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Introduction to the Forum on When and Whether Psychological Research is Ready for Use in the Justice System☆

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In this introduction to the forum, we consider the conceptual and historical context in which psychologists decide when (or whether) their research results are ready for use in the justice system. Topics covered in the forum include the accuracy of police officers when they are crime witnesses; research on eyewitness identifications; and studies of lie detection and interrogation procedures.

Keywords: Daubert, Frye, General acceptance

Science advances slowly, and that is a good thing. It takes time to replicate results, to test the generality of a finding, or to strengthen a claim with related results. At some point in this gradual, extended process though, evidence may become robust enough, theories rich enough, and procedures realistic enough to put the findings to practical use. But how do we decide when a scientific result is "ready?" When is a result sufficiently grounded to inform policies and procedures? These questions are central to any applied research domain, but they gain urgency when the practical implications are deeply consequential, as surely they are in the justice system.

Cognitive and social psychologists already participate in the justice system. They testify in court about the reliability of eyewitness memory, advise police on how to conduct identifications, urge legislators to reconsider rules of evidence, contribute to amicus briefs, and more. This use of well-established science to improve the legal system can be seen as both a professional obligation and a public good. At the same time, we need to be wary of premature applications of science, lest we offer misleading advice and, in the process, harm both the justice system and our field's credibility. These risks lead back to our central question: How do we decide when a result is ready for use?

This issue has a long history. Almost a century ago, the U.S. Supreme Court recognized that "just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define" (Frye v. United States, 293 F.1013, 1040, App. D.C. Dec 03, 1923), but the Court also acknowledged that "somewhere in this twilight zone the evidential force of the principle must be recognized." As a guiding principle, the *Frye* ruling emphasized that a scientific claim is "ready" for testimony in the courts only when the claim has attained "general acceptance in the particular field in which it belongs."

The notion of "general acceptance," however, can be problematic, in part because the standards used to determine general acceptance within the scientific community may differ from the standards and needs of the justice system. The Supreme Court highlighted this issue in its 1993 *Daubert* ruling (Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579, 1993). In the majority opinion, the Court argued that the Federal Rules of Evidence are "designed not for the exhaustive search for cosmic understanding but for the particularized resolution of legal disputes." For this and other reasons, the *Daubert* ruling shifted away from a focus on general acceptance, and instead made the trial judge a "gatekeeper," responsible for deciding whether or

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not a scientific claim is reliable (presumably: rooted in good science) and helpful to the finder of fact.

This approach, too, can be problematic. Trial judges often lack scientific expertise, so their evaluation of scientific reliability may be based more on personal intuition than on valid considerations of scientific rigor. In addition, the *Daubert* ruling requires that scientific testimony be both reliable and *helpful* for the court. The latter requirement leads judges to exclude testimony if the judge believes it will only convey information that jurors already know (i.e., information already "within the ken" of the jury). Yet, judges may over-estimate what jurors know, under-estimate what the testimony will cover, or both. (For examples of recent survey research exploring what jurors likely do and do not know, see Desmarais & Read, 2011; Henkel, Coffman, & Dailey, 2008; Simons & Chabris, 2011.)

Even if we step past these various concerns, both the *Frye* and *Daubert* rulings, although deeply important, apply only to the admissibility of scientific evidence in courts. These rulings therefore leave undetermined how and when scientific research should influence the legal system in other ways, including the development of new statutes or new police procedures. In addition, these rulings govern the admissibility of scientific evidence only *when that evidence is offered* by a trial advocate. This leaves the research community with the challenge of deciding when evidence is firm enough for us to bring it forward, perhaps in the form of offered testimony or perhaps in the form of a policy recommendation.

Academics have long debated these issues. Consider, for example, the exchange 30 years ago between a proponent of bringing laboratory research to the courts (Loftus, 1983) and critics who thought the research was not yet ready for use (McCloskey & Egeth, 1983; McCloskey, Egeth, & McKenna, 1986). Several recent developments, however, bring these issues into sharp relief. First, the work of the Innocence Project has called attention to the prevalence of wrongful convictions, many of which can be attributed to mistaken eyewitness testimony. Second, many courts have acknowledged the value and helpfulness of psychological science. For example, state Supreme Courts in New Jersey (in State *v.* Henderson, 27 A.3d 872, 2011) and Oregon (in State *v*. Lawson, 291 P.3d 673, 684 Or., 2012) have taken judicial notice of scientific findings on eyewitness identification and authorized research-based reforms in police and courtroom procedures. Virtually all states now allow experts to testify about the fallibility of eyewitness evidence and about proper procedures for collecting eyewitness evidence. Further, the National Academies of Science has endorsed a wide range of findings from the scientific literature on identification procedures and identification accuracy (National Research Council, 2014).

Despite these various endorsements of the scientific evidence, debate continues within academia: researchers still disagree, for example, about the merits of different identification procedures (simultaneous vs. sequential), the best way to compose a lineup (choose fillers matched to witness description vs. choose fillers matched to suspect appearance), procedures for lie detection (traditional approaches focused on a liar's arousal state vs. new approaches focused on the cognitive demands of lying), and a variety of other issues. Academics also disagree about the proper statistical treatment of some of our data (e.g., diagnosticity ratios vs. ROC analysis), an issue that may have broad implications for how we interpret our findings.

Moreover, scientists across all disciplines (not just psychology) have raised concerns about the credibility of some forms of scientific evidence (e.g., Ioannidis, 2005). These concerns are particularly prominent for research areas that lack direct replication studies or in fields where few negative findings reach the literature. This combination—a lack of evidence for reliability and publication bias—can yield a false consensus, one based in part on spurious, "false-positive" findings (Pashler & Harris, 2012). In such cases, some scientific "facts" might be mistaken.

Psychology (like all sciences) relies on peer review for quality control. Peer review can screen out flawed research but it does not prevent publication of spurious positive results. In addition, courts and policy makers sometimes rely on research that never underwent peer review (e.g., unpublished studies or studies reported in magazines or other non-scientific sources). Clearly, then, there is need for discussion of how best to defend and promote appropriate standards in order to ensure the credibility of our evidence.

In light of all these concerns, there is surely value in thinking through the question of how we, as a field, decide which of our results are ready for export. Years ago, Kassin and colleagues explored this issue through a "survey of experts," with a focus on the *Frye* "general acceptance" rule (Kassin, Ellsworth, & Smith, 1989; Kassin, Tubb, Hosch, & Memon, 2001). These surveys provided powerful information about which of our field's claims were (in the view of the relevant experts) established well enough to sustain courtroom testimony. However, although these surveys are directly applicable to the *Frye* standard, they are less informative about which findings meet the *Daubert* standard that has governed federal courts and (with some modifications) many state courts since 1993.

In addition, psychological science (like many academic endeavors) is moving toward a pattern of increased specialization. And so researchers working on, say, lie detection may not be well versed in the current data on eyewitness identification, and vice versa. In this setting, a general-acceptance criterion may be of limited value because the community of suitably informed scholars—scholars able, with appropriate knowledge, to "accept" or "not accept" a claim—may be relatively small. Instead, the courts may be forced to rely on the counsel of the relevant specialists.

This logic (and the need to seek assessments from the relevant experts) is part of what motivated this JARMAC forum. We asked experts whether research in their specialty is ready for use in the criminal justice system. We encouraged contributors to think both about contents and methods: (a) Which findings in their domain are sufficiently robust, generalizable, and uncontroversial that they can be used to guide practice? (b) What patterns of evidence should persuade us that a finding is ready for use?

These contributions span a range of topics and perspectives. Some describe results that are ready for use; others challenge whether our results (including some that are already in use) are reliable or even valid. Still others note the limitations of

current evidence and call for more research before application. Some provide a consensus view of research, some offer a more personal perspective, and some remind us of the difficulties of assessing (or relying on) "general acceptance." The last two contributions to the forum tackle broader issues concerned with how and whether the courts can distinguish good science from junk, and how we can make good use of one without being misled by the other.

In his 1969 presidential address to the American Psychological Association, George Miller argued that psychological science could and should be used to improve the world; he therefore urged his colleagues to "give psychology away" as a valuable and important gift that we could provide to others outside of psychology. We believe that his advice was well-founded but needs to be followed with caution. We hope that this forum will inspire readers, researchers, and policy makers to think deeply about when research is ready for use and when it is not, with the aim of making our science as useful as it possibly can be.

Author Contributions

D.R. wrote the initial draft of this introduction; all three co-authors then contributed sections and critically edited the content. The authors played equal roles in editing the overall forum.

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