

HDFS 391: INTRODUCTION TO RESEARCH **Fall 2008 W 1:00 – 3:45 P.M. SFB 103**

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Required Texts: Bordens, K.S., & Abbott, B.B. (2008). *Research Design and Methods: A Process Approach (7Ed.)*. New York: McGraw-Hill.

Pyrzczak, F. (2005). *Evaluating Research in Academic Journals: A Practical Guide to Realistic Evaluation (3Ed.)*. Los Angeles: Pyrczak Publishing.

Other readings as assigned.

Course Description:

This course examines the scientific approach to studying individuals and families, with an emphasis on critical evaluation of published research. Students will learn the role of theory in guiding research, the common characteristics and processes involved in all quality research; ethical and logistical issues in sampling and measurement; how to estimate and control bias in research; the role of professional codes of ethics and institutional review boards in protecting human and animal subjects; differences in quantitative and qualitative approaches and in basic versus applied research; how to conduct and write a literature review; how to identify various research designs; and how to critically evaluate published research. Prerequisites: HDFS 201 & 202.

Course Objectives:

Students who successfully complete this course will be able to:

1. Describe the purpose and application of theory in the research process;
2. Develop problem statements, research questions, and hypotheses;
3. Define reliability and validity;
4. Identify dependent, independent, and confounding variables in research studies;
5. Describe the function of statistics in various research methodologies;
6. select variables, measures, samples, and methodology appropriate for a research question;
7. Interpret research results, draw conclusions, identify limitations, and make recommendations for future research;
8. Determine when to use qualitative and quantitative research methods in the research process;
9. Examine strategies and issues associated with various types of research methods (e.g., experimental, quasi-experimental, observational, single-subject, etc.);
10. Analyze the strengths and weaknesses of research designs, identify problems, and propose methods for improving the design;
11. Identify sources of bias in the research process and propose methods of control;
12. Examine ethical issues in research;
13. Critically read and evaluate research articles.

Student Learning Outcomes:

HDFS is engaged in ongoing assessment of how effectively our undergraduate and graduate programs are preparing students for their professional careers. Mastery of five student learning outcomes (listed below) will be assessed when you graduate from the program. This course contributes to each of the student learning outcomes for the HDFS undergraduate program in the following ways:

1. Demonstrate knowledge of the bio-psycho-social elements of the human lifespan, with in-depth expertise in at least one developmental stage. Reinforced in this class. Objectives 7 and 13. Assessed with activities.

2. Demonstrate knowledge and application of the interplay of issues and processes in diverse family systems. Reinforced in this course. Objectives 7-13. Assessed with activities.
 3. Demonstrate the ability to clearly articulate knowledge, comprehension, application, analysis, and synthesis, and evaluation in oral and written communication. Reinforced in this course. Objective 2. Assessed with activities.
 4. Demonstrate the ability to locate and critically evaluate prominent theories, research studies, and practices relevant to the field. Introduced in HDFS 391. Objectives 1-13. Assessed with quizzes, exams, and activities.
 5. Demonstrate the ability to apply field-related knowledge, theory, and practices in a professional setting. Not addressed in HDFS 391.
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Course Format:

All science, no matter what the discipline, is a collaborative endeavor. The exchange of ideas is the basis for innovation in both theory and method. With this in mind, I feel that my role is to facilitate discussion of the course material and to expand upon and clarify concepts which may be unclear, rather than to solely lecture over the readings. I will be conducting class in a format which combines both lecture and discussion. The purpose of this format is to create an open forum for the free exchange of ideas. This means that I will be presenting you with questions that we will discuss as a group, as well as helping you work through the course material.

Qualified students with physical or documented learning disabilities have the right to free accommodations to ensure equal access to educational opportunities at the University of Nevada, Reno. For assistance, contact the Disability Resource Center, Thompson Building Suite 101, (775) 784-6000, TTY (775) 327-5131.

Be sure to advise me as soon as possible if you have special needs. It is my job to help you master this material, and I will work with you to the greatest extent possible, but you have to bring me the documentation if you need special arrangements for testing or something like that. Do NOT wait until the end of the semester to say anything and then expect me to inflate your grade. This is not to imply that you would, but just to say that people have actually tried this with me before—it doesn't work.

Classroom Conduct:

This is college. Although I do not call roll, your attendance is expected for the FULL period. I will know if you only attend part of the class, and it may count against you at grading time. I also expect you to TURN YOUR CELL PHONES OFF and leave them off in my classroom. THIS INCLUDES TEXT MESSAGING. If you are expecting an important call then let me know, but it is rude to have a cell phone on when it will disrupt other people. I know that you forget sometimes, and so do I, so I'll try to remember to turn mine off if you do the same.

All members of the class have the right to their own opinions and should feel free to express them. You will probably find at some point that you disagree with the opinion of the person expressing his or her point of view. You are encouraged both to listen with an open mind and to critically evaluate the material we cover. You may offer opposing arguments courteously and respectfully. ***It is not acceptable, however, to be intolerant of other opinions or points of view. Comments that demonstrate prejudice toward other class members due to race, creed, religion, sexual orientation, and so forth will not be tolerated. You will be excused from the classroom if you engage in this behavior, and I will drop you from the course if I feel that it is warranted.***

You are expected to observe the general rules of courtesy:

1. Be on time for class. Please try to let me know if you need to come late or leave early.
2. Be prepared for class. DO NOT come to class without your text, and have it out and open on your desk. Do not expect others to provide you with pencils, pens, papers, etc.
3. Do not carry on private conversations while others are speaking (personal, phone, or text messaging). This is both discourteous and disruptive, *and will not be tolerated. If you cannot refrain from this behavior, you will be excused from the classroom.*
4. Do not interrupt the person who is speaking.
5. Do not monopolize the discussion. Your point of view may be interesting and dynamic, but it is not the only one. Remember that you learn by listening.
6. Do not bring food into the classroom. It's distracting to try to teach class when people are eating (and you might even want to take notes!).
7. DO NOT do your homework for other classes while you are sitting in mine. It makes me very cranky.

8. Please leave your computers at home unless you have a form from the Disability Resource Center. You do not need to email or instant message your friends, or surf the Internet in my class. This material is tough. Take your class time seriously and work on learning the material. It's YOUR EDUCATION, after all.
9. I love children. I encourage you to bring them along to class with you when you need to. Your behavior sets a good example for them, and we can learn from them as much as they can learn from us. However, the purpose of our class is for you and your fellow students to learn, and it is your responsibility to see to it that your children are not disruptive.

OUR CLASSROOM IS A PLACE FOR LEARNING. IF YOUR BEHAVIOR DISRUPTS THE LEARNING OF OTHERS, IT WILL NOT BE TOLERATED. THREATS OF ANY FORM OF VIOLENCE, INCLUDING VERBAL AGGRESSION, TOWARD ME OR YOUR FELLOW STUDENTS WILL BE REPORTED IMMEDIATELY, AND MAY RESULT IN YOUR BEING EXPELLED AND BARRED FROM ALL UNR CAMPUS LOCATIONS. BE AWARE THAT I WILL PROTECT THE RIGHTS AND THE SAFETY OF YOUR FELLOW STUDENTS TO THE FULLEST EXTENT, AND WILL NOT HESITATE TO CALL ON THE CAMPUS POLICE FOR ASSISTANCE IF I FEEL THAT IT IS WARRANTED.

Athletes and/or School Sanctioned Club Members:

If you belong to a team or are a member of a school sanctioned club that requires travel, it is your responsibility to see me the first week of class regarding your travel schedule.

Course Requirements and Grading:

The material in this course varies with respect to its complexity. This means that some topics may take more time to cover than anticipated. We will try to make it through all the material outlined on your tentative course schedule, but it may be necessary to adjust the total number of points you are able to earn during the semester to accommodate our progress. I reserve the right to assign additional readings if I feel they are warranted, but I will not assign additional homework, so any adjustments in total possible points will be downward. I may also throw out exam questions that turn out to be too obscure or confusing.

In my experience, exam times, particularly midterms and finals, are very hard on grandmothers. I can show you the report. It seems that many of them end up either deceased or in the hospital, causing students to be unavailable on exam days. I would advise you to spare your relatives the inconvenience of being dead or mortally injured during these times--sometimes relatives call me from their cell phones while they're having lunch at a local restaurant, which creates embarrassment for all of us when they learn that they're supposed to be occupying space in the mortuary. Seriously, things really do come up--children get sick, accidents happen, computers break down, etc., and I deal with these issues on a case-by-case basis, but it would be a shame for you to end up with a no points on an assignment just because you didn't feel like being in class. Take note of the following policies, because I'm serious about them:

I DO NOT ACCEPT LATE ASSIGNMENTS, I DO NOT GIVE MAKE-UP EXAMS, AND I DO NOT GIVE SPECIAL EXTRA CREDIT ASSIGNMENTS SO THAT STUDENTS WHO HAVE NOT MASTERED THE COURSE MATERIAL CAN EARN PASSING GRADES. You will get out of this course what you put into it. Be responsible.

I WILL NOT ASSUME THAT YOU HAVE DROPPED THIS COURSE IF YOU SUDDENLY DECIDE THAT YOU NO LONGER WANT TO ATTEND CLASS. BE AWARE THAT IF YOUR NAME SHOWS UP ON MY GRADE REPORT FORM AT THE END OF THE SEMESTER, I WILL ASSIGN YOU THE GRADE YOU HAVE EARNED, AND I WILL NOT CHANGE THIS GRADE UNLESS YOU CAN PROVIDE ME WITH PROOF THAT YOU IN FACT DROPPED THE COURSE BEFORE GRADES WERE TURNED IN.

Exams, Quizzes, and Assignments:

There will be four exams over the course of the semester. Each exam will be worth 100 points. There will be a 10- to 15-item quiz over each chapter. There will be three in-class activities (to be announced) worth 25 points each.

Grades will be assigned as follows:

<u>Grade</u>	<u>Percent</u>	<u>Grade</u>	<u>Percent</u>
A	93-100%	C	73-76%
A-	90-92%	C-	70-72%
B+	87-89%	D+	67-69%
B	83-86%	D	63-66%
B-	80-82%	D-	60-62%
C+	77-79%	F	<59% (No, I do not give F+. This is a contradiction in terms.)

Preparation and Participation:

You will be expected to actively participate in class. This requires some advance preparation on your part. It is clearly in your best interests to read and think about the material before you come to class. Each class period I will be posing a number of questions to the class. These questions will cover the key topic areas covered in the day's readings.

Please be aware that many of the questions on your exams will be over information that we talk about in class. Do your reading before coming to class, and take notes. Do not expect me to tell you what's going to be on the exam so that you can be selective about your readings.

Research Requirement:

You will be required to earn at least twelve research credits during the semester by participating in research projects being conducted by members of the UNR faculty community. I will provide you with instructions for becoming a member of the UNR Social Psychology subject pool. Instructions for participating in the research will be provided by individual investigators. I will award you two points per credit, up to a maximum of 20 points. Anything above 12 points will be added to your score as extra credit.

Academic Dishonesty:

CHEATING WILL NOT BE TOLERATED. If I see you using ANY electronic device unrelated to accessibility during an exam, I will take your exam from you immediately and you will receive a grade of zero (F) for that exam. Be aware that cheating comes in many different forms. The following list is not exhaustive of the possibilities, but will give you a general idea of what ***NOT*** to do in any of your classes:

1. Copying from somebody else's exam is cheating.
2. Allowing somebody to copy from your exam is cheating.
3. Having somebody else write your homework assignments or take-home essays is cheating.
4. Copying directly from books, articles, or other outside sources without giving the author credit and claiming that the work is your own is cheating (this is called plagiarism).
5. Trying to pass off papers downloaded from the Internet as your own is cheating.

I REPEAT--CHEATING WILL NOT BE TOLERATED. The majority of students work hard for their grades, and they deserve respect. If you cheat on your papers or exams, I *will* notify the college out of respect for those students who do the work honestly. Be aware that the consequence of academic dishonesty is expulsion from school. Don't make me do it.

TENTATIVE Course Schedule

Date	Day	Activity	Assignments
8/27	W	Welcome, Syllabus, ch 1 B&A, ch 1 P	Ch 1-2 B&A, ch 1-2 P
9/3	W	Quiz ch 1, Discuss ch 2 B&A, ch 2 P	Ch 3 B&A, ch 3 P
9/10	W	Quiz ch 2, Discuss ch 3 B&A, ch 3 P	Ch 4 B&A, ch 4 P
9/17	W	Quiz ch 3, Discuss ch 4 B&A, ch 4 P	Prepare for exam, ch5 B&A, ch5 P
9/24	W	EXAM 1 chs 1-3, Discuss ch 5 B&A, ch 5 P	Ch 6 B&A, ch 6 P
10/1	W	Quiz ch 4, Discuss ch 5 B&A, ch 5 P	Ch 7 B&A, ch 7 P
10/8	W	Quiz ch 5, Discuss ch 6 B&A, ch 6 P	Ch 8 B&A, ch 8 P
10/15	W	Quiz ch 6, Discuss ch 7 B&A, ch 7 P	Prepare for exam, Ch9 B&A, ch 9P
10/22	W	EXAM 2 Chs 4-6 Discuss ch 8 B&A, ch 8 P	Ch 10 B&A, ch 10 P
10/29	W	Quiz ch 7, Discuss ch 8 B&A, ch 8 P	Ch 11 B&A, ch 11 P
11/5	W	Quiz ch 8, Discuss ch 9 B&A, ch 9 P	Ch 12 B&A, ch12 P
11/12	W	Quiz ch 9, Discuss ch 10 B&A, ch 10 P	Prepare for exam, Ch13 B&A, ch13 P
11/19	W	EXAM 3 Chs 7-9, Discuss ch 11 B&A, ch 11 P	
11/26	W	Quiz ch 10-11, Discuss ch 12 B&A, ch 12 P	
12/3	W	Quiz ch 12, Discuss ch 13 B&A, ch 13 P	
12/10	W	Dead Day	Prepare for final exam on MONDAY
12/15	M	FINAL EXAM CHS 10-12 2:15-4:15 p.m.	Whew! Have a great holiday!

Introduction¹

Procedural justice is broadly defined as perceptions of fair treatment based on normative expectations and social interactions (Hamilton & Rauma, 1995; Lind & Tyler, 1988). According to Lind and Tyler "...procedural justice begins with the hypothesis that there is a class of psychological reactions to adherence to or violations of norms that prescribe certain patterns of treatment or certain patterns of allocation" (1988, p. 3). Procedural justice is based upon justice processes rather than outcomes, and can be evaluated using both objective and subjective criteria. Objective criteria include "whether the procedure meets the standards for fairness and consistency, the accuracy of its decisions, and the cost and efficiency of the procedure" (Lind & Tyler, 1988, p. 63). Subjective criteria include the satisfaction of the participants, perceptions of fairness, approval or endorsement of legal institutions, and adherence or obedience to substantive rules.

The processes judges use for dealing with proffers of scientific evidence or other expert testimony have been radically altered by what Margaret Berger (2000) refers to as "the *Daubert* trilogy." This series of three important U.S. Supreme Court decisions (*Daubert v. Merrell Dow Pharmaceuticals, Inc.*, *General Electric Co. v. Joiner*, and *Kumho Tire Co. v. Carmichael*) requires judges to evaluate not only the qualifications of the experts, but also the scientific merits of proffers of expert testimony. Also, the number of proffers of scientific evidence and other expert testimony has increased significantly in the years following the 1993 *Daubert* decision (Cecil & Willging, 1994; Dixon & Gill, 2002; Merlino, Murray, & Richardson, 2008). Judges, attorneys, litigants, experts, and juries are consequently encountering new challenges regarding the proffer and presentation of scientific evidence and other expert testimony.

One such challenge is the perceived fairness of the use of expert witnesses. The parties in law suits typically hire their own expert witnesses, but many judges, attorneys, and scholars have pointed out that using privately-retained experts may adversely affect the litigants (Domitrovich, 2006). For example, privately-retained experts are often expensive, and litigants who are unable to afford experts may be disadvantaged during the proceedings. Many judges believe that using privately-retained experts may result in "battles of the experts" in which triers of fact are confused by experts who present opposing opinions. Many judges also believe that privately-retained experts may be manipulated by attorneys, or may present testimony that is otherwise biased in favor of the party who retained the expert (Domitrovich, 2006).

Court-appointed experts are an alternative to using privately-retained experts. Under Federal Rule of Evidence (FRE) 706, federal court judges have the power to appoint their own experts to help them understand proffers of scientific or other expert testimony or to give testimony.² Under case law and FRE Rule 614(b), federal judges also have the power to examine witnesses to clarify a witness's testimony and to elicit facts that have not been brought out by the parties (Strong, 1999). State court judges also have the power to choose their own experts or to have the parties agree to one expert (Strong, 1999). Both federal and state judges may also take judicial notice of certain scientific principles in most jurisdictions, provided that "the principle is accepted as a valid one in the appropriate scientific community" (Strong, 1999, p. 378).

Federal judges have reported that they are aware there may be benefits to appointing their own experts, but the small body of extant research seems to suggest that the use of court-appointed experts in federal courts is increasing, although still relatively uncommon (Cecil & Willging, 1994a & b; Dobbin, Gatowski, Eyre, Dahir, Merlino, & Richardson, 2007). Dobbin et al. found in a survey of 325 state trial court judges that over 50 percent of judges felt that the practice of appointing independent experts should become more common. Small-scale and exploratory research on the use of court-appointed experts in state courts suggests that state judges perceive that there may be benefits to using court-appointed experts, and may more frequently appoint such experts at their own discretion (Champagne et. al, 2001; Domitrovich, 2006; Domitrovich, Merlino, & Richardson, 2007). For example, state trial judges who responded to an exploratory study about their use of court-appointed experts indicated that judges perceived many advantages to using court-appointed experts, and reported an overall preference for evidence received from court-appointed experts. They stated that court-appointed experts are generally more accurate, thorough, trustworthy, credible, and helpful than privately-retained experts. They also believed that court-appointed experts are less biased, and less susceptible to attorney manipulation (Domitrovich, 2006). These findings are similar to those of Dobbin et al. (2007) and Cecil and Willging (1994a&b).

However, both federal and state judges balance those benefits against perceived costs of using court-appointed experts, such as the availability of experts, possible delays due to unavailable experts, the allocation of expert costs, the expense of using court-appointed experts, possible interference with the adversary process, possible bias against privately-retained experts, the losing party's perception that the process was unfair, and the possibility of too much credibility given to the court-appointed expert (Domitrovich, 2006, Dobbin et al, 2007; Cecil & Willging, 1994a&b). The costs and benefits identified by state and federal judges indicate that they are concerned about possible bias in court

¹ We have revised this proposal to address the initial reviewers' concerns and comments. We appreciate the reviewers' thoughtful feedback, and will try to directly address their comments in the body of the project description.

² Court-appointed experts differ from Special Masters, who are typically appointed to deal with legal issues and do not testify in court.

proceedings and about fair outcomes for litigants.

The goal of the proposed research is to explore the extent of state trial judges' use of court-appointed experts, and their reasons for making or not making such appointments. We will use a combination of the procedural justice models articulated by Leventhal (1980) and Blader and Tyler (2003) to investigate the following research questions:

1. What is the extent to which procedural justice concerns vary in judges' views about the use of court-appointed experts and privately-retained experts?
2. Which kinds of discourse predominate in judges' discussions of their preference for receiving testimony or reports from privately-retained or court-appointed experts?
3. To what extent is judicial discourse about using court-appointed and privately-retained experts consistent across judges, jurisdictions, and types of expert testimony?

To answer these questions we will conduct a national multimodal (web and phone combined) survey with a target number of 400 state trial court judges of general jurisdiction. We will explore their views about and experiences with privately-retained and court-appointed experts and gather additional information about the areas of expertise judges most commonly see in the courtroom, the number of times they have appointed their own experts, the extent of their science education and experience, the costs and benefits they perceive to be related to court-appointed and privately-retained experts, and other variables such as age, length of time on the bench, jurisdiction size, availability experts, and availability of funds for non-statutory appointments which may influence their decision-making in this area.

Results from Prior NSF Support

NSF Award Number: 0453712 Award Amount: \$245,000 Award date: 2/15/05; NSF Division and Program: Social and Economic Sciences: Law and Social Science; Title: Science in the Law School Curriculum: The Diffusion of Practice Innovations after *Daubert v. Merrell Dow Pharmaceuticals, Inc.*

This research applied a diffusion model developed by Richardson and Ginsburg (1996a & b) to investigate the extent to which law schools and law school professors have incorporated innovations in litigating cases involving scientific evidence into the law school curriculum. A multi-method study incorporated data from a telephone sample survey of law school professors, content analysis of course materials, and archival data published on relevant web sites was conducted to provide a picture of the current educational landscape and to identify the factors related to the availability and content of science education for law students. The research addressed the following specific research questions:

Research Question 1: Is the availability and accessibility of credible dissemination sources related to the diffusion of practice innovations to law school curricula? Findings suggested that a limited number of professors are relying on scientific articles to assist in teaching about scientific evidence and expert testimony. Professors who taught science/law and science courses attended slightly more professional meetings than professors who taught general evidence. Data also suggested that professors at Masters/Bachelor-level institutions may seek a greater level of professional credentialing than professors at more research oriented Doctoral Extensive or Doctoral Intensive institutions.

Research Question 2: In what ways are law professors' attitudes and experiences with science related to scientific content in their courses? Professors' views about the impact of the *Daubert* trilogy (on the role of evidence professors) were significantly (and positively) related to their views about the importance including science content in their courses. Findings also suggested that professors who teach science/law and science courses have more science education than general evidence professors.

Research Question 3: Does the content of science education courses reflect the practice innovations in a specific practice environment? Free-standing law schools on average had a significantly greater number of full time students than any of the college or university affiliated schools. Differences in science content for courses taught in *Frye* versus *Daubert* states were also found, indicating that law professors are shaping their courses to accommodate the needs of students who will be practicing within the legal culture of the area in which the law school is located.

Research Question 4: Are compelling local or regional issues or the activities of advocacy organizations reflected in the scientific content of law school curricula? Relatively few professors assigned supplementary readings related to the presence of specific industries or environmental issues, the presence of specific minority groups, or the activities of other groups or advocacy organizations in the regions.

Research Question 5: What law schools have incorporated science education in their curricula, and how do they differ structurally from schools that do not offer courses with scientific content? Data suggested that a significantly greater number of courses with science content were offered by doctoral extensive institutions than masters/bachelor programs. In addition, the number of courses with science content was positively correlated with both the number of full-time faculty at the institution and tuition. Institutions with the highest 25% of LSAT scores, and highest 33% of GPA scores for admitted students offered significantly more courses with science content than institutions where students had lower LSAT scores and GPAs.

The final project report listing the major findings to date is available from NSF.

Literature Review/Application of Theoretical Framework to the Empirical Case at Hand

Empirical studies of judicial use of court-appointed experts. Cecil and Willging conducted a survey of the federal judiciary sponsored by the Federal Judicial Center to investigate the extent to which federal trial court judges utilized their power under FRE 706 (1994a). They found that “much of the uneasiness with court-appointed experts arises from the difficulty in accommodating such experts in a court system that values, and generally anticipates, adversarial presentation of evidence” (1994b, p. 530). They concluded that although appointment of experts may be viewed by federal judges as a departure from the adversarial process, these appointments were not made by judges who lacked faith in the adversarial process. It was only after the litigants had made diligent efforts to exhaust options to gain vital information for the court to resolve the litigants’ dispute that judges resorted to appointing their own experts, although this rarely occurred at the federal level (1994b). Cecil and Willging also found that parties rarely suggested appointing an expert, and typically did not participate in the nomination of appointed experts. Compensation of an expert often obstructed an appointment, especially when one of the parties was indigent (1994a & b).

Federal judges reported little difficulty in identifying persons to serve as court-appointed experts, largely because of the judges’ willingness to use personal and professional relationships to aid in the recruitment process, and *ex parte* communication between judges and court-appointed experts occurred frequently, usually with the consent of the parties. However, the opportunity to appoint an expert was often hindered by federal judges’ failure to recognize the need for such assistance until the eve of trial (Cecil & Willging, 1994a & b).

Cecil and Willging also found court-appointed experts provided testimony and/or reports which could exert a strong influence on the outcome of litigation. Judges reported that “[i]n a dozen jury cases, it appears that the testimony of court-appointed experts dominated the proceedings” (1994b, p. 1043b). However, the court-appointed experts’ testimony generally would affirm the testimony of one of the parties’ experts, whereby evidence to the contrary was overcome. Cecil and Willging found that juries tended to decide the case along the lines of the court-appointed expert, in some cases finding for the plaintiff and in other cases finding for the defense (1994b).

Dobbin et al. (2007) found results very similar to those of Cecil and Willging in their 1998 study of 325 state trial judges. Judges in this study reported that the practice of appointing experts should become more common for a number of reasons, among which were opposing testimony of experts, biased experts, and assistance to the court in new and emerging areas of science. Those who opposed the practice reported that cost to the courts, added confusion caused by a third expert, and court interference with the development or presentation of the evidence were problematic (2007).

Champagne, Easterling, Shuman, Tomkins, and Whitaker conducted a focus group study of family court judges in Dallas and Fort Worth, Texas (2001). Although the generalizability of this study is limited due to Texas’s unique practice of using juries in family law cases, the small number of judges, lawyers, and experts who participated, and the small number of custody cases conducted on a yearly basis, they found two compelling reasons for using court-appointed experts in family cases: (1) the need to avoid the harm an adversarial system can have on children; and (2) the need to have an expert evaluate all of the parties to provide the judge with a reliable comparative assessment of the parties, which privately-retained experts are not permitted to do (2001). They also found in their sample of family court judges that the use of court-appointed experts could encourage case settlement, although attorneys generally disfavored the use of court-appointed experts because they felt that they “lose control” of the process.

While participants reported that the use of court-appointed experts may not reduce costs if the parties choose to hire their own experts, both judges and attorneys had a favorable impression of court-appointed experts. Among the positive aspects of using court-appointed experts were: (1) the experts have an aura of neutrality; (2) there are no barriers to the appointment of neutral experts, and few downsides; (3) court-appointed experts have more complete information in which to base their opinions since they have access to all of the parties; and (4) expert witnesses prefer to be court-appointed witnesses, and find this role more appealing as professionals (Champagne et al., 2001).

Domitrovich (2006; Domitrovich et al., 2007) conducted an exploratory mail survey of trial judges from four states (Michigan, Indiana, Arizona, and Texas) to assess the extent to which state trial judges make use of their authority to appoint experts, and to identify factors state trial judges considered in appointing experts in various types of cases. Domitrovich et al. found significant differences in the number of appointments according to the admissibility standards used by the states (2007). Criminal court judges in this study reported appointing experts more frequently than those in civil courts. Judges in family court appointed experts more frequently than those in both civil and criminal courts. Judges who considered money as a factor appointed fewer experts. However, whether judges believed the appointment of experts would cause a delay in the commencement of the trial was not related to the appointment of experts (Domitrovich, 2006; Domitrovich et al., 2007).

Taken together, the trends identified in these studies indicate that there may be some circumstances in which many judges feel that the use of court-appointed experts is more acceptable than in others. However, the fact that Cecil and Willging’s research was conducted with federal judges prior to the *Daubert* decision, Dobbin et al.’s data are pre-*Kumho*, and the limited generalizability of both the Champagne et al. and Domitrovich et al. studies precludes most claims of real knowledge about the opinions and practices of state trial court judges with respect to their use of court-appointed experts.

Thus, empirical research in this area will add to our understanding of judges' use of court-appointed experts and to our knowledge of the factors state trial judges consider when making this decision, and allow us to test important theoretical procedural justice models.

Models of procedural justice and their application to the empirical case at hand. An extensive body of research addresses the concepts of procedural and distributive justice. This research can only be briefly described given space considerations of this proposal. While we regret that we must omit the details of many relevant studies, we acknowledge their importance and will try to touch on some of the key aspects of the development of procedural justice theories, and to relate these developments and findings to our proposed study.

Early models of justice research emerged during World War II. These models dealt largely with outcomes, and were primarily based on the concept of "relative deprivation." They linked political and social unrest to views of justice (Crosby, 1976; Martin, 1986, 1986; Merton & Kitt, 1950; Stouffer, Suchman, DeVinney, Star, & Williams, 1949; Tyler, 1994).

Following this line of research, equity theory addressed the relationship between peoples' perceptions of the fairness of outcomes (i.e., distributive justice) and their views about fair principles of outcome distribution (Adams, 1965; Blader & Tyler, 2003; Tyler, 1994; Walster, Berscheid, & Walster, 1973; Walster & Walster, 1975; Walster, Walster, & Berscheid, 1978). The basic principle behind equity theory is that satisfaction and behavior are linked to outcomes received and the contributions made by actors.

Later models moved away from the focus on distributive justice and incorporated the concept of procedural justice, or evaluations of how decisions are made. The pioneering work of Thibaut and Walker (1975) addressed not only the outcomes of disputes, but also the characteristics of the processes by which disputes are resolved. Thibaut and Walker defined procedural fairness as the amount of input people perceive they have in determining their outcomes, and referred to this perspective as the "control model" of procedural justice (Blader & Tyler, 2003; Tyler & Smith, 1998).

Tyler and Smith reported that "most procedural justice research has been concerned with how people experience existing procedures, rather than with the structural issues that must be considered in the designing of procedural systems" (1998, p. 601). Much research in the area of procedural justice has been influenced by Thibaut and Walker's control model. However, Tyler and Smith suggest that it is also important to define "the objective characteristics of procedures" (p. 601). Leventhal (1980) identified the following objective elements of procedures that may be subjectively evaluated for fairness: (1) the allocation of the responsibility for the selection of agents; (2) allocation of the responsibility for setting ground rules; (3) processes for gathering information; (4) processes for using information to make decisions; (5) processes for handling appeals; (6) safeguards; and (7) mechanisms for considering and implementing changes (1980). Based on these elements, Leventhal proposed six criteria for fair procedures: (1) the *consistency* of the application of the procedure across people and across time; (2) *bias suppression*, or avoiding self-interest or ideological preconceptions; (3) *accuracy*, or using informed opinions or good, accurate information; (4) *correctability*, or the opportunity to modify or reverse decisions; (5) *representativeness*, or having one's concerns, values, or interest considered in all phases of the process; and (6) *ethicality*, or compatibility with fundamental moral and ethical values.

According to Tyler and Smith, these components have not been extensively researched, but existing research supports Leventhal's argument that procedural justice judgments are multifaceted (1998). For example, Barrett-Howard and Tyler (1986) found that several of Leventhal's procedural justice criteria were rated as more important than control judgments that were consistent with Thibaut and Walker's model of procedural justice. Tyler found that people use a variety of procedural justice rules to evaluate the fairness of legal authorities (1988). These rules included not only those specified by Leventhal, but also other rules. MacCoun and Tyler (1988) found that Leventhal's rules for representativeness and efficiency conflicted in situations where the consequences were more severe. These researchers found that people preferred more process control (e.g., twelve-person jury and unanimous jury decision rules, which they viewed as more representative) than when they had more to lose, even though the processes were likely to be less efficient (e.g., more expensive and time-consuming).

Research also indicates that relational issues are important to perceptions of procedural justice. Tyler (1988, 1989, 1990, 1994b) and Tyler and Lind (1992) found that relational aspects of interaction between citizens and police and supervisors and employees were more central to definitions of procedural justice than were control or instrumental evaluations of outcome favorability. According to Tyler and Smith (1998), three relational issues are influential in judgments of procedural justice. First, Tyler (1988) found that *neutrality*, or the unbiased, honest, evidence-based nature of procedures, was an important aspect of perceptions of procedural justice. Second, the *trustworthiness* of others in the interaction is an important factor (Lind & Lissak, 1985; Tyler, 1988, 1990). This is particularly true concerning inferences about the motives and intentions of authorities. Finally, the dignity of the procedure, the respect and politeness received, and the respect shown for actors' rights reflect *status recognition*, or the extent to which social status and community standing are recognized (Bies & Moag, 1986; Lind, Kanfer, & Early, 1990; Tyler, 1988, 1990). Tyler and Lind (1992) found that of these factors, the most important in shaping evaluations of authorities is *trustworthiness*.

In 2003, Blader and Tyler proposed a model of procedural justice and described two experiments supporting their two-

dimensional view of procedural justice fairness evaluations. Blader and Tyler described this two dimensional model as “a theoretical model specifying the concerns people focus on when evaluating procedural justice” (2003, p. 747). They identified two orthogonal dimensions, “procedural function” and “procedural source,” which can be crossed to create four components that give procedural justice meaning.

The first of these dimensions, procedural function, refers to the roles or functions served by the procedure. Blader and Tyler stated that there are two key functions related to the fairness of decision-making procedures. The first is the value of such information for evaluating the fairness of outcomes. Blader and Tyler wrote “information about decision-making processes facilitates attributions regarding outcomes” (2003, p. 748). They cited Leventhal’s work (1980) as an example of the use of objective criteria in making fairness judgments about procedural justice.

The second function of information about procedural fairness is the use of such information to “help people evaluate the social atmosphere of the group situation” (Blader & Tyler, 2003, p. 748). This function is related to the concept of status recognition, or the idea that personal status as a member of a group is embodied in the quality of the treatment received from authorities. Blader and Tyler state that these two functions (e.g., quality of decision making and quality of treatment) identify two major classes of inferences about procedural justice, and incorporate and “organize the breadth of process fairness elements examined in previous justice research” (2003, p. 748).

The second dimension, procedural source, addresses the role of different sources of experience in evaluations of procedural justice (Blader & Tyler, 2003). This dichotomy differentiates between the actions of particular representatives of the group and the context that constrains behavior (e.g., group rules, norms, or policies). Blader and Tyler stated that perceptions of procedural fairness are a function of both the actor and the structure in which action occurs. They referred to the actions of individuals as “informal influences” on process fairness perceptions, and the structural constraints of rules, norms, or policies as “formal influences” (p. 749).

These dimensions are conceptually related to several areas of social psychological research. For example the “socioemotional issues” and “task issues” described in groups literature are analogous to the “quality of treatment” and the “quality of outcome” concepts proposed by Blader and Tyler. The social psychological literature on sources of authority demonstrates similarity between the concepts of “personal legitimacy” and “institutional legitimacy” with Blader and Tyler’s “informal” and “formal” influences on perceptions of procedural justice (p. 749). Blader and Tyler stated:

The two dimensions outlined establish a model that stipulates four types of concerns that people have when judging process fairness are: (a) evaluations of formal rules and policies related to how decisions are made in the group (formal decision making), (b) evaluations of formal rules and policies that influence how group members are treated (formal quality of treatment), (c) evaluations of how particular group authorities make decisions (informal decision making), and (d) evaluations of how particular group authorities treat group members (informal quality of treatment). Each of these concerns is hypothesized to exert an influence on overall assessments of procedural justice (2003, p. 749).

The two studies reported by Blader and Tyler demonstrated support for this two-dimensional model in two different organizational settings (e.g., a university and a financial services firm). They concluded that in addition to understanding that fairness matters to people, it is important to determine what factors they use to evaluate fairness. They viewed their four-component model as a means for achieving a greater understanding of “how to assess, characterize, and ultimately promote fairness” (p. 756).

Much important research addresses procedural justice from the viewpoint of the people whose outcomes are affected by the decisions of authorities, particularly in the contexts of social justice and organizations. Many law review articles address issues of procedural fairness from a theoretical standpoint, and several discuss procedural justice in the context of ethics or morality. For example, Ehrenberg (2003) discussed the theoretical differences between perfect procedural justice, in which a process exists for reaching a just outcome that is determined by independent criteria, and imperfect procedural justice, in which there is no perfect process for arriving at a just outcome. Hoffman and O’Shea (2002) discussed the utility of procedural justice in determining how to approach systemic reform. Lamparello (2006) discussed the application of Blader and Tyler’s four-component model to federal sentencing jurisprudence. These articles represent only a small number of the law review articles published about procedural justice in the past five years. However, they illustrate that the majority of law review articles are theoretical in focus, rather than empirical studies supporting the applicability of procedural justice to these issues.

Little empirical research has addressed procedural justice in the context of decision-making. Myrri and Helkama (2002) conducted a study of moral reasoning and the use of procedural justice rules, examining the relationship between Kohlberg’s stages of moral development and Leventhal’s criteria for procedural justice in a sample of professional ethics students. They found that a higher number of justice rules were used when solving real-life problems than hypothetical moral problems. Only one study addressed the use of court-appointed experts. Johnstone (1996) found that the use of adversarial experts made a greater difference in the legitimacy of the trial process than the use of court-appointed experts. However, we are unaware of any empirical research to date which addresses judicial decision-making and procedural justice, or more specifically, research which examines the way in which judges apply the six criteria for

procedural justice when making decisions that will affect litigant outcomes.

Rationale for the Study

When commenting on our previous proposal, Reviewer1 asked why the use of court-appointed experts raises interesting theoretical or empirical questions about procedural justice. Domitrovich's research suggests that many judges would prefer to use court-appointed experts, but many hesitate to do so (2006). We feel that the themes which have emerged from the work of Domitrovich and other scholars' suggest that judges try to balance their own perceptions of procedural justice with what they believe are litigants' perceptions of fairness. However, definitions of procedural fairness appear to differ across judges. This raises compelling questions about how "fair procedures" are socially defined by judges, and the extent of consistency in the social construction of fair treatment and fair procedures when it comes to appointing or not appointing experts. To date empirical questions of what judges perceive to be procedurally fair, the factors they consider when deciding whether or not to appoint experts, and how judges weigh these factors when deciding whether or not to use court-appointed experts remain largely unexplored, but can be addressed and understood using models of procedural justice. The social impact of judicial decision-making in this area, such as parties' perceptions of procedural justice, parties' and the public's faith in the justice system, fair outcomes for parties, public support of and compliance with law enforcement and the courts, and other issues makes this inquiry highly relevant.

Both Reviewer 1 and Reviewer 5 raised questions about the theoretical contribution of the project. According to Tyler and Smith (1998), the components of Leventhal's theoretical model have not been extensively tested, although existing research discussed earlier supports Leventhal's argument that procedural justice judgments are multifaceted. Our research will advance Leventhal's theoretical model by empirically testing the degree to which the six criteria for procedural fairness contribute to perceptions of procedural justice in a novel application of procedural justice theory—that is, the relationships between judges' procedural justice perceptions and judicial decision-making.

A number of themes emerged from the qualitative data (i.e., judicial discourse) from Domitrovich's exploratory study. For example, judges mentioned concerns such as the possibility that privately-retained experts are more biased than court-appointed experts, allocating the costs of a court-appointed expert to the parties, or possible trial delays (Domitrovich, 2006). These themes will be used to construct Likert-type scales (e.g., scales from 0 to 7, with 0 indicating no importance and 7 indicating extreme importance for decisionmaking) on which respondents in our proposed national study will be asked to rate the amount of importance they place on each area of concern. Once these scale values are obtained it will be possible to obtain a numerical measure of the way judges weigh these factors, and to quantify the differences in the influence of Leventhal's criteria and Blader and Tyler's two-dimensions on judicial decisions about whether or not to retain court appointed experts. This will allow us to empirically investigate and weigh the loci for judicial decision-making in this area while at the same time empirically testing the explanatory power of Leventhal's and Blader and Tyler's models.

Once the themes have been identified and evaluated according to Leventhal's criteria (e.g., classified as concerns about consistency, bias suppression, accuracy, correctability, representativeness, or ethicality) these themes can be located within Blader and Tyler's two-dimensional model (e.g., formal/informal decision making, formal/informal quality of treatment).

For example, Domitrovich (2006) asked judges the question "In your opinion, what are the benefits associated with the use of court-appointed experts?" The following comments are the verbatim responses of two judges: (1) It allows the parties to have access to a professional that they might not otherwise have the ability to afford. It also assists the court in narrowing issues and is how best to address those issues; (2) Main benefit is knowledge of law and procedures.

The first of these comments (choosing to appoint an expert because the parties might have access to an expert that they might not be able to afford) is an example of Leventhal's representativeness criteria (having one's concerns, values, or interest considered by the judge in all phases of the process). In turn, this comment fits within Blader and Tyler's model in the quality of treatment/informal (actor) quadrant because the judge is concerned with the treatment of the litigants and is acting on her own discretion to appoint the expert. The second part of the comment (it assists the court in narrowing and addressing issues) is an example of Leventhal's accuracy criteria (using informed opinions or good, accurate information), and fits within the quality of decision-making/informal (actor) quadrant because the judge views the expert as a way to make better-informed decisions. The comment that the main benefit of court appointed experts is their knowledge of law and procedures is an example of the judge's concern for consistency of the application of the procedure across people and across time, and fits within Blader and Tyler's quality of treatment/formal (structure) quadrant.

As stated earlier, Blader and Tyler (2003) concluded that in addition to understanding that fairness matters to people, it is important to determine what factors they use to evaluate fairness. Blader and Tyler viewed their two-dimensional model as a means for achieving a greater understanding of "how to assess, characterize, and ultimately promote fairness" (p. 756). Understanding the factors employed by judges as they strive to reach decisions that they consider to be procedurally fair and believe will result in just outcomes will help to shed light on judicial decision-making concerning the use of court-appointed experts in cases where proffers of scientific evidence or other expert testimony are made. The

ability to rule effectively and efficiently on the admissibility of expert testimony is a vital gatekeeping role for judges in every type of case, from capital cases and other serious felony criminal cases to family court child abuse and neglect cases and custody cases. At times, judges must consider the admissibility of evidence involving abstract, complex scientific theories with which they may be very unfamiliar, and may need more information to assist them in reaching good decisions about whether the evidence meets established criteria for admissibility in their jurisdictions. They must always make these decisions in the context of prevailing statutes, rules, and case law, but they must also consider the characteristics of each case individually.

To date, however, little empirical research has addressed the factors that are related to the judiciary's use of, or attitudes toward court-appointed experts. The purpose of this national survey of state trial court judges is to add to the body of knowledge about judicial decision-making in cases involving scientific evidence and other expert testimony by investigating the judiciary's practices, views, and experiences in this area, and to provide a picture of the circumstances in which judges feel it is helpful and appropriate to exercise their power to appoint their own experts. This study will expand the scope of procedural justice research by applying both Leventhal's rules for procedural fairness and Blader and Tyler's four-component model of procedural justice to the concerns of judges--authorities who are striving via their decision-making to achieve procedural fairness and just outcomes for litigants. Research has demonstrated that these models can be used to assess procedural justice from the standpoint of the people who are affected by the decisions of authorities. This survey will empirically test whether these models can be applied to the experiences of authorities/decisionmakers as they consider the factors they use to make such decisions, thus expanding the scope of the models to include the views of decisionmakers rather than the views of the recipients.

The results of this study also have practical implications for the courts. The study will provide an empirical estimate of the prevalence of the use of court-appointed experts nationwide, and will give the courts information that may help them obtain funding from state legislatures to use when they feel that the appointment of a neutral expert might facilitate the settlement of cases before trial, result in a more just outcome for the litigants, or help the judge understand complex scientific evidence or other expert testimony.

Research Questions and Hypotheses

The following hypotheses are based on the application of the two models as described above. We have responded to reviewer comments about the number of hypotheses by narrowing and focusing the research questions and hypotheses, and by tying the hypotheses more closely to the study's focus on procedural justice.

Research Question 1: What is the extent to which procedural justice concerns vary in judges' views about the use of court-appointed experts and privately-retained experts?

Hypothesis 1a: Judges' discourse concerning the costs and benefits of using court-appointed experts will reflect more situational and discretionary themes, while their views of the costs and benefits of using privately-retained experts will reflect more global and structural themes. Because the normative source of expert testimony in the U.S. is privately-retained experts, one might expect judicial discourse about the use of privately-retained experts to differ in significant ways from their discourse about court-appointed experts. We predict that privately-retained expert discourse will be more often located in the quality of decisionmaking/structure (formal) quadrant or quality of treatment/structure (formal), reflecting constructions about the adversarial nature of the justice system and other normative structural concerns. Conversely, we would expect to see more situationally-focused discourse about court-appointed experts, and to locate this discourse in the quality of decisionmaking/informal (actor) and the quality of treatment/informal (actor) quadrants.

Hypothesis 1b: Judges will weigh the importance of the costs and benefits of using court-appointed experts differently than they will weigh the importance of the costs and benefits of using privately-retained experts. Consistent with the findings we predict for hypothesis 1a, we expect that there will be an interaction effect in the important ratings, such that the situationally-based discourse will be more important for court-appointed experts than for privately-retained experts, and the structurally-based discourse will be more important for privately-retained experts than for court-appointed experts.

Research Question 2: Which kinds of discourse predominate in judges' discussions of their preference for receiving testimony or reports from privately-retained or court-appointed experts?

Hypothesis 2a: Judges' discourse about their preferences for receiving testimony/reports from court-appointed experts will focus more on quality of decisionmaking/informal (actor) themes, while the discourse about their preferences for receiving testimony/reports from privately-retained experts will be more focused on quality of treatment/formal (structure) themes.

Hypothesis 2b: Judges will weigh the discourse about their preferences for receiving testimony/reports from court-appointed experts differently than they will weigh the discourse about their preferences for receiving testimony/reports from using privately-retained experts.

Consistent with the findings we predicted for hypotheses 1a and 1b, we would expect to see more situationally-based discourse about court-appointed experts, and more structurally-based discourse for privately-retained experts. We would also expect an interaction effect in the important ratings, such that the situationally-based discourse will be more important

for court-appointed experts than for privately-retained experts, and the structurally-based discourse will be more important for privately-retained experts than for court-appointed experts.

Research Question 3: To what extent is judges' discourse about using court-appointed and privately-retained experts consistent across judges, jurisdictions, and types of expert testimony?

Hypothesis 3a: Judges' discourse about their preferences receiving testimony/reports from court-appointed experts or privately-retained experts will vary according to the type of cases the judge hears most frequently. According to Blader and Tyler (2003), "informal quality of decision making recognizes that although group rules prescribe decision-making procedures, it is up to particular individuals to implement those procedures. Furthermore, formal procedures cannot specify decision making processes for all situations, and so particular authorities often exercise discretionary decision making without formal rules to guide them" (p. 749). For example, judges in juvenile or family courts may be concerned with the welfare or the best interests of minors, placing their discourse in the quality of decisionmaking/informal (actor) quadrant, while judges in criminal court might be concerned with the procedural or due process aspects of the situation, locating their discourse to a greater extent within the quality of decisionmaking/formal (structure) quadrant. Thus, we predict that discourse about the use of court-appointed or privately-retained experts will be related to the type of case the judge hears most frequently.

Hypothesis 3b: Judges will weigh the discourse about their preferences for using court-appointed experts or privately-retained experts differently according to the type of cases the judge hears most frequently. Consistent with previous predictions, we expect that there will be an interaction effect in the importance ratings, such that the discourse will not only vary by type of case, but also by type of expert.

Hypothesis 3c: Judges' discourse about their preferences for using court-appointed experts or privately-retained experts will vary according to the type of evidentiary review required by their state. Discourse from judges in *Daubert/Daubert*-type states will more frequently be located in the quality of decisionmaking/informal (actor) quadrant of the model, while discourse from judges in *Frye/Frye*-type states will more frequently be located in the quality of decision-making/formal (structure) quadrant. *Frye* issues are considered by the appellate courts to be simpler issues for trial judges to decide on the basis of mere general acceptance within the scientific or technical area from which the expert originates. Judges must consider a greater number of factors in states which have been influenced by *Daubert* and its progeny. Thus, we predict that because judges in *Frye* jurisdictions have less to consider, their discourse may be more procedurally-oriented, while discourse from judges in *Daubert* jurisdictions may indicate more inclination to make discretionary appointments because they have more to consider.

Hypothesis 3d: Judges will weigh the discourse about their preferences for using court-appointed experts or privately-retained experts differently according to type of evidentiary review required by their state. Consistent with previous predictions, we expect that there will be an interaction effect in the importance ratings, so that the discourse will vary by standard of evidentiary review.

Proposed Research and Methodology

Research design. A multi-modal survey will be conducted with a representative national sample of 400 U.S. state trial court judges from courts of general jurisdiction and from courts of special jurisdiction in cases where juvenile and family courts are separate from the courts of general jurisdiction. Respondents will have the option of completing the survey online using the secure Internet data collection service available through the university's Center for Research Design and Analysis (CRDA), completing the survey via telephone with an interviewer from CRDA, using WinCATI, a state-of-the-art Computer Assisted Telephone Interviewing (CATI) system, or using a combination of both options. WinCATI also has a web professional mode, allowing both modality options for respondents. Offering judges the ability to choose an option will allow them to complete the survey at their own convenience, and will facilitate completions by allowing recruiters to make follow-up phone calls to help ensure that the judges properly complete the survey. We have used similar techniques, which are based in Dillman's Total Design Method (1978), with great success in other studies such as our national survey of 400 state trial judges (71% response rate) (Gatowski et al., 2001), our national survey of 225 law professors described above (70% response rate) (forthcoming), and Domitrovich's exploratory evaluation study of 174 state trial judges of general jurisdiction in four states (88% response rate) (2006). We describe these procedures at length in Dobbin, Gatowski, Ginsburg, Merlino, Dahir, and Richardson (2001) and elsewhere.

Sample. A sample of 800 will be drawn from a sampling frame of approximately 10,000 judges who have already been enumerated. The sampling frame was constructed using contact information gathered from BNA's directory of state and federal courts, judges, and clerks, which is a state-by-state and federal listing. This information includes each judge's name and contact information. This information will be confirmed prior to contact attempt via Internet court websites or direct contact with the court.

Proportionate stratified random sampling with a constant sampling fraction will be used to ensure that the composition of the sample reflects the distribution of state trial court judges throughout the U.S. The sample will be stratified by state

(stratum 1) and by type of jurisdiction within state (stratum 2) (see Gatowski et al. 2001). Courts within U.S. territories will be excluded due to possible issues with language (the survey will only be conducted in English).

Power analysis using techniques described by Cohen and Cohen (1983) demonstrated that a sample of 400 surveys will be sufficient to detect a medium effect size of 0.06 at a power of 0.80. An additional 40 surveys (10% of 400) will be required to pilot the survey instrument. Our calculation of target response rate is based on Dillman (1978), who reported that the average response rate for telephone surveys is approximately 2:3 or 66 percent and the average response rate for mail surveys is around 50%, and on our own experience with surveying the judiciary. More recent research demonstrates that Internet survey response rates approximate those for mail surveys (see Schonlau, Fricker, & Elliott, 2002; Sheehan, 2001; Mehta & Sivadas, 1995). We have based our calculations on the more conservative mail survey response rate of approximately 50%, anticipating that many judges will choose to respond via Internet. Our target response rate is 400 judges, or 50% of the 800 sampled judges.

Gaining participant cooperation. Reviewer 5 expressed concern that we might not be able to gain the cooperation of so large a sample of judges. Our previous experience in this area will be employed to ensure the best response rate possible. A personalized letter explaining the project and requesting participation will be sent to all 800 members of our sample. The letter will alert the judges that they have been selected to be invited to participate and that a member of the research team will be contacting them to discuss the project, answer their questions about participating, and to schedule a telephone interview if they choose to respond via telephone. The letter will explain the importance of their participation, provide a description of the project and its sponsors, an estimate of the time involved in participating, the URL address of the survey and online survey instructions, and contact information for the PI (who will serve as project director) and CO-PI at CRDA. As a backup contact this information will also be emailed to the judges using the email addresses that have been obtained through the construction of the sampling frame. The letters will be personalized and attached in PDF form and will also be available in the Microsoft Word (.doc) format.

We have previously found that judges who travel circuits often do not receive mail correspondence in a timely manner. If a participant has not received the introductory letter or email, then arrangements will be made to mail a hard copy, fax, or email a second letter at the participant's request. If an interview has been scheduled, then an interviewer from CRDA will be assigned to conduct the interview at the specified date and time. All interviews will be conducted at CRDA. If a judge is unable to complete the telephone interview, then the interviewer will try to schedule a time for completion. If the judge is unable to complete via interview, she has the option of completing the survey via the Internet. If the respondent does not complete the web survey within two weeks of the initial phone call, the GSCJS will follow up with a phone call to the judge, and will continue to make follow-up contacts until the judge either specifically declines to participate or completes the survey. All participant information will be maintained in a locked file cabinet in the project director's office to ensure confidentiality at both research sites.

Survey instrument. The survey instrument will consist of approximately 50 open-ended and closed-ended questions, and the content of phone and Internet versions of the survey will be identical. If the judge is interviewed by phone, then the interviewer will read an informed consent statement and gain the judge's consent prior to conducting the interview. For those participants who choose to complete the survey online, informed consent will be presented visually as an introductory screen. Judges will be informed that they are free at any time to withdraw from the project without penalty, and that if they have any concerns or comments about the survey they are encouraged to contact the Institutional Review Board. At the end of the survey, participants will be given the opportunity to make any comments about the survey or any other topic they feel is relevant.

Reviewer 4 indicated an interest in seeing the survey instrument. Space limitations obviously make this unfeasible, but we can provide some examples of questions from Domitrovich's survey:

1. Please estimate the number of times in the past 12 months you have appointed your own expert.
2. Of the experts you have appointed in the past 12 months, approximately how many appointments were mandated by statute or local rule?
3. Does your court have a budget set aside to pay for court-appointed experts?
4. How much difference would you say there is in the content of the testimony of court-appointed and privately-retained experts? Would you say there is no difference, some difference, moderate difference, or a great deal of difference?
 - a. In what ways are they different?
5. If you could choose to receive testimony or reports from either court-appointed experts or privately-retained experts, which would you generally prefer?
 - a. Why is that?
6. In your opinion, what benefits are associated with using court-appointed experts?
7. In your opinion, what problems are associated with using court-appointed experts?
8. On a scale of 1 to 4, where 1 means no important at all and 4 means extremely important, how would you rate the following issues about court-appointed expert when deciding whether or not to appoint your own expert?

a. The cost to the parties	0	1	2	3	4	5	6	7
b. The availability of experts	0	1	2	3	4	5	6	7
c. Possible trial delays	0	1	2	3	4	5	6	7

Many of these questions have been piloted in Domitrovich's exploratory study. We will modify questions and create new questions as needed to test our hypotheses.

Coding. The coding scheme will incorporate variables used by Domitrovich (2006; Domitrovich et al., 2007) and Gatowski et al. (2001). Additional codes will be developed empirically and the coding scheme will be updated as coding proceeds (Domitrovich, 2006; Gatowski et al, 2001; Richardson et al., 1998). Qualitative data will be thematically coded to capture the procedural justice themes described by Leventhal (1980), and Blader and Tyler (2003). Coding guidelines (e.g., mutually exclusive and exhaustive categories) established by Holsti (1969) will be employed. Where appropriate, the coding will accommodate multiple mentions (e.g., more than one code per variable). When the coding is completed, frequencies will be calculated for all categorical variables, and codes will be collapsed into broader conceptual categories if thematically and theoretically appropriate.

The following statement by one of the judges in Domitrovich's study will help illustrate how a coding scheme using Levinthal's and Blader and Tyler's models might be applied to respondents' discourse. This response is to the question "Do you have any additional comments about the use of court-appointed experts?"

"I have seen excellent experts, pre-eminent in their fields retained by parties and give very useful testimony. I have also seen that some experts either shade their testimony or insist on defending their obvious biases [*theme: judge is concerned about the effect of bias on outcome; bias suppression, quality of decisionmaking/informal (actor)*]. I have at times longed for neutral experts but that would interfere with the adversary nature of our justice system [*theme: judge is concerned with following the system; ethicality, quality of decisionmaking/formal (structure)*] as well as pretend the problem of who would pay for them if the parties cannot afford it [*theme: judge is concerned with cost to the court; representativeness, quality of treatment/formal (structure)*]. I routinely have a default expert chosen by the court if the parties cannot agree on someone [*theme: judge is routinely concerned with availability of expert; consistency, quality of treatment/informal (actor)*], only in child custody disputes [*theme: judge regularly uses experts in this situation; consistency, quality of decisionmaking/informal (actor)*] who administers a psychological evaluation to each party (at separate times) and see each party compared by the children at least once. The greatest value of a court appointed expert is that they lead to settlement." [*theme: judge is concerned with quick and collaborative outcome; representativeness, quality of decisionmaking/informal (actor)*]

It can be clearly seen that judge comments from Domitrovich's study can be examined for themes, which can then be developed into Likert-type scales as illustrated above. It can also be seen that Leventhal's six criteria fall into all quadrants of Blader and Tyler's model, depending on how the judges' statements are worded. For example, a statement about consistency of across people and time might take one of four constructions: (1) a statement that the *judge* should be consistent with procedures is a quality of treatment/formal (structure) construction; (2) a statement that the *procedure* should be consistent is a quality of decisionmaking/formal (structure) construction; (3) a statement that the *parties should be treated consistently* is a quality of treatment/informal (actor) construction; and (4) a statement that the *decisionmaking* should be consistent is a quality of decisionmaking/informal (actor) construction.

Interviewer and coder training. Project staff will be trained to interview, code, and check code using materials adapted from training manuals developed by Gatowski et al. (2001) for their national survey of state trial court judges and interview training manuals routinely used by CRDA. These training manuals were based on those used by the survey research center at the University of Michigan, Ann Arbor. Prior to conducting interviews, project staff will undergo a minimum of 20 hours of intensive training. Project training will entail an overview of the project, the project objectives, and an explanation of the rationale behind each question included in the survey, as well as standardized interviewing techniques such as the proper use of probes, prompts, and feedback, the use of skip patterns, and controlling the pace of the interview. Interviewers will also observe and conduct practice interviews, which will not only enable them to practice interviewing techniques, but also familiarize them with the content of the survey instrument and the skip patterns.

Empirical code construction. Codes for the open-ended questions will be empirically constructed using a combination of open-ended data obtained from Domitrovich's study and 20 percent of the completed interviews (see Gatowski et al., 2001). A detailed coding manual will be created to accompany the codebook. Coders will receive 10 hours of training, consisting of an overview of thematic coding, instruction on the coding scheme, and practice coding and check-coding. Once coding has commenced, every 20th interview will be "round-robin" coded by all coders and reviewed by the project director to ensure coding accuracy and identify any instances of coder drift (see Dixon & Gill, 2002).

Coder reliability. One-hundred percent of the interviews will be check-coded and check-verified by different coders. Coding discrepancies will be resolved through the check-verify processes. Any discrepancies that cannot be resolved by the check-verifier will be resolved through discussion by the coder, check-coder, check-verifier, and the Project Director (see Gatowski et al., 2001; Merlino et al., 2007a&b; & Dixon & Gill, 2002). Inter-coder reliability will be evaluated using

Cohen's kappa, which is a measure of agreement that corrects for chance agreement, or other reliability statistics as appropriate.

Measures. The following IVs are the key variables for the hypothesis tests:

Hyp. 1a, 2a: Type of expert will be a two-level variable (privately-retained expert, court-appointed expert).

Hyp. 3a: Type of case will be a qualitative, four-category variable (civil, criminal, family, juvenile).

Hyp. 3c: Type of evidentiary review will be a qualitative, six-category variable based on the categories constructed by Bernstein and Jackson (2004). These categories reflect the influence of *Frye* and *Daubert* and its progeny on the state's admissibility standard.

Hyp. 1b, 2b, 3c: Location of discourse will be a four-level variable consisting of the four quadrants of Blader and Tyler's model (quality of treatment/formal, quality of treatment/informal, quality of decisionmaking/formal, quality of decisionmaking/informal).

Dependent variables. The following DVs also pertain to the hypothesis tests:

Hyp. 1a, 2a, 3a: Location of discourse will be a four-level variable consisting of the four quadrants of Blader and Tyler's model (quality of treatment/formal, quality of treatment/informal, quality of decisionmaking/formal, quality of decisionmaking/informal).

Hyp. 1b, 2b, 3b: Weight will be measured on a *Likert*-type scale ranging from 0 (no weight) to 7 (extreme weight).

We will also gather judge demographic information such as gender, length of time on the bench, and age, as well as the judges' science education, experience with scientific evidence or other expert testimony, and the kinds of experts the judge most frequently sees.

Preliminary Analysis Plan

Preliminary data analyses will involve running frequencies and crosstabulations on all categorical variables to identify patterns in their use. Categories within variables will be collapsed, taking into account the theoretical and thematic appropriateness of combining them into new categories. Categorical factors will be dummy coded for analysis (Neter, Kutner, Nachtsheim, & Wasserman, 1996). In cases for which multiple mentions can be coded for a single variable, new variables consisting of "counts" of the number of factors coded will be generated (Dobbin, 1998; & Richardson et al., 1998).

A variety of statistical analyses are appropriate for these data. We anticipate using multiple regression, logistic regression, hierarchical (sequential) regression, factorial ANOVA, ANCOVA, factor analysis, and other analysis methods. The most appropriate analysis for each hypothesis will be determined following data collection, as this determination will involve considerations of statistical power, cell sizes, the distribution of the data, multicollinearity, possible data transformations, and other issues (Cone & Foster, 1998; Dobbin, 1998; & Neter et al., 1996). Multiple regression analyses will be conducted in situations in which all predictor and criterion variables are quantitative. ANOVA and ANCOVA will be used to examine differences in group means. Logistic regression is appropriate when the criterion variable is binomial (categorical with 2 levels, e.g., appoints/does not appoint). Logistic regression also accommodates categorical dependent variables with more than two levels.

After the descriptive analyses and construction of variables, diagnostic analyses will be performed to detect the presence and influence of outliers, and to test for multicollinearity (high intercorrelation) among the predictor variables. Both informal (e.g., large changes in regression coefficients) and formal methods (e.g., variance inflation factor) for diagnosing multicollinearity can be used (Neter et al., 1996). After problems with multicollinearity and outliers have been resolved, a variety of regression analyses will be performed to identify those variables that are statistically significantly related to the outcome variables. Hierarchical regression is appropriate conceptually and theoretically for several of these analyses because of the contextual nature of some of the variables (e.g., judges are embedded within practice environments that consist of various precedents, admissibility standards, and case law). It is important that these contextual variables are entered into the regression model in the sequence that most accurately reflects the structure of the practice environment (for a discussion of the use of hierarchical regression in studies of judicial decision making see Groscup et al, 2002; & Dobbin, 1998). This approach will test whether each separate variable has an effect on the criterion variables while other variables are held constant (Dobbin, 1998). Those variables that are related to the criterion variables will be retained for subsequent analyses.