Id.*

The Court’s determination, that Rule 702 superseded the *Frye* test, eliminated the pressing question of the viability of the “general acceptance” test in light of the Federal Rules of Evidence. See *Laser*, *supra* note 9, at 1380. Following the enactment of the Federal Rules of Evidence, some courts continued to utilize the “general acceptance” test to determine the admissibility of scientific testimony; whereas, other courts stated that Rule 702 supersedes the “general acceptance” test. Compare *United States v. Williams*, 583 F.2d 1194 (2d Cir. 1978) (stating that the *Frye* test is superseded by the Federal Rules of Evidence), *cert. denied*, 439 U.S. 1117 (1979), with *Christophersen v. Allied-Signal Corp.*, 939 F.2d 1106, 1115-16 (5th Cir. 1991) (en banc) (implying that the *Frye* test and the Federal Rules of Evidence coexist), *cert. denied*, 503 U.S. 912 (1992); *Ellis v. International Playtex, Inc.*, 745 F.2d 292, 304 n.15 (4th Cir. 1984) (expressing concerns about *Frye*, but still continuing to apply it in certain circumstances); *Barrel of Fun, Inc. v. State Farm Fire & Cas. Co.*, 739 F.2d 1028, 1031 n.9 (5th Cir. 1984) (continuing to apply *Frye* test even if its applicability after the Federal Rules is unresolved).

Commentators have also been divided as to the applicability of the *Frye* test in light of the enactment of the Federal Rules of Evidence. Compare WEINSTEIN, *supra* note 52, at ¶ 702[03] (claiming that the Federal Rule’s failure to incorporate *Frye* indicates its abandonment), with M. GRAHAM, HANDBOOK OF FEDERAL EVIDENCE Sec. 703.2 (3rd ed. 1991) (maintaining that the *Frye* test lives); 1 D. LOUISELL and C. MUELLER, FEDERAL EVIDENCE 818 (1977) (stating that *Frye* probably survives the enactment of the Federal Rules of Evidence).

State courts have also voiced their opinions as to the continuing viability of the *Frye* test. Compare *State v. Tankersley*, 956 P.2d 486, 491 (Ariz. 1998) (“ . . . [T]he state asks this court to abandon the *Frye* test in favor of the current federal [*Daubert*] standard for determining the admissibility of new scientific evidence . . . . [W]e decline to do so”); *State v. Johnson*, 922 P.2d 294, 296 (Ariz. 1996) (en banc) (“[T]he *Frye* rule, which has been followed without causing significant problems because it was first adopted in 1962, remains the rule in Arizona.”); *Hayes v. State*, 660 So.2d 257, 262 (Fla. 1995) (“We have recently made it clear that Florida utilizes the *Frye* test . . . .”); *People v. Miller*, 670 N.E.2d 721, 731 (Ill. 1996) (“Illinois follows the *Frye* standard for the admission of novel scientific evidence.”); *State v. Hill*, 895 P.2d 1238, 1245 (Kan. 1995) (“Kansas has repeatedly applied *Frye*.”); *People v. Wernick*, 674 N.E.2d 322, 324 (N.Y. 1996) (“This Court has often endorsed and applied the well-recognized rule of *Frye* . . . .”), with *State v. Coon*, 974 P.2d 386, 402-03 (Alaska 1999) (“We adopt the *Daubert* standard for determining the admissibility of scientific evidence.”); *Mitchell v. Commonwealth*, 908 S.W.2d 100, 101 (Ky. 1995) (rejecting *Frye* in favor of *Daubert*); *Taylor v. State*, 889 P.2d 319, 328, 332 (Okla. Crim. App. 1995) (“The time is right for this court to abandon the *Frye* test and adopt the more structured and yet flexible admissibility standard set forth in *Daubert*”); *State v. Hofer*, 512 N.W.2d 482, 484 (S.D. 1994) (“General acceptance in the scientific community is no longer required”); *State v. Begley*, 956 S.W.2d 471, 475 n.9 (Tenn. 1997) (“*McDaniel* held that the pre-Rules of Evidence test of *Frye* . . . was superseded by the adoption of Tennessee Rules of Evidence 702 and 703.”).

expert testimony.<sup>61</sup> Specifically, the Court cloaked trial judges in a “gatekeeping” robe to effectuate this new duty of ensuring both the relevancy<sup>62</sup> and the reliability<sup>63</sup> of scientific evidence.<sup>64</sup> To assist

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<sup>61</sup> *Daubert*, 509 U.S. at 587-96.

<sup>62</sup> The relevance requirement is met when expert evidence relates to any issue in the case. *Id.* at 591. Specifically, the courts must determine whether the evidence satisfies the *Daubert* “fit” or “helpfulness” requirement. Radford, *supra* note 16, at 16. The Supreme Court defined this “fit” or “helpfulness” requirement as that which “requires a valid scientific connection to the pertinent inquiry as a precondition to its admissibility.” *Daubert*, 509 U.S. at 592. Because scientific testimony can be both “powerful and misleading,” the Supreme Court stated that the federal courts must go beyond the traditional Rule 402 requirement of relevance. *Id.* at 595. *See also* FED. R. EVID. 402 (“All relevant evidence is admissible, . . . Evidence which is not relevant is not admissible.”). The federal courts must be “convinced that it speaks clearly and directly to an issue in dispute” before they will admit such scientific evidence. *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, (hereinafter *Daubert II*) 43 F.3d 1311, 1312 n.17 (9th Cir. 1995).

The relevancy or “fit” requirement has also resulted in differing applications among the courts. *See* Targ, *supra* note 13, at 511. For example, in the Ninth Circuit the fit requirement is satisfied under a sufficiency standard rather than a relevancy standard. *See Daubert II*, 43 F.3d at 1321. The Court held that although the evidence was relevant, it did not sufficiently meet the legal standard of causation. *Id.* at 1320. The Court therefore exercised its “gatekeeper” role and excluded the evidence from trial. *Id.* In contrast, other circuits only require that the evidence meet a low threshold of relevance to satisfy the “fit” requirement. *See* Targ, *supra* note 13, at 511. These circuits allow the jury to consider the evidence even if it does not meet the sufficiency standard. *See* Maryland Cas. Co. v. Therm-O-Disc, Inc., 137 F.3d 780, 783 (4th Cir. 1998) (stating that *Daubert* does not require the proffering party to prove that their expert’s assessments are correct, only that they are reliable); *Ambrosini v. Labarraque*, 101 F.3d 129, 134 (D.C. Cir. 1996) (finding an expert’s testimony admissible under Rule 702, so long as it fits an issue in the case, and after the expert explains his or her theories and has been subjected to cross-examination or other evidence demonstrating that his or her technique is not derived from the scientific method).

*See also* Manuel L. Real, *Daubert - A Judge’s View*, 28 A.L.I.-A.B.A. 211, 219 (1999). Real notes that admissibility and sufficiency should not be confused. *Id.* Admissibility concerns “fit,” that is, “does the proffered opinion fit the facts of the case in the sense that does the opinion have any tendency to make the existence of any fact . . . ‘more probable than it would be without the evidence.’ ” *Id.* *See also* FED. R. EVID. 401. Real defines sufficiency as a party’s satisfaction of its burden of proof, which is determined on a case-by-case basis. *See* Real, *supra*, at 219.

<sup>63</sup> In the Ninth Circuit, the reliability requirement is defined as “some objective, independent validation of the expert’s methodology.” *Daubert II*, 43 F.3d at 1316. This Circuit focuses more on the expert’s basis for the opinion rather than what he or she says in court. *Id.* *See also* Michael B. Kent, Jr., *Daubert, Doctors and Differential Diagnosis: Treating Medical Causation Testimony as Evidence*, 66 DEF. COUNS. J. 525, 528 (1999) (stating that “scientific knowledge” implies a basis in scientific procedures and “knowledge” must be more than a subjective belief or unsupported speculation; therefore, an expert’s reliability is determined if his or her statements are elicited via the scientific method).

The determination of reliability may be a difficult task. Therefore, the courts have utilized various indicators of scientific unreliability to assist in their analyses. *See* Radford, *supra* note 16, at 16. Some of the factors the courts use include: (1) whether the expert alters the opinion or method in response to the opposing side’s challenges; (2) whether the expert discards data that contradicts his outcome; (3) whether the expert only chooses data that corroborates his theory; (4) whether the expert manipulates the data in an effort to support his opinion; (5) whether the expert avoids discussing alternatives that conflict with his opinion; and (6) whether the expert formulates his

the trial judges in their quests for relevancy and reliability, the Court identified four non-exclusive factors<sup>65</sup> to aid in determining the admissibility of scientific evidence:<sup>66</sup> (1) whether the theory or

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opinion to coincide with the desired result. *Id.*

<sup>64</sup> *Daubert*, 509 U.S. at 589-92.

<sup>65</sup> *Id.* at 593 (“Many factors will bear on the inquiry, and we do not presume to set out a definitive checklist or test.”). In addition to the factors the Court laid out in *Daubert*, the Court also cited other sources that could provide additional factors. See Mark McCormick, *Scientific Evidence: Defining a New Approach to Admissibility*, 67 IOWA L. REV. 879, 911-12 (1982). In his article, McCormick identified eleven factors:

(1) the potential error rate in using the technique; (2) the existence and maintenance of standards governing its use; (3) presence of safeguards in the characteristics of the technique; (4) analogy to other scientific techniques whose results are admissible; (5) the extent to which the technique has been accepted by scientists in the field involved; (6) the nature and breadth of the inference adduced; (7) the clarity and simplicity with which the technique can be described and its results explained; (8) the extent to which the basic data are verifiable by the court and the jury; (9) the availability of other experts to test and evaluate the technique; (10) the probative significance of the evidence in the circumstances of the case; and (11) the care with which the technique was employed in the case.

*Id.* For additional factors, see for example, *Sheehan v. Daily Racing Form, Inc.*, 104 F.3d 940, 942 (7th Cir. 1997) (stating as a factor whether expert “is being as careful as he would be in his regular professional work outside his paid litigation consulting”), *cert. denied*, 521 U.S. 1104 (1997); *Braun v. Lorillard, Inc.*, 84 F.3d 230, 234 (7th Cir. 1996) (asking if expert “adhered to the same standards of intellectual rigor that are demanded in their professional work”); *Claar v. Burlington N. RR .Co.*, 29 F.3d 499 (9th Cir. 1994) (excluding evidence where expert failed to consider other obvious cause for plaintiff’s condition).

<sup>66</sup> *Daubert*, 509 U.S. at 593-94. Just as the federal courts were determining the factors necessary to determine the admissibility of expert testimony, the state courts were also devising various admissibility factors. See Elizabeth D. Whitaker & Amy K. Hunt, *Civil Evidence*, 52 SMU L. REV. 799, 800 (1999).

The Texas Supreme Court followed *Daubert*’s footsteps and devised its own non-exclusive list of reliability factors:

(1) the extent to which the theory has been or can be tested; (2) the extent to which the technique relies upon the subjective interpretation of the expert; (3) whether the theory has been subjected to peer review or publication; (4) the technique’s potential rate of error; (5) whether the underlying theory or technique has been generally accepted as valid by the relevant scientific community; and (6) the non-judicial uses which have been made of the theory or technique.

*E.I. Du Pont de Nemours and Co., Inc., v. Robinson*, 923 S.W.2d 549, 557 (Tex. 1995).

Oregon also employs its own set of factors to assist the trial judge ascertain whether the evidence is reliable: (1) the technique’s general acceptance in the field; (2) the expert’s qualifications and stature; (3) the use which has been made of the technique; (4) the potential rate of error; (5) the existence of specialized literature; (6) the novelty of the invention; and (7) the extent to which the technique relies on the subjective interpretation of the expert.

scientific technique has been tested;<sup>67</sup> (2) whether it has been subjected to peer review or publication;<sup>68</sup> (3) the known or potential rate of error;<sup>69</sup> and (4) whether the principle was generally accepted in the relevant scientific community.<sup>70</sup>

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State v. Brown, 687 P.2d 751, 759 (Or. 1984).

<sup>67</sup> *Daubert*, 509 U.S. at 593. To determine whether a certain technique or theory of scientific knowledge will help the trier of fact, it must be capable of being tested and it must have, in fact, been tested. C. HEMPEL, PHILOSOPHY OF NATURAL SCIENCE 49 (1966) (claiming that “the statements constituting a scientific explanation must be capable of empirical test.”); POPPER, *supra* note 8, at 37 (noting that “the criterion of the scientific status of a theory is its falsifiability, or refutability, or testability”). See also Lynn R. Johnson et al., *Expert Testimony in Federal Courts: Frye, Daubert, and Joiner*, 33 A.L.I.-A.B.A. 177, 183 (1998). However, the *Daubert* decision is not as rigid. *Id.* It requires that the theory or technique be capable of being tested, not that it necessarily has been tested. *Id.*

<sup>68</sup> *Daubert*, 509 U.S. at 593. This is a pertinent consideration to determine the admissibility of a scientific theory or technique. See Johnson, *supra* note 67, at 183. The publicized theory or technique will be scrutinized by various scientific gurus. *Id.* This heightens the likelihood that a particular theory or technique is “good science,” absent of any flaws. *Id.* But see Brief of Amici Curiae Daryl E. Chubin et al. at 6, *Daubert* (No. 92-102) (stating that “the fact that ideas and information have not been published in a peer review journal does not mean that they are not ‘generally accepted,’ or that they are ‘generally rejected,’ or that they cannot represent ‘good science’”).

<sup>69</sup> *Daubert*, 509 U.S. at 594. This prong concerns the statistics generated by scientific evidence. See Johnson, *supra* note 67, at 183. Illustrative of this point is the case in which two experts agree on the proper study to discern whether a certain drug causes a particular disease. See REFERENCE MANUAL ON SCIENTIFIC EVIDENCE, FEDERAL JUDICIAL CENTER at 92-3 (1994). However, the experts disagree on the significance of the statistics produced by the study and hence, on the effect of their admissibility, what the jury should be told about the statistics, and how the study should be discounted by error rates. *Id.*

<sup>70</sup> *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 594 (1993). General acceptance heightens the reliability of scientific theories or techniques, in that, numerous individuals in the scientific community have scrutinized them and have agreed that they are acceptable. See Johnson, *supra* note 67, at 184. Moreover, if a theory or technique has only attracted minimal support, it can be viewed with skepticism. *Id.* See also *United States v. Bynum*, 3 F.3d 769, 773 (4th Cir. 1993) (stating that if scientific evidence is admissible under the *Frye* test it will almost always be admissible under the *Daubert* test; however, the converse is not always true).

The courts have generally held that the relevant scientific community consists of those individuals or professional organizations that have the expertise in the particular field of science at issue. See *United States v. Buck*, Nos. 84 Cr. 220-CSH, SSS 82 Cr. 312-CSH, 1987 US Dist. LEXIS 9913, at \*10 (S.D.N.Y. Oct. 28, 1987) (permitting the expert testimony based on handwriting comparison because a large professional community of “forensic document examiners” existed and the American Board of Forensic Document Examiners issued certificates of qualification in the field); *United States v. Distler*, 671 F.2d. 954, 962 (6th Cir. 1981) (holding that the gas chromatograph analysis was generally accepted in the scientific community because a non-profit organization, comprised of academicians and others, promulgated the standards for the analysis); *Sterling v. Velsicol Chem. Corp.*, 855 F.2d. 1188, 1209 (6th Cir. 1988) (holding that clinical ecological tests were improperly admitted because the two leading professional societies in the speciality of allergy and immunology rejected the clinical ecological testing and few other professional organizations had endorsed the methodology or results); *United States v. Yee*, 134 F.R.D. 161, 166 (N.D. Ohio 1991) (stating that the presence of expert testimony from not only within the scientific community of

Although *Daubert* provided trial judges with a tool to aid in the determination of reliable and relevant scientific evidence, it left several questions unanswered:<sup>71</sup> (1) whether the *Daubert* factors apply to all expert evidence or only to scientific evidence;<sup>72</sup> (2) whether the decision to apply the *Daubert* factors is required or suggested;<sup>73</sup> and (3) whether the decision to apply the factors is

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scientists who created a particular technique, but also those outside that community is crucial to a finding of general acceptance within a community); *Head v. Lithonia Corp.*, 881 F.2d. 941, 944 (10th Cir. 1989) (holding that expert testimony on “topographical brain mapping” was not admissible because this technique was not accepted by other experts in the field of neurology or by the American Academy of Neurology).

<sup>71</sup> *Daubert*, 509 U.S. at 600 (Rehnquist, C.J., concurring in part and dissenting in part). Chief Justice Rehnquist voiced his concerns with the enforcement of the *Daubert* decision, in that, the majority failed to determine if their decision also applied to “technical or other specialized knowledge.” *Id.* Moreover, the Chief Justice’s exclamation that “countless more questions will surely arise” when district judges try to apply the *Daubert* holding, not only criticized the majority’s decision, but foreshadowed the controversy that would soon erupt. *Id.* See also David O. Stewart, *A New Test: Decision Creates Uncertain Future for Admissibility of Expert Testimony*, A.B.A. J. 48, 48 (Nov. 1993) (“[T]he catch . . . is that no one is exactly sure what the new standard is.”); Timothy B. Dyk and Gregory A. Castanias, *Daubert Doesn’t End Debate on Experts*, NAT’L L.J. 17, 17 (Aug. 2, 1993) (“the opinion of the court, in rejecting the existing standard, has created considerable confusion”); M. GRAHAM, HANDBOOK OF FEDERAL EVIDENCE Sec. 702.5 (3d ed. 1992 & Supp. 1996). Professor Graham states:

In attempting to understand the application of *Daubert* by the trial and appellate courts since 1993 . . . one can easily become confused and frustrated. *Daubert* is a very, very incomplete case if not a very, very bad decision. It has resulted in a series of conflicting and confusing if not conflicted and confused opinions.

*Id.* See JANE CAMPBELL MORIARTY, *PSYCHOLOGICAL AND SCIENTIFIC EVIDENCE IN CRIMINAL TRIALS* 10-51 (1999) (outlining the questions that remained unanswered after *Daubert*).

<sup>72</sup> Footnote eight in the *Daubert* opinion led to this question. See *infra* note 98 and accompanying text.

<sup>73</sup> Several circuits have held that *Daubert* may apply to non-scientific evidence, however these circuits believe that the four *Daubert* factors are limited to scientific evidence. See *Bogosian v. Mercedes-Benz of N. Am., Inc.*, 104 F.3d 472, 479 (1st Cir. 1997) (holding that *Daubert* factors only apply to scientific testimony); *McCulloch v. H.B. Fuller Co.*, 61 F.3d 1038, 1043 (2d Cir. 1995) (holding that engineer’s testimony was based on “specialized” rather than “scientific” knowledge and was supported by his “extensive practical experience”); *Holbrook v. Lykes Bros. S.S. Co.*, 80 F.3d 777, 784 (3d Cir. 1996) (noting that the trial court did not use *Daubert* factors to evaluate experts’ testimony); *Carroll v. Morgan*, 17 F.3d 782, 789-90 (5th Cir. 1994) (affirming admission of expert testimony based on thirty years of experience); *United States v. Jones*, 107 F.3d 1147, 1147 (6th Cir. 1997) (emphasizing that *Daubert* factors are limited to scientific evidence); *McKendall v. Crown Control Corp.*, 122 F.3d. 803, 806 (9th Cir. 1997) (stating that the district court erred “in applying the *Daubert* factors, which are relevant only to testimony bearing on ‘scientific knowledge’”). But see *Peitzmeier v. Hennessey Indus., Inc.*, 97 F.3d 293 (8th Cir. 1996) (examining the testimony under each of the *Daubert* factors); *Tyus v. Urban Search Mgmt.*, 102 F.3d 256 (7th Cir. 1996) (declaring that the trial court erred in not applying the *Daubert* factors to social science expert).

subject to an abuse-of-discretion standard or to a de novo review.<sup>74</sup> The ambiguous nature of the *Daubert* decision required federal courts to wrestle with the probable answers to these questions when they found themselves faced with non-scientific expert evidence.<sup>75</sup>

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<sup>74</sup> Although the *Daubert* decision generated some ambiguity, it did provide a general framework which courts can utilize when examining scientific evidence. See *Kent*, *supra* note 63, at 529. After the *Daubert* decision, the trial court's role in determining the validity of scientific evidence is strengthened. *Id.* See also *Zuchowicz v. United States*, 140 F.3d 381, 386 (2d Cir. 1998) (discussing trial court's strengthened role). Moreover, the trial courts do not have to rely on the scientific community to make admissibility determinations, but can sort out expert opinion that is not based on scientific theories. See *Cavallo v. Star Enter.*, 892 F.Supp. 756, 774 (E.D. Va. 1995). Second, the trial court has the responsibility to ensure that every stage of the expert's decision-making process is reliable. See *Kent*, *supra* note 63, at 529. This involves considering both the steps of the underlying methodology and the conclusions drawn from the methodology. *Id.* Therefore, if a step in the methodology is flawed, it does not satisfy the admissibility standard in Rule 702. See *Hall v. Baxter Healthcare Corp.*, 947 F.Supp. 1387, 1401 (D. Or. 1996) (stating that when court performs its "gatekeeping" role it must ensure faithful application of scientific methodology "from initial premise to ultimate conclusion" and not admit evidence based only on "leap of faith"). Next, the trial court must examine the fit requirement of both the scientific techniques and the conclusions drawn from those techniques. See *Kent*, *supra* note 63, at 530. In this examination, the reliability and relevancy analyses mesh. *Id.* If the court determines that the underlying methodology or conclusions are not reliable, then the expert's testimony does not satisfy the "fit" requirement. *Id.* Lastly, the trial court must also apply other provisions of the Federal Rules of Evidence. *Id.* Specifically, the trial court must also use rules 104(a), 403, and 703. Rule 104(a) provides that "preliminary questions concerning the qualification of a person to be a witness . . . or the admissibility of evidence shall be determined by the court . . ." FED. R. EVID. 104(a). Rule 403 allows the court to exclude relevant and reliable scientific testimony "if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence." FED. R. EVID. 403. Finally, Rule 703 complements Rule 702 by requiring the trial court to "make an independent evaluation of the reliability of the data" underlying the expert opinion. *In re Paoli R.R. Yard PCB Litigation*, 35 F.3d 717, 747 (3d Cir. 1994).

<sup>75</sup> As a result of the distinction between scientific and non-scientific evidence created by the *Daubert* Court, inconsistent and controversial applications developed. See K. Issac de Vyver, Comment, *Opening the Door but Keeping the Lights Off: Kumho Tire Co. v. Carmichael and the Applicability of the Daubert Test to Nonscientific Evidence*, 50 CASE W. RES. L. REV. 177, 186-89 (1999); Hrabosky, *supra* note 8, at 206-16; Laser, *supra* note 9, at 1394-1402.

The first approach, which was utilized by the Fifth and Sixth Circuits, was to apply *Daubert's* four-part test to all expert evidence. See *Moore v. Ashland Chem., Inc.*, 151 F.3d 269, 279 (5th Cir. 1998) (en banc) (holding that clinical physician's expert testimony, though not "hard science," was still subject to the *Daubert* test); *Berry v. City of Detroit*, 25 F.3d 1342, 1352 (6th Cir. 1994) (stating that a non-scientific expert on "police policies and practices" was subject to *Daubert's* four-part test).

The second approach rests more on a reliability analysis rather than a strict adherence to the four-part test. The courts focus on the factors pertinent to the particular area in question. See *In Den Norske Bank AS v. First Nat'l Bank of Boston*, 75 F.3d 49, 58 (1st Cir. 1996) (holding that banker's testimony was admissible under *Daubert* and Rule 702 because during his forty-year banking career, the banker became very familiar with the commercial agreements in question and had observed firsthand the well-established industry custom and practice); *United States v. Velasquez*, 64 F.3d 844, 850 (3d Cir. 1995) (concluding that the "*Daubert* tests are helpful to assist the court in its consideration of the expertise in question").

#### D. General Electric Co. v. Joiner

In *General Electric Co. v. Joiner*, the United States Supreme Court continued to work on devising the proper standards to apply to the area of expert evidence.<sup>76</sup> In this second of three influential cases, the *Joiner* Court resolved one of the questions left unanswered by *Daubert*:<sup>77</sup> the

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The third approach used by some circuits is an inconsistent application of *Daubert* to non-scientific evidence. Compare *Roback v. V.I.P. Transp., Inc.*, 90 F.3d 1207, 1216 (7th Cir. 1996) (rejecting lower courts literal approach to *Daubert* and instead focused on the fact that the expert's data was subject to verification), with *Frymire-Brinati v. KPMG Peat Marwick*, 2 F.3d 183, 186-87 (7th Cir. 1993) (emphasizing the importance of always analyzing the validity of the witness's reasoning as required by *Daubert*).

Lastly, some circuits held that *Daubert* was inapplicable to non-scientific expert witnesses. See *Iacobelli Construction, Inc. v. County of Monroe*, 32 F.3d 19, 25 (2d Cir. 1994) (articulating that “*Daubert* sought to clarify the standard for evaluating ‘scientific knowledge’ for purposes of admission under Federal Rule of Evidence 702.”); *Thomas v. Newton Int’l Entertainment*, 42 F.3d 1266, 1270 n.3 (9th Cir. 1994) (holding that “*Daubert* was clearly confined to the evaluation of scientific expert testimony”); *United States v. Plunk*, 153 F.3d 1011, 1017 (9th Cir. 1998) (reaffirming *Thomas* the court stated “courts evaluating the admissibility of ‘technical’ or ‘specialized’ knowledge . . . must conduct a more traditional Rule 702 analysis. . .”).

<sup>76</sup> *General Elec. Co. v. Joiner*, 522 U.S. 136 (1997). Mr. Joiner was an electrician, who repaired electrical transformers for the city of Thomasville, Georgia. *Id.* at 139. The city later discovered that polychlorinated biphenyls (PCBs) were contaminating some of its transformers. *Id.* Later, Joiner was diagnosed with small-cell lung cancer. *Id.* Joiner's theory was that, although he had a history of cigarette smoking and a family history of lung cancer, the exposure to the PCBs and their derivatives – polychlorinated dibenzofurans (“furans”) and polychlorinated dibenzodioxins (“dioxins”) – promoted his lung cancer. *Id.* at 140. Joiner relied on two experts to promote his theory and to oppose General Electric's summary judgment motion. *Id.* The District Court determined that the two experts failed to show a causal link between the exposure to the PCBs and the small-cell lung cancer. *Id.* The Court of Appeals reversed the lower court's decision, holding that “because the Federal Rules of Evidence governing expert testimony display a preference for admissibility, we apply a particularly stringent standard of review to the trial judge's exclusion of expert testimony.” *Id.* Thereafter, the Supreme Court granted certiorari and held that abuse of discretion is the proper standard of review. *Id.* at 146.

<sup>77</sup> See *Real*, *supra* note 62, at 221 (articulating that the circuit courts were not uniform in their application of the standard of review; ranging from a “hard look” in the Third Circuit to “manifest error” in the Fifth Circuit). See also *Ed Peters Jewelry Co. v. C & J Jewelry Co., Inc.*, 124 F.3d 252, 259 (1st Cir. 1997) (declaring that standard of review applicable to Rule 702 is manifest trial court error); *Raskin v. Wyatt Co.*, 125 F.3d 55, 66 (2d Cir. 1997) (reviewing district court's evidentiary rulings for “manifest error”); *United States v. DiDomenico*, 985 F.2d 1159, 1163 (2d Cir. 1993) (articulating that “manifest error” is the correct standard of review when examining the admission of expert testimony); *In re Paoli*, 35 F.3d at 733 (concluding that the review requires a “hard look” to determine if district court superseded its discretion); *United States v. Gravely*, 840 F.2d 1156, 1162 (4th Cir. 1988) (“The standard of review for evidentiary ruling is the narrow abuse of discretion standard.”); *Benedi v. McNeil-P.P.C., Inc.*, 66 F.3d 1378, 1383 (4th Cir. 1995) (stating that evidentiary rulings are reviewed for an abuse of discretion); *Hart v. O'Brien*, 127 F.3d 424, 437 (5th Cir. 1997), *cert. denied*, 525 U.S. 1103 (1999) (stating that evidentiary rulings are reviewed for “manifest error”); *Trust Co. of La. v. N.N.P., Inc.*, 104 F.3d 1478, 1485 (5th Cir. 1997) (declaring that deference is given to a district court's determination of the credibility of witnesses and will not be overturned unless there is “manifest error”); *Hancock v. Dodson*, 958 F.2d 1367, 1371 (6th Cir. 1992) (“A district court's evidentiary determinations are

correct standard of review<sup>78</sup> applicable to a district court's evidentiary rulings.<sup>79</sup> Reaffirming its prior holdings relating to the standard of review in evidentiary rulings,<sup>80</sup> the Court stated that the proper standard of review pertaining to a district court's evidentiary rulings was the abuse-of-discretion<sup>81</sup>

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subject to an abuse of discretion standard of review.”); *United States v. Allison*, 120 F.3d 71, 74 (7th Cir. 1997) (reviewing evidentiary rulings for an abuse of discretion); *Buckner v. Sam's Club, Inc.*, 75 F.3d 290, 292-93 (7th Cir. 1996) (holding that trial courts decision to exclude evidence under *Daubert* should be reviewed for abuse of discretion); *Porchia v. Design Equip. Co.*, 113 F.3d 877, 880 (8th Cir. 1997) (stating the proper standard of review for evidentiary decisions is abuse of discretion); *Paramount Farms, Inc v. Hai Jyi Foods Co.*, 121 F.3d 716 (9th Cir. 1997) (declaring that evidentiary rulings are reviewed for an abuse of discretion); *Pandit v. American Honda Motor Co.*, 82 F.3d 376, 379 (10th Cir. 1996) (“We review evidentiary rulings for abuse of discretion.”); *Evans v. Mathis Funeral Home, Inc.*, 996 F.2d 266, 268 (11th Cir. 1993) (“The district court has broad discretion in determining whether to admit or exclude expert testimony, and its decision will be disturbed on appeal only if it is manifestly erroneous.”); *United States v. Smart*, 98 F.3d 1379, 1386 (D.C. Cir. 1996) (stating that the proper standard of review is abuse of discretion).

<sup>78</sup> The Supreme Court stated that “[f]or purposes of standard of review, decisions by judges are traditionally divided into three categories: denominated questions of law (reviewable de novo), questions of fact (reviewable for clear error), and matters of discretion (reviewable for ‘abuse of discretion’).” *Pierce v. Underwood*, 487 U.S. 552, 558 (1998). *See also* Cynthia K. Y. Lee, *A New “Sliding Scale of Deference” Approach to Abuse of Discretion: Appellate Review of District Court Departures Under the Federal Sentencing Guidelines*, 35 AM. CRIM. L. REV. 1, 11-12 (1997) (asserting that lower courts often utilize a categorical approach in determining which standard of review to use).

<sup>79</sup> *Joiner*, 522 U.S. at 146 (“We hold . . . that abuse of discretion is the proper standard by which to review a district court’s decision to admit or exclude scientific evidence.”). It should be noted that utilizing the abuse of discretion standard of review may result in appellate court’s allowance of trial courts to reach different conclusions regarding the admissibility of specific scientific evidence. *See* Official U.S. Supreme Court Transcripts at 6, *Joiner*, (No. 96-188). Chief Justice Rehnquist received an affirmative reply to his question: “[w]hen . . . you say abuse of discretion, as opposed to perhaps de novo review, . . . I take it that means that a . . . properly acting district court might have reached different . . . conclusions on the same evidence, and both would be affirmed on appeal?” *Id.*

<sup>80</sup> *See Old Chief v. United States*, 519 U.S. 172, 174 n.1 (1997) (“The standard of review applicable to the evidentiary rulings of the district court is abuse of discretion.”); *United States v. Abel*, 469 U.S. 45, 54 (1984). Additionally, this issue has been around for some time. *See Spring Co. v. Edgar*, 99 U.S. 645, 658 (1878). In this case, the Court stated that “cases arise where it is very much a matter of discretion with the court whether to receive or exclude evidence; but the appellate court will not reverse in such a case, unless the ruling is manifestly erroneous.” *Id.*

<sup>81</sup> When an appellate court is reviewing a case, its role is not to determine whether the trial court’s decision was correct, but rather to determine whether the trial court’s decision was unreasonable or otherwise abusive. *See Western Elec. Co., Inc. v. Piezo Tech., Inc.*, 860 F.2d 428, 430-31 (Fed. Cir. 1988).

“Abuse of discretion” occurs when the “appellate court is of the opinion that” the trial judge has made a “clearly erroneous conclusion and judgment - one is that clearly against logic and effect of such facts as are presented in support of the application or against the reasonable and probable deductions to be drawn from the facts disclosed upon the hearing . . . .” BLACK’S LAW DICTIONARY 5-6 (6th ed. 1991). *But see* Lee, *supra* note 78, at 21. Lee states that “the Supreme Court has never provided a clear definition of abuse of discretion review. At times, the

standard.<sup>82</sup>

Additionally, the Court addressed Joiner’s argument that *Daubert* focused solely on principles and methodology, not on generated conclusions<sup>83</sup> and therefore, the Court of Appeals reversal was correct.<sup>84</sup> The Court concluded that conclusions and methodology “are not entirely distinct from one another”<sup>85</sup> and hence, did not confine the abuse-of-discretion review solely to the methodologies of the expert, but also included the expert’s conclusions under this umbrella of review.<sup>86</sup>

#### E. Kumho Tire Co., Ltd. v. Carmichael

The definitive moment in the area of evidence occurred with the Supreme Court’s decision in

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Court seems to equate abuse of discretion with the highly deferential clearly erroneous review. At other times, the Court has hinted at a less deferential definition of abuse of discretion.” *Id.* See also *Anderson v. City of Bessemer City*, 470 U.S. 564, 573 (1985) (declaring that the clearly erroneous review “standard . . . does not entitle a reviewing court to reverse the finding of the trier of fact simply because it is convinced that it would have decided the case differently”). Additionally, some courts have even equated the clearly erroneous and abuse of discretion standards. See *Ornelas v. United States*, 517 U.S. 690, 695 n.3 (1996) (stating that the clearly erroneous standard is equivalent to the abuse of discretion standard).

<sup>82</sup> *Joiner*, 522 U.S. at 146. *But see* Martin B. Louis, *Allocating Adjudicative Decision Making Authority Between Trial and Appellate Levels: A Unified View of the Scope of Review, the Judge/ Jury Question, and Procedural Discretion*, 64 N.C. L. REV. 993, 1042 (1986). The Supreme Court has stated that not all evidentiary decisions are subject to a trial judge’s discretion. *Id.* One example illustrative of this occurrence is when the issue is categorized as legal and hence, subject to a stricter standard of review. *Id.* The Court has deemed “whether evidence is protected by the work product and attorney-client privileges” and “whether evidence is hearsay or qualifies under an exception to the hearsay rules” as legal issues and subject to a heightened review. *Id.* at 1042 n.361. See also *Upjohn v. United States*, 449 U.S. 383 (1981); *Mutual Life Ins. Co. v. Hillmon*, 145 U.S. 285 (1892).

<sup>83</sup> *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579, 595 (1993).

<sup>84</sup> *Joiner*, 522 U.S. at 146.

<sup>85</sup> *Id.*

<sup>86</sup> *Id.* See also Robert P. Redemann, *General Electric v. Joiner and Kumho Tire v. Carmichael: The Ipse Dixit Twins*, 28 SUM BRIEF 54, 55 (1999) (arguing that because conclusions and methodologies are not “entirely distinct” it provides trial judges with wide latitude to exclude expert opinions that do not reach their “comfort level”).

*Kumho Tire Co., Ltd. v. Carmichael*.<sup>87</sup> In this case, the Court finally put to rest the contradictory applications of *Daubert* within the federal court system<sup>88</sup> by extending the trial judge's "gatekeeping" function to include non-scientific expert evidence.<sup>89</sup> The Court stated that a trial judge may apply the *Daubert* factors to non-scientific evidence to aid in its determination.<sup>90</sup> While the Court did note that

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<sup>87</sup> *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137 (1999). Carmichael brought suit against the tire maker and distributor (collectively known as "Kumho Tire") when the rear passenger tire of a minivan blew out and resulted in a fatal accident. *Id.* at 142. The plaintiffs called Carlson, an engineer and consultant, as their expert to testify as to the cause of the tire's blow out. *Id.* The defendant motioned to exclude this testimony because it failed to satisfy the reliability requirement of Rule 702 stated in *Daubert*. *Id.* at 145. The district court granted defendant's motion for summary judgment. *Id.* When the Eleventh Circuit reviewed the case, it concluded that *Daubert* was explicitly limited to scientific testimony. *Id.* at 146. As such, the appellate court stated that the district court erred in applying the *Daubert* decision to Carlson's testimony. *Id.* Defendants then filed a writ of certiorari, which was granted by the United States Supreme Court. *Id.* The Supreme Court determined that *Daubert's* "gatekeeping" function extends to all types of expert testimony. *Id.* at 147-48.

<sup>88</sup> See *supra* note 76 and accompanying text.

<sup>89</sup> The Court extended the *Daubert* "gatekeeping" function to non-scientific testimony for three reasons: (1) Rule 702 does not make a "relative distinction" between scientific and non-scientific knowledge and therefore, Rule 702 requires that all expert testimony must be reliable; (2) the rationale behind *Daubert's* gatekeeping function was that Rules 702 and 703 "grant expert witnesses testimonial latitude unavailable to other witnesses on the 'assumption that the expert's opinion will have a reliable basis in the knowledge and experience of his discipline'" and that this rationale supports the requirement that all expert testimony be reliable; and (3) drawing a distinction between scientific and non-scientific experts would be a very difficult and unnecessary task. *Kumho*, 526 U.S. at 147-49. See generally Hrabosky, *supra* note 8, at 219 (outlining the reasons for the court's decision in *Kumho*).

On the other hand, there are those who believe that the *Kumho* decision will lead to numerous problems. See de Vyver, *supra* note 75, at 197-99. One of the problems created by *Kumho* was its failure to identify a standard to determine the reliability of non-scientific evidence. *Id.* Analogous to the courts' fears of admitting "junk" scientific evidence, the fear of "junk" non-scientific evidence will now surface. *Id.* This fear may be greater because scientific evidence is more readily verifiable than non-scientific evidence which cannot generally be duplicated. *Id.* Without any parameters, trial judges will make decisions that may result in the admission of unreliable evidence and exclusion of reliable evidence. *Id.* A second problem results from the broad discretion given to trial judges. *Id.* This discretion may result in trial judges misusing or abusing their power. *Id.* There will be no uniformity in the judges' evaluations, that is, some judges may use all the *Daubert* factors, some may use some, while others may not use any. *Id.* The broad discretion that trial judges were given by *Kumho*, in an area that judges know little about, has the potential for creating additional problems in regards to expert testimony. *Id.*

<sup>90</sup> *Kumho*, 526 U.S. at 149-50. But see Hrabosky, *supra* note 8, at 226. Despite the fact that the Court has extended the *Daubert* factors to non-scientific evidence, there still is no objective basis for determining the reliability of non-scientific evidence. *Id.* This is because of the lack of general objective criteria that could apply to all non-scientific evidence. *Id.* It may be possible to generate specific reliability criteria for each area of expertise; however, this would be an impractical and costly system to implement. *Id.* at 225. Not only does the *Kumho* decision fail to clarify the reliability standards for non-scientific evidence, but it may have also decreased the effectiveness of

the application of the *Daubert* factors was not a requisite formality for admitting or excluding evidence, it did state that the trial judge could consider any applicable factors when evaluating the evidence.<sup>91</sup> In other words, the *Daubert* factors are not a definitive checklist or test to determine admissibility, but rather factors that can be used if necessary.<sup>92</sup>

Although the Court provided trial judges with broad boundaries to determine an expert's reliability,<sup>93</sup> the Court emphasized that this determination must be faithfully fulfilled by "making certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field."<sup>94</sup> Lastly, the Supreme Court ensured that trial judges would have these broad boundaries by reiterating that the abuse-of-discretion standard was the proper standard to review a

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screening out unreliable scientific expert testimony. *Id.* at 226. After *Kumho's* pronouncement that the four factors could be used "when applicable," trial courts may use this permissive language as a mechanism to avoid their "gatekeeping" function when evaluating scientific expert testimony. *Id.*

<sup>91</sup> *Kumho*, 526 U.S. at 149-52. The Court stated: "We can neither rule out, nor rule in, for all cases and for all time the applicability of the factors mentioned in *Daubert*, nor can we now do so for subsets of cases categorized by category of expert or by kind of evidence." *Id.* at 150.

<sup>92</sup> *Id.* The Court stated that the trial courts should apply the *Daubert* factors "where they are reasonable measures of the reliability of expert testimony." *Id.*

There are additional considerations the court must evaluate that extend beyond the holdings in *Daubert* and *Kumho*. See Patricia A. Krebs and Bryan J. De Tray, *Kumho Tire Co. v. Carmichael: A Flexible Approach to Analyzing Expert Testimony Under Daubert*, 34 TORT & INS. L.J. 989, 995 (1999). One consideration that the court must examine is the expert's qualifications in the particular field of expertise. *Id.* An expert's lack of expertise does not necessarily prevent the expert from testifying, but it may impact the court's reliability analysis. *Id.* The court must also consider the analytical gap between the underlying facts and the expert's conclusions. *Id.* This enables the court to exclude evidence that is "connected to existing data only by the ipse dixit of the expert." *General Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997). Another consideration the court can evaluate is the necessity of the expert to assist the trier of fact. *Id.* If the expert offers nothing to the trial, his or her testimony will be excluded. *Id.*

<sup>93</sup> See *supra* notes 91-93 and accompanying text.

<sup>94</sup> *Kumho Tire*, 526 U.S. at 152.

trial court's admission or exclusion of expert testimony.<sup>95</sup>

### III. ANALYSIS

#### A. Why the Court Needed to Decide *Kumho*

Although *Daubert* specifically stated that trial judges have the ability to determine the admissibility of scientific evidence, it left these same judges in a conundrum in regards to non-scientific evidence.<sup>96</sup> This situation emerged as a result of the infamous footnote eight in the *Daubert* decision, where the Court limited its decision to the scientific field.<sup>97</sup>

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<sup>95</sup> *Id.* Justice Scalia, however, in his concurring opinion cautioned trial judges that while “the *Daubert* factors are not holy writ, in a particular case the failure to apply one or another of them may be unreasonable, and hence an abuse of discretion.” *Id.* at 158-59. Moreover, Justice Scalia emphasized that the discretion *Kumho Tire* gives “is not discretion to abandon the gatekeeping function.” *Id.*

<sup>96</sup> As one commentator noted:

You can go across the range of cases; accountants, engineers and other experts routinely testify in products liability cases. With all of these kinds of experts, it's debatable whether what they do is pure science in the sense of, for example, epidemiologists. That's why the federal courts are a little confused as to how to assess reliability.

*See* Marcia Coyle, *Beyond “Daubert” - Court Hears “Kumho”*, NAT'L L.J., Dec. 14, 1998, at A1 Col. 2 (quoting Mr. Alan E. Untereiner).

<sup>97</sup> “Our discussion is limited to the scientific context because that is the nature of the expertise offered here.” *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579, 590 n.8 (1993). It should be noted that the Court in *Daubert* stated that the only reason that it referred to “scientific” testimony was “because that was the nature of the expertise” at issue. *Id.* Moreover, it is only logical to extend its rationale to any type of expert. *See* Imwinkelried, *supra* note 9, at 2281 (“If the mention of scientific knowledge [in Rule 702] suffices to mandate reliability standards for scientific testimony, *a fortiori* the mention of nonscientific expert knowledge should compel the courts to seek to formulate reliability standards for that type of expert evidence as well.”); David L. Faigman, *Mapping the Labyrinth of Scientific Evidence*, 46 HASTINGS L.J. 555, 559 (1995) (restricting *Daubert* to science “displays a crabbed interpretation of the Court’s opinion as well as a misconstruction of the principles underlying Rule 702”); Stephen D. Easton, “*Yer Outta Here!*” *A Framework for Analyzing the Potential Exclusion of Expert Testimony Under the Federal Rules of Evidence*, 32 U. RICH. L. REV. 1, 25 (1998) (“Although *Daubert* makes specific reference to science, its reasoning is not applicable only to scientific expert testimony.”); Jay P. Kesan, Note, *An Autopsy of Scientific Evidence in a Post-Daubert World*, 84 GEO. L.J. 1985, 2035-36 (1996) (“*Daubert*’s overarching emphasis on scientific validity as an admissibility requirement is its greatest contribution . . . [It] represents a first step . . . In the future, separate validation factors and standards for inquiry should be developed for different disciplines.”); G. Michael Fenner, *The Daubert Handbook: The Case, its Essential Dilemma, and Its Progeny*, 29 CREIGHTON L. REV. 939, 948 (1996) (“[t]he general point . . . that when expert testimony is proffered and resisted, the trial court should hold a

Notwithstanding the fact that the footnote was solely written based on the scientific nature of the *Daubert* case, the courts did not know how to address the applicability of *Daubert* to the non-scientific field; therefore, differing opinions evolved.<sup>98</sup> The most dramatic divergence in views evolved amongst the circuit courts.<sup>99</sup> Some circuit courts relied on the explicit language of footnote eight and therefore restricted *Daubert* to scientific evidence.<sup>100</sup> Other circuits did not place emphasis on the language of footnote eight, and declared that *Daubert* was applicable to non-scientific evidence.<sup>101</sup>

### *B. A Correct Resolution*

The inconsistent approaches asserted by the circuit courts illustrated the need to resolve the

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hearing to determine whether the evidence is reliable and relevant- applies to all expert evidence.”).

<sup>98</sup> *See supra* note 76; *infra* notes 101-102 and accompanying text.

<sup>99</sup> *Id.*

<sup>100</sup> *Id.* *See also* *Compton v. Subaru of America, Inc.*, 82 F.3d 1513, 1518 (10th Cir. 1996) (holding that *Daubert* is only applicable when expert relies on some scientific principle or methodology); *Iacobelli Const., Inc. v. County of Monroe*, 32 F.3d 19 (2d Cir. 1994) (stating that *Daubert* was not applicable to expert opinions that are not based on science); *Carmichael v. Samyang Tire Inc.*, 131 F.3d 1433 (11th Cir. 1997) (declaring that *Daubert* did not apply because expert did not base his opinion on scientific theories but on his experience); *United States v. Jones*, 107 F.3d 1147, 1158 (6th Cir. 1997) (announcing that *Daubert* factors do not apply to handwriting analyst); *McKendall v. Crown Control Corp.*, 122 F.3d 803, 806-08 (9th Cir. 1997) (stating that mechanical engineer was not subject to *Daubert* factors, but was qualified as an expert by virtue of engineering experience and investigation of hundreds of forklift accidents) .

<sup>101</sup> *See supra* note 76 and accompanying text. *See also* *Watkins v. Telsmith, Inc.*, 121 F.3d 984, 988 (5th Cir. 1997) (stating that *Daubert* is not restricted to novel controversial methods or techniques); *Cummins v. Lyle Indus.*, 93 F.3d 362 (7th Cir. 1996) (rejecting the argument that *Daubert* applies only to novel scientific evidence).

District courts have also applied *Daubert* to areas outside the scientific realm. *See* *Lithuanian Commerce Corp. v. Sara Lee Hosiery*, 177 F.R.D. 245 (D. N.J. 1997) (applying *Daubert* to disciplines outside the hard science fields; specifically, it was applied to an accountant); *Hulmes v. Honda Motor Co.*, 960 F. Supp. 844, 865 (D. N.J. 1997) (holding that *Daubert* concerns “whether novel or untested methodologies are sufficiently reliable that conclusions based on them can be of some use to the jury”).

controversy surrounding the applicability of the *Daubert* decision to non-scientific evidence.<sup>102</sup>

Judges, attorneys, and experts all acknowledged the importance of this decision and the impact that it would have on the admissibility of non-scientific evidence.<sup>103</sup> Therefore, the *Kumho* decision was highly anticipated by many individuals. Despite this anticipation, the decision was not surprising;<sup>104</sup> however, it was the correct resolution.<sup>105</sup>

### 1. The Language of Rule 702 Does Not Restrict the “Gatekeeping” Function to “Scientific” Knowledge

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<sup>102</sup> See *supra* notes 76, 101-102 and accompanying text.

<sup>103</sup> “As one can see from some of the people who have filed amicus briefs, this is a case on which potentially a lot of money could ride, in terms of controlling litigation . . . I’m not sure I see it as a very vital intellectual question, but it is certainly something that pragmatically could have enormous effect.” See Coyle, *supra* note 96, at AI Col.2. (quoting evidence scholar Margaret A. Berger).

<sup>104</sup> See Mark A. Hofmann, *High Court to Revisit Old Issues*, BUSINESS INSURANCE, Sept. 28, 1998, at 2 (quoting David G. Leitch) (“The high court ‘will probably be reluctant’ to draw distinctions about the standards governing different types of expert testimony.”). But see William H. Latham, *The “Gatekeepers” Discretion: Flexible Standards on Admissibility of Expert Evidence in Wake of Kumho*, 11 S.C. LAW. 15, 15 (1999) (stating that what was a surprise to many was the Court’s assertion that the *Daubert* factors were not mandatory considerations, but merely suggestions).

<sup>105</sup> See *infra* Parts III.B.1-4.

Examining Rule 702 of the Federal Rules of Evidence clearly illustrates that it applies, without qualification or exception, to all expert testimony.<sup>106</sup> The language of the rule does not distinguish between “scientific” knowledge, “technical” knowledge, or “other specialized” knowledge.<sup>107</sup> Moreover, the United States Supreme Court consistently interprets the Federal Rules of Evidence, as with other statutory provisions, according to their plain meaning.<sup>108</sup> Therefore, the interpretation

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<sup>106</sup> The Supreme Court has not characterized its decision in *Daubert* as limited to “scientific” experts. *See* *United States v. Scheffer*, 523 U.S. 303, 310 n.7 (1998), 1266 n.7 (1998) (“In *Daubert*, . . . we held . . . that expert testimony could be admitted if the district court deemed it both relevant and reliable.”). The courts of appeals have also read *Daubert* to be applicable to all types of experts. *See* *Berry v. City of Detroit*, 25 F.3d 1342, 1350 (6th Cir. 1994) (recognizing that *Daubert*’s “language relative to the ‘gatekeeper’ function of federal judges is applicable to all expert testimony offered under Rule 702”). *See also* *Watkins v. Telsmith, Inc.*, 121 F.3d 984, 990-92 (5th Cir. 1997) (holding that the application of *Daubert* in determining admissibility of expert testimony is not limited to “scientific” knowledge).

This interpretation is not limited to courts, as evidenced by commentators reaching the same conclusion. *See* MARC S. KLEIN AND PATRICK W. LEE, *EXPERT EVIDENCE: A PRACTITIONER’S GUIDE TO LAW, SCIENCE, AND THE FJC MANUAL* 47 & n.159 (Black & Lee eds., 1997).

<sup>107</sup> *See* Petitioner’s Brief at 38, *Kumho Tire Co. v. Carmichael*, 526 U.S. 137 (1998) (No. 97-1709). *See also* *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 600 (1993). Using the terms “scientific,” “technical,” and “other specialized” to modify “knowledge” is nothing more than “general descriptive language covering the sort of expert testimony which courts have customarily received.” *Id.* It should not be interpreted as an expectation that the experts be “broken down into numerous subspecies of expertise.” *Id.*; C. WRIGHT & V. GOLD, *FEDERAL PRACTICE AND PROCEDURE* § 6266, at 285 (1997) (“[N]othing in the language of the Rule suggests that scientific expert testimony should be treated differently from other expert testimony”).

The word “scientific” refers to “a grounding in the methods and procedures of science.” *Daubert*, 509 U.S. at 590. The word “technical” can be defined as “practical knowledge especially of a mechanical or scientific subject” which can encompass “knowledge that is characterized by specialization.” *WEBSTER’S THIRD NEW INTERNATIONAL DICTIONARY* 2348 (1986). “Specialized” knowledge encompasses “any knowledge focused on a particular area of study, profession or experience,” and many argue that it is broader than “scientific” and “technical” knowledge. *See* Linda Sandstrom Simard and William G. Young, *Daubert’s Gatekeeper: The Role of the District Judge in Admitting Expert Testimony*, 68 *TUL. L. REV.* 1457, 1466 (1994).

Additionally, various courts have used the terms “scientific,” “technical,” and “specialized” interchangeably. *See* *Pennsylvania R.R. Co. v. Day*, 360 U.S. 548, 553 (1959) (“[P]rovisions in railroad collective bargaining agreement are of a specialized technical nature calling for specialized technical knowledge in ascertaining their meaning and application.”); *E.I. du Pont de Nemours & Co. v. Train*, 430 U.S. 112, 117 (1977) (referring both to scientific knowledge and technical information as factors necessary to restore and maintain water quality); *Federal Power Comm’n v. Colorado Interstate Gas Co.*, 348 U.S. 492, 501 (1955) (claiming that public utility rate making requires technical knowledge of accounting, economics, and policy); *Texas Gas Transmission Corp. v. Shell Oil Co.*, 363 U.S. 263, 268 (1960) (referring to the specialized knowledge of the regulation of natural gas businesses).

<sup>108</sup> *See* *Landreth Timber Co. v. Landreth*, 471 U.S. 681, 685 (1985) (quoting *Blue Chip Stamps v. Manor Drug Stores*, 421 U.S. 723, 756 (1975) (Powell, J. concurring)) (“[T]he starting point in every case involving construction of

of Rule 702 should not differ.<sup>109</sup> Utilizing the plain meaning of the rule would authorize expert witnesses to testify based on scientific, technical, or other specialized knowledge.<sup>110</sup>

Additionally, by focusing on the word “scientific” in Rule 702 to determine the applicability of the “gatekeeping” function would misapply the *Daubert* opinion.<sup>111</sup> The Court in *Daubert* stated that the “gatekeeping” function was derived from the word “knowledge,” not the words that modify it.<sup>112</sup> Upon an examination of Rule 702, “scientific” is not the only word that modifies “knowledge.”<sup>113</sup> Therefore, the proper application of the “gatekeeping” function encompasses scientific, technical, and other specialized knowledge.<sup>114</sup>

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a statute is the language itself.”).

<sup>109</sup> *Daubert*, 509 U.S. at 587 (“We interpret the legislatively-enacted Federal Rules of Evidence as we would any statute.”).

<sup>110</sup> Both “scientific” or “technical” are built around the word “knowledge,” which implies the expert’s opinion involves some sort of “scientific” or “technical” knowledge. *See Hanks v. Korea Iron & Steel Co.*, 993 F. Supp. 1204, 1207 (S.D. Ill. 1998). The term “knowledge” is “more than subjective belief or unsupported speculation,” it is “any body of known facts or to any body of ideas inferred from such facts or accepted truths on good grounds.” *Lithuanian Commerce Corp., Ltd. v. Sara Lee Hosiery*, 177 F.R.D. 245, 255 (D.N.J. 1997).

<sup>111</sup> *See supra* notes 63-65 and accompanying text.

<sup>112</sup> *Daubert*, 509 U.S. at 589-90.

<sup>113</sup> FED. R. EVID. 702.

<sup>114</sup> According to the American College of Trial Lawyers Federal Rules of Evidence Committee:

We urge that it is preferable that there be a single conceptual framework for evaluating the admissibility of all types of expert evidence. Although it may be attractive to academics and ubiquitous CLE speakers to construct a complex ‘Daubertology’ discipline in which fine distinctions are drawn among types of expert testimony, that result would be harmful both to the doing of justice and to our system of advocacy . . . . Given the combination of the enormously crowded dockets of the federal district courts and the apparent need for those courts to hold ‘Daubert hearings’ with respect to challenged expert testimony, it is highly desirable that trial judges have a single standard to apply . . . .

Lastly, the legislative history of the Federal Rules of Evidence supports a broad application of Rule 702 to all types of experts.<sup>115</sup> Following the “liberal thrust of the Federal Rules,” the expert testimony provision of Rule 702 follows a “general approach to relaxing the traditional barriers to ‘opinion’ testimony.”<sup>116</sup> The legislature’s explication of the rules illustrates that restricting Rule 702 to scientific expert testimony would be counterintuitive.<sup>117</sup>

## 2. Incentives to Couch Testimony

Limiting the application of *Daubert* to testimony which is based on either scientific principles or particular methodologies may cause another problem: experts will attempt to deliver their expert

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David J. Beck et al., *Federal Rules of Evidence Committee, American College of Trial Lawyers, Standards and Procedures for Determining the Admissibility of Expert Evidence After Daubert*, 157 F.R.D. 571, 577 (1994). *See also Confronting the New Challenges of Scientific Evidence*, 108 HARV. L. REV. 1481, 1527 (1995) (“The least confusing and arbitrary way to deal with the classification issue would be to apply the same general standards of reliability and relevance to all types of expert testimony.”).

<sup>115</sup> FED. R. EVID. 702, Advisory Committee’s Notes (observing that rule is “broadly phrased” to expand the admissibility of expert testimony). *See also* *Beech Aircraft Corp. v. Rainey*, 488 U.S. 153, 165 n.9 (1988) (stating that a key canon to the interpretation of the Federal Rules of Evidence is that “Congress did not amend the Advisory Committee’s draft in any way that touches on the question before us, the Committee’s commentary is particularly relevant in determining the meaning of the document Congress enacted.”).

<sup>116</sup> *Beech Aircraft*, 488 U.S. at 169. *See also Daubert*, 509 U.S. at 588-89 (stating that these changes were hardly accidental); Hon. George C. Pratt, *A Judicial Perspective on Opinion Evidence Under the Federal Rules*, 39 WASH. & LEE L. REV. 313, 314 n.5 (1982) (“[T]he rules reflect an enlightened, academic view of opinion testimony that dates back some fifty years.”).

<sup>117</sup> “The Rule provides that expert testimony of all types -- not only the scientific testimony specifically addressed in *Daubert* -- presents questions of admissibility for the trial courts in deciding whether the evidence is reliable and helpful, and as such is governed by Rule 104(a).” FED. R. EVID. 702 Advisory Committee’s Note, Proposed Amendment to Federal Rules of Evidence 702.

It is evident that the drafters of Rule 702 did not intend different treatment for “scientific,” “technical,” or “specialized” knowledge because where the drafters explicitly wanted categories or qualifications they were specified. *Compare* FED. R. EVID. 701 (referring to lay opinion testimony), *with* Federal Rules of Evidence 702 (referring to expert testimony). *See also* FED. R. EVID. 403 (outlining twenty-four separate hearsay exceptions, each in its own discrete subsection); Jonathan R. Schofield, *A Misapplication of Daubert: Compton v. Subaru of America Opens the Gate for Unreliable and Irrelevant Expert Testimony*, 1997 B.Y.U. L. REV. 489, 506 (1997) (“If the drafters intended that different standards should apply to various types of experts under Rule 702 or that there should be exception for certain kinds of expert evidence, arguably, they would have incorporated them into the Rules.”).

testimony under the guise of experience,<sup>118</sup> rather than scientific techniques or methodologies, to escape the court's scrutiny.<sup>119</sup> With this crafty facade, it delimits the purpose of *Daubert*, which is to ensure the admission of relevant and reliable evidence.<sup>120</sup> By couching an expert's testimony in a non-scientific principle, the courts will not subject it to a rigorous examination like it would if the

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<sup>118</sup> The word "experience" is not succinct. Petitioner's Brief at 29, *Kumho Tire Co. v. Carmichael*, 526 U.S. 137 (1998) (No. 97-1709). It can include one's prior observations or more expansively everything one has encountered throughout life. *Id.* Thus, practically any type of expert testimony could be re-cast as experienced based. *Id.* at 30. The Rules Committee realized that experts may attempt to circumvent Rule 702; therefore, they addressed this issue in the proposed Federal Rule of Evidence 701. *Id.* (quoting Advisory Committee Notes) ("[T]he proposal amendments [to Rule 701] are intended 'to eliminate the risk that the reliability requirements set forth in Rule 702 will be evaded through the simple expedient of proffering an expert in lay witness clothing.'"). The proposed Rule 701 states:

If the witness is not testifying as an expert, the witness' testimony in the form of opinions or inferences is limited to those opinions or inferences which (a) are rationally based on the perception of the witness, (b) are helpful to a clear understanding of the witness' testimony or the determination of a fact in issue, and (c) are not based on scientific, technical or other specialized knowledge.

*Id.*

<sup>119</sup> See Faigman, *supra* note 8, at 422. A prime example of an expert witness couching an opinion occurred in *United States v. Bighead*, 128 F.3d 1329 (9th Cir. 1997). The Court held that the *Daubert* analysis did not apply to a psychologist who testified on child sexual abuse because her testimony was a result of interviewing many abuse victims, not on any scientific knowledge. *Id.* at 1330. This determination is a fallacy. See Krebs, *supra* note 92, at 996-97. This fallacy is evinced by the very definition of psychology, which is the "science of mind and behavior." MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 943 (10th ed. 1996). Psychologists perform various scientific analyses, analyze behavior, and derive diagnoses. See Krebs, *supra* note 92, at 996-97. Moreover, there is literature and accepted methods utilized in this field. *Id.* A psychologist's observations are based on science and should not avoid scrutiny by a mere exclamation that it is not based on a scientific method. *Id.* But see *Jenson v. Eveleth Taconite Co.*, 130 F.3d 1287, 1297 (8th Cir. 1997) (doubting the applicability of *Daubert* to "soft sciences" such as psychology because "there are social sciences in which the research, theories, and opinions cannot have the exactness of hard science methodologies").

For a discussion illustrating various approaches to eliminate couching testimony, see Hrabosky, *supra* note 8, at 227. An expert's attempt to couch opinions will not go unnoticed. *Id.* Through our effective adversarial system, the expert's scheme will be revealed on cross-examination. *Id.* at 227-28. Alternatively, the opposing party could impeach the expert by offering its own scientific expert. *Id.* at 228. See also *Daubert*, 509 U.S. at 579 ("[V]igorous cross-examination and presentation of contrary evidence . . . are the traditional and appropriate means of attacking shaky but admissible evidence.").

<sup>120</sup> See Scholfield, *supra* note 117, at 515 ("An expert's testimony that is likely to fail under *Daubert*'s scientific factors could be repackaged under the guise of technical or nonscientific evidence and could avoid the application of *Daubert*."); Laser, *supra* note 9, at 1409 ("[A]pproach seems to turn *Daubert* on its head . . . an expert can get around the *Daubert* inquiry by saying that no methodology was used at all, . . . [and] if there is no

testimony was introduced as a scientific principle.<sup>121</sup>

In addition, judges do not possess the skills necessary to prevent this occurrence.<sup>122</sup> Judges are “experts” in the legal field and are not sufficiently versed in other fields to circumvent this practice.<sup>123</sup> Therefore, judges rely heavily on the expert’s testimony as to the foundation of his or

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methodology, then the expert’s opinion is necessarily speculative.”).

<sup>121</sup> See *Target Mkt. Publ’g Inc. v. Advo, Inc.*, 136 F.3d 1139, 1143 (7th Cir. 1998) (stating that if “an expert who was well qualified as an astronomer offered to testify based on lengthy and careful observation that the sun revolves around the earth, a court would not be obliged to submit the testimony to the jury”). See also *Watkins v. Telsmith, Inc.*, 121 F.3d 984, 991 (5th Cir. 1997) (“It seems exactly backwards that experts who purport to rely on general engineering principles and practical experience might escape screening . . . simply by stating that their conclusions were not reached by any particular method or technique.”).

<sup>122</sup> See *infra* note 135 and accompanying text.

<sup>123</sup> The purpose for using an expert is that the factfinder does not have knowledge in that area. See *Hand*, *supra* note 1, at 54. As Learned Hand noted:

The whole object of the expert is to tell the jury, not the facts . . . but general truths derived from his specialized experience. But how can the jury judge between two statements each founded upon an experience confessedly foreign in kind to their own? It is just because they are incompetent for such a task that the expert is necessary at all.

*Id.*

Not only does the factfinder lack the skill to appreciate the weakness of an expert’s testimony, but an expert’s testimony may “assume a posture of mystic infallibility” if not properly checked by the judge. See *United States v. Addison*, 498 F.2d 741, 744 (D.C. Cir. 1974). See also *Specht v. Jensen*, 853 F.2d 805, 808 (10th Cir. 1988) (stating that the false mystique and “aura of trustworthiness and reliability” exist even where the expert is an attorney); *United States v. Kime*, 99 F.3d 870, 884-85 (8th Cir. 1996) (affirming exclusion of expert testimony because of the risk of misleading the jury); *Adams v. Indiana Bell Tel. Co., Inc.*, 2 F.Supp. 2d 1077 (S.D. Ind. 1997) (articulating that experts can mislead and confuse a jury), *rev’d Adams v. Ameritech Servs., Inc.*, 231 F.3d 414 (7th Cir. 2000).

Additionally, various commentators have also noted that the factfinder can be misled by expert testimony. See Stephen E. Fienberg et al., *Understanding and Evaluating Statistical Evidence in Litigation*, in 36 *JURIMETRICS* 1-32 (1995) (stating that factfinders can be misled by statisticians); E. Donald Elliott, *Toward Incentive-Based Procedure: Approaches for Regulating Scientific Evidence*, 69 *B.U. L. REV.* 487, 493 (1989) (claiming that factfinders can be misled by experts); Robert Charrow & Veda Charrow, *Making Legal Language Understandable: A Psycholinguistic Study of Jury Instructions*, 70 *COLUM. L. REV.* 1305 (1979) (arguing that reliance on jury instructions to help the jurors filter technical testimony may not be realistic because jurors have great difficulty understanding even simple jury instructions). Henceforth, the trial judge’s responsibility to ensure reliable expert testimony is heightened. See *Specht v. Jensen*, 853 F.2d 805, 808 (10th Cir. 1988). See also *Imwinkelried*, *supra* note 9, at 2279 (claiming that the trial judge’s role to ensure reliability in non-scientific testimony is just as great because this expert testimony is every bit as suspect as the reliability of scientific evidence).

her testimony. This reliance on the expert's testimony heightens the incentive and ability to couch an opinion because the judge cannot discern its fallibility.<sup>124</sup> To avoid this problem, courts must have the ability to evaluate all expert testimony, regardless of its underlying basis.<sup>125</sup>

### 3. Inability of the Judges to Discern Between Scientific and Non-scientific Evidence

*Kumho* also eliminated the trial judge's impossible task of differentiating between scientific and non-scientific evidence.<sup>126</sup> If trial judges were asked to make that distinction, it would "prove difficult, if not impossible, for judges to administer rules under which a "gatekeeping" obligation

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<sup>124</sup> See Petitioner's Brief at 23-25, *Kumho Tire Co. v. Carmichael*, 119 S. Ct. 1167 (1998) (No. 97-1709) (citing a National Law Journal survey on juries) ("Jurors are incapable of 'critically evaluating the bases for an expert's testimony' and too often give unquestioning deference to expert opinion;" "it is common knowledge, moreover, that jurors 'perform much less well when they sit in judgment on technology;" "jurors often 'abdicate their fact-finding obligation' and simply 'adopt' the expert's opinion"). See also *State v. Spencer*, 216 N.W.2d 131, 134 (Minn. 1974) ("We are concerned, however, about the sweeping and unqualified manner in which [the expert's] testimony was offered. Where expert testimony concerning a new scientific technique is heard by a jury, there is danger that the evidence may be given more weight than is warranted."). But see Brief Amici Curiae of Neil Vidmar et al. at 6-19, *Kumho Tire Co. v. Carmichael*, 119 S.Ct. 1167 (1998) (No. 97-1709) (arguing that juries are capable of evaluating all types of expert testimony regardless of its focus).

Additionally, numerous federal and state court judges agree with the jury's verdict. See *Louis Harris & Assoc., Judge's Opinions on Procedural Issues: A Survey of State and Federal Trial Judges Who Spend at Least Half Their Time on General Civil Cases*, 69 B.U. L. REV. 731 (1989) (stating that ninety-eight percent of both federal and state judges believe that juries made a "serious effort to apply the law"); R. Perry Sentell, Jr., *The Georgia Jury and Negligence: The View From the Bench*, 26 GA. L. REV. 85, 98 (1991) (according to Sentell's survey eighty-six percent of judges indicated that they agreed with jury verdicts four out of five times). Harris and Associates also asked judges the following question: "Would you like to see a limitation on the use of juries for . . . complex civil cases involving highly technical or scientific issues?" *Louis Harris & Assoc., supra*, at 748. A majority of the judges stated that they would not like restrictions placed on the jury trials. *Id.*

<sup>125</sup> "[It] seems exactly backwards that experts who purport to rely on general . . . principles and practical experience might escape screening by the district court simply by stating that their conclusions were not reached by any particular method or technique." *Watkins v. Telsmith, Inc.*, 121 F.3d 984, 991 (5th Cir. 1997).

<sup>126</sup> See *Krebs, supra* note 92, at 996 (stating that the Court noted that many areas, such as engineering, may rest on scientific knowledge and that pure science may rest on engineered machinery; therefore, it would be difficult for courts to make the conceptualized distinction between scientific and non-scientific matters with any consistency).

The Supreme Court declared that there was not a "convincing need" to make the distinction between scientific and non-scientific evidence. *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 138 (1999). Moreover, the Court stated that every type of expert connects observations to conclusions through what Judge Learned Hand called "general truths derived from . . . specialized experience." *Id.* (quoting Learned Hand, *Historical and Practical Considerations Regarding Expert Testimony*, 15 HARV. L. REV. 40, 54 (1901)).

depended upon a distinction between ‘scientific’<sup>127</sup> knowledge and ‘technical’<sup>128</sup> knowledge or ‘other specialized’ knowledge.”<sup>129</sup> This difficulty stems from the fact that an identifiable line does not always exist between scientific and non-scientific knowledge.<sup>130</sup> Furthermore, some expert testimony may be a combination of both scientific and non-scientific knowledge.<sup>131</sup> The lack of a discernible distinction would heighten the trial judge’s role and enlarge the “gatekeeping” function to require

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<sup>127</sup> “Science” can have varying definitions depending on the dictionary consulted. *See* RANDOM HOUSE DICTIONARY 1279 (2d ed. 1983) (defining “science” as “a branch of knowledge or study dealing with a body of facts or truths systematically arranged and showing the operation of general laws”); OXFORD AMERICAN DICTIONARY 605 (1980) (defining science as “a branch of knowledge requiring systematic study and method”); WEBSTER’S NEW WORLD DICTIONARY 1305 (College ed. 1966) (defining “science” as “systematized knowledge derived from observations, study and experimentation carried on in order to determine the nature or principles of what is being studied”).

<sup>128</sup> Additionally, the word “technical” can also have different definitions depending on the dictionary used. *See* RANDOM HOUSE DICTIONARY 1458 (2d ed. 1983) (defining “technical” as “pertaining to an art, science, or the like,” or “characteristic of a particular art, science, profession, trade, etc.”); OXFORD AMERICAN DICTIONARY 704 (1980) (defining “technical” as “of the mechanical arts and applied sciences, . . . of a particular subject or craft”); BLACK’S LEGAL DICTIONARY 1463 (6th ed. 1990) (defining “technical” as “belonging or peculiar to an art or profession;” “words of art”).

<sup>129</sup> *Kumho*, 526 U.S. at 148. *See also* Bert Black et al., *Science and the Law in the Wake of Daubert: A New Search for Scientific Knowledge*, 72 TEX. L. REV. 715, 751 (1994) (“If lawyers and judges hope to apply the new *Daubert* test rationally, they will have to learn what distinguishes science from other forms of knowledge – what it is that makes science scientific.”).

<sup>130</sup> The difficulty in this distinction results from the lack of an identifiable line between scientific and non-scientific evidence. *See Kumho*, 526 U.S. at 149 (concluding that the line between scientific and non-scientific evidence is unclear and “conceptual efforts to distinguish the two are unlikely to produce clear legal lines capable of application in particular cases”). Therefore, in order for judges to properly effectuate their roles as gatekeepers, the line between scientific and non-scientific evidence must be erased. *See de Vyver, supra* note 75, at 191.

Psychology is an example illustrating the difficulty in discerning between scientific and non-scientific testimony. *See Krebs, supra* note 92, at 995. By its very definition, psychology is the “science of mind and behavior.” MERRIAM WEBSTER’S COLLEGIATE DICTIONARY 943 (10th ed. 1996). Psychologists conduct experiments and there are standard texts and accepted methods of analysis which evince that a psychologist’s testimony is grounded in science. *See Krebs, supra* note 92, at 995. However, a psychologist may also utilize observations and experience to reach conclusions, which are not necessarily grounded in science. *Id.* Henceforth, the totality of the psychologist’s testimony should be subject to the rigorous scrutiny because it would be impossible for a judge to separate the testimony into scientific and non-scientific segments. *Id.*

<sup>131</sup> There is little guidance in the determination as to what is and is not science. *See* Diana K. Sheiness, Note, *Out of the Twilight Zone: The Implications of Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 69 WASH. L. REV.

judges to parse out scientific and non-scientific aspects of testimony.<sup>132</sup> Enlarging the judge's role to include deciphering between scientific and non-scientific evidence does not support the underlying rationale of the "gatekeeper" function.<sup>133</sup> Judges are not skilled in all facets of life; therefore, judges' determinations would probably not be correct,<sup>134</sup> nor would there be consistency among an individual judge's conclusions and the conclusions of another judge.<sup>135</sup>

#### 4. Judges Should be Equally Concerned About the Reliability of Non-scientific Evidence

The Court in *Daubert* stated that the "gatekeeper" role of the trial judge was to ensure that "all scientific testimony or evidence admitted is not only relevant, but reliable."<sup>136</sup> Restricting the

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481, 491 (1994); Dyk, *supra* note 71, at 20 ("Who is a scientist? A political scientist? A 'human factors expert'?").

<sup>132</sup> As one court stated: "[e]xpert opinion . . . is only an ordinary guess in evening clothes . . ." Earl M. Kerstetter, Inc. v. Commonwealth Dept. of Highways, 171 A.2d 163, 165 (Pa. 1961).

<sup>133</sup> See *infra* note 137 and accompanying text.

<sup>134</sup> Originally, opposing counsel was responsible for flaws in his opponent's expert testimony. See Kapsa, *supra* note 10, at 325-26. However, now this responsibility lies with the trial judge. *Id.* This results in a problem because college degrees do not assure that one is thoroughly versed in scientific principles. *Id.* Moreover, attaining a legal license does not require judges or attorneys to attain a certain level of scientific competence. *Id.* Henceforth, judges rely on their individual and scientific knowledge they have gained through various college or high school courses and opinions stated by other experts. *Id.* This leads to a divergence in opinions and outcomes, none of which are predictable. *Id.* See also generally Kapsa, *supra* note 10, at 332 n.78. The high school requirements in the United States require some familiarity with basic mathematical skills; however, these standards are substantially lower than one hundred years ago. *Id.* Thus, illustrating that judges do not have the requisite knowledge to adequately evaluate scientific versus non-scientific expert evidence.

<sup>135</sup> Judges have differing levels of intelligence and experience which leads to different conclusions. See Joseph T. Walsh, *Keeping the Gate*, 83 JUDICATURE 140 (1999). Additionally, with the subjective nature of the reliability analysis, a judge's idiosyncracies or predisposition may affect the admissibility of expert testimony. *Id.* Therefore, evidence which achieved admissibility in one court may not be as fortuitous in another court. *Id.*

<sup>136</sup> *Daubert v. Merrell Dow Pharmaceuticals, Inc.* 509 U.S. 579, 589 (1993). The judge's "gatekeeper" role is also essential because cross-examination, a traditional safeguard of preventing unreliable testimony, is not as effective in the expert testimony arena. See Brief of the American Tort Reform Association, American Consulting Engineers Council, and National Association of Manufacturers at 10-12, *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137 (1998) (No. 97-1709). This is based on the rationale that an effective cross-examination presupposes that the factfinder can appreciate the weaknesses made evident through the cross-examination. See Paul F. Rothstein, *The*

“gatekeeper” role to only scientific expert evidence creates the impression that non-scientific expert evidence is omnipotent and free from the heightened scrutiny.<sup>137</sup> Moreover, this creates the aura that non-scientific experts are more reliable than scientific experts, which strengthens the proposition that experts will couch their opinions if a distinction is not drawn.<sup>138</sup> Therefore, judges must conduct a

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*Collision Between New Discovery Amendments and Expert Testimony Rules*, 14 LITIG. 17 (1988). See also *United States v. Wilson*, 361 F. Supp. 510, 513 (D. Md. 1973) (“The cross-examination of an expert poses a formidable task; it is the rare attorney who knows as much as the expert.”); *State v. Dean*, 307 N.W.2d 628, 650-51 (Wis. 1981) (“Cross-examination . . . may not in all situations provide a sufficient basis for the jury to assess the competence of the witness and the merits of the test.”).

<sup>137</sup> Conversely, by not subjecting a non-scientific expert to the rigors of the “gatekeeping” function could further the proposition that the court system does not fear this form of expert testimony as compared to scientific expert testimony. See *infra* note 139. Therefore, the natural result is to subject only scientific expert testimony to the higher scrutiny. *Id.*

<sup>138</sup> See *Hansen*, *supra* note 49, at 25. Some commentators do believe that there should be a distinction between the evaluation of non-scientific evidence and scientific evidence. See *Giannelli*, *supra* note 40, at 1237 (stating that scientific evidence has a potential danger of misleading the jury because “an aura of scientific infallibility may shroud the evidence”); *Strong*, *supra* note 15, at 367 (noting that a distinction is needed between scientific and other types of experts because “propositions perceived as ‘scientific’ by the jury possess an unusually high degree of persuasive power”).

Despite these commentators views, there are various reasons that the courts should be equally concerned with the validity of non-scientific evidence and hence, distinctions should not be created. See *generally* *Needham*, *supra* note 13, at 560-63. The classification of expert testimony as “non-scientific” does not eliminate the fact that it is still “expert” testimony. *Id.* at 561 The very fact that an expert is needed to explain or decipher information to the jury illustrates that this expert has some knowledge that the jury does not possess. *Id.* See also *United States v. Gallo*, 118 F.R.D. 316, 317 (E.D.N.Y. 1987) (determining that the testimony of an expert witness concerning the methodology of organized crime should be admitted in order to assist the trier of fact because the “average jury . . . is likely to know very little about the methods of operation of organized crime . . . and in order to conduct a trial it is necessary that the trier of fact have a great deal of familiarity with the way the relevant institution or organization operates”). Therefore, it is imperative that this testimony is subjected to a “gatekeeping” analysis to ensure that it is both relevant and reliable. See *Tyus v. Urban Search Management*, 102 F.3d 256, 263 (7th Cir. 1996) (stating that the district court has the obligation to ensure that it is dealing with an expert in all cases including when the expertise is based on experience or training).

Eliminating this scrutiny could lead some juries to place undue emphasis on unreliable evidence, which would be in contravention to the entire judicial process. See *Laser*, *supra* note 9, at 1407. Moreover, if there is a distinction drawn between scientific and non-scientific evidence, some parties will mold the expert’s testimony to fit within a non-scientific category to allude *Daubert’s* heightened scrutiny. See *United States v. Jones*, 107 F.3d 1147, 1156 (6th Cir. 1997) (rejecting appellant’s argument that handwriting analysis constitutes scientific evidence, and is therefore subject to *Daubert’s* heightened scrutiny); *United States v. Starzeczyzel*, 880 F. Supp. 1027, 1036-37 (S.D.N.Y. 1995) (refusing to accept opposing party’s attempt to cast forensic document expertise as scientific knowledge to warrant greater reliability scrutiny). This distinction contributed to the divergence in applications of *Daubert* amongst the circuits. See *supra* notes 76, 101-102. Also, the distinction would merely reinforce the expert’s ability to couch his or her opinion in non-scientific measures. See *supra* notes 119-126 and accompanying text. *But*

reliability analysis on non-scientific evidence to prevent this evidence from coming in unguarded and to eliminate the presumption that non-scientific expert evidence is more worthy of belief.<sup>139</sup>

Additionally, unlike the verifiability of scientific evidence,<sup>140</sup> non-scientific evidence does not have these assurances and quality controls.<sup>141</sup> Non-scientific expertise does not result from numerous experimentations, but from the expert's life experiences, which is virtually impossible to

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*see* Walsh, *supra* note 135, at 140 (arguing that the fact that the judge must serve as the “gatekeeper” to prevent the jury from receiving evidence that may persuade them presupposes the fact that the trial judge is more knowledgeable in assessing scientific evidence than the average lay juror).

<sup>139</sup> *See* Needham, *supra* note 13, at 559 (arguing that trial courts failure to apply their “gatekeeping” function to non-scientific testimony insinuates a presumption that the trial court just assumes that the expert’s conclusions are reliable based on their qualifications without further inquiry); Peter B. Oh, *Assessing the Admissibility of Nonscientific Expert Evidence Under Federal Evidence Rule 702*, 64 DEF. COUNS. J. 556, 563 (1997) (asserting that emphasizing the credentials is “misdirected,” and that, “unlike assessing the methodologies and principles underlying a field, examining an individual’s background provides no assurance that the expert will present valid views”); Strong, *supra* note 15, at 363 (declaring that the result of the traditional approach to admitting expert testimony is that the question of reliability of the testimony is “conveniently subsumed under the question of the qualification of the expert witness”).

<sup>140</sup> J. Brook Latham, *The “Same Intellectual Rigor” Test Provides an Effective Method for Determining the Reliability of all Expert Testimony, Without Regard to Whether the Testimony Comprises “Scientific Knowledge” or “Technical or Other Specialized Knowledge,”* 28 U. MEM. L. REV. 1053, 1064-65 (1998). Latham noted that:

The hallmark of a scientific principle is its falsity, i.e., its amenability to being tested to see if it is false . . . . What distinguishes scientific from nonscientific expert testimony is the former’s application of general scientific (i.e., falsifiable) principles to the specific facts of a case. The reliability of scientific testimony depends, in turn, on whether the general principles applied by the expert have been validated through appropriate testing.

*Id.*

<sup>141</sup> “Experience is to nonscientific experts what experimentation is to scientists.” Imwinkelried, *supra* note 9, at 2289. *See also* Edward J. Imwinkelried, *A Comparative Law Analysis of the Standard for Admitting Scientific Evidence: The United States Stands Alone*, 42 FORENSIC SCI. INT’L 15, 23 (1989) (stating that the nature of scientific evidence adds to the accuracy of the testimony because another scientist can replicate the scientific research); L. Timothy Perrin, *Expert Witness Testimony: Back to the Future*, 29 U. RICH. L. REV. 1389, 1455 (1995) (“[N]onscientific expert testimony deserves even greater skepticism because there is often no ability to test the technical expert’s theories or techniques or to prove false the expert’s underlying premise.”). *But see* Scholfield, *supra* note 117, at 507-08 (declaring that all expert testimony, including non-scientific testimony, “should be logically founded upon some methodology, reasoning, or principle,” and “otherwise the opinion would be merely unsupported speculation”).

replicate because of its individualistic nature.<sup>142</sup> Thus, it is imperative to subject non-scientific evidence to the “gatekeeper” function to prevent the presentation of unreliable evidence to the trier of fact.<sup>143</sup>

#### IV. THE IMPACT OF THE *KUMHO* DECISION

Following the *Kumho* decision, it is apparent that the trial judge’s “gatekeeper” role has expanded to include non-scientific expert testimony.<sup>144</sup> With this expanded role, trial judges will be expected to entertain numerous facts and factors to determine its admissibility, a realm not previously entered by trial judges.<sup>145</sup> This role provides judges with greater control of the presentation of

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<sup>142</sup> See *supra* note 142 and accompanying text.

<sup>143</sup> Despite the fact that judges should be concerned about the reliability of non-scientific expert testimony, there are several reasons why *Daubert* should not apply to this type of expert testimony. See Hansen, *supra* note 49, at 26. In *Daubert*, the Court specifically limited its opinion to scientific testimony. *Id.* By doing so, the Court constructed the four evaluative factors around science which limits their applicability to non-science areas. *Id.* Thus, these factors do not assist in evaluating the reliability of non-scientific expert testimony. *Id.*

<sup>144</sup> See *supra* note 90 and accompanying text.

<sup>145</sup> See Hansen, *supra* note 49, at 40. Trial judges evaluating non-scientific expert testimony may start at the *Daubert* factors as a base for analysis. *Id.* at 41. However, their analysis should be fact oriented, thus enabling the trial judge to look at a multitude of factors. *Id.* For example, in *Kumho* the Court illustrated the type of factual evaluation it expected from trial judges when proffered with a non-scientific expert. *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 151 (1999). The factors that the Court looked at were the expert’s qualifications, his imprecise method of inspecting the tire, his subjective mode of analysis, the short amount of time the expert spent examining the tire, the fact that the expert reached a preliminary conclusion before he inspected the tire, his failure to adequately explain other possible causes for the tire failure, and the fact that the *Daubert* factors did not favor admissibility. *Id.* at 151-57.

The court must also incorporate common sense factors into its evaluation. Some of these common sense factors include: (1) whether the proffered expert is to testify about matters growing directly out of research independent of litigation, see *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 43 F.3d 1311, 1317 (9th Cir. 1995); (2) whether the expert unjustifiably extrapolated from an accepted premise, see *General Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997); (3) whether the expert accounted for alternative explanations, see *Claar v. Burlington N. R. Co.*, 29 F.3d 499 (9th Cir. 1994); (4) whether the expert employed the same degree of care he would in his regular professional work outside the litigation, see *Sheehan v. Daily Racing Form, Inc.*, 104 F.3d 940, 942 (7th Cir. 1997); and (5) whether the field of expertise is known to reach reliable results, see *Sterling v. Velsicol Chem. Corp.*, 855 F.2d 1188 (6th Cir. 1988).

witnesses.<sup>146</sup> By examining all expert witnesses, the judge no longer performs the difficult task of discerning between scientific and non-scientific evidence.<sup>147</sup> By eliminating that task, judges can use this time more effectively by conducting relevancy and reliability inquiries, which in the past have only been given a cursory glance.<sup>148</sup>

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<sup>146</sup> The increased discretion provided to trial judges via the *Kumho* decision allows trial judges to evaluate every aspect of the expert's qualifications. See Hansen, *supra* note 49, at 43. This discretionary power of the trial judge's may force litigants to realign their strategy and presentation of witnesses. *Id.* This results in more pretrial hearings to allow the litigants to resolve any questions pertaining to the presentation of expert witnesses. See *infra* note 152 and accompanying text.

<sup>147</sup> See generally Roger D. Taylor et al., *Admissibility of Expert Damages Testimony in Patent Infringement Cases in the Wake of the Supreme Court's Kumho Tire Decision*, 572 P.L.I./P.A.T. 783, 808-810 (1999) (outlining the effects of the *Kumho* decision on non-scientific expert testimony).

<sup>148</sup> To assist trial judges in determining the reliability and relevancy of expert testimony, the National Council on Uniform State Laws has submitted a proposed draft of a revised Federal Rules of Evidence 702, which has incorporated some of the *Daubert* factors. See Kapsa, *supra* note 10, at 329-330. The proposed draft states:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact at issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

(a) General rule. A witness may testify in the form of opinion or otherwise if the following are satisfied.

(1) Basis for testimony. The testimony is based on scientific, technical, or other specialized knowledge.

(2) Assistance to trier of fact. The testimony will assist the trier of fact to understand evidence or determine a fact at issue.

(3) Qualification of witness. The witness is qualified by knowledge, skill, experience, training, or education as an expert in the scientific, technical, or other specialized field.

(4) Reasonable reliability. The testimony is based upon principles or methodology which is reasonably reliable as established under subdivision (b), (c), or (e).

(5) Reliably applied to facts of case. The witness has applied the principles or methodology reliably to the facts of the case.

(b) Reliability deemed to exist. A principle or methodology is deemed reasonably reliable if its reliability has been established by controlling legislation or judicial decision.

(c) Presumption of reliability. A principle or methodology is presumed to be reasonably reliable if it has substantial acceptance within the relevant scientific, technical, or specialized community. A party may rebut the presumption by proving that it is more probable than not that the principle or methodology is not reasonably reliable as provided in subdivision (e).

(d) Presumption of unreliability. A principle or methodology is presumed not to be reasonably reliable if it does not have substantial acceptance within the relevant scientific, technical, or specialized community. A party may rebut the presumption if it is more probable than not that the principle or methodology is reasonably reliable as provided in subdivision (e).

(e) Other reliability factors. When determining the reliability of a principle or methodology, the

The impact of *Kumho* stretches beyond the judge's role; it also affects the litigator's role.<sup>149</sup>

Litigators will have a heightened responsibility and freedom to provide reliability factors to corroborate their expert's testimony. Furthermore, litigators will be more willing to attack the credibility of a non-scientific expert witness as unreliable.<sup>150</sup> This offensive role by the litigators will require more pretrial motions and motions in limine to determine the reliability of an expert.<sup>151</sup>

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court shall consider all relevant additional factors, which may include:

- (1) Testing. The extent to which the principle or methodology has been tested;
- (2) Research methods. The adequacy of research methods employed in testing the principle or methodology;
- (3) Peer review. The extent to which the principle or methodology has been published and subjected to peer review;
- (4) Rate of error. The rate of error in the application of the principle or methodology;
- (5) Experience of expert. The experience of the witness as an expert in the application of the principle of methodology; and
- (6) Acceptance within the field. The extent to which the field of knowledge has substantial acceptance within the relevant scientific, technical, or specialized community.

*Id.* (quoting the Proposed FED. R. EVID. 702, Preliminary Draft of Proposed Amendments to the Federal Rules of Civil Procedure and Evidence).

<sup>149</sup> See *infra* notes 151-52 and accompanying text.

<sup>150</sup> See Hansen, *supra* note 49, at 45. The expansive nature of the "gatekeeping" function will allow litigators to be more creative when creating arguments either for or against the admissibility of an expert witness. *Id.* Moreover, it will force litigators to explore all possible factors to promote their witness because opposing counsel will also have the benefits of utilizing more abstract factors. *Id.* This situation will force litigators to become more familiar with the methodologies used by experts to more effectively litigate the case. *Id.*

<sup>151</sup> When judges conduct pretrial hearings to determine the admissibility of evidence, Professor Imwinkelried has outlined five possible results. See HUGH B. KAPLAN, *Scholars Discuss Judge's Role, Combating "Junk Science" in Wake of Kumho Decision*, THE CRIMINAL PRACTICE REPORTER, May 19, 1999, at 194-95 (quoting Professor Edward J. Imwinkelried). The possible results are as follows: (1) the proponent does not produce any evidence that the expert's hypothesis can be empirically validated; (2) the proponent does not produce sufficient evidence that the expert's hypothesis can be empirically validated; (3) the proponent barely meets the burden of submitting enough evidence to show that the expert's hypothesis has been tested by sound methodology; (4) the proponent provides sufficient evidence and the opponent provides contrary evidence, however the opponent's evidence is not strong enough to overcome accepting the proponent's hypothesis; and (5) the proponent provides barely enough evidence and the opponent provides strong evidence that it would be irrational to accept the proponent's hypothesis. *Id.*

The trial judge's determination is not an easy task. See Hansen, *supra* note 49, at 44. Therefore, in an effort to assist the judge, the litigators should provide the judge with detailed briefs covering the expert's methodologies and conclusions. *Id.* The briefs should also contain the litigators' rationale as to why the expert is reliable or

Additionally, the increased scrutiny that non-scientific experts are now forced to endure may have the effect of precluding evidence that was routinely admitted prior to the expansive “gatekeeper” function.<sup>152</sup> Although *Kumho* may have a detrimental effect on some non-scientific evidence, it has opened the door to the admissibility of novel evidence and prevents unreliable evidence from reaching the trier of fact.<sup>153</sup> Furthermore, *Kumho*’s expansion of *Daubert* provides

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unreliable. *Id.* The trial judges should also require the litigators to produce the expert at the pretrial hearing. *Id.* This will allow the judge to create a factual record and conduct a proper factual inquiry. *Id.* These procedures should be incorporated into the trial judge’s determination of reliability to illustrate to the appellate court that he or she has not abused his or her discretion in reaching the reliability conclusion. *Id.*

<sup>152</sup> See Hansen, *supra* note 49, at 47. The *Kumho* decision may lead to the exclusion of some non-scientific expert testimony that would not have been excluded prior to *Kumho*; however, it is too early to state with conviction that this will be the result. *Id.* Commentators believe that the exclusion of expert testimony will primarily affect the areas of handwriting analysis, fingerprints, arson investigations, psychological testing, accident reconstruction, and various other areas. HUGH B. KAPLAN, *Evidence Speakers Offer Guidance in Combating Bad Science, Misuse of Expert Testimony*, THE CRIMINAL PRACTICE REPORTER, Apr. 7, 1999, at 235. See also *United States v. Griffin*, 50 M.J. 278 (1999); *United States v. Brown*, 49 M.J. 448 (1998); *United States v. Rivers*, 49 M.J. 434 (1998) (listing other areas where the courts may exclude evidence which would generally have been admitted: psychiatric testimony, psychological profiling, syndrome evidence, false identification testimony, and false confession testimony).

*United States v. Hines*, a post-*Kumho* case, illustrates that the judges may be taking a closer look at evidence than they previously did before *Kumho*. 55 F. Supp. 2d 62, 62 (D. Mass. 1999). In *Hines*, the judge excluded portions of a handwriting expert’s testimony because it failed the reliability ruling. *Id.* at 63. The judge stated that prior to *Kumho* the evidence was routinely admitted, but the subsequent rulings in *Daubert* and *Kumho* forced her to conclude that the testimony has serious problems with issues such as empirical testing and rate of error. *Id.*

<sup>153</sup> The Court stated:

It might not be surprising in a particular case; for example, that a claim made by a scientific witness has never been the subject of peer review, for a particular application at issue may never previously have interested any scientist. Nor, on the other hand, does the presence of *Daubert*’s general acceptance factor help show that an expert testimony is reliable where the discipline itself lacks reliability, as, for example, do theories granted in any so-called generally accepted principles of astrology or necromancy.

*Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 151 (1999). See also KAPLAN, *supra* note 151, at 219 (stating all of the areas that may be affected as a result of the increased scrutiny).

But see Hansen, *supra* note 49, at 48. Although many commentators believe that *Kumho* may have a detrimental effect on the areas of fingerprint evidence, handwriting analysis, document analysis, crash scene investigation evidence, and other forensic evidence, the exact impact of *Kumho* is uncertain. *Id.* Moreover, these areas have enjoyed such a long history of admissibility that it is unlikely that the judge will usurp their status merely because of his or her expanded role. *Id.* Most likely, the judge will declare that a detailed examination is not necessary because the reliability of the methods can be taken for granted. *Id.*

trial judges with more discretion to evaluate expert testimony by permitting them to examine a multitude of factors beyond those enunciated in *Daubert* in order to establish the expert's reliability and the admissibility of his or her testimony.<sup>154</sup>

## V. CONCLUSION

Throughout the years, the admissibility of expert testimony has encountered numerous deviations<sup>155</sup> and has posed a plethora of questions.<sup>156</sup> Finally, it appears as though the Court has tamed some of the uncertainties plaguing this area by expanding the “gatekeeper” function to include non-scientific expert testimony.<sup>157</sup>

To say that the Court merely expanded the “gatekeeper” function would oversimplify the powerful role that the Supreme Court has bestowed upon trial judges. Judges must ensure the integrity of the judicial system by providing the trier of fact with reliable and relevant evidence in every facet of expert testimony.<sup>158</sup> Judges must perform this role with vigor to prevent another twist or turn in the already crooked path of admitting expert testimony.

**Leslie Morsek**

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<sup>154</sup> Although *Kumho* provides trial judges with more discretion, it too has its problems. *See* Latham, *supra* note 104, at 19. Greater judicial discretion creates uncertainty for litigants and more “wobble room” for zealous litigators arguing for or against the admissibility of a particular expert's testimony. *Id.*

<sup>155</sup> *See supra* notes 37-43, 51, 62-71 and accompanying text.

<sup>156</sup> *See supra* notes 15, 56, 72-75 and accompanying text.

<sup>157</sup> *See supra* notes 88-90 and accompanying text.

<sup>158</sup> *See supra* notes 90, 95 and accompanying text.