Research-Based Knowledge in Psychology: What, if Anything, is Its Incremental Value to the Practitioner?

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Abstract This essay reflects an ongoing dialogue between a clinician versed in mainstream psychological research and theory, and a social psychologist with experience both as a researcher and contributor to applied undertakings in various domains about the "incremental value" of research-based knowledge—that is, its value beyond that provided by the other sources of knowledge available to the practitioner. These sources include knowledge about the needs and coping strategies of all human beings, as well as knowledge both about the specific life circumstances of those one is seeking to help, and knowledge about language and culture. Examples from the clinical practice of the first author are offered, coupled with in-principle arguments about the underspecified and contingent nature of research-based generalizations. By way of rebuttal, examples of arguably useful findings are provided by the second author—especially findings that serve as correctives to biases in lay psychology (notably unwarranted "dispositionism") and to widespread shortcomings in judgment and decision-making (particularly, Kahneman and Tversky's work on "prospect theory"). Both authors agree on the value of a "bricoleur" treatment strategy that relies on careful attention to the specifics of the case at hand and avoids one-size-fits-all applications of theory and prior research, and both agree that research-based findings are more useful in predicting behavior and designing intervention strategies that apply to groups and large samples of individuals rather than single actors. A concluding discussion focuses on necessary criteria and strategies for increasing the usefulness of laboratory and field research for the practitioner.

In recent years we have heard ever-increasing calls for psychological practice in various applied fields to be "evidence-based." The practitioner who attempts to help clients deal with problems in their personal lives, who seeks to increase the effectiveness of schools

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or businesses, or to address any of a wide range of social problems and social policy issues is urged to take advantage of the insights gained through empirical research and embodied in various theories in clinical, social, cognitive, and developmental psychology. In this essay we discuss a question that is too seldom raised: That is, what if anything does this source of knowledge add to the wisdom provided by other sources of knowledge available to the practitioner, which include knowledge about the shared characteristics of all human beings, knowledge about culture and languages, and knowledge about the particular life circumstances of the individuals or group one seeks to help? In professional practice, as in all social interactions, such "situational" knowledge is importantly augmented by some appreciation of the subjective understandings, values, preferences, and goals, of those particular individuals and groups.

These sources of shared knowledge, we suggest, set a high bar for claims regarding the *incremental* value of the types of research findings—and their encapsulation in middle-range theories (Merton 1968)—that are available to the practitioner. Our discussion of "incremental value", which reflects the fruits of an ongoing dialogue between the two authors relates to the field of psychology as a whole. However the examples, observations, claims, and reservations that we offer have been influenced by the backgrounds of the two authors, clinical practice with individuals in the case of JS, research on biases in inference, judgment, and decision-making, and its application to public policy and real-world conflict resolution in the case of LR. For that reason it is appropriate to begin with what was the beginning of our dialogue—the experiences of JS when he left academia to become a practicing clinical psychologist, and his realization that little in way of past theory and research (including his own earlier career as an experimentalist psychologist) offered him much help when he confronted the problems and challenges faced by his client. The following three brief case histories from his files, which he suggests are rather typical in his practice, illustrate the types of the problems he encounters and the remedies he arrives at as he works collaboratively with clients.

A Marital Crisis A wife can no longer stand her husband's drinking. She tells the psychologist that she is so unhappy because she loves her husband and would like to continue the marriage. At the same time, the drinking has become literally intolerable. After prolonged conversations with each of the spouses, I suggest to the wife that she could move out of the house and tell the husband that she feels she must sue for divorce unless he solemnly promises never again to touch alcohol. If there is one single relapse, she will move out again and never return. Then the wife moves out and stays out of touch. After 2 weeks of zero contact, the husband makes the solemn promise and the couple reunites. A decade later not a single relapse had occurred.

The Boy with a Headache A 15-year-old boy is brought to me by the parents because he had a persistent headache with no obvious somatic reason. As always, I tried to determine the conditions of his daily life. During a home visit, I discovered that he was forced to do his homework in the small kitchen where his mother prepared food and his younger siblings ran in and out. The family lived in a three-storied building where the second floor contained a large living room. To my surprise, this room looked as if it was almost never in use. It turned out that the family had recently moved into the big city from a large farm. The farm houses in this part of Norway contain large houses and large main rooms who were only used during festivities like Christmas and birthdays.

The family had unthinkingly taken this custom for granted also when moving to a modern city building, and consequently the family lived their daily life under very cramped conditions. I gently pointed this out to the family, and they gradually started to use the large living room, so that the boy could do his homework with less disturbance. Gradually the headache disappeared.

A Paranoid Young Man The city police brought a young man to the hospital who insisted he had committed a murder, although he was completely innocent. He had moved to the city from a distant region, had regular work, but lived in a one-room apartment and had no friends. In the evenings he used to sit in a neighborhood bar drinking beer, but talking to no one, and gradually started to have fantasies about what others said about him. Recently another person at his job had committed a murder, and this event was very upsetting for my client who had left his childhood family because of a brutal father who hit his wife and children and whom he hated. His wish to kill his father was so strong that it scared him, and when the fellow worker actually murdered someone, this made him imagine that he himself might have done the killing, while drunk. After a few sessions, I noticed that he always tried to keep a physical distance between us, and held his hand over his mouth. Gradually, I discovered that he had ill-smelling, decaying teeth because of a dentist phobia, and that this kept him from talking with people and making friends. From this moment, the treatment consisted in securing funds from his labor union, and finding a dentist especially interested in helping patients with a phobia. The man got a new set of beautiful teeth, and he tentatively started to smile to himself in the mirror, and to me. Then he gradually started to talk with people on the job and in the bar, and after a while he acquired a girlfriend. The paranoid delusions faded and disappeared.

In each instance described above, the exact circumstances of the case and the details of the remedy employed had never been, and are unlikely to ever be, precisely duplicated in any other case. Moreover, the interventions were prompted not by the outcome history for similar cases reported by other practitioners, or for that matter any particular theory (e.g. of addiction, or headaches, or paranoia). Instead, they resulted, exclusively from the very close acquaintance of this particular psychologist with these particular individuals in their particular life situations. Psychological practice is often like this—rather than clearly defined and isolated variables and body of past interventions and outcomes it involves indescribably complex, concrete, and unique contexts. A great deal knowledge of the three kinds to be described in more detail later in this essay guided both the diagnosis and the gradual development of a successful mode of treatments in these cases. That knowledge was not the product of prior research or data analysis. Nor was it derived from theory of the sort to be found in scholarly journals. Rather, it relied on what might be termed pre-scientific knowledge of the sort that guides virtually all interpersonal undertakings and efforts of ordinary people to deal effectively with the demands and constraints of their daily lives.

Pre-Scientific Knowledge and Practice

The fact that the professional practitioner, like any individual dealing with a problem involving human concerns and behavior, relies heavily on knowledge of the basic

characteristics of humans is so self-evident that we rarely give it any consideration. Indeed, human babies appear to be born with (or at least have a genetic predisposition to develop) valid knowledge of the most general characteristics of other members of their species, including an awareness that, like themselves, other people think, want, feel, perceive, and talk. Additional knowledge includes the fact that people have preferences and are goal-directed, that they reflect on and learn not only from their own experiences but also from the experiences of others, that they attribute responsibility to actors, make ethical and moral assessments, anticipate future events, and feel vulnerable (Smedslund 2012b).

Such knowledge neither needs to be documented, nor in fact could conceivably be falsified, in the research laboratory given that we see it displayed in the everyday behavior of people meeting the requirements of daily life. Such knowledge, however, is general and schematic. For example, we proceed from the knowledge that people can learn and remember, and we are obviously correct in doing so. But we do not know in advance exactly how much, or what details, a given individual will remember in a given situation. The universality and usefulness of the type of knowledge all human beings are privy to is apparent in accounts of the encounters between explorers and inhabitants of previously unknown societies. Even in the absence of a shared language or culture, both the native inhabitants and the explorers were able to rely on what they already knew about human beings to rapidly establish mutually comprehensible and effective modes of interaction.

A second kind of knowledge supplements the first one, namely knowledge of the particular language and culture of the individuals with whom one is dealing. Typically, this has been achieved by growing up in, and being socialized into, a given society with a given culture and language. This knowledge includes, for example, gender roles, marital rules and expectations, common living arrangements, systems of employment, schooling, taxation, and medical care, etc. Few people employ knowledge that they gained through access to the findings of formal research, although many have gained knowledge about other cultures through travel, reading, and interactions with people from other cultural backgrounds. Moreover, such knowledge is to some degree contingent and time-bound, in need of continual updating with the passage of time, and with changes in the locale in which one is operating and the background of those with whom one is dealing.

In any given case, these two first kinds of knowledge are employed by the professional practitioner and layperson alike. But a third kind of more specific knowledge, when available, is also an important key for effective practice, namely knowledge about the specific individuals with whom one is dealing, their present life circumstances and prior experiences, and their understanding of those circumstances and experiences. Indeed, an important aspect of practitioner skill and training involves expertise in soliciting and interpreting that information—knowing what questions to ask, and how to ask them in a way that makes the individual or individuals providing that information, willing to be candid and forthcoming. Each case the practitioner addresses is in part the product of unique partly fortuitous events. Sometimes the practitioner must make educated guesses about the relevance of those circumstances and events. But, again, the practitioner is best prepared when he or she has an opportunity to interact with the individuals in question, to discuss their goals and priorities, their hopes and fears, their values and obligations to others, and the myriad other details that are likely to influence the way in which they respond to any advice offered or invention efforts.

These social *interactions* give the practitioner access to information that is not available from structured interviews, questionnaires, tests, manuals or other "one-way" encounters in which that practitioner remains an observer rather a participant (see Skjervheim 1959) .These three sources of knowledge, which are essential for a social existence that is predictable, efficient, and acceptable to the actors, however, do have some limitations. In particular, the exercise of "lay psychology" is characterized by specific biases and shortcoming that have become a major focus of research and theory in social psychology and the study of human judgment and decision-making over the past half century (Ross et al. 2010).We shall note some of the most important and well-researched of such shortcomings, and consider the value to practitioners of the research documenting them. We shall also consider in more detail a handful of studies that the second author believes to offer particularly clear illustrations of the potential value of research to practitioners in particular applied domains (and share some of the reservations about that value harbored by the first author). As a prelude to these discussions of specific research findings and their use, however, some discussion of the nature of scientific knowledge in human psychology as opposed to that in the natural sciences is in order.

Scientific Knowledge and Practice in Psychology Versus the Natural Sciences

The classical ideal of natural science was a set of exact laws discovered by experiments that revealed, tested, and finely honed those laws. Alexander Pope captured the post-enlightenment enthusiasm for this endeavor in a well-known couplet intended as an epitaph for Sir Isaac Newton. "*Nature and Nature's Laws were hid in night. God said: Let Newton be! And all was light.*" But the challenges in applying the "scientific method" to the study of human behavior, and in going from theory to application, have always been daunting ones. There are several reasons for this, some obvious and some not so obvious, but the result has been need for changes both in methodology and in the type of conclusions and recipes for application that could be justified on the basis of the findings and generalizations of those findings in theory of the investigators.

In chemistry, for example, one can sample pure elements and test the properties of those elements again and again, confident that, holding background conditions constant, the properties one discovers are stable and invariant, and accordingly that one can generalize from one sample to the next, that observations made by different investigators in different research settings will be virtually identical, and one can be confident that future observations will be similar to present ones. None of these "invariance" assumptions hold in behavioral psychology. People differ from each other in countless ways that influence their behavior in any given setting, and their behavior is dependent on extraneous factors and interactions among those factors too numerous to specify and in some cases beyond determination. Furthermore individuals learn and are changed by their experiences. In practical terms, one cannot expose the same individual to multiple stimuli and experiences and draw firm conclusions from the observations about variations in response because each experience changes the individual, and in fact the moment-to-moment to say nothing of the day-to-day, or month-to-month, or year-to-year state of the actor.

In light of this dilemma, the researcher must resort to offering not propositions about invariant properties and lawful relationships but empirical generalizations based on

sampling procedures wherein individuals selected from some defined population are exposed (ideally, via random assignment) to different experimental conditions or treatments. In doing so, investigators strive to hold constant, or statistically "correct for" as many potential influences as possible beyond those assigned to participants in those different conditions. But of course not all factors can be held constant, and no statistical analysis can address all possible sources of influence. Many such influences, in fact, are unknown to the investigator and/or depend on the unique experiences and momentary state of the research participant and thus are treated in the relevant analyses as "error" or "noise. "Treatment effects, in turn, are described in terms of central tendencies (means, modes, medians, proportions, etc.) and of measures of variability, with no way of indicating the nature or magnitude of the effect on particular individuals.

The consequence of this "compromise" is the acceptance of uncertainty about the stability, replicability, and robustness of findings when tested under different circumstances or with samples drawn from different populations. Once can of course explore the stability of findings via simple replication wherein the investigators try to duplicate procedures as closely as possible, and ideally the robustness of findings (by deliberately varying factors held to be irrelevant to the comparison of interest, and seeing how similar the results are across those variations) but some measure of uncertainty will always remain. No matter how much data one collects, one will not be able to predict with precision the statistical outcome of the next experimental test, to say nothing of the behavior of any particular individual. Moreover, the applicable domain for generalizations that result from a particular set of studies is never entirely clear, and educated guess about the limits of that domain will depend on the "other" sources of knowledge about human behavior that we acknowledged at the outset of this essay.

Beyond this central epistemological issue, there are countless artifacts and sources of invalidity in psychological research—ranging from the difficulty of true random sampling to the many issues that arise because human participants are not passive pawns in the research drama. Research participants, like all actors, worry about how they will be perceived., They may, accordingly, try to provide the researcher with the findings that they believe the researcher is seeking (or occasionally do the opposite, for example when they believe the findings that the researcher is seeking might result in negative consequence for themselves or their group). This concern is one of the reasons that researchers often try to conceal the real objectives of the questions and challenges that they are presenting to research participants and that they sometimes even practice active deception by making use of experimental confederates and/or misrepresenting the purposes of the research.

Psychologists are also well aware of the generalizability problem, as witnessed by ongoing debates about replicability and in fact the validity of some of the field's most provocative findings. Moreover, as Wampold (2001) noted, the observed variability that can be explained in the typical psychology experiment is typically very modest. Practitioners attempting to utilize research findings must therefore decide for themselves what weight those findings should receive, relative to the "other sources of knowledge we discussed earlier, in deciding how to proceed in any particular case. In particular they must consider both the potential costs of relying either too heavily or too lightly on such information, and the potential costs of ignoring relevant "base-rate" data and relying on their clinical intuitions with respect to the case at hand (Hastie and

Dawes 2010). It is worth emphasizing again that in that decision, as in all applied undertakings, the practitioner functions not as a dispassionate observer anxious to avoid influencing on the actor or actors with whom he or she is interacting but as an involved, and sometimes personally vulnerable participant trying to exert a positive influence and achieve particular goals, and in fact communicating those goals and actively assisting the patient or client in the effort to achieve them (Skjervheim 1959).

In that endeavor, the practitioner is apt, and arguably well-advised, to adopt a "bricoleur" treatment strategy (Smedslund 2012a). The term 'bricoleur,' borrowed from Levi-Strauss (1966), refers to "a jack of all trades" who solves each problem with whatever methods or tools, including unconventional ones, are at hand. A key feature of this model is the consistent adoption of an initial "not-knowing" attitude when encountering a new client or applied challenge, an attitude gradually replaced on the basis of acquired concrete knowledge about that person and his or her life-situation, supplemented with more general and abstract knowledge of the language, the culture, and basic features of human nature as described earlier in this essay. The indispensability of such initial not-knowing was already recognized by the first modern therapists (Freud 1912).

Practitioners must accept the fact that the existing body of research in psychology does not offer off-the-shelf prescriptions for proceeding in particular cases, much less "one-size-fits-all" recipes suitable for cases that appear to present similar challenges. In a sense, the question we pursue in his essay is the extent to which some of the general insights and "correctives" to lay psychology gained by several generations of researchers in social psychology and related disciplines provide useful additions to the bricoleur tool-bag. We can begin that discussion by noting that even in the domain of clinical practice, wherein details about the life circumstances and understandings of the individual are of paramount importance, many trained clinicians do make use of some research-based tools, in particular diagnostic instruments and testing procedures designed to distinguish neurological, hormonal or other physical factors challenging the client or patient from psychological or situational factors. It is also worth noting in this regard that the use of formal research designs played an important role in showing the *lack* of predictive validity of certain diagnostic tools (notably various projective tests) that many theorists continued to believe valid even in the face of feedback that showed zero correlations between then standard interpretations of relevant clinical signs and confirmed diagnoses (Chapman and Chapman 1969).

Practitioners may claim with some justification that such tests do not capture the real nature of clinical diagnosis, which generally aims much less at assigning individual to abstract clinical categories than at achieving an understanding of the unique individual in his or her particular total life context. Moreover, many experienced practitioners do not rely on general predictive schemes and lock-step procedures following diagnosis. Instead they proceed through, small tentative and stepwise advances, with ample opportunities to retrace and remedy false steps, relying on continuing, close, cooperation with the client. The same reservations could be offered with respect to other experimental demonstrations of potential sources of error and bias in clinical assessment (for example, Dawes et al. 1989; Meehl 1954, 1973). But it would be hard to dispute the fact that clinicians can benefit not only from a knowledge of available diagnostic instruments but also from some familiarity with the body of research that can help them distinguish those whose diagnostic utility has been tested and validated empirically and those that have proven to be valueless or even misleading. Moreover,

clinical psychologists, like any practitioners, are well served by an awareness of the problem of confirmation biases and some appreciation of empirical demonstrations of how potent its influence can be (eg. Lord et al. 1979; Mac Coun 1998; Snyder and Swann 1978. Such appreciation in fact can serve to reinforce the very "not-knowing" stance we indicated earlier is a hall-mark of the bricoleur business stance adopted by the clinician who eschews clinical theories in favor of careful observation and the gradual accumulation of knowledge about the specific features of the lives and circumstances of clients.

Shortcoming in Lay Psychology and their Relevance for the Practitioner

The investigation of shortcomings in lay psychology, of course, extends far beyond the foibles of clinicians, In fact, the documentation and exploration of biases first in the process of attribution (Jones and Davis 1965; Kelley 1973; Ross 1977) and later in a wide variety of judgment and decision-making tasks (Kahneman and Tversky 1973,1979. 1984; see also Kahneman 2011; Nisbett and Ross 1980; Ross and Nisbett 1991) has been a major undertaking for psychologists working at the intersection of social psychology, cognitive psychology, and increasingly behavioral economics. Most of this work, it should be noted has focused heavily on ways in which such biases are manifested in consequential everyday contexts whereby individuals are called upon to make sense of experiential evidence and to make judgments and decisions in light of their understandings of such evidence. As such, the issue of the relevance of such work to applied problems and settings is one that the two authors of this essay have discussed at some length and with some disagreement.

A short list of factors that can compromise everyday judgment and decision-making, factors to which experienced practitioners in particular domains are not always immune, would include not only assimilation and confirmation biases, but also susceptibility to availability and representativeness biases (Kahneman and Tversky 1973), hindsight wisdom (Fischhoff 1975), judgmental overconfidence and miscalibration (Dunning et al. 1990), and simple failures to recognize instances of simple statistical regression (Kahneman 2011; p 175–184) loss aversion, which induces people to throw good money and effort after bad and to take unwise risks (Kahneman and Tversky 1979) and susceptibility to "framing effects" (Kahneman and Tversky 1984). Awareness of these sources of influence, and knowledge of specific findings that illustrate their impact in particular domains, can help the practitioner understand and in at least some instances to influence—for good or for ill–consumer behavior, investment and employment decisions, and the selling and implementation of particular social policy measures. Laypeople and practitioners relying on their accumulated experience typically do have some appreciation of these human failings. What research offers is a more systematic and nuanced understanding of them, a greater appreciation of their relative power, and valuable hints about the way in which they might help one to design effective interventions and to anticipate potential pitfalls in implementation.

In any given instance, of course, these human tendencies may play a large role, a small one, or no role at all in the way a particular individual in functioning. The practitioner who is aware of these phenomenon and of research findings that offer clues

about how, when, and why they are most likely to be manifested has a head start in meeting professional challenges. Again, however, we emphasize that attending carefully to the concrete evidence of the case at hand rather than relying upon presuppositions can help the bricoleur practitioners both in serving his or her clients and not personally succumbing to the biases we have listed. After all, the demonstrations of biases and errors all pertain to the reliance on standardized interpretations, whereas the bricoleur-model attempts to avoid such interpretations and to focus instead on the total available concrete circumstances.

When we turn our attention to the last several decades of research in social psychology, and the encapsulation of findings in middle-range theorizing, the list of potentially valuable insights would include the following (see Ross et al. 2010): 1) dispositionism or the tendency to underestimate situational influences and make unwarranted negative inferences about traits and abilities, and fail to recognize how much changes in circumstances can produce changes in actions and outcomes, 2) the power and subtlety of the psychological processes, including rationalization, that allow people use to see themselves as coherent and moral actors in the face of evil or neglectful behavior, 3) the power of explicit and implicit social norms, and 4) the human capacity for adaptation, such that immediate positive or negative outcomes prove to have less profound long-term hedonic consequences than the actors in question, and those who observe them, assume.

Social psychological research has also alerted us to the extent to which some of our lay psychological presumptions are culture bound—less a guide to the general determinants of human behavior than a product of the particular culture context in which many of us have operated. Clinicians were warned by George Kelly (1955) long ago about the possible misinterpretations that arise from cultural ignorance, and managers of diverse working groups and executives that work outside the US with individuals can benefit from the work of Markus and Kitayama (1991) alerting them to specific ways in which they are apt to encounter and be obliged to accommodate goals, norms, and world views of workers or clients from cultures that are less individualistic and more collectivist and interdependent than their own. Once again, a cautionary note is in order, as within cultural variation is often greater than between-culture variation, and broad stereotypes (even ones that enjoy some validity) are no substitute for specific knowledge about the life circumstances, views, and values of individuals. Furthermore, research monographs are hardly the only way to expand one's knowledge of cultures that differ from one's own. But the practitioner who absorbs the lessons offered by research in cultural psychology, and recognizes that his or her own linguistic and cultural knowledge cannot automatically be called upon when dealing with a culturally diverse clientele, will be spared at least some of the painful lessons that ignorance of cultural influences can inflict.

Some Potentially Useful "Demonstration Experiments"

Most research in social psychology and in the judgment and decision-making tradition of cognitive psychology does not purport to offer highly specific recipes for practice. Rather it offers suggestions about what might be effective or at least important to consider in addressing particular problems. On occasion, however, researchers have

more specific applied concerns and attempt to offer more pointed advice about strategies and techniques for exerting influence. We offer a few such examples below, with advance warning that these studies, like many personal successes and failures reported by practitioners, offer evidence of what can happen because it has already happened in at least one context These "existence proofs" however deserve particular attention because they offer such evidence under circumstances where the use of classic experimental designs or careful examination of extensive real-world data permits relatively strong causal inferences.

Compassionate Care for Homeless People Who Seek Emergency-Room Care In a 1995 study a group of Canadian investigators (Redelmeier et al. 1995) addressed a very practical health care challenge—the heavy and repeated use of emergency room care facilities at Toronto hospitals (such care is free for all Canadians) by homeless adults with relatively minor complaints. Staff, frustrated by what they considered improper use of such facilities in turn often responded with rudeness and irritation. The investigators wondered whether a small amount of compassionate attention to supplement the medical care these patients received would serve to reduce the number of such visits or, as some physicians feared, increase the number insofar as it "rewarded" those seeking unnecessary treatment. To address this issue the researchers randomly assigned half of a sample of homeless adults visiting one inner-city emergency department to an experimental condition in which they received compassionate contact (a few kind words, and the offer of a cup of coffee) from trained volunteers while not offering this contact to "control condition" patients. All patients otherwise had usual care and were followed for repeat visits to emergency departments. What they found was that the average number of visits per month after the compassionate care intervention was reduced by about a third (from 0.65 per month or almost 8 visits per year to 0.43 per month or about 5 visits a year. Return visits within a short period of time in particular showed the relevant decrease. The lesson the investigators drew was one that at least in retrospect was fairly obvious—i.e., that patients from this needy population tend to return frequently until they are satisfied with their treatment. But in the absence of this well-controlled study, critics of this very inexpensive (and therefore highly cost-effective) intervention could have opposed its introduction on the basis of their erroneous assumptions about its likely consequences.

This one small study does not prove that the supplementing of medical care with compassionate contact will always result in a decrease in the seeking of emergency room care that is not medically warranted. It is possible that in other medical systems with other patient populations the results might have been less, or for that matter more, dramatic. But the study certainly prompts physicians and hospital administrators alike to focus their attention on non-medical aspects of the care they provide, especially the care they provide for a population that is disproportionately burdened with other challenges. Some practitioners will conclude that it would be a good idea to try out a very similar intervention in their facility; others will opt instead simply to remind their professional staff to treat their patients more warmly and to show concern for them as people rather than just as "cases" or even "burdens". To be sure, there are many physicians and health care professionals who could offer, and indeed have offered such advice in the past without reference to the Redelmeier et al. study. But that study suggests the potential magnitude of the benefits to be gained (and should prompt

additional research to explore the robustness of the findings in question) and it also helps those who recognize the role of non-medical factors in patient care answer skeptics and doubters who rely only on anecdotes and plausible but flawed arguments.

Encouraging People to Vote Through a Change in the Wording of a Pre-Election Query The hypothesis that underlay a series of "intervention" studies by Christopher Bryan and colleagues (Bryan et al. 2011) was that the inclination of individuals to behave in positive or normative ways is strengthened when that link between that behavior and a positive aspect of those individuals identity is strengthened and made more explicit (and conversely that the disinclination of individuals to behave in negative or non-normative ways is strengthened when the linkage between such behavior and a potentially negative view of self is strengthened and made more explicit). These studies again employed modest numbers of participants but featured true random assignment designs and outcome measures of obvious real-world significance. The studies involved a very simple experimental manipulation. In one condition, potential voters were asked "how important is it for you *to vote*" in a particular forthcoming election (in one study the 2008 Presidential election in a follow-up study the 2009 gubernatorial election in the state of New Jersey); in the other condition they were asked "how important is it for you *to be a voter*" in the relevant election. The official state voting records attested to the impact of this simple experimental manipulation—a difference of 9.4 percentage point difference in showing up to vote on election day in the 2008 study and a 10.9 percentage point difference in the 2009 study, an impact sufficient to change the result of many close contests.

Most political consultants, armed with data from countless electoral studies, are well aware that the key to electoral success generally depends less on changing voter's preferences than on identifying and getting to actually vote those who favor the candidate or position they are promoting. (That awareness, incidentally, has come not from common sense or intuition but from empirical research, and it has played an increasingly large role in the electoral strategies of both main political parties in American elections). However few if any would have guessed that so simple and relatively low-cost an intervention at the time potential voters are contacted could pay such dividends. The narrow implication of the research in question is the potential efficacy of a particular electoral tactic to be employed when contacting voters likely to be favorable to one's candidate or referendum issue. The broader one is importance of finding ways to link the act of voting, which often seems burdensome and futile given the reality that one's individual vote will not change the result of the election, to valued aspects of personal identity, such as the duty to be a good citizen or to act on one's political values and convictions. Of course for the researcher and theorist, the potential implications of the Bryan et al. demonstration experiment are broader still. They pertain to a wide range of desirable behaviors (participants in community affairs and other acts of responsible citizenship and altruism) and undesirable ones (cheating on taxes, contributing to climate change, unwise health practices, even criminal behavior). In each domain, skilled and knowledgeable, wise practitioners will add the findings of such research to their bricoleur tool-boxes, recognizing that these findings offer suggestions about what may be worth considering and trying (ideally with a research design that permits strong inferences), not sure-fire recipes for success that should be relied upon to the exclusion of other tools in that tool box.

Framing and Decision-Making with Health and Welfare Implications Empirical research on Prospect Theory (see Kahneman and Tversky 1979, 1984; also Kahneman 2011) has documented a number of particular non-trivial departures from what laypeople and previous generations of economics would regard as rational decision-making. In a remarkable and now much cited study (McNeil et al. 1982), physicians attending a medical conference were asked to weigh the pros and cons of two treatments for lung cancer—one (radiation) that posed no risk of immediate death but relatively poor prospects for five-year survival, the other (surgery) that posed some risk of immediate death, but somewhat better prospects for five-year survival. The finding was that framing the prospects in terms of mortality or prospective loss of life (0 % die immediately with surgery versus 10 % with radiation, and 78 % die within 5 years with radiation versus 66 % with surgery) led 50 % the physicians to favor each treatment option. Framing exactly the same prospects in terms of survival (100 % survival versus 90 % survival and 22 % versus 34 % surviving 5 years prompted a clear preference (84 % for surgery and only 16 % for radiation.

Some practitioners might claim that everyday experience and/or shared understanding of the way human beings use and understand language would allow one to predict the direction of the framing effect documented by McNeil et al. What they could *not* claim is that the framing effect demonstrated was a product of the novelty of the task for the relevant decision- makers or its lack of real-world relevance. More importantly neither laypersons nor even physicians experienced in the relevant decision-making domain could have anticipated the *magnitude* of the effect. Regardless of the explanation for the effect, or even of one's willingness to accept the broader argument of prospect theory researchers about the non-normativeness of the decision-makers response to the relevant framing manipulation, one conclusion would be difficult to dispute if one's concern is predicting or trying to influence the relevant choice of treatments, or if one simply wants to help a patient or physician decide on which option to pursue, practitioners should be aware of this finding and the broader issue of framing.

Literally hundreds of studies now attest to the surprising power of framing. In a study by one of the present authors (Ross and Fetherstonehaugh 1999) travelers in a California airport were queried about the retirement decision they would favor given the difference in yearly payments at age 65 versus 68. The responses of those earning less than $60,000 a year were especially revealing. When the alternatives were framed in terms of a "reward" for "late retirement" (three additional years of work after age 65 before retiring) only 36 % said they would chose that option. When the identical financial options were expressed in terms of a "penalty" for "early" retirement (i.e., at 65 instead of 68) the percentage saying that they would choose to work the three additional years before retiring rose to 69 %. No doubt the practitioner seeking to advise an individual client about his or her financial affairs would wisely attend heavily to the goals, life-circumstances, and resources of the individual client. But it would be hard to dispute the fact that such a practitioner would do well to *also* consider how to "frame" the available options.

The Effect of "Opt-In" Versus "Opt-Out" Requirements Analyses of data from a now famous "natural experiment" (see Johnson and Goldstein 2003) showed a remarkably large effect of the way in which the option to make ones organs available for medical

harvesting and use in event of driving fatality is presented For reasons that are not at all apparent, some European countries ask motorists to sign the back of their drivers' licenses if they are willing to have their organs used in the event of their death (with the "default" in the event they do not "opt in" through such a signature being that their organs cannot be used). Motorist in other countries are instructed to sign their licenses on a designated line only if they are unwilling to have their organs harvested in the event of their death, (with the default consequences of not "opting out"— being that their organs are available for medical use).

An awareness of human motivations and frailties would lead ordinary laypeople and practitioners alike to predict that making it very easy to enroll in the program (i.e., by doing nothing) would produce higher participation rates than requiring some action. But that awareness would not be sufficient to produce an accurate estimate of the magnitude of the relevant effect —that is, percentages of potential organ donors in the 85 to 99 % range or even higher in the "opt-out" countries, and in the 10 to 25 % range or even lower in the "opt-in" countries. Comparisons involving rates in countries of seemingly very similar cultures are particularly striking, as is the relatively small amount of variance that seems to be accounted for by individual differences in life circumstances or values. Thus the likelihood that a randomly selected individual in Norway (which employs an opt-out procedure)would end up an organ donation candidate is roughly 5 % while that for an individual in opt-in Sweden is country is roughly 85 %). The same is true for predictions about individual Germans (who opt-in roughly 10 % of the time) versus individuals in Austria or Belgium (where the opt-out provision results in over 90 % of citizens becoming organ donation candidates). Given the results the layperson might conclude that the study just proves that people are lazy and that inertia is a powerful force in human affairs. Such a conclusion, however, would show a lack of appreciation of an important follow-up finding about the effect of "default options" (Pronin et al. 2004). That is, opt in provisions imply that making one's organs available is an act of great altruism—equivalent, some multidimensional scaling suggested, to donating half of one's estate to charity, whereas opt-out provisions imply that allowing one's organs to be available is an ordinary act of good citizenship and or courtesy, something midway in its altruism between letting others who are in a hurry go ahead of one in line and volunteering some time to work on behalf of the poor.

The results of these related research findings, we suggest, would be of obvious value to officials seeking a way to increase the availability of organs for transplantation. But they also offer potentially valuable lessons for any society that wishes to increase participation in other programs (See Thaler and Sunstein 2008)—such as those designating automatic payroll deductions to build retirement savings for retirement, or immunization programs for school children. Of course the skilled practitioner may have many other insights borne of familiarity with the goals and proclivities of his or her fellow-humans, and many other tools in the bricoleur tool-bag that could be brought to bear in prompting particular individuals, and perhaps even larger groups and communities, to behave in ways that serve the common good. Before introducing any new public policy initiative practitioners would do well to investigate the particular social, cultural, and economic circumstances of the whose participation is sought. But it would seem perverse to argue that knowledge of the research we have reviewed, and of the broader base of that research in additional prior and subsequent findings and conceptual analysis, is of no incremental value to the more general knowledge one

has about human judgment and decision-making from ordinary everyday experience and deduction from more abstract principles.

Low-Cost/High Impact Interventions to Promote Achievement in Vulnerable Groups The last two decades produced a remarkable body of research suggesting that the academic outcomes of students in populations generally burden with low academic achievement and high drop- out rates can be ameliorated through the use of interventions that have their origin in work in attribution theory and on the negative effects of stereotypes. Some of these studies have demonstrated the value of enhancing student's self-efficacy, and of encouraging a "mindset" that leads youngsters to see their abilities as "malleable, that is, subject to growth through persistent effort, rather than "fixed" (Dweck 1999; 2006). Others have shown positive immediate and longer term effects of enhancing sense of belonging, and overcoming stereotype threat through simple self-affirmation, manipulation (See Aronson et al. 2002; Blackwell et al. 2007; Cohen et al. 2009; Walton and Cohen 2007, 2011; Yeager and Walton 2011). These studies, especially when considered en masse rather than individually, challenge the assumptions of pessimists of both liberal and conservative persuasion—the former of whom decry "band-aid" remedies and argue that only huge and expensive changes in schools and perhaps unobtainable changes in society can bear fruit; the latter of whom argue that the problems have their roots in cultural or intellectual limitations and that psychology based interventions and public expenditures alike are bound to either fail or at best produce gains that are small and temporary.

In one such study (Walton and Cohen 2011) the investigators had both African American and White students read the results of a survey suggesting that is was common for new arrivals on campus to initially feel that they don't belong, but that these feelings ease with the passage of time. The students then wrote an essay and gave a speech (ostensibly for the next year's class) about how their own worries about belonging had eased since their arrival. Over the study's 3-year observation period, this intervention cut the minority achievement gap in half as it significantly raised the performances of the African-American students (for whom the investigators hypothesized that doubts about belonging loomed large and had debilitating effects on performance) but had no effect on the White students for whom such doubts were presumed to be less marked and more fleeting.

Further work will be required to see how well these results hold up when psych-wise interventions of the sort used in these studies are employed in large numbers of different schools with different personnel under different circumstances. But there is reason for optimism. The basis for that optimism is easier to appreciate when ones sees the basis for the positive findings not as "magic" (or the product of some kind of methodological artifact) but as the product of cumulative, mutually reinforcing, and recursive processes whereby the interventions in question interventions remove stereotype threat, promote adaptive mindsets, reduce stress, encourage contact with peers and face-to face and email interaction with teachers, and make it easier for students to cope with challenges and adversity. These benefits translate into better academic performance, which in turn builds confidence and motivation and further dispels lingering doubts and fears—all of which contribute to continuing academic successes and confidence about meeting new challenges.

There is another sense in which it is important to recognize that the psych-wise educational interventions we have been describing are not magic. They are not

designed to be substitutes for skilled teachers, supportive administrators, or adequate resources. Rather, what they do is allow students to take full advantage of these vital components of an effective education. For some students, the interventions will not be sufficient to initiate such virtuous cycles even under the best of circumstances. For many others the long-term gains will be modest. And for some they will be life changing. A metaphor offered by two of the most active researchers in this area (see Yeager and Walton 2011) is apt: A small but wise intervention is akin to a small change in the shape of an airplane wing that provides more lift. It doesn't eliminate the need for a powerful engine, but it does result in an easier and safer take-off, and a better journey.

Successful practitioners in all domains, including clinical practice try to provide similar "lifts." Insights gained from relatively modest research undertakings of the sort we have described in this section of our paper are by no means the only tools available to practitioners and their effective use depends on apt diagnosis and skilful use. Many problems in many applied domains involve circumstances and constraints that are unique and unlikely to have been anticipated or captured by the kinds of experiments or aggregations of statistical data we have described. And insofar as the remedies sought can be tailored in light of such unique circumstances and tweaked, ideally with some give and take between practitioner and clients on the basis of progress observed and setbacks encountered the relative usefulness of prior research may be diminished. Again, however, it is reasonable to argue that the bricoleur tool box of the practitioner would be more complete with their inclusion; and there is every reason to believe that well-designed and well-conducted research activities will further augment that tool box in the future.

Conclusions

Our continuing dialogue, culminating in exchanges of drafts of this paper has produced many areas of agreement—more than we had anticipated when we began as, respectively, doubters and defenders of the value of psychological theory and research for practitioners dealing with real world challenges. Yet a few lingering disagreements remain. We try to capture both in the concluding part of this paper which follows.

Any consideration of the value of empirical research in psychology for the problem-solving practitioners must start with a recognition of the other sources of knowledge (lay psychology, familiarity with language and culture, and especially awareness of the specific life situations and the subjective concerns and understandings of the relevant individual) that the practitioners brings to bear in their efforts. These sources of knowledge are the same ones that people rely upon in meeting the personal and social challenges of everyday life. When assessing the "applied" value of psychological research, it is also important to be aware of the limitations and compromises made. That is, the work necessarily provides not specific laws and formulae but generalizations based on the statistical analysis that consider mean tendencies and statistical significance of observed differences and associations. The value of these generalizations for predicting the responses of individuals can be very modest—in part because of observed variability (which is often large relative to effect sizes) but in part also because they are based on a restricted sample of respondents and they feature a fixed and limited set of specific situational influences and constraints. Accordingly, attending

to the specifics of the actor and situation is likely to prove more useful to the practitioner than relying heavily, or worse still blindly, on theory and/or research evidence alone. An important aspect of that attention to "specifics" involves the "meaning" of the situation to the persons involved; and discovery of such meaning is facilitated (in research as well as in professional practice) when the relationship with the relevant actors is active and collaborative.

Perusal of our leading academic journals in social psychology suggests that most research published there, including research that concludes with a discussion of "real-world implications," involves short term responses to novel situations or tasks, responses that take place out of social context, and are unconstrained by roles, relationships, and commitments. By contrast, most important human interactions are with people with whom we have some existing relationship and history and/or ones constrained and made predictable by role-related obligations and commitments. Moreover the effects of experiences unfold over time, with cumulative consequences, against a background of myriad other influences. The research most likely to be valuable for the practitioner is work that captures those properties–including "natural experiments" that take advantage of the fact that different communities or institutions have employed different practices—allowing researchers to observe the immediate and longer term consequences as well as immediate ones (both those anticipated and those not anticipated). Specific findings from such studies may not hold the most important keys to helping specific individuals about whom we know a great deal, but they can suggest strategies and tactics worth considering. And such findings can obviously be useful for the practitioner considering interventions to be employed for relatively small groups or specific categories of individuals. Ideally such interventions should be pilot tested with smaller populations using designs and measures that permit exploration of relevant moderators and mediators of whatever effects are observed, then "scaled up" to provide further information about feasibility and unanticipated problems, robustness of effects, and longer-term consequences.

Leaving aside these acknowledgments of limitations and caveats, and also the obvious relevance of evaluation research that tests the efficacy of interventions in the specific contexts of concern, the two present authors agree on the following conclusions.

1. Research findings can remind practitioners of influences that they sometimes neglect to consider unless alerted to do so. Particular studies can offer vivid and therefore memorable illustrations of such influences, although they can also lead the unwary or overly credulous practitioner to overestimate the commonness of the phenomena demonstrated, and/or to fail to appreciate the degree of which specific features of the study in question (especially its novelty for the research participants) have played a role.

2. Research findings can help the practitioner/problem-solver better appreciate the relative magnitude and robustness of certain influences relative to other influences, and can act as a corrective to conventional understandings that may simply be erroneous. Such conventional but erroneous understandings may include shared biases—such as underestimation of the impact of situation factors relative to presumed stable dispositions and confirmation biases—that serve people well in some situations, are innocuous in other situations, but may serve people very badly in still other specifiable situations. Empirical demonstrations can also sharpen the

appreciation of the relevance of particular mediators and moderators that determine the reliability and magnitude of certain influences. Studies that document and explore contexts in which other motives will prevail over simple economic self-interest in decision-making area notable case in point.

3. Empirical research, when employed with a suitably diverse sample of participants, can make us more aware of how strongly our perceptions of events are shaped by our culture, socio-economic status, and particular life experiences. When it comes to predicting or interpreting the behavior of people of a *different* culture, status, or life history than our own, we are particularly prone to error. Common sense suggests this; but research reinforces this fundamental truth and can add a degree of specificity about the ways in which, at least on average, members of particular cultures and subcultures understand and respond to events. The same insight applies to the time bound nature of findings and phenomena and even theoretical formulations. When external circumstances change, when people are exposed to new ideas and influences, and these changes in turn alter the meaning that individuals attach to particular objects of judgment and choice, previous findings lose their value in helping us to predict, understand, and influence behavior.

4. Empirical research actually reinforces two critical lessons offered by practitioner experience. First changes in situations can produce larger changes in behavior than lay intuitions, which are overly "dispositionist", suggest. Second, the problem of subjective meaning or construal is critical in any attempt to predict, influence, or understand behavior. Indeed, findings and demonstrations of small manipulations that produce statistically large effects become less "non-obvious" once we appreciate how the relevant manipulations or variations in conditions are construed by the relevant actors.

5. Most importantly, insights about human behavior, whether borne of empirical work, thoughtful analysis of history or experience, or deductions from an understanding of human goals and capacities do not offer formulae or algorithms that can be applied automatically or mindlessly. Rather, these insights essentially provide "tools" for potential use. Like any tools, their effective use, whether conscious or deliberate or non-conscious and automatic, involves some combination of experience and skill. The wise practitioner also recognizes the importance of changing tools when the ones currently being used are not getting the job done.

While the two authors of this joint paper agree on the statements and generalizations above, we continue to disagree somewhat about two very basic premises. The first concerns the nature of the relation between formal research and practice in psychology. The second pertains to the value of the knowledge gained from research relative to that gained from the other three kinds of knowledge discussed at the beginning of this paper.LR maintains that practitioners can genuinely profit from paying attention to the results of controlled empirical research, J.S thinks that the realities encountered in practice often suggest otherwise. We both agree, however, that practitioner experience yields lessons to which academic research should attend, including the value of active partnership with those one is trying to help and the value of the open-minded, creative,, ever-improvising, approach of the *bricoleur-model*. We further agree that the extent to which research findings are actually used, and the degree to which such use proves profitable in applied areas such as education and public health, are empirical questions rather than matters for "in principle" argument.

As we reflect on this joint effort, we feel that it has clarified and enriched our understanding both of our extensive areas of agreement, and of our remaining differences. We leave it to our readers to assess for themselves the merits of our various arguments and examples and hope that their own appreciation of the foundational issues and assumptions we have struggled with have been enhanced. Above all, we hope to have shown that the currently popular quest for "evidence-based" practice raises issues that are more complex than generally appreciated, and deserve continued, thoughtful consideration.

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