Texas Wesleyan Law Review

Volume 6 | Issue 1 Article 3

10-1-1999

Daubert Readiness of Texas Judiciary: A Study of the Qualifications, Experience, and Capacity of the Members of the Texas Judiciary to Determine the Admissibility of Expert Testimony Under the Daubert, Kelly, Robinson, and Havner Tests

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DAUBERT READINESS OF TEXAS JUDICIARY: A STUDY OF THE QUALIFICATIONS, EXPERIENCE, AND CAPACITY OF THE MEMBERS OF THE TEXAS JUDICIARY TO DETERMINE THE ADMISSIBILITY OF EXPERT TESTIMONY UNDER THE *DAUBERT*, *KELLY*, *ROBINSON*, AND *HAVNER* TESTS

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This research was performed under the supervision of Professor James Richardson, Ph.D., of the University of Nevada at Reno; Professor Barbara Hart, Ph.D., of the University of Texas at Tyler; and the Honorable Michael Keasler, Judge of the Court of Criminal Appeals, Austin, Texas and Dean of the Texas College for Advanced Judicial Studies. A special thanks to those individuals for their hard work, supervision and assistance in the research design for this survey project along with thanks to Judge Louis B. Gohmert, Lori Borchardt, and Keith Johnson for the editing assistance. Additionally, Ms. Jill Pollak with Texas Wesleyan Law Review has provided exceptional assistance in the editing of this article for publication.

DOI: https://doi.org/10.37419/TWLR.V6.I1.1

I. INTRODUCTION

"Ready or not, here I come." For years that phrase was the cry heard during a childhood game. Today, in the most significant and complex litigation in our nation, that silent cry is heard as the judge decides what scientific evidence is reliable, relevant, and therefore admissible. Texas trial judges have joined the ranks of the federal judiciary and most other state judges as the gatekeepers for the admissibility of expert evidence in court.[1]

The United States Supreme Court has expressed its confidence in the ability of the federal trial judge to perform this gate-keeping function.[2] In Texas the question arises: Do Texas trial judges possess the qualifications, experience, and capacity to determine the admissibility of expert evidence under Rule 702 of the Texas Rules of Evidence?[3]

1. *See* E.I. du Pont de Nemours & Co. v. Robinson, 923 S.W.2d 549 (Tex. 1995).
2. *See* Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 593 (1993).
3. *See* Kelly v. State, 824 S.W.2d 568, 576 (Tex. Crim. App. 1992) (Clinton, J., concurring). Judge Clinton in his concurring opinion stated that:

> The greatest advantage of the *Frye* test is that it essentially leaves the question of validity of novel theories and techniques to those whose vocation it is to view the world from the perspective of the scientific method, *viz*: the scientists. Trial judges are ill equipped to make the determination whether a given theory or technique has been sufficiently "tested in the crucible of controlled experimentation and study" that it can accurately be said to gauge

This article will look at the results of a survey conducted among Texas judges regarding their background, experience, training, and confidence in performing this gate-keeping function. First, it is important to review the history of judicial decision-making as it applies to the admissibility of expert testimony. What have been the legal guidelines for admissibility and how has the recent case law changed those legal standards? Second, what did the survey of Texas judges tell us about their education and perceived ability to perform the gate-keeping role? Finally, what future issues does the judicial gate-keeping rule raise for experts, lawyers, and the judiciary itself?

II. HISTORICAL OVERVIEW OF THE EVIDENTIARY TEST FOR THE ADMISSIBILITY OF SCIENTIFIC EVIDENCE

A. *Admissibility Tests*

For years the trial courts of our nation have applied the "general acceptance" test as pronounced in *Frye v. United States*,[4] in deciding the admissibility of scientific and expert testimony. *Frye* held that expert opinion based on a scientific technique is admissible when the technique is "generally accepted" as reliable in the relevant scientific community.[5] However, the United States Supreme Court in the 1993 decision *Daubert v. Merrell Dow Pharmaceuticals, Inc.*,[6] determined that when a court is faced with the proffer of expert testimony under the provisions of the Federal Rules of Evidence 702,[7]

> [T]he trial judge must decide at the outset, pursuant to Rule 104(a), whether the expert is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue. This entails a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically

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> the probability of the existence, *vel non*, of a fact in issue. The *Frye* rule does not require him to make this determination. Instead it requires him to decide whether scientists themselves believe the theory or technique has been sufficiently tested.

Id. (footnote omitted).

4. 293 F. 1013 (D.C. Cir. 1923).

5. *See id.* at 1014. In fact, the *Frye* Court stated that:

> 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 general acceptance in the particular field in which it belongs.

Id.

6. 509 U.S. 579 (1993).

7. Rule 702 provides that "[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." FED. R. EVID. 702.

> valid and of whether that reasoning or methodology properly can be applied to the facts in issue.[8]

Therefore, judges will be required to evaluate, among other things, the scientific reasoning and methodology made the basis of the opinions of an expert witness to determine the admissibility of such expert testimony.

The United States Supreme Court in *Daubert* stated it is "confident that federal judges possess the capacity to undertake this review" of scientific reasoning and methodology to determine the admissibility of expert testimony.[9] Texas has enacted an evidentiary rule dealing with expert testimony which mirrors Federal Rule of Evidence 702, while also mimicking the obligation on the trial court in Rule 104 to make the preliminary determination of admissibility of evidence.[10] Hence, the question must be asked: Do Texas state judges possess that same confident capacity for scientific evidence evaluation as the federal judiciary?

B. *Research Literature*

What is astonishing about the *Daubert* decision is the immediate explosion of articles, law reviews, case notes, and papers that have been published discussing the possible effects of the Supreme Court's holding. A preliminary review of the literature will reveal more than 500 articles which discuss the implications of *Daubert* on the admissibility of certain scientific evidence and expert testimony written within eighteen months of the Court's decision,[11] and the prolific discussions and publications dealing with the test for the admissibility of scientific evidence have only continued since that time with more than 1,670 law review and journal articles now discussing *Daubert* applications.[12]

For many years, the courts have become increasingly uncomfortable with the ever-expanding area of scientific expertise, particularly in the area of social or behavioral sciences where an expert always seems ready to give the definitive opinion of human or social behavior in a

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8. *Daubert*, 509 U.S. at 592 (footnote omitted).

9. *Id.* at 593. *But see Daubert*, 509 U.S. at 600 (Rehnquist, C.J., concurring and dissenting). The dissent stated, "I defer to no one in my confidence in federal judges; but I am at a loss to know what is meant when it is said that the scientific status of a theory depends on its 'falsifiability,' and I suspect some of them will be, too." *Id.*

10. FED. R. EVID. 104(a) provides:

> (a) Questions of admissibility generally. Preliminary questions concerning the qualification of a person to be a witness, the existence of a privilege, or the admissibility of evidence shall be determined by the court, subject to the provisions of subdivision (b). In making its determination it is not bound by the rules of evidence except those with respect to privileges.

Id.

11. Search of WESTLAW for records containing *Daubert* from 12/01/93 to 07/01/95.

12. Search of WESTLAW for records containing *Daubert* from 02/01/93 to 05/01/99.

particular case. The trial courts have struggled with whether an opinion has gained "general acceptance" in the field or whether the opinion is based on new or "junk science."[13] In 1983, at a Symposium on Science and Rules of Evidence sponsored by the National Conference of Lawyers and Scientists, the confines of the *Frye* test were found unsatisfying to a proper determination and screening of the admissibility of scientific evidence.[14]

Although much has been written about how *Daubert* might be applied in the analysis of certain scientific evidence, the literature is void of evaluation as to what qualifications are possessed by the judiciary to accomplish the required evidentiary evaluation preliminary to admissibility. The law reviews are crowded with articles on: (1) what is the future of scientific evidence in court;[15] (2) specific application of *Daubert* to a particular type of scientific evidence;[16] and (3) whether *Daubert* substantially changes the character of scientific evidence that will be admitted during trial.[17]

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13. *See* E.I. du Pont de Nemours & Co. v. Robinson, 923 S.W.2d 549, 553-54 (Tex. 1995). The court in discussing "junk science" evidence stated that:

> In light of the increased use of expert witnesses and the likely prejudicial impact of their testimony, trial judges have a heightened responsibility to ensure that expert testimony show some indicia of reliability. It is especially important that trial judges scrutinize proffered evidence for scientific reliability when it is based upon novel scientific theories, sometimes referred to as "junk science." Concerns over the abusive use of the professional expert witness have led some commentators to call for the adoption of a reliability standard for Rule 702 of the Texas Rules of Civil Evidence.

Id. (citation omitted).

14. *See* Bert Black, *Science and the Law in Wake of Daubert: A New Search for Scientific Knowledge*, 72 TEX. L. REV. 715, 717 n.2 (1994).

15. *See* Margaret G. Farrell, *The Function and Legitimacy of Special Masters: Administrative Agencies for the Courts*, 2-FALL WIDENER L. SYMP. J. 235 (1997); Joe S. Cecil & Thomas E. Willging, *Accepting Daubert's Invitation: Defining a Role for Court-Appointed Experts in Assessing Scientific Validity*, 43 EMORY L.J. 995 (1994); Anthony Z. Roisman, *Conflict Resolution in the Courts: The Role of Science*, 15 CARDOZO L. REV. 1945 (1994); Kenneth J. Chesebro, *Taking Daubert's "Focus" Seriously: The Methodology/Conclusion Distinction*, 15 CARDOZO L. REV. 1745 (1994).

16. *See* 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 (1997); John S. DeWitt et al., *Novel Scientific Evidence and Controversial Cases: A Social Psychological Examination*, 21 LAW & PSYCHOL. REV. 1 (1997); David H. Kaye, *DNA Evidence: Probability, Population Genetics, and the Courts*, 7 HARV. J.L. & TECH. 101 (1993); Katherine M. Atikian, Note and Comment, *Nasty Medicine:* Daubert v. Merrell Dow Pharmaceuticals, Inc. *Applied to a Hypothetical Medical Malpractice Case*, 27 LOY. L.A. L. REV. 1513 (1994).

17. *See* Nancy S. Farrell, *Congressional Action to Amend Federal Rule of Evidence 702: A Mischievous Attempt to Codify* Daubert v. Merrell Dow Pharmaceuticals, Inc., 13 J. CONTEMP. HEALTH L. & POL'Y 523 (1997); Kaushal B. Majmudar, Note, Daubert v. Merrell Dow: *A Flexible Approach to the Admissibility of Novel Scientific Evidence*, 7 HARV. J.L. & TECH. 187 (1993); Arvin Maskin, *The Impact of* Daubert *on the Admissibility of Scientific Evidence: The Supreme Court Catches Up With a Decade of Jurisprudence*, 15 CARDOZO L. REV. 1929 (1994); Amy T. Schutz, Note,

These articles focus on how *Daubert* works in theory, what scientific evidence is admissible, how to evaluate the science, and what future areas of scientific evidence will develop under the new rules of admissibility.[18] However, whether federal or state judges are trained to properly evaluate scientific methodology to make a preliminary determination of reliability and admissibility continues as an unanswered question; a question that the United States Supreme Court has sidestepped by stating that the federal judges are up to the task without citing any evidence in support of that position.[19]

C. *Evidentiary Tests of Scientific Evidence Admissibility*

Before we can analyze whether judges are trained to evaluate scientific methodology, what is the evidentiary test to be applied to scientific evidence?

1. *Frye* Test

The 1923 D.C. Circuit Court decision, now known as the *Frye* test, decided that courts should "go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery."[20] However, the D.C. Circuit Court required that there be sufficient, established general acceptance of that scientific method or theory in the particular field of study before expert testimony based on that method or theory was admissible.[21] *Frye* shifted the evaluation of expert testimony reliability by the judge and jury to the general acceptance of such expert testimony within a certain field of study.[22]

Judge Clinton in his concurring opinion in *Kelly v. State*,[23] discussed the advantages of the *Frye* test as compared to an ill-prepared trial judge determining reliability.[24] However, the majority concluded that the *Frye* test was no longer a part of Texas law.[25]

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*The New Gatekeepers: Judging Scientific Evidence in a Post-*Frye *World*, 72 N.C. L. REV. 1060 (1994).

18. *See supra* notes 15-17.

19. *See* Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 600 (1993) (Rehnquist, C.J., dissenting). Dissenting Chief Justice Rehnquist states, "I do not doubt that Rule 702 confides to the judge some gatekeeping responsibility in deciding questions of the admissibility of proffered expert testimony. But I do not think it imposes on them either the obligation or the authority to become amateur scientists in order to perform that role." *Id.*

20. Frye v. United States, 293 F. 1013, 1014 (D.C. Cir. 1923).

21. *See id.*

22. *See id.*

23. 824 S.W.2d 568 (Tex. Crim. App. 1992).

24. *See id.* at 576.

25. *See id.* at 572.

2. Federal Rule of Evidence 702

Promulgated in 1975, the Federal Rules of Evidence provided that all relevant evidence (evidence that tended to make the existence of any consequential fact to the issues in the case more probable or less probable) was admissible.[26] The courts then specified in Rule 702 that expert testimony was admissible if "scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue."[27]

Further, under the provisions of Rule 104, the trial court was required to make the preliminary determination on the admissibility of evidence such as that offered under Rule 702.[28]

3. *Daubert* Test

In 1993, the *Daubert* decision held that the *Frye* test did not survive the Federal Rules of Evidence's promulgation.[29] Instead, *Daubert* held that the Rules of Evidence were the test for the admissibility of expert testimony.[30] The Supreme Court emphasized that the evidentiary rules provided for a flexible inquiry into the scientific validity of principles made the basis of an expert's opinion, but that the court must make the preliminary determination of the admissibility of such expert testimony.[31]

The Court held that the trial courts must make a preliminary assessment of whether the reasoning or methodology underlying the expert testimony is "scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue."[32]

D. *Texas Law on Admissibility of Scientific Evidence*

1. Texas Rule of Evidence 702

The Texas Rule of Evidence 702 mirrors the language of the Federal Rule of Evidence 702. Consequently, the courts of Texas, under the interpretation of *Daubert* and Texas case law,[33] should be engaged in the same preliminary evidentiary evaluation as the federal courts.

2. Pre-*Daubert* Decisions

Before the *Daubert* decision, the Texas courts gave lip service to the *Frye* "general acceptance" test,[34] but generally paid little attention to

26. *See* FED. R. EVID. 401.
27. FED. R. EVID. 702.
28. *See* FED. R. EVID. 104.
29. *See* Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 587 (1993).
30. *See id.*
31. *See id.*
32. *Id.* at 593.
33. *See* E.I. du Pont de Nemours & Co. v. Robinson, 923 S.W.2d 549 (Tex. 1995).
34. *See* Duckett v. State, 797 S.W.2d 906 (Tex. Crim. App. 1990), *overruled by* Cohn v. State, 849 S.W.2d 817 (Tex. Crim. App. 1993).

this test.[35] In the case of *Jones v. State*,[36] the court used a *Frye*-test analysis to admit the results of a gas chromatography/mass spectrometry test.[37] However, the court recommended that the trial courts in Texas should apply the following eleven-factor test in determining the admissibility of this type of evidence.[38] This test includes:

(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 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.[39]

Even with case law attempting to set out a method of critical evaluation of scientific or expert testimony, the Texas courts found themselves merely asking two primary questions:

1. Whether the witness possessed a special knowledge, skill, experience, training or education; and

2. Whether the testimony would assist the trier of fact in deciding a fact issue in the case.[40]

Under this broad evaluation of expert and scientific evidence, the Texas courts became a battleground for the experts, and the bulk of the evidence was merely submitted to the jury for them to evaluate the credibility of the witnesses and the weight to be given to their testimony.[41]

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35. *See* Minnesota Mining & Mfg. Co. v. Atterbury, 978 S.W.2d 183, 188 (Tex. App.—Texarkana 1998, pet. denied) ("Despite years of relatively well-settled precedent in Texas in which no court has ever used the *Frye* test, the Texas Supreme Court adopted the *Daubert* approach to admitting scientific evidence . . . .").

36. 716 S.W.2d 142 (Tex. App.—Austin 1986, pet. ref'd).

37. *See id.* at 152, 154.

38. *See id.* at 154.

39. *Id.* at 154.

40. *See* Yount v. State, 872 S.W.2d 706, 708 (Tex. Crim. App. 1993); Carter v. State, 851 S.W.2d 390, 393 (Tex. App.—Fort Worth 1993, pet. ref'd).

41. *See* Kelly v. State, 824 S.W.2d 568 (Tex. Crim. App. 1992); Duckett v. State, 797 S.W.2d 906 (Tex. Crim. App. 1990).

3. Texas Decisions and Precedent

Texas trial judges are now the gatekeepers of expert testimony admissibility in both criminal and civil cases. The Texas decisions of *Kelly v. State*,[42] *Hartman v. State*,[43] *E.I. du Pont de Nemours & Co. v. Robinson*,[44] and *Merrell Dow Pharmaceuticals, Inc. v. Havner*[45] have defined and clarified how the Texas trial judges will determine whether proffered expert testimony will be admitted.

These decisions direct that the trial judge, under the Texas Rules of Evidence 104 and 702, determine whether the proponent of the proffered expert testimony has demonstrated by clear and convincing evidence that the expert evidence is (1) reliable, and (2) relevant to assist the jury in its fact-finding duty.[46] To be reliable, the proponent must prove that (1) the underlying scientific theory is valid, (2) the technique applying the theory is valid, and (3) the technique was properly applied on the occasion in question.[47]

In determining reliability, the court may consider any number of facts, which includes the following nonexclusive list: (1) the extent to which the underlying scientific theory and technique are accepted as valid by the relevant scientific community, if such a community can be ascertained; (2) the qualifications of the testifying expert; (3) the existence of literature supporting or rejecting the underlying scientific theory and technique; (4) the potential rate of error of the technique; (5) the availability of other experts to test and evaluate the technique; (6) the clarity with which the underlying scientific theory and technique can be explained to the court; and (7) the experience and skill of the person who applied the technique on the occasion in question.[48]

If the trial judge determines that the evidence is reliable, the trial judge must then determine if the evidence is relevant to the determination of a fact issue which is of consequence in the case.[49] The balancing test[50] must always be applied when determining if evidence is admissible.

The combined effect of Rule 104 and 702 clearly requires the trial judge to evaluate preliminary issues of admissibility of scientific and expert testimony, issues of reliability, and to evaluate scientific methodology prior to the admission of expert opinions.

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42. 824 S.W.2d 568 (Tex. Crim. App. 1992).

43. 946 S.W.2d 60 (Tex. Crim. App. 1997).

44. 923 S.W.2d 549 (Tex. 1995).

45. 953 S.W.2d 706 (Tex. 1997).

46. *See Havner*, 953 S.W.2d at 711, 720; *Robinson*, 923 S.W.2d at 556; *Hartman*, 946 S.W.2d at 62; *Kelly*, 824 S.W.2d at 572.

47. *See Hartman*, 946 S.W.2d at 62.

48. *See Robinson*, 923 S.W.2d at 557; *Kelly*, 824 S.W.2d at 573 (discussing the nonexclusive list of factors which the court may consider in determining reliability).

49. *See Robinson*, 923 S.W.2d at 556; *Kelly* 824 S.W.2d at 572.

50. *See* TEX. R. EVID. 403.

The Texas Supreme Court stated that Rule 702 "envisions a flexible inquiry focusing solely on the underlying principles and methodology, not on the conclusions they generate."[51]

In its *Robinson* decision, the Texas Supreme Court expressed its confidence that the trial courts would use great care in determining whether expert testimony is admissible under Rule 702[52] and that the trial judge's decision would be weighed under an abuse of discretion test.[53] The test for abuse of discretion, as set out by the Texas Supreme Court, is whether the trial court acted without reference to any guiding rules or principles.[54] Specifically, the court ruled that "[a] reviewing court cannot conclude that a trial court abused its discretion if, in the same circumstances, it would have ruled differently or if the trial court committed a mere error in judgment."[55]

There is an important difference between Texas case law and the *Daubert* opinion as pointed out in the case of *Minnesota Mining & Manufacturing Co. v. Atterbury*.[56] The court explained that:

> [T]he Texas Supreme Court differed from the United States Supreme Court in the confidence that it has in the ability of the adversarial system to present, and fair and impartial juries to consider, borderline evidence. As stated before, the United States Supreme Court favored admission of evidence on the borderline because the jury should be able to ascertain the truth through "[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof . . . ." However, the Texas Supreme Court apparently does not share this confidence in the adversarial system and the abilities of counsel. It stated that judges are better at evaluating scientific reliability because counsel often cannot cross-examine expert witnesses effectively "because it can be difficult to explain weakness in the [expert's] testimony to the jury and can make things worse."[57]

In *Robinson* the Texas Supreme Court disagreed with the dissent's criticism that Rule 702 "places a judge in 'the role of amateur scientist' and that judges are not competent to assess the scientific reliability of expert testimony."[58] The court found that "[h]owever, a judge does not have to be trained in science to evaluate the reliability of a theory or technique. Judges are capable of understanding and evaluating scientific reliability."[59]

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51. *Robinson*, 923 S.W.2d at 557.
52. *See id.*
53. *See id.* at 558.
54. *See id.*
55. *Id.*
56. 978 S.W.2d 183 (Tex. App.—Texarkana 1998, pet. denied).
57. Minnesota Mining & Mfg. Co. v. Atterbury, 978 S.W.2d 183, 189 (Tex. App.—Texarkana 1998, pet. denied) (citations omitted).
58. *Robinson*, 923 S.W.2d at 557.
59. *Id.* at 557-58 (citation omitted).

III. Survey Results of Texas Judicial Qualifications and Confidence as Scientific Evidence Gatekeepers

A. *Survey Parameters and Overview*

Daubert's confidence in the ability of federal judges[60] raises questions about whether Texas state judges are trained and able to evaluate the reliability of expert testimony dealing with scientific evidence. A study of the education, training, and background of the judges would provide information on this competence question and give insight to judicial and legal educators as to what areas of focus in both initial and continuing education in the area of scientific methodology evaluation may be needed.

To assist in this evaluation, a survey of the background, educational experience, training and practical experience of all Texas judges with scientific evidence methodology evaluation was conducted, including a subjective question on what qualifications or education the state judges believe are necessary to perform a *Daubert* test.

A questionnaire was developed[61] and forwarded to all 685 Texas judges[62] inquiring into demographic information,[63] the background, education and experience of judges in the analysis of scientific methodology, and judicial perception as to their ability and needs to perform this gatekeeping role.

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60. *See* Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 593 (1993).

61. This survey questionnaire was developed by this author with the consultation and advice of Professor Barbara Hart, Ph.D., of the University of Texas at Tyler and Professor James Richardson, Ph.D., at the University of Nevada, Reno.

62. This is the total number of elected and appointed presiding judges in Texas from the list of judges prepared by the Texas Center for the Judiciary, Inc. This association maintains a list of currently elected or appointed judges in Texas. Retired, senior, and former judges were not included in the survey. Constitutional county judges, municipal court judges, and justices of the peace were also not included in the survey.

63. The demographic inquiries included:

1. Age
2. Sex
3. Race
4. Population of area where the person works
5. Educational background:
   High school
   College degrees (majors and minors and name of school)
   Post-graduate degrees (majors and minors and name of school)
   Continuing education courses (areas and number)
6. Educational background in physical, social or behavioral sciences (with description of type and number of courses taken):
   High school
   College degrees (majors and minors and name of school)
   Post-graduate degrees (majors and minors and name of school)
   Continuing education courses (areas and number)
7. Jurisdiction of court and type of cases handled
8. Description of type of practice or business

An analysis of the survey data provides insight as to the qualifications for *Daubert* analysis possessed by the Texas judiciary and addresses the following questions:

1. What qualifications, training, experience and background in evaluating *Daubert* evidence is generally found among the Texas judiciary?
2. What qualifications, training, experience and background do members of the Texas judiciary believe is necessary to make a *Daubert* evaluation of reliability?
3. What training and education is provided by Texas Continuing Judicial Education Programs on scientific methodology evaluation?

The survey's answers to these questions merely raised an entire new set of questions about the extent of the Texas judges' ability to perform the gatekeeping role, the best method for preparing Texas judges to gate keep, and concerns about the uniform application of the gatekeeping function in Texas courts.

B. *Survey Respondents and Definitions*

Of the 685 judicial questionnaires which were sent to Texas judges, 331 responses were received. This was an excellent return rate of 48 percent of the total population of judges, and the returns certainly were a representative cross-section of the Texas judiciary.[64]

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64. The demographics of the responses were as follows:

TYPE OF COURT:	
Texas Supreme Court	4
Texas Court of Criminal Appeals	6
Court of Appeals	29
General District Court	128
Civil District Court	43
Criminal District Court	15
Juvenile Court	4
Probate Court	6
County Court at Law Civil	11
County Court at Law Criminal	22
General County Court at Law	60
County Court	3
POPULATION OF AREA SERVED:	
Less than 50,000	39
50,000 to 150,000	75
150,000 to 250,000	31
250,000 to 500,000	39
500,000 to 1,000,000	32
Over 1,000,000	106
No response	9

In the survey the judges were asked to describe their educational background in the use or analysis of the "scientific method."[65] With the instructions as to the purpose of the survey,[66] the judges were asked sixteen questions.[67]

C. *Survey Results of Judges' Scientific Methodology Background, Education, and Training*[68]

The results of the judicial survey show that over 13 percent of the judges did not report any instruction or educational background in the scientific method received during high school. Although 87 percent

AGE OF JUDGES:	
Less than 40	32
Over 40 and less than 50	129
Over 50 and less than 60	109
Over 60 and less than 70	47
Over 70	12
No response	2
SEX:	
Male	272
Female	58
No response	1
RACE:	
Caucasian	289
African-American	3
Mexican-American	26
Oriental	1
Native American	0
Other	11
No Response	5

65. The survey questionnaire defined the term "scientific methodology" as follows:

> For purposes of this questionnaire, the term "scientific methodology" is defined as set out in *Daubert v. Merrell Dow Pharm., Inc.*, 113 S. Ct. 2786, 2796 (1993) as, "The process of generating hypotheses and testing them to determine if they can be falsified is called "scientific methodology." Put another way, "scientific methodology" involves a process of 1) stating a problem, 2) gathering information, 3) forming a hypothesis, 4) testing the hypothesis, 5) drawing conclusions, and 6) reporting the results.

66. The survey questionnaire informed the judges that the inquiry involved determining the qualifications, training, experience, and education that members of the Texas judiciary possess in the area of scientific methodology and analysis.

67. Six questions were demographic in nature. Four questions related to education and experience with scientific methodology evaluation. Three questions involved their opinions on judicial ability and training to make the *Daubert* analysis. Three questions involved their exposure to the case law and discussions on the *Daubert* and *Robinson* cases.

68. Professor Barbara Hart, of the University of Texas at Tyler, reviewed and modified the survey to conform to acceptable survey question techniques and to result in raw data which could then be easily interpreted and analyzed. Dr. Hart has her Ph.D. in Criminal Justice from Sam Houston State University with an emphasis in research. Dr. Hart has more than 20 years of experience as a criminologist and is an expert in the criminal justice system. Her specialties within the field include violent crime analysis, program evaluation, research and statistical methodology, corrections

reported receiving some high school education in the analysis of scientific methodology, the judges reported only an average of three high school courses which discussed the method. Additionally, it is important to remember that this high school training for 89 percent of the judges took place more than twenty years ago.[69]

The vast majority of judges (92%) did report receiving some undergraduate education which included scientific methodology. These judges reported an average of seven to eight courses which included some material on scientific methodology in undergraduate school. Again, however, for 89 percent of the judges, this education was more than twenty years ago.[70]

As discussed above, Texas Rule of Evidence 702 involves the judge making an evidentiary determination of the admissibility of scientific and expert testimony.[71] It is obviously important that judges and lawyers are able to understand scientific methodology as it applies in the legal arena in order to prepare, present, or evaluate evidence under Rule 702. However, 277 judges (83%) did not report any instruction or educational background in the scientific method received during law school. It is important to remember that all members of the Texas judiciary attended law school prior to the *Daubert* and *Robinson* opinions. Perhaps the lack of law school attention to the evidentiary issues involving evaluation of scientific methodology can be explained by the mandated use of the *Frye* test of admissibility during the formal legal education of the Texas judiciary.[72] Relying on the general acceptance rule of admissibility eliminates the need for lawyers and judges to be able to independently determine the reliability of the scientific methodology.

Only 28 judges reported receiving master or Ph.D. instruction or educational background in the scientific method. Additionally, only nine judges had made use of the scientific method in preparation of a thesis or dissertation. However, since very few judges received additional formal education following law school, this number is insignificant except to emphasize the importance of formal law school education in the requirements and practical application of Rule 702.

Understanding that the formal education of the judges occurred some time ago as evidenced by their average age of over 50 years, it seems that continuing legal or judicial education would have addressed the need for instruction on scientific methodology analysis under Rule 702. However, only 29 percent of Texas trial judges re-

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and juvenile justice. Additionally, Dr. Hart heads up several independent survey projects gathering information in many different areas of interest.

69. Two hundred ninety-seven judges reported being over age 40. One hundred sixty-eight judges (or more than 50%) reported being over age 50 with their high school education completed more than 30 years ago.

70. *See id.*

71. *See supra* Part II.D.1.

72. *See supra* Part II.C.1.

ported having received some type of continuing legal, judicial, or other professional continuing education which provided instruction on the use or analysis of the scientific method. Coincidentally, only 97 judges, or 29 percent, reported some practical or business experience prior to assuming the bench where the judge was required to use and analyze the scientific method. Therefore, 234 judges or 70 percent of the responding judges reported no continuing education or practical business experience in the use and analysis of the reliability of scientific methodology.

In light of the significance to a case's outcome of a judicial determination that evidence is either admissible or inadmissible under Rule 702, it is disturbing that more than 70 percent of the Texas judiciary reported such limited, and potentially outdated, education or experience with the evaluation of scientific methodology.

D. *Survey Results of Judicial Perception of Ability to Perform Gatekeeping Responsibility*

In light of the above results evidencing limited formal education and experience in scientific methodology, it is interesting to note that the confidence of the United States Supreme Court in the Federal judiciary, as enunciated in *Daubert,* is reflected in the confidence of the Texas judiciary itself to serve in the gatekeeping role. More than 70 percent of the judges reported that they believed they possessed the background, qualifications or training needed to evaluate the reliability of scientific evidence and methodology. Only slightly more than 15 percent (15.41%) reported that they did not believe they possessed the background, qualifications, or training needed to evaluate such matters. Fourteen and one-half percent had no opinion on their qualifications for such a reliability evaluation.

These survey results starkly contrast with the results indicating remote and limited actual experience and training in scientific methodology by these same judges. Perhaps judges believe that formal training is unnecessary for the Rule 702 gatekeeping function. Perhaps they believe that experience from the bench during trials will prepare them for the admissibility test. Perhaps they believe that they are not required to be junior scientists and that their limited training is sufficient to make an evidentiary determination. A final possibility is that judges may merely determine admissibility under the old *Frye* test[73] and allow the legal fiction of confidence in the judiciary to uphold discretionary determinations.

It is unclear as to why Texas judges have such a high confidence in their ability to perform the gatekeeping function. It is certainly clear, however, that Texas judges believe, under the current law, that it is important that they are able to perform the gatekeeper role. More

73. *See supra* Part II.C.1.

than 75 percent (75.83%) of the judges believe that it is important that a judge be able to evaluate the reliability of scientific evidence and methodology. Only close to 13 percent (12.99%) do not believe that ability is important, with approximately 11 percent (11.18%) of the judges surveyed having no opinion on the issue.

It is significant that 24 percent of the judiciary either do not have an opinion or do not think that it is important for a judge to be able to evaluate the reliability of scientific evidence and methodology; even though, under the current law, the judges are clearly required to make that very determination. Litigants in cases which include complex scientific evidence may be disturbed by these survey results and concerned about the uniformity of the evaluations made under Rule 702.

E. *Survey Results of Judicial Study of* Daubert *and* Robinson *Case Law*

A large majority of the judges expressed confidence in their ability to perform the gatekeeping role[74] while a larger majority of judges,[75] law schools and continuing education providers[76] believe that it is important for judges to be able to apply the *Daubert* test. Note, however, that of the 331 judges surveyed, more than 57 percent (57.70%) had read the *Daubert* opinion, but an alarming 40 percent (40.79%) had not even read the case. Of the same surveyed judges, over 59 percent (59.82%) had read the *Robinson* case, leaving over 38 percent (38.97%) who had not read the opinion.

The fact that approximately 40 percent of the judges have not read the landmark United States Supreme Court ruling and approximately 39 percent have not read the Texas Supreme Court's ruling may partially explain why 24 percent either do not think it is important or have no opinion as to the importance of judicial ability in evaluating the reliability of scientific evidence.

F. *Survey Results of C.L.E.*[77] *Providers and Law Schools*

A survey questionnaire was also completed by Texas law schools and providers of continuing judicial education in Texas.[78] The results raised additional concerns about the availability of adequate *Daubert* formal legal training. It is important that lawyers who will be making the proffer of expert testimony be adequately trained in the type of evaluation the trial court must perform prior to determining the admissibility of this evidence. Law schools and continuing education

74. 70.09% according to the survey results.
75. 75.83% according to the survey results.
76. 85.71% according to the survey results.
77. Continuing legal education.
78. A survey sent to the nine Texas law schools resulted in four responding to the survey. Seven continuing judicial education providers were surveyed with five responding to the survey questionnaire.

providers clearly agree as to the importance of judicial competence to perform the Rule 702 analysis.[79]

Yet, while the importance of adequate training is clear, more than 28 percent (28.57%) of the continuing education providers and law schools do not believe that their continuing education programs provide adequate scientific reliability training. More than 28 percent (28.57%) of the same educational providers expressed no opinion on the adequacy of the continuing legal education. Finally, while 42 percent (42.86%) of the responding C.L.E. providers and law schools believe that the continuing legal education is adequate, the fact remains that approximately 57 percent of the continuing judicial education providers in Texas who responded to the survey cannot confidently say that their programs provide the education, background, qualifications, or training needed to evaluate the reliability of scientific evidence and methodology.

If training is necessary to perform this gatekeeping role then where will such judicial education occur? More than 58 percent (58.31%) of the Texas judges surveyed did not believe that there is adequate training in law school to prepare judges to evaluate the reliability of scientific evidence and methodology. More than 24 percent (24.77%) had no opinion as to the adequacy of law school education in scientific methodology, while only 16 percent (16.92%) believed that such law school education in this area was adequate. The total of 83 percent who either do not believe or have no opinion as to the adequacy of the law schools' education in scientific methodology may be understandable considering the elapsed time since most Texas judges attended law school.

Even though continuing education courses have been mandated for lawyers and judges in Texas for many years,[80] more than 44 percent (44.11%) of the surveyed Texas judges believe that there is inadequate legal and/or judicial education programs providing the training needed to evaluate the reliability of scientific evidence and methodology. More than 16 percent (16.62%) expressed no opinion as to the adequacy of the continuing legal and/or judicial education on evaluating scientific evidence, while only 39 percent (39.27%) of the judges believed that the educational programs were adequate. With 60 per-

79. Eighty-five percent (85.71%) of the C.L.E. and law school survey respondents believe that it is important that a judge be able to evaluate the reliability of scientific evidence and methodology, while more than 14 percent (14.29%) expressed no opinion.

80. *See* TEX. GOV'T CODE ANN. tit. 2 subtit. G, app. A, art. XII, § 6(A) (Vernon 1998) (requiring 15 hours of continuing legal education each year). The requirements for continuing legal education of Texas lawyers were adopted by the Texas Supreme Court by order dated December 19, 1985. See also RULES OF JUDICIAL EDUCATION promulgated by the Texas Court of Criminal Appeals which requires at least 30 hours of judicial education within one year of a judge taking office and at least 16 hours of judicial education is required each year thereafter.

cent of the judges expressing no opinion or believing that there is inadequate continuing education on scientific evidence evaluation, the need for additional emphasis on Rule 702 training is evident.

The uncertainty of whether the legal and judicial educational providers are providing adequate training in the evaluation of scientific evidence may explain why only 29 percent of the judges indicated in the survey that they had received C.L.E. in this area. The lack of education in this evidentiary area may be explained by an attitude that judges are able to make the evidentiary decisions on this scientific evidence without specific training,[81] by a lack of emphasis in C.L.E. programs on the specific dynamics of evaluating the reliability of scientific methodology,[82] or by a lack of legal challenge to the admissibility of expert evidence based on a reliability objection.[83]

G. *Indications of Survey Results*

The survey results seem to indicate that as the Texas bar becomes more comfortable with raising a *Daubert* challenge, judges will need to obtain additional C.L.E. to perform this reliability test. The large number of judges who reported that they have not even read the high court rulings dealing with scientific evidence admissibility demonstrates the need for well planned and presented information on the parameters of this evidentiary rule and how judges should go about conducting their preliminary determinations of admissibility.

As the law schools educate new generations of attorneys who are comfortable with making a *Daubert* challenge to expert testimony, the judges will soon recognize the need for C.L.E. in this area and will surely call for specific programs to assist them in making evidentiary decisions within the framework of the appellate courts' legal directives. The survey indicated that approximately 13 percent of the judges do not even think it is important that judges be able to evaluate scientific methodology. Perhaps, as more *Daubert* challenges are made and the full impact of Rule 702 and Rule 104 are felt in court, the need for specific training in *Daubert* readiness will be universally recognized.

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81. Of the surveyed judges, several responses indicated that they believe a judge is able to perform the gatekeeping role without becoming a junior scientist. Judges did indicate that their legal training in applying evidentiary rules based on prior court decisions and balancing the probative and prejudicial value of evidence was all the specific training needed to apply the *Daubert* test.

82. There is a concern among some judges that the programs dealing with the *Daubert* test are too general and do not provide the specific checklists to assist the trial judge in performing a reliability test.

83. As with many new areas of the law, it takes time for the attorneys to become well versed in the art of making a *Daubert* challenge. For many trial judges, cases may not involve novel or complex scientific evidence which is challenged by the attorneys and therefore they do not perceive a real need for specific *Daubert* readiness education.

Although both judges and the educational providers overwhelmingly believe it is important for judges to perform the gatekeeping role, more than 57 percent (57.14%) of the C.L.E. and law school survey respondents do not believe there is adequate training currently being provided in law schools to prepare judges to evaluate the reliability of scientific evidence and methodology. More than 42 percent (42.86%) have no opinion as to the adequacy of the law school training on scientific evidence and methodology, but none of the survey respondents believed that the law school training on the reliability of scientific evidence and methodology was adequate for the preparation of the judges to make this evidentiary evaluation. In an area of such importance, law schools should revise their curriculum to assist in the legal training for a *Daubert* analysis. Since it is the role of law schools to educate and prepare future lawyers and jurists, attention to this important area of evidence law should be addressed.

IV. FUTURE ISSUES IN JUDICIAL GATEKEEPING

A. *Harvard Panel Discussion*

On March 5, 1997, during the spring conference of the Texas judiciary and the closing session of the Texas College for Advanced Judicial Studies, a panel of experts on the *Daubert* case and its implications held a discussion on the future implications and issues in judicial gatekeeping.[84] This panel, named the Harvard Panel, consisted of experts from around the nation, including judges, attorneys, law school professors, and experts in various fields of scientific study.[85] The purpose of the panel was to explore how *Daubert* was changing the legal landscape in the rules of expert testimony admissibility.[86] The panel's

84. The panel discussion was invited by the Texas Center for the Judiciary, Inc., to the March 5, 1997 Texas College for Advanced Judicial Studies. The panel and materials presented for discussion were supervised by Charles R. Nesson and William F. Weld, Professors of Law at the Harvard Law School, in conjunction with Jonathan Zittrain, Senior Fellow at the Center for Law and Information Technology at Harvard Law School.

85. The Harvard Panel included: Charles Nesson, Professor at Harvard Law School, Boston, Massachusetts; Marcia Angel, M.D., and Executive Editor of the New England Journal of Medicine, Boston, Massachusetts; Justice John Cornyn of the Texas Supreme Court, Austin, Texas; Mr. Dick DeGuerin, attorney with DeGuerin and Dickson, Houston, Texas; Mr. Robert Dickson, Attorney with Dickson, Carlson and Campillo, Santa Monica, California; Mr. Fredric Ellis, attorney with Ellis and Rapacki, Boston, Massachusetts; Justice Raul Gonzales of the Texas Supreme Court, Austin, Texas (who did not participate in the actual panel discussion); Ms. Cathleen Herasimchuck, attorney with Rusty Hardin and Associates, Houston, Texas; Honorable John Hill, Former Chief Justice of the Texas Supreme Court, Austin, Texas; Honorable Cynthia Stevens Kent, Judge, 114th Judicial District Court, Tyler, Texas; Mr. Barry Nance, Attorney with Pauson, Nance and Norwind, Washington, D.C.; Mr. Michael O'Neill, Judge, 193rd Judicial District Court, Dallas, Texas; and Dr. Shanna Swan, Ph.D., California Department of Health Services, Berkeley, California.

86. *See* Thomas F. Allen, Jr. & Robert Rogers, Judicial Gatekeeping: Introduction: Judicial Gatekeeping in Texas 3 (Mar. 5, 1997) (unpublished article on file with

specific charge was to explore the nature of the judge's responsibility for overseeing the quality and sufficiency of circumstantial and scientific evidence and the range of judicial powers using court-appointed experts to assist in the process.

The panel demonstrated, during its presentation, the wide and diverse interpretations of the impact of *Daubert* upon the legal landscape. Those in new and novel expert testimonial fields believe that *Daubert* will liberalize the introduction of evidence in the trial courts. Those in traditional scientific fields expressed the opinion that *Daubert* will restrict the introduction of "junk science"[87] in the courts. Academicians engaged in a discussion about the use of court-appointed experts to assist the trial court in the determination of admissibility of novel scientific evidence.[88] Attorneys in the plaintiff's civil law practice argued that this will be a complex pre-trial issue to be considered by the courts but should liberalize the introduction of expert testimony in court. Attorneys in the defense civil law practice argued that the trial judge must simply apply the rules of evidence in a direct and expedited manner, much like the procedure which has traditionally occurred in Texas courts. And finally, the trial judges expressed concern about how *Daubert* hearings might bog down the courts with pre-trial and in-trial hearings on admissibility of evidence, what procedures would be most appropriate for dealing with the *Daubert* hearings, and whether the trial judge needed any specialized training to be able to make the *Daubert* determinations.

The concerns expressed by the trial judges on the panel and among the judges attending the conference seemed to mirror the results of the judicial survey. Specifically, judges understand that they will be performing the function, believe they are capable of performing the gatekeeping function, and, yet, questioned what additional training was needed for the trial judge to efficiently perform this admissibility test.

Several contributors to the Harvard panel's literature presentation discussed important areas of concern raised by *Daubert*.[89]

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the *Texas Wesleyan Law Review*) (article presented to the 1997 Texas College for Advanced Judicial Studies, Houston, Texas).

87. *See* E. I. du Pont de Nemours & Co., Inc. v. Robinson, 923 S.W.2d 549, 553-54 (Tex. 1995).

88. *See* Daniel S. Fridman & J. Scott Janoe, Judicial Gatekeeping: What are the Procedural Issues Involved with Judicial Gatekeeping? 93 (Mar. 5, 1997) (unpublished article, on file with the *Texas Wesleyan Law Review*) (article presented to the 1997 Texas College for Advanced Judicial Studies, Houston, Texas).

89. In addition to the Harvard Panel presenters listed above, a number of law students and faculty at Harvard Law School drafted articles responding to twelve areas of questions regarding the judicial gatekeeping responsibility. This compilation of articles was entitled *Judicial Gatekeeping* and was a project supervised by Charles R. Nesson, William F. Weld, and Jonathan Zittrain. These areas of questions included:

1. *How has the role of judicial gatekeeping evolved in the United States?* (Article by Ketan Jhaveri);

The Texas judicial survey results indicate that many of these issues are real concerns about the Texas judiciary as they work to understand and properly apply the Rule 702 test of admissibility.

One of the Harvard students, Ketan Jhaveri, points out that the traditional tug of war between judges and juries in the evaluation of evidence may have shifted to a three-way tug between expert witnesses, attorneys, and judges in making a preliminary ruling on admissibility under Rule 104 and 702.[90] This gatekeeping function may change the nature of expert testimony presentation as a full understanding of the requirement of *Daubert* and *Robinson* impacts the nature of judicial decision-making in American courts. How the Texas judiciary will implement *Daubert* is a critical issue to Texas jurisprudence.

B. *Judicial Awareness of* Daubert *Issue*

Daubert directs the trial judge to evaluate an expert's proffered testimony as to reliability and relevance.[91] As mentioned above, the scientific knowledge component of Rule 702 requires that the trial judge examine and evaluate the methodology employed by an expert wit-

2. *What is the influence of summary judgment on the development of judicial gatekeeping?* (Article by James D. Walsh and Christopher Newkirk);
3. *What is the precise issue to be determined in a* Daubert *hearing?* (Article by Eric Brown, Blake Snider, and Victor Svilik);
4. *Is Daubert a liberalizing or constraining change from Frye?* (Article by Anne Gaeta and Elizabeth Sitnick);
5. *Does* Daubert *apply to areas other than new science?* (Article by Chris Kelly and Derek Squire);
6. *What is the relationship between legal and scientific standards of proof?* (Article by Robert Gifford and Whitney Pidot);
7. *How should testimony relying on epidemiological evidence and differential diagnosis be treated under* Daubert*?* (Article by Nicklas Akers and Nate Scott);
8. *What are the procedural issues surrounding judicial gatekeeping?* (Article by Daniel Fridman and J. Scott Janoe);
9. *Can* Daubert *hearings be judicially noticed or otherwise given precedential value? What effect has* Daubert *had on pre-existing precedents?* (Article by Miriam Cherry and Paul Decker);
10. *What is the proper standard of review for a* Daubert *hearing?* (Article by John Daley and Kirk Damman);
11. *Should differing standards of stringency apply in determining admissibility depending on the type of case, evidence or witness before the court?* (Article by Heidi Rosenberg and Paul Decker); and
12. *How should judges treat the testimony of professional witnesses?* (Article by Hima Vatti and Shaun Palmer).

90. *See* Ketan Jhaveri, Judicial Gatekeeping: How Has the Role of Judicial Gatekeeping Evolved in the United States 13-21 (Mar. 5, 1997) (unpublished article, on file with the *Texas Wesleyan Law Review*) (article presented to the 1997 Texas College for Advanced Judicial Studies, Houston, Texas).

91. *See* Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 597 (1993).

ness in making the determination of reliability.[92] Additionally, the trial judge must find that the expert's testimony assists the trier of fact to understand the evidence or determine a fact in issue which is relevant.[93]

This judicial gatekeeping requirement is clear in *Daubert* and the subsequent cases exploring the Rule 702 duty. However, remember the survey results reported that approximately 40 percent of the Texas judges had not even read these important decisions. Clearly, future issues in judicial gatekeeping will include the readiness of the judiciary to perform this function and appellate review of the manner in which this function is performed.

C. *Gatekeeping of Methodology v. Conclusions*

A current area of debate in the gatekeeping issue is whether the judge is to review methodology only or whether the conclusions, which may be inextricably linked, should also be evaluated under a *Daubert* test of reliability.[94] Judges are extremely reluctant and, as the judicial survey demonstrates, perhaps unprepared to become amateur scientists. With the lack of recent and focused judicial training and education in evaluating the scientific methodology, concerns are certainly raised about judges determining the reliability of complex scientific evidence and the relevance of the conclusions reached by experts based upon this evidence.

Texas has addressed this issue in the recent case of *Merrell Dow Pharmaceuticals, Inc. v. Havner.*[95] The court found that an expert's scientific testimony is unreliable, even when the underlying data is sound, if the expert draws conclusions from that data based upon flawed methodology.[96] In a lengthy decision, the court traced the requirements of Rule 702 and the task of judicial gatekeeping in not only evaluating the reliability of scientific methodology in opinion testimony's foundational materials, but also the reliability of the scientific methodology in drawing conclusions from those foundational materials.[97] The court reversed the trial judge's entry of judgment upon expert opinion after the Texas Supreme Court determined that the scientific evidence was unreliable and could not support a verdict in the case.[98]

92. *See* Merrell Dow Pharm., Inc. v. Havner, 953 S.W.2d 706, 711, 720 (Tex. 1997); E.I. du Pont de Nemours & Co. v. Robinson, 923 S.W.2d 549, 556 (Tex. 1995); Hartman v. State, 946 S.W.2d 60, 62 (Tex. Crim. App. 1997); Kelly v. State, 824 S.W.2d 568, 572 (Tex. Crim. App. 1992).

93. *See Havner,* 953 S.W.2d at 711, 720; *Robinson*, 923 S.W.2d at 556; *Hartman*, 946 S.W.2d at 62; *Kelly*, 824 S.W.2d at 572.

94. *See Havner,* 953 S.W.2d at 720-30; *Robinson*, 923 S.W.2d at 557.

95. 953 S.W.2d 706 (Tex. 1997).

96. *See id.* at 714.

97. *See id.* at 711-30.

98. *See id.* at 730.

This decision explains the complex nature of the judicial responsibility in evaluating proffered expert evidence reliability and relevance. The court writes for pages about scientific methodology and the directive that judges properly evaluate the reliability of this scientific and expert evidence prior to admissibility.[99]

More than any other decision, this case should paint a clear picture of the significance of the judicial gatekeeping function and the extent of education and preparation required of a judge in the determination of the issues of admissibility. Concern over the actual preparedness of Texas judges to perform the analysis discussed in *Havner* seems obvious to this author.[100]

D. Frye *v.* Daubert - *Liberalizing or Constraining*

The debate continues as to whether Rule 702 liberalized or constrained the admissibility of scientific and expert testimony in Texas courts.[101] Clearly *Daubert* gives the trial judge much greater responsibility as a gatekeeper than did *Frye*.[102] Although the expressed purpose of *Daubert* was to clarify the proper standard for the admission of expert testimony,[103] the case clearly contemplates that Rule 702 would regulate expert evidence which would not contribute to a sound decision,[104] attaining that objective in court may be elusive. While *Frye* asked the general scientific community to serve as the gatekeeper[105] and *Daubert* requires the trial judge to determine reliability and relevance,[106] in practice both tests may now command the same results in Texas. It appears, with the lack of scientific background of the judiciary and with the expressed confidence in performing the gatekeeping function, that evidence generally will be admitted and the jury will be asked to determine its weight. As the judiciary becomes more comfortable and capable in the new gatekeeping role, the de-

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99. *See id.* at 711-30.

100. *See id.* at 732 (Spector, J., concurring). Justice Spector stated in her concurring opinion that:

> The Court today fails to heed its own warning that "the examination of a scientific study by a cadre of lawyers is not the same as its examination by others trained in the field of science or medicine." I agree that the Havner's expert witness testimony is not legally sufficient evidence of causation. However, as a judge, and not a scientist, I am uncomfortable with the majority's amortious scientific analysis and its unnecessarily expansive application of the *Daubert* standard. The majority's opinion, replete with *dicta*, gives courts no practical guidance outside the context of Bendectin litigation.

Id. (citations omitted).

101. *See* E.I. du Pont de Nemours & Co., Inc. v. Robinson, 923 S.W.2d 549, 555 (Tex. 1995); Jordan v. State, 928 S.W.2d 550, 555 (Tex. Crim. App. 1996); Avila v. State, 954 S.W.2d 830, 838 (Tex. App.—El Paso 1997, pet. ref'd).

102. *See* Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 597 (1993).

103. *See id.* at 585.

104. *See id.* at 589.

105. *See* Frye v. United States, 293 F. 1013, 1014 (D.C. Cir. 1923).

106. *See Daubert*, 509 U.S. at 597.

bate on whether *Daubert* liberalizes or restricts expert evidence admissibility may expand.

As the debate on the liberalizing or constraining impact of Rule 702 develops, litigators may soon become concerned with the high cost of developing and preserving expert testimony which has an uncertain chance for ever being heard by the jury. Even evidence which meets the requirement of general acceptance may fail a particular judge's *Daubert* test of reliability on other grounds of evaluation.

E. *Novel Scientific Evidence v. All Expert Testimony*

Although *Daubert* dealt with "novel" scientific evidence,[107] Rule 702 does not restrict itself only to that area. Rule 702 deals with all expert testimony, and there has been great national debate as to the extent of the *Daubert* application.[108] Some courts have tried to narrowly apply *Daubert* to novel scientific evidence,[109] some to all scientific evidence,[110] and others to all expert testimony, scientific or not.[111]

The *Daubert* case dealt with "novel scientific" evidence,[112] but both the criminal and civil courts in Texas have made it clear that the Rule 702 analysis required of the Texas trial judges is not limited to "novel scientific" evidence. In *Hartman v. State*,[113] the Texas Court of Criminal Appeals held that the provisions of Rule 702 as interpreted by *Kelly*[114] apply to all scientific evidence, not merely novel scientific evidence.[115] In *Havner*,[116] the Texas Supreme Court found that the judicial determination of admissibility is not limited to "novel scientific" evidence, but includes all scientific, technical, or other specialized knowledge proffered under Rule 702.[117]

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107. *See id.* at 582-85; *see also* Hartman v. State, 917 S.W.2d 115, 120 (Tex. App.—San Antonio 1996), *rev'd*, 946 S.W.2d 60 (Tex. Crim. App. 1997). The court in *Hartman* argued that "[t]he courts in *Daubert, Kelly,* and *Emerson* confronted evidence based upon *novel* scientific theory—bendectin in *Daubert*; DNA evidence in *Kelly*; and HGN evidence in *Emerson.*" *Id.* (citations omitted).

108. *See* Chris Kelly & Derek Squire, Judicial Gatekeeping: Does *Daubert* Apply to Areas Other Than New Science? 51-62 (Mar. 5, 1997) (unpublished article on file with the *Texas Wesleyan Law Review*) (article presented to the 1997 Texas College for Advanced Judicial Studies, Houston, Texas).

109. *See* Hartman v. State, 917 S.W.2d 115, 120 (Tex. App.—San Antonio 1996), *rev'd*, 946 S.W.2d 60 (Tex. Crim. App. 1997).

110. *See* Thomas v. Newton, 42 F.3d 1266 (9th Cir. 1994).

111. *See* E.I. du Pont de Nemours & Co., Inc. v. Robinson, 923 S.W.2d 549 (Tex. 1995); Forte v. State, 935 S.W.2d 172 (Tex. App.—Fort Worth 1996, pet. ref'd).

112. *See* Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 582-85 (1993).

113. 946 S.W.2d 60 (Tex. Crim. App. 1997).

114. Kelly v. State, 824 S.W.2d 568 (Tex. Crim. App. 1992).

115. *Hartman,* 946 S.W.2d at 63.

116. *See* Merrell Dow Pharm., Inc. v. Havner, 953 S.W.2d 706 (Tex. 1997).

117. *See id.* at 731.

Recent decisions in Texas have made it clear that the Rule 702 analysis discussed in *Daubert* is required in even the soft sciences.[118] Additionally, the Texas Supreme Court has firmly stated that the Rule 702 and *Daubert* analysis is required with all expert testimony.[119] The Texas Supreme Court in *Gammill v. Jack Williams Chevrolet, Inc.*[120] concluded that:

> [W]hether an expert's testimony is based on "scientific, technical or other specialized knowledge," *Daubert* and Rule 702 demand that the district court evaluate the methods, analysis, and principles relied upon in reaching the opinion. The court should ensure that the opinion comports with applicable professional standards outside the courtroom and that it "will have a reliable basis in the knowledge and experience of [the] discipline."[121]

The Texas Supreme Court agreed with the Fifth, Sixth, Ninth, and Eleventh Circuits decisions applying Rule 702's *Daubert* type analysis in all cases where any expert testimony is presented.[122] The court noted that:

> Nothing in the language of the rule suggests that opinions based on scientific knowledge should be treated any differently than opinions based on technical or other specialized knowledge. It would be an odd rule of evidence that insisted that some expert opinions be reliable but not others. All expert testimony should be shown to be reliable before it is admitted.[123]

The Texas Court of Criminal Appeals in *Nenno v. State*[124] has also applied the Rule 702 and *Daubert* analysis to not only scientific evidence but to nonscientific expert testimony.[125] The court found that:

> [t]he question we confront today is whether *Kelly* is applicable to nonscientific expert testimony (i.e. that involving technical or other

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118. *See* Nenno v. State, 970 S.W.2d 549, 560 (Tex. Crim. App. 1998); Weatherford v. State, 975 S.W.2d 323, 323-24 (Tex. Crim. App. 1998); $18,800 in U.S. Currency v. State, 961 S.W.2d 257, 265 (Tex. App.—Houston [1st Dist.] 1997, no writ); *see also Kelly*, 824 S.W.2d at 573; Fowler v. State, 958 S.W.2d 853, 863-64 (Tex. App.—Waco 1997), *aff'd*, 991 S.W.2d 258 (Tex. Crim. App. 1999). The *Fowler* court stated:

> The fact that it may be more difficult to assess the reliability of testimony regarding the "soft sciences" does not justify eliminating the reliability requirement. We believe that the rule itself extends the responsibility of the trial court as "gatekeeper" to screening evidence from the soft sciences for reliability. Whether such evidence will assist the jury in making an intelligent evaluation of the facts rather than obfuscating them depends largely on the reliability of the testimony.

Id.

119. *See* Gammill v. Jack Williams Chevrolet, Inc., 972 S.W.2d 713 (Tex. 1998).

120. *Id.*

121. *Id.* at 725-26 (quoting Watkins v. Telsmith, Inc., 121 F.3d 984, 991 (5th Cir. 1997)).

122. *See id.* at 726.

123. *Id.* (footnote omitted).

124. 970 S.W.2d 549 (Tex. Crim. App. 1998).

125. *See id.* at 560.

> specialized knowledge). The answer to that question is a qualified "yes." The general principles announced in *Kelly* and *Daubert* apply, but the specific factors outlined in those cases may or may not apply depending upon the contest. We do not attempt, here, to develop a rigid distinction between "hard" sciences, "soft" sciences, or nonscientific testimony . . . . The observations we make today apply to all types of expert testimony.[126]

The debate over whether *Daubert* applies to all expert testimony has been settled in the recent United States Supreme Court decision of *Kumho Tire Co. v. Carmichael.*[127] It is clear now that "the trial judge's general 'gatekeeping' obligation—applies not only to testimony based on 'scientific' knowledge, but also to testimony based on 'technical' and 'other specialized' knowledge."[128] Clearly Rule 702[129] makes no distinction between scientific and other specialized knowledge. The Court found that

> as a matter of language, the Rule applies its reliability standard to all 'scientific,' 'technical,' or 'other specialized' matters within its scope. We concede that the Court in *Daubert* referred only to 'scientific' knowledge. But as the Court there said, it referred to 'scientific' testimony 'because that [wa]s the nature of the expertise' at issue.[130]

F. *Procedurally, How Does a Texas Judge Gate Keep?*

Rule 702 and the cases interpreting the gatekeeping function do not give the trial courts much direction in how to procedurally perform their duty. A variety of methods have been developing among courts.

Generally, the party seeking to exclude particular expert testimony will raise the issue of reliability and relevance. This objection may be raised by pretrial motions or in-trial objections. For the trial judge, judicial management and trial momentum considerations may warrant a pretrial order requiring such issues be raised pretrial.

Certainly the complexity of the science might dictate when to conduct the hearing. More complex and novel scientific or expert evidence may demand pretrial determination by the judge. More routine or generally accepted expert evidence might best be heard and determined with a short hearing outside of the jury's presence. In Texas, this is clearly left to the discretion of the trial judge.[131]

During the Harvard Panel discussions, academicians raised the discussion about the appointment of court experts to assist the trial judge

126. *Id* at 560-61.
127. 119 S. Ct. 1167 (1999).
128. *Id.* at 1171 (citation omitted).
129. FED. R. EVID. 702.
130. *Kumho Tire Co.*, 119 S. Ct. at 1174.
131. *See* E.I. du Pont de Nemours & Co., Inc. v. Robinson, 923 S.W.2d 549, 558 (Tex. 1995).

in making the *Daubert* evaluation. Certainly this method is reserved for only extremely complex and novel scientific areas and not routine Rule 702 analysis.

Texas rules prohibiting ex parte communications[132] do not comfortably provide for court experts to assist in gathering information for the court in its decision on admissibility issues. However, the use of pretrial hearings requiring evidence presented by the in-court appearance of the expert, so that all parties and the trial judge may examine the witness, may assist in the judicial decision-making.

Since the rules of evidence do not generally apply in the Rule 104 preliminary determination,[133] courts may utilize affidavits, judicially noticed facts, and other creative methods in acquiring sufficient information to perform the Rule 702 gatekeeping function. The new gatekeeping function may favor a more proactive stance for judges in weeding out unreliable and irrelevant expert testimony. The exact procedural method for this function has not been directed and, therefore, leaves room for much legal and judicial creativity.

G. *The Question of Equal Justice under the Law under* Daubert

With the elimination of the *Frye* test of general acceptance in the scientific community and the implementation of *Daubert* judicial gatekeeping in Texas courts, a concern arises about judicial decision-making consistency.

There is always the jurisprudential concern about disparate treatment of litigants in court. Debate about why in one court in East Texas a life sentence is handed down for drug dealing while in another section of the state a probated sentence is a more likely verdict is continually heard.

Daubert, however, raises new and concerning issues of equal justice under the expert evidence admissibility decision.[134] Since judges, though they have indicated remote and limited training in evaluating scientific methodology reliability, will now be the gatekeepers on what evidence the jury will hear, it is easy to be concerned about disparate

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132. *See* TEX. CODE JUD. CONDUCT, Canon 3 B(8), *reprinted in* TEX. GOV'T CODE ANN., tit. 2, subtit. G app. B (Vernon 1997).

133. *See* TEX. R. EVID. 104 (providing that in making the determination on admissibility, the trial judge is not bound by the rules of evidence except those with respect to privileges).

134. *See* Kelly v. State, 824 S.W.2d 568, 577 (Tex. Crim. App. 1992) (Clinton, J., concurring). Justice Clinton in his concurring opinion states:

> In short, the kind of adversarial testing that would be adequate to replace a *Frye* standard is simply not likely to occur. Trial judges will instead hear testimony from only one side of the issue, frequently from the representative of a commercial lab somewhere that has a vested interest in having its novel theory or technique held admissible in a court of law. These circumstances hardly foster impartial decision making.

Id. (footnote omitted).

decision-making on admissibility. On a bright and sunny Monday in East Texas an expert's testimony may be excluded as based on unreliable scientific methodology. The next gloomy Tuesday may find that same expert testifying vociferously before another jury in another case since that judge found the evidence reliable and relevant. In *Havner,* the Texas Supreme Court writes for pages about conflicting federal court decisions on the admissibility of expert evidence on causation.[135] The court cites case after case where the expert evidence was found to be inadmissible, and then lists the courts that found the evidence to be reliable and admissible.[136]

This is not a novel concern of the law, but *Daubert* and the broad discretion provided to trial judges may raise new concerns about equal justice under the law.[137] Although the general acceptance test may have slowed the introduction of novel and yet scientifically sound evidence, it at least provided a more comfortable threshold test of general acceptance. It is important to note that the *Frye* test also placed the general acceptance in the hands of the scientists and experts who have extensive training, education, and experience, with relentless peer review, in evaluating the reliability of scientific evidence.[138] *Daubert* and Rule 702 place this decision in the hands of jurists, who are legal experts, yet at best, scientific amateurs.[139]

V. CONCLUSION

The clear conclusion from Rule of Evidence 702 and the cases interpreting the requirements placed upon the Texas judiciary in performing the gatekeeping function is that the Texas judiciary will be required to make the determinations of reliability and relevance in ruling on the admissibility of expert testimony.

The judicial survey demonstrates that Texas judges have limited formal training or practical experience in the use and evaluation of scientific methodology. It is important that the judges possess the qualifications and receive the necessary education for evaluating expert testimony reliability, so that consistency in the application of Rule 702 may be accomplished.

The Texas judiciary, continuing education program providers, and the Texas law schools have confidence in the ability of Texas judges to provide this gatekeeping role. However, the source of that confidence

135. *See* Merrell Dow Pharm., Inc. v. Havner, 953 S.W.2d 706, 709-12 (Tex. 1997).
136. *See id.*
137. *See* Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 600 (1993) (Rehnquist, C.J., dissenting). The dissent states, "[q]uestions arise simply from reading this part of the Court's opinion, and countless more questions will surely arise when hundreds of district judges try to apply its teaching to particular offers of expert testimony." *Id.*
138. *See* Frye v. United States, 293 F. 1013, 1014 (D.C. Cir. 1923).
139. *See* Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579 (1993); FED. R. EVID. 702. *But see Daubert,* 509 U.S. at 601 (Rehnquist, C.J., dissenting).

does not appear to be based upon the background, experience or education of the trial judges as it relates to scientific methodology. Perhaps, the legal fiction of judicial confidence is important in an analysis of evidentiary law. Nonetheless, confidence that is deserved and earned would be far more comforting in the real-life application of the law.

Further development and expansion of legal and judicial education programs in the evaluation of scientific and expert testimony's admissibility will assist the Texas state judiciary in confidently demonstrating the capacity to perform the Rule 702 and *Daubert* evaluation. Whatever the level of *Daubert* readiness, the fact remains that Texas judges will determine the preliminary issues of admissibility of scientific and expert testimony. The continuing judicial education of Texas trial judges in determining issues of reliability and relevance of expert testimony is critical and necessary to assist in providing a quality and uniform application of the evidentiary issues contained in Rule 702. Since legal evidentiary determinations and ultimate decisions which so critically affect Texas citizens are not a child's hide-and-seek game, Texas jurists must be ready, willing and competent to perform their gatekeeping function.