

Surprisability and Practical Rationality

Knowledge Advancement through the Explication of Interpretation

Brent D. Slife, Clayton T. Johnson,
and Amy C. Jennings

One of the most overlooked and yet vital aspects of any advancement in knowledge, whether personal or professional, is the phenomenon of surprise. Surprise is the experience of our ideas being unexpectedly transformed or ruptured (Casati and Pasquinelli 2007; Davidson 2004; Kuhn 1996). Although this experience is rarely considered a formal facet of knowledge advancement,¹ it is central to discoveries and findings that are new to us or challenging of old understandings. Without it, as philosopher of science Thomas Kuhn (1996) once described, the advancement of knowledge is little more than puzzle solving, with researchers relegated to working out the details of their old understandings. With surprise, however, radically new understandings are possible. As Dastur (2000) puts it, surprise allows the seemingly impossible in any field of knowledge to become the possible.

Unfortunately, the transformation of old understandings that accompanies surprise does not always happen when it should. A well-known program of research on *confirmation bias* demonstrates how often all of us, layperson and researcher alike, cling to old understandings, sometimes in spite of evidence to the contrary (Bacon 1861; Devine, Hirt, and Gehrke 1990; Nickerson 1998). We repeatedly and tenaciously confirm our existing biases rather than allow them to be questioned and replaced. At the personal level, this type of stuckness or “one-sidedness” in old ways of thinking can become pathological, with the person unable to adapt to new contexts (Jung and Hull 1960; Kelly 1963). At the professional level, researchers who cling to old understandings can prevent not only the recognition of challenging findings but also the move to a new understanding of

old findings (Feyerabend 1993; Luborsky, Barrett, Antonuccio, Shoemaker, and Stricker 2006).

It becomes necessary, then, in *any* advancement of knowledge to optimize the conditions under which surprise can occur and new knowledge can truly be recognized and incorporated. Historians of natural science, such as Feyerabend (1993) and Kuhn (1996), point to the fundamental role of surprise and serendipity in the advancement of quantitative science. Many qualitative researchers consider the capacity for surprise essential to valid investigation (Packer 2011; Sugarman and Martin 2005). Even theologians, such as Jean-Luc Marion (2002), point to the pivotal place of “rupture” or “irruption” in the furthering of religious or spiritual knowledge (cf. Eliade 1987).

The purpose of this chapter is to discuss a prominent and perhaps necessary approach to optimizing surprise and rupture – the explication of interpretation. As we will see, this process is not a simple one. A method or mode of inquiry is needed to guide most researchers to avoid the confirmation of their own biases. The chapter begins with the exemplar of a good teacher maximizing her capacity for being surprised by her students. This exemplar is followed by a discussion of the disciplinary need for not just technical or formal methodologies but also the kind of practical rationality that such good teachers exhibit. Describing how good practitioners are good provides important information about how to optimize investigator abilities to respond to new information and potentially transform their disciplines. This description is then formalized into a mode of inquiry, and an example of how this mode is being used for knowledge advancement in psychology is provided.

The Good Teacher

Let us begin with a frequent claim among teachers: “The best teachers are those who can be surprised by their students” (Stefinee Pinnegar, personal communication 2012). In other words, the best teachers are those who are truly open to their experience of a particular pupil, sometimes in spite of alternative first impressions or the trusted judgments of others. In fact, considerable educational research supports this claim (Bullough, Patterson, and Mayes 2002; Kohl 1969; Kumar 2010).

As an illustration, meet the hypothetical Mrs Smith and her pupil, Billy. Mrs Smith is Billy’s new second-grade teacher. She has heard through the grapevine that Billy is “slow,” perhaps of lower general intelligence, and she is a bit concerned that Billy may have difficulty learning in her classroom. Unknown to Mrs Smith, however, is that Billy has been misunderstood and misrepresented. He actually has a high intelligence with a good aptitude for school. The misunderstanding is a result of his introverted personality and general passivity. Unfortunately, Billy’s first-grade teacher acted on this misunderstanding, which

gave Billy the impression that she did not like him or did not wish to work with him. Billy responded by not wanting to go to school and not wanting to learn when he was in school. Billy is in danger of a stereotype that could hamper his relationships with his teachers and ultimately hinder his education. He needs Mrs Smith, a good teacher.

How is it that Mrs Smith is a good teacher? How can she break through the stereotype of Billy as a slow learner and be surprised by his true abilities? Here, we would like to propose four overlapping general conditions, considered each in turn, that optimize Mrs Smith's surprisability or her openness to being surprised (or ruptured) to allow her to truly learn about the concrete and particular Billy rather than the abstract and conceptual Billy from the grapevine. We do not view these conditions as the "last word" for optimizing surprisability, but we do proffer them as important themes. They include: (1) general awareness of her interpretation of Billy, (2) softening of this interpretation, (3) development of alternative interpretations, and (4) particularizing these alternatives to the specific context.

Awareness

The first condition may be the most important of the four, partly because it is often deceptively difficult to attain and partly because the remaining three conditions depend on it. This first condition is Mrs Smith's awareness that part of her (and others') experience of Billy is due to her (and their) own interpretation (attitude, mind-frame, assumption) about him. In other words, his "slowness" in learning is not solely the result of how Billy acts; it is partly a product of how others, including Mrs Smith, interpret Billy's actions. This first condition may seem commonsensical to some but it is easy to underestimate our interpretive contribution to experience. Everyday comments like "the movie was bad" or "she is beautiful" can betray this underestimation because they often imply that the movie or the woman is *solely* responsible for the judgment, when the interpreter of the movie or woman *also* plays a role in the judgment made. In this sense, we frequently reify our interpretations of experience as if our interpretations are the objective state of reality – the movie, the woman – itself. We must resist this reification to optimize surprise.

Softening

The second condition for optimizing Mrs Smith's surprisability is a softening of the interpretation she is now aware of (through the first condition). Even if Mrs Smith has resisted reification, her interpretation can be relatively "hard" in the sense of being fixed, rigid, or dogmatic. Softening, by contrast, implies less certainty and more flexibility, and includes at least two factors. First, it implies the identification of potential personal investments in an interpretation. For example, putting a pupil in a category, however stereotypical, may provide some measure

of prediction and control for a teacher, allaying some of her anxiety. Seeing Billy as a slow learner, for instance, allows Mrs Smith to anticipate certain situations and outcomes so his behavior won't "throw" her. The second major softener of interpretations has been developed in the hermeneutic literature. It is the realization that practical interpretations are inherently nonfinal, underdetermined, and changeable, especially in view of changing contexts (Curd and Cover 1998; Slife and Williams 1995). Observations of Billy at recess, for example, might provide a different understanding of him than in class.

Alternatives

Simple awareness and softening of an interpretation are rarely sufficient to optimize surprisability. To be truly ready for or receptive to surprise requires the active development of alternative interpretations. This requirement stems, in part, from the dialectical property of all interpretations as meanings (Jung and Hull 1960; Kelly 1963; Rychlak 1981). For Mrs Smith to know that she's interpreting Billy as a slow learner, she has to know what he would be like as a quick(er) learner. Slowness, in this sense, implies dialectically the possibility of quickness as part of its meaning. To turn to the right necessarily implies that one is not turning to the left. Meanings, in this sense, come with relations of difference as well as relations of similarity, with the former suggesting possibilities for Billy. Without an awareness of these possibilities, interpretations are prone to reification again, and we have not even satisfied the first condition. With an awareness of alternative interpretations, on the other hand, Mrs Smith is more open to Billy being otherwise than she believes him to be.

Particularity

As helpful as awareness, softening, and alternatives are in optimizing surprisability, vague or abstract alternatives are not as effective in maximizing the possibility of surprise as *particular* alternatives that are specific to the person at hand, Billy in this case. "Oh yes," Mrs Smith might say, "Billy could be another Einstein or the next President of the United States." These are certainly dialectical alternatives. However, they are not sufficiently practical or particular to prepare Mrs Smith to see the subtle cues of Billy's true intelligence. What would a quick(er) learner imply in Billy's specific case? What could Billy concretely do that would indicate he is not a slow learner? Do his eyes somehow widen, indicating he knows the answer even though he does not readily respond? Such specificity and tailoring might not be easy to develop, but they are important for truly optimizing surprise, especially in such practical contexts as good teaching.

With the optimization of these four conditions, one might assume that Mrs Smith would no longer be surprised by Billy's intelligence. After all, she's ready for it. Still, being ready for a particular possibility and actually experiencing

it are two quite different things. Her readiness allows surprise only if Billy's intelligence is presented in some manner; both conditions – her readiness and Billy's intelligence – are necessary for the surprise to occur. Moreover, readiness for surprise can provide some measure of confidence in discerning the validity of grapevine information. Because Mrs Smith knows she is ready to be surprised, she can have some confidence in the validity of the grapevine information when she isn't surprised.

Technical and Practical Rationality

Can such a practical and particular relationship as that between our hypothetical Mrs Smith and Billy really inform modes of inquiry in disciplinary knowledge advancement? Many professional researchers would view this example as ill suited to most disciplinary needs (Coolican 2013). After all, many disciplines are more interested in the general than the particular and the predictable than the unpredictable. As Joseph Dunne (2005) has described, Aristotle's notions of technical and practical rationality help us to understand the reasons for this interest. Most professional methods, especially those of science, have long been associated with what Aristotle considered *technical rationality*, where methods are “abstracted from the nitty-gritty” and “preformulated in a set of prescriptions” (379) about means and ends. These methods make predictability (and control) the primary end – to illuminate unchangeable laws and principles – rather than openness to and readiness for the unpredictable.

This technical rationality is typically distinguished sharply from Aristotle's notion of practical rationality, where highly concrete and particular experiences require “openness” and “judgment” (377). As Dunne puts it, “one is not calculating the efficiency of different possible means toward an already determined end. Rather, one is often deliberating about the end itself” (381). This deliberation is frequently necessary because many practical contexts, such as teaching, often contain competing and conflicting ends that pull practitioners, such as Mrs Smith, “in contrary directions” (381). For this reason, intelligibility in practical rationality is “not in a predictable chain of causality” but is, rather, in a line of meaning that can have unexpected twists and turns (380) – hence the need for mode of inquiry for following those surprising twists and turns. These historical differences in the two approaches to rationality have led many scholars to conclude that they must concern very different activities. Technical rationality is thought to be required for professional knowledge advancement (e.g., science), whereas practical rationality is considered important to the advancement of everyday, layperson problem solving.

Nevertheless, Dunne is clear that the traditional separation of technical and practical rationalities is misleading. Science, for example, is itself a “practice of inquiry”:

...the generation of explanatory hypotheses – or the devising of ingenious and fruitful experiments – that lies at the heart of scientific advance, requires, for all the scaffolding of method, creative insights that cannot be reliably predicted or efficiently produced. (Dunne 2005, 384)

In other words, surprise, unpredictability, and inspiration are part of, rather than apart from, scientific inquiry (O’Grady and Richards 2010; Slife, Stevenson, and Wendt 2010). Although the two types of rationality are separable in a sense, they are *both* needed to navigate the shoals of many professional activities. Indeed, Feyerabend (1993) and others have demonstrated in the history of science that radical openness to serendipitous findings may be the *most* important characteristic of a good scientist, much as it is vital to the good teaching of Mrs Smith. Here, we offer the practical rationality of Mrs Smith as a counterbalance to psychology’s emphasis on technical rationality. In other words, because psychology has so frequently associated science with technical rationality, vital aspects of practical rationality are underdeveloped (Polkinghorne 2004). In this sense, we do not proffer the four conditions of this exemplar as the whole of knowledge advancement; we proffer them as a pivotal part of knowledge advancement that supplements or complements technical rationality.

The Themes of a Practical Mode of Inquiry

Let us then formalize and deepen the conditions of this exemplar. As with any practical rationality, these conditions must be open to examination or adaptation, and cannot be “fixed but moving” (Dunne 2005, 383). Even so, it can be part of this openness and movement to identify “family resemblances” that provide impetus and form (Wittgenstein 1958, 32). These resemblances are the four conditions of Mrs Smith’s optimization of her surprise – awareness, softening, alternatives, and particularity – to understand an important facet of her “good teaching.” Our purpose in this section is to elaborate and extend these conditions to the practices of disciplinary inquiry in psychology.

Awareness

Recall first how important an awareness of her interpretive contribution was to Mrs Smith’s practical rationality and readiness for surprise. The analogy to many practitioners in psychology, such as good therapists and good researchers, is surely straightforward. Yet, as described, psychological researchers have primarily identified with technical rationality. If method texts are any indication (e.g., Dyer 2006; Heiman 1999; Mitchell and Jolley 2007), researchers in psychology rarely acknowledge an actively interpretive contribution to their methods and findings (Slife, Reber, and Faulconer 2012). Indeed, they often view the technician logic of

their methods as telling them to make their findings as interpretation free and “objective” as possible. Findings, in this technicist sense, are frequently perceived as bias-free maps of the topic at hand (e.g., brain, social relationships, development).

Observers of science, however, have repeatedly noted that the hidden interpretations of scientists enter at virtually every stage of the research process, from the generation of hypotheses to the formulation of design to the interpretation of data. These stages, among many others, are the points of practical decision making along the lines of Mrs Smith, with very similar human biases. As mentioned previously, the literature on confirmation bias is unequivocal: researchers are just as prone to confirming their biases as anyone, *especially* when they assume they have none (Nickerson 1998). With this assumption that assumptions play little or no role, no biases appear to be involved and no confirmatory tendencies need to be resisted. Surprising data are overlooked or misunderstood (e.g., “error variance”), and new understandings are suppressed or cast as “unscientific.” As Thomas Kuhn (1996) has described, the “revolution” so necessary to meaningful science cannot occur under these circumstances; only “normal science” as mere puzzle solving can occur (24).

How then can psychologists, whether researchers or practitioners, optimize their surprisability and openness to their data? The answer involves more than merely recognizing points of human decision making in the research process. The answer requires understanding *why* particular decisions are made in the first place, which involves *considering the assumptions that researchers hold in making such decisions*. Before they formulate a hypothesis or interpret a data point, researchers have been acculturated into a community of prevalently held systems of assumptions, sometimes called disguised ideologies (Bernstein 1983; Richardson 2002) or paradigms (Kuhn 1996) that are often themselves never discussed, let alone systematically examined. As we will see in the examples below, these paradigms or data interpretations are brimming with implicit assumptions and cultural biases that *should* be examined. Yet, they are frequently reified as either *the* way the world is or *the* way a scientist proceeds. In either case, these hidden paradigms can put blinders on researchers regarding data and understandings that are outside their assumptions and worldviews. Consequently, there is no substitute for an awareness of these assumptive blinders.

Softening

When interpretive contributions and their assumptions are explicated, these interpretations need to be softened to maximize surprisability. Much like the case of Mrs Smith, the mere explication of assumptions does not preclude a heavy investment in or loyalty to certain interpretations as “reality” or as “scientific.” In fact, what could be called *allegiance effects* have plagued both the natural and social sciences, sometimes in spite of a complete awareness of these allegiances. As an example, consider Luborsky et al.’s (2006) metaanalysis of the

psychotherapy outcome literature, where they found that whatever therapies or ideas researchers favored *before* the investigation were, with few exceptions, what the researchers “found” their results favoring *after* their investigation. Researcher allegiance, in this case, correlated .85 with treatment outcome, accounting for an unprecedented (in the social sciences) two-thirds of the data variance.

Lest one view this as a result of a “soft” psychological science, consider the *sponsor effect* in “hard” neuropharmacological research. Here, the issue is researcher loyalty to the sponsor of the research, the pharmaceutical industry in most cases. The correlation between the funder of the research and the effectiveness of the drugs is considered artificially high, especially in view of comparable independent research (Bhandari et al. 2004; Kjaergard and Als-Nielsen 2002; Lexchin et al. 2003). In both types of researcher allegiance, soft and hard, many researchers are completely aware of these biases, not to mention their repeated confirmation. Yet, at least until recently, these biases and loyalties were rarely challenged. Part of any softening of interpretation, then, requires such challenges.

A second softening agent is the well-known underdetermination of data in arriving at empirical or experimental findings. We say “well-known” but this familiarity is primarily in philosophy of science contexts and has yet to be fully translated into the practical contexts of psychological investigation (Slife and Williams 1995; Slife, Burchfield, and Hedges 2010). Underdetermination means that the data gathered through scientific methods (of any type) underdetermine, or do not completely determine, the explanations or interpretations made of the data. In other words, the same data can be used to support other (though not all) interpretations, and no data or pattern of data points definitively to only one interpretation (Klee 1999; Popper 1959; Quine 1982). Underdetermination also implies that extraexperimental factors – factors other than data such as interpretation, assumptions, culture – become pivotal in how research data are *actually* interpreted. Consequently, all interpretations of data are *inherently* soft and open to a limited set of alternatives and possibilities, and should thus be understood and treated accordingly.

Alternatives

As with Mrs Smith, simple awareness and softening of interpretation are not typically sufficient to maximize one’s capacity to truly be open to the information provided by one’s method. Alternative interpretations, and thus the assumptions underlying these interpretations, *must* also be developed. The term “must” is emphasized here because the dialectical quality of interpretive meanings (and practical rationality), i.e., such meanings imply alternative possibilities for data interpretation, is almost invisible without the deliberate development of alternative assumptions.

Dialectical alternatives are necessary because even the simple awareness of one’s interpretation, our first condition of surprisability, is often unattainable without such contrasting meanings. That is to say, without some awareness of interpretive

alternatives, the interpretation itself may not be experienced *as* interpretive. As Rychlak (1977) has shown, the meaning of beautiful is not meaningful without some apprehension of the meaning of ugliness. Analogously, many researchers may not be aware of the meaning of prominent scientific assumptions, such as determinism, without the apprehension of some dialectical contrast, such as agency or indeterminism (e.g., Martin, Sugarman, and Hickinbottom 2009).

As we will see (in the example below), investigators who search for interpretive assumptions often have to first frame contrasting meanings to identify and distinguish the ones for which they are searching. These contrasting assumptions help to put the ones under investigation in bold relief or provide a ground to perceive the figure. For example, researchers who wonder whether individualism is present in contemporary psychotherapy would have to frame some alternative to individualism, such as relationality, to fully recognize individualism (e.g., Fowers, Richardson, and Slife in press). This relationship between the first and third conditions of surprisability – awareness and alternatives – means that it is a mistake to construe these conditions as atomistic steps in a serial process. Rather, they are highly related aspects of the same conceptual whole – the whole of surprisability optimization. One can and perhaps ought to move back and forth among them in this optimization.

Particularity

Similar to Mrs Smith again, alternatives to interpretive assumptions are rarely sufficient unto themselves to maximize surprisability, primarily because they are often vague and abstract, especially to exacting scientists. In fact, psychological researchers frequently view discussions of these assumptions as “philosophy” or some other “subjective topic,” because such discussions seem vague and abstract. The concepts of free will and determinism, for example, are generally understood in psychology as pivotal to psychological understandings of persons, behaviors, and methods (Rychlak 1979; Slife and Fisher 2000), yet even these assumptions are often perceived as intractable philosophical issues that need not obstruct the work of most psychologists, particularly psychological researchers.

For these reasons and others, interpretive assumptions are virtually ignored in the mainstream of the discipline (Slife et al. 2012). They are viewed as only vaguely relevant, if relevant at all, because they appear to have nothing practical to do with the specific activities engaged in or topics studied. Analogous to Billy, the advancement of interpretive knowledge, and thus the optimization of surprisability, entails the particularity or concrete relevance of alternative interpretations and their assumptions. In other words, interpretive alternatives must be specifically related to the context of inquiry for them to be taken seriously or considered as true alternatives.

This type of particularization means, among other things, that practitioners of practical rationality, the mode of inquiry and topic of this chapter, need to do the

hard work of *understanding the investigative context* in which surprisability is needed. They cannot explicate its current assumptions and merely suggest alternatives; they must show how existing data – preferably *all* the existing data – can be explained and perhaps even understood better through alternative interpretive assumptions. Such a tack has the best chance of maximizing surprisability and thus opening researchers’ eyes to their own interpretive contributions to their findings.

We should note, before illustrating the formal use of these four conditions, that this practical mode of inquiry is neither brand new nor outside the warp and woof of historical events and contexts. On the contrary, we view it as an explication of the relatively informal and historical themes in several disciplinary manifestations and formulations of practical rationality. Anthropologists, for example, have long advocated *disciplinary reflexivity* to avoid the reification of their own “personal and cultural biases and assumptions” and thus maximize the possibility of cultural surprise (Haviland, Prins, McBride, and Walrath 2010, 64). Many educators have proffered a formulation of *critical thinking* that includes an awareness of one’s current assumptions as well as viable alternative assumptions (Brookfield 1987; Ennis 1982; Messer 2001; Paul and Elder 2013). And *hermeneuticists*, who advocate the philosophy that grounds the present chapter’s mode of inquiry (see Chapter 4), are explicit in their attempt to understand and deploy practical rationality, especially the openness necessary to engage in true dialogue and conduct fruitful inquiry (Gadamer 1975; Richardson, Fowers, and Guignon 1999).

Advancing Disciplinary Inquiry

It is one thing, of course, to track the four themes or conditions of surprisability in good teachers or critical and reflexive researchers. It is quite another thing to engage deliberately and explicitly in this mode of inquiry. Yet, there are a number of noted psychological investigators who have generally followed these themes, however explicitly or implicitly, in a significant portion of their scholarly work (e.g., Cushman 1995; Fowers 2005; Held 2007; Jenkins 2013; Kirschner and Martin 2010; Martin, Sugarman, and Hickinbottom 2009; Osbeck 2011; Richardson 2002). This reference list means, of course, that we could describe many and varied examples of this mode of inquiry in action. Unfortunately, however, space limitations permit only one brief example, a first-person account from the perspective of the present senior author.

Context

One of my graduate students, Shannon Starks, is currently conducting her Master’s thesis using the four conditions of surprisability as formal and informal guiding themes of her research. She is interested, specifically, in the possibility of reductive naturalism as an implicit interpretation or disguised ideology in the

introductory books of psychology. This form of naturalism is complex and defined in various ways, yet it is mostly known for its exclusion of spiritual or supernatural events and explanations. No introductory text explicitly declares this philosophy or ideology as a dominant or an overriding framework, so her research attempts to explicate associated assumptions that are so implicit that even the texts' authors may not be aware of them.

Awareness

The problem with implicit assumptions or philosophies, especially if the mainstream of a discipline embraces them without examination, is that their conceptual contours may not be well known. Here, extradisciplinary articles (e.g., philosophical articles) need to be consulted for a general understanding of the interpretive assumptions in question, which Shannon did to identify naturalism. Often, however, these descriptions are so abstract and even vague that it is difficult to understand how the philosophies or assumptions might practically manifest themselves in the discipline. Here, Shannon and I turned to contrasting (i.e., nonnaturalistic) alternatives to help us highlight these practical manifestations (see also the *alternative* condition below). In this case, we studied a very practical encounter between a naturalistic anthropologist and a renowned nonnaturalistic, witchcraft-oriented African culture, the Azande (Evans-Pritchard 1976). Our examination of this encounter turned out to be a research study in its own right (Slife, Starks, and Primosch in press). It yielded five practical features of naturalism, which we hypothesized might be present in many social science fields, including psychology (Starks 2013).

Softening

Much to our own chagrin, we found that many of these features were assumptions that we had taken for granted in our own (nonwitchcraft-oriented) personal lives and training within the discipline of psychology. For example, what we took to be the mere coincidence of events had supernatural meanings for the Azande. We realized that our notion of coincidence was an interpretive rather than a reified element of our experience. In other words, what we had previously assumed to be the facts of our experience and the discipline were revealed to have very debatable, interpretive contributions. We recognized that before Shannon could find these features of naturalism in introductory texts, she (and I as her supervisor) had to move these taken-for-granted assumptions from their "real" categories (for us) to more softened and debatable categories. Realizing our personal and professional stake in the reality of these assumptions helped (e.g., our own anxiety about the supernatural). Also, our general understanding of interpretation, gleaned from the hermeneutic literature, facilitated the softening of what was previously our dogma about naturalism in science. As mentioned and

rediscovered by us as we undertook this study, one of the lessons of hermeneutics is that interpretations should not be reified because they are underdetermined and thus filled with possibilities, including nonnaturalistic possibilities.

Alternatives

In this sense, we began to realize alternative (Azande-type) possibilities for interpreting our own personal and professional experiences. Perhaps the main way that Shannon, in particular, softened her naturalistic interpretations was by developing her understanding of Azande alternatives as *real* alternatives, i.e., as challengers that could actually function in the place of the philosophy they were challenging, in this case naturalism. She realized, in keeping with disciplinary reflexivity, that anyone who really desired to understand the Azande could not simply dismiss this core aspect of their culture (their witchcraft) without dismissing the culture itself, something the anthropologist, in this particular case, did repeatedly (Slife et al. in press). As helpful as this realization was, she also recognized that witchcraft is not the dominant manifestation of nonnaturalism in most Western cultures; various other nonnaturalistic beliefs in transcendence or spirituality are far more pervasive. Consequently, she developed these alternatives, integrated them with some of her own beliefs, and found that she began to question seriously her previous reification of her naturalist disciplinary beliefs.

Particularity

Even so, this development of general alternatives did not fully prepare her to be surprised by or open to the manifestations of naturalism in introductory psychology texts. Here, she had to take both the five features of naturalism, as developed through the anthropology analysis, and the five general alternatives to these features, as developed through her exploration of contrasting views, and apply them to her discipline. Similar to Mrs Smith, she had to ready herself for specific and relevant manifestations of the issue in question, so that she could see them. Her general question, at this juncture, was: How might the softened features of and alternatives to naturalism be manifested specifically in introductory textbooks? What types of psychological statements might each category of interpretive assumptions logically imply, given the topics of an introductory textbook? Readiness to see (surprisability) *both* manifestations, naturalism and nonnaturalism, was important so that Shannon would be equally open to both possibilities in the texts. With this type of *particular* openness, Shannon was able to examine the texts and discern the unstated interpretive meanings contained therein. She not only maximized her own surprisability to this pair of disciplinary assumptions, naturalism and nonnaturalism; she also, especially if she publishes her findings, may facilitate the surprisability and thus critical perspective of the users and writers of introductory texts.

Obviously, there are many other details of this particular study that have not been specified, including how many and which textbooks, etc. Such details, though important, are beyond the scope of this description. We are interested here in providing a relatively brief illustration of the main methodological themes and movements of the study. And for the curious: Shannon has not completed her analysis, but she has informed me that “naturalism seems to be everywhere.” Similar to Mrs Smith, she has some confidence in this tentative conclusion because she believes that she is open to and thus suprisable by the possibility of psychology’s nonnaturalism. Indeed, she has been amazed at the scattered aspects of nonnaturalism that occasionally rear their heads in introductory textbooks.

Conclusion

We recognize that Shannon’s Master’s thesis is again a particular and practical example (like Mrs Smith) of the attempt to maximize the surprisability of the investigator. However, it is in the particular and the practical where this mode of inquiry “lives” and gains its meaning. For that matter, all research studies are particular studies, with particular circumstances and populations, and all research investigations have their practical and thus nontechnicist aspects. In this sense, the optimization of surprisability is a way to approach these overlooked practical aspects, regardless of the method, so that the vaunted research goal of objectivity or truthfulness is *fully* realized.² Instead of understanding objectivity solely in the technicist sense of striving to eliminate subjectivity (e.g., biases), the practical version of objectivity attempts to maximize the openness of investigators to experiences (e.g., data) that might transform their ideas. Both versions of objectivity attempt to combat confirmation bias. The technicist version does so by attempting to eliminate as much bias as possible, while the more practical version does so by attempting to optimize openness to biases that are alternative to one’s own. Given that both technical and practical rationality are involved in all disciplinary methods, perhaps it is time to recognize that both approaches to resisting the corrosive effects of confirmation bias are needed.

Notes

1. There is also a sense in which *any* event is a surprise, especially in the Heideggerian or Gadamerian sense. We do not resist this sense; it just broadens the implications of the mode of inquiry we describe in this chapter. As Dastur (2000) puts it, “the event in the strong sense of the word is therefore always a surprise, something which takes possession of us in an unforeseen manner, without warning, and which brings us towards an unanticipated future” (182).

2. As a comparable philosophical understanding of surprise, consider Davidson (2004) where “surprise is the reaction to frustration of expectation and for this reason it is a good test for the possession of the concepts of belief, truth and objectivity, since only someone who had a belief, an expectation, and realizes themselves to be confronted with a different reality can be surprised” (Casati and Pasquinelli 2007, 174).

References

- Bacon, Francis, 1861. *The Works of Francis Bacon* (James Spedding, Robert Leslie Ellis, and Douglas Denon Heath, trans.). London: Longman.
- Bernstein, Richard J. 1983. *Beyond Objectivism and Relativism: Science, Hermeneutics and Praxis*. Oxford: Basil Blackwell.
- Bhandari, Mohit, Jason W. Busse, Dianne Jackowski, Victor M. Montori, Holger Schünemann, Sheila Sprague, Derek Mears, Emil H. Schemitsch, Dianne Heels-Ansdell, and P. J. Devereaux. 2004. “Association Between Industry Funding and Statistically Significant Pro-Industry Findings in Medical and Surgical Randomized Trials.” *Canadian Medical Association Journal*, 170(4): 477–480.
- Brookfield, Stephen. 1987. *Developing Critical Thinkers: Challenging Adults to Explore Alternative Ways of Thinking and Acting*. San Francisco, CA: Jossey-Bass.
- Bullough Jr., Robert V., Robert S. Patterson, and Clifford T. Mayes. 2002. “Teaching as prophecy.” *Curriculum Inquiry*, 32: 311–329.
- Casati, Roberto, and Elena Pasquinelli. 2007. “How Can You Be Surprised? The Case for Volatile Expectations.” *Phenomenology and the Cognitive Sciences*, 6(1–2): 171–183. doi:10.1007/s11097-006-9028-9
- Coolican, Hugh. 2013. *Research Methods and Statistics in Psychology*. London: Routledge.
- Curd, Martin, and J. A. Cover. 1998. *Philosophy of Science: The Central Issues*. New York: W.W. Norton.
- Cushman, Philip. 1995. *Constructing the Self, Constructing America: A Cultural History of Psychotherapy*. New York: Da Capo Press.
- Dastur, Françoise. 2000. “Phenomenology of the Event: Waiting and Surprise.” *Hypatia*, 15: 178–189.
- Davidson, Donald. 2004. *Problems of Rationality*. Oxford: Clarendon Press.
- Devine, Patricia G., Edward R. Hirt, and Elizabeth M. Gehrke. 1990. “Diagnostic and Confirmation Strategies in Trait Hypothesis Testing.” *Journal of Personality and Social Psychology*, 58(6): 952–963. doi:10.1037/0022-3514.58.6.952
- Dunne, Joseph. 2005. “An Intricate Fabric: Understanding the Rationality of Practice.” *Pedagogy, Culture and Society*, 13(3): 367–389.
- Eliade, M. 1987. *The Sacred and the Profane*. New York: Harcourt.
- Ennis, Richard. 1982. “Identifying Implicit Assumptions.” *Synthese*, 51: 61–86.
- Evans-Pritchard, Edward E. 1976. *Witchcraft, Oracles and Magic Among the Azande*. Oxford: Oxford University Press (original work published 1937).
- Feyerabend, Paul. 1993. *Against Method*. London: Verso.
- Fowers, Blaine J. 2005. *Virtue and Psychology: Pursuing Excellence in Ordinary Practices*. Washington, DC: American Psychological Association.

- Fowers, Blaine J., Frank C. Richardson, and Brent D. Slife. In press. *Human Frailty, Vice, and Suffering: Flourishing in the Context of Limits and Dependency*. Washington, DC: American Psychological Association.
- Gadamer, Hans-Georg. 1975. *Truth and Method*. New York: Seabury Press.
- Haviland, William A., Herald E. Prins, Bunny McBride, and Dana Walrath. 2010. *Cultural Anthropology: The Human Challenge*. Belmont, CA: Wadsworth/Thomson Learning.
- Heiman, Gary W. 1999. *Research Methods in Psychology*, 3rd edn. Boston, MA: Houghton Mifflin.
- Held, Barbara S. 2007. *Psychology's Interpretive Turn: The Search for Truth and Agency in Theoretical and Philosophical Psychology*. Washington, DC: American Psychological Association.
- Jenkins, Adelbert H. 2013. "Humanistic Psychology and Multiculturalism." In *The Handbook of Humanistic Psychology: Leading Edges in Theory, Research, and Practice*, edited by Kirk J. Schneider, James F. T. Bugental, and J. Fraser Pierson, 37–46. Thousand Oaks, CA: Sage Publications.
- Jung, Carl G., and Richard F. C. Hull. 1960. *The Collected Works. Volume 8*. London: Routledge and Kegan Paul.
- Kelly, George A. 1963. *A Theory of Personality: The Psychology of Personal Constructs*. New York: W. W. Norton.
- Kirschner, Suzanne, and Jack Martin. 2010. *The Sociocultural Turn in Psychology: The Contextual Emergence of Mind and Self*. New York: Columbia University Press.
- Kjaergard, Lise L., and Bodil Als-Nielsen. 2002. "Association Between Competing Interests and Authors' Conclusions: Epidemiological Study of Randomised Clinical Trials Published in the BMJ." *British Medical Journal*, 325(7358): 249–252. doi:10.1136/bmj.325.7358.249
- Klee, Robert. 1999. *Scientific Inquiry*. New York: Oxford University Press.
- Kohl, Herbert R. 1969. *The Open Classroom: A Practical Guide to a New Way of Teaching*. New York: Random House.
- Kuhn, Thomas S. 1996. *The Structure of Scientific Revolutions*. Chicago, IL: University of Chicago Press.
- Kumar, Rashmi. 2010. "The Surprise Element: How Allaying Parents' Misconceptions Improves a Teacher's Communicative Process." *Educational Horizons*, 89(1): 5–16.
- Lexchin, Joel, Lisa A. Bero, Benjamin Djulbegovic, and Otavio Clark. 2003. "Pharmaceutical Industry Sponsorship and Research Outcome and Quality: Systematic Review." *British Medical Journal*, 326(7400): 1167–1170. doi:10.1136/bmj.326.7400.1167
- Luborsky, Lester B., Marna S. Barrett, David O. Antonuccio, Deacon Shoenberger, and George Stricker. 2006. "What Else Materially Influences What is Represented and Published as Evidence?" In *Evidence-Based Practices in Mental Health: Debate and Dialogue on the Fundamental Questions*, edited by John C. Norcross, Larry E. Beutler, and Ronald F. Levant, 257–298. Washington, DC: American Psychological Association.
- Marion, Jean-Luc. 2002. In *Excess: Studies of Saturated Phenomena* (Robyn Horner and Vincent Berraud, trans.). New York: Fordham University Press.
- Martin, Jack, Jeff H. Sugarman, and Sarah Hickinbottom. 2009. *Persons: Understanding Psychological Selfhood and Agency*. New York: Springer.

- Messer, Stanley B. 2001. "Empirically Supported Treatments: What's a Nonbehaviorist to Do?" In *Critical Issues in Psychotherapy: Translating New Ideas into Practice*, edited by Brent D. Slife, Richard N. Williams, and Sally H. Barlow, 3–19. Thousand Oaks: Sage Publications.
- Mitchell, Mark L., and Janina M. Jolley. 2007. *Research Design Explained*, 6th edn. Belmont, CA: Thomson Wadsworth.
- Nickerson, Raymond S. 1998. "Confirmation Bias: A Ubiquitous Phenomenon in Many Guises." *Review of General Psychology*, 2(2): 175–220. doi:10.1037/1089-2680.2.2.175
- O'Grady, Kari A., and P. Scott Richards. 2010. "The Role of Inspiration in the Helping Professions." *Psychology of Religion and Spirituality*, 2(1): 57–66. doi:10.1037/a0018551
- Osbeck, Lisa M. 2011. *Science as Psychology: Sense-Making and Identity in Science Practice*. New York: Cambridge University Press.
- Packer, Martin J. 2011. *The Science of Qualitative Research*. New York: Cambridge University Press.
- Paul, Richard, and Linda Elder. 2013. *Critical Thinking: Tools For Taking Charge of Your Professional and Personal Life*. Upper Saddle River, NJ: Pearson Education.
- Polkinghorne, Donald E. 2004. *Practice and the Human Sciences: The Case for a Judgment-Based Practice of Care*. Albany, NY: SUNY Press.
- Popper, Karl R. 1959. *The Logic of Scientific Discovery*. London: Hutchinson.
- Quine, William V. O. *Methods of Logic*. Cambridge, MA: Harvard University Press, 1982.
- Richardson, Frank C. 2002. "Current Dilemmas, Hermeneutics, and Power." *Journal of Theoretical and Philosophical Psychology*, 22(2): 114.
- Richardson, Frank C., Blaine J. Fowers, and Charles B. Guignon. 1999. *Re-Envisioning Psychology: Moral Dimensions of Theory and Practice*. San Francisco, CA: Jossey-Bass.
- Rychlak, Joseph F. 1977. *The Psychology of Rigorous Humanism*. New York: Wiley.
- Rychlak, Joseph F. 1979. *Discovering Free Will and Personal Responsibility*. New York: Oxford University Press.
- Rychlak, Joseph F. 1981. *Personality and Psychotherapy*. Boston, MA: Houghton Mifflin.
- Slife, Brent D., and Amy M. Fisher. 2000. "Modern and Postmodern Approaches to the Free Will/Determinism Dilemma in Psychology." *Journal of Humanistic Psychology*, 40(1): 80–108.
- Slife, Brent D., and Richard N. Williams. 1995. *What's Behind the Research? Discovering Hidden Assumptions in the Behavioral Sciences*. Thousand Oaks, CA: Sage Publications.
- Slife, Brent D., Colin M. Burchfield, and Dawson Hedges. 2010. "Interpreting the 'Biologization' of Psychology." *Journal of Mind and Behavior*, 31(3), 165–177.
- Slife, Brent D., Jeffrey S. Reber, and James E. Faulconer. 2012. "Implicit Ontological Reasoning: Problems of Dualism in Psychological Science." In *Psychology of Science: Implicit and Explicit Reasoning*, edited by Robert Proctor and E. J. Capaldi, 459–478. New York: Oxford University Press.
- Slife, Brent D., Shannon Starks, and Mark Primosch. In press. "Questioning the Presumption of Naturalism in the Social Sciences: A Case Study." *Pastoral Psychology*.
- Slife, Brent D., Tiffani Stevenson, and Dennis C. Wendt. 2010b. "Including God in Psychotherapy: Strong vs. Weak Theism." *Journal of Psychology and Theology*, 38, 163–174.

- Starks, Shannon. 2014. "Objective Science of Biased Philosophy: Does Naturalism Play a Dogmatic Role in Psychology?" Master's thesis, Brigham Young University, Provo, Utah.
- Sugarman, Jeff, and Jack Martin. 2005. "Toward an Alternative Psychology." In *Critical Thinking About Psychology: Hidden Assumptions and Plausible Alternatives*, edited by Brent D. Slife, Jeffrey S. Reber, and Frank C. Richardson. Washington, DC: American Psychological Association.
- Wittgenstein, Ludwig. 1958. *Philosophical Investigations*. New York: Macmillan.

UNCORRECTED PROOFS