

THE EVOLUTION OF CONSTRUCTIVISM

JONATHAN D. RASKIN

State University of New York at New Paltz, New Paltz, New York, USA

This article examines how evolutionary theory is relevant to constructivist psychology. Specifically, Donald T. Campbell's evolutionary epistemology is used as a framework for examining five issues facing constructivism: (1) realism, (2) cognitivism, (3) relativism, (4) dualism, and (5) social constructionism. It is suggested that a nuanced application of evolutionary epistemology facilitates fresh ways for constructivists to accommodate these issues. In so doing, it can help constructivism to coherently bridge the personal, social, and biological aspects of human knowledge development.

Introduction

Because evolution is about change, any process by which people modify the constructions they use to guide their lives is—by definition—about evolution. In other words, constructivist theories are deeply connected with evolutionary perspectives and principles. This article provides several examples of how evolutionary theory can inform ongoing debates within constructivism over vexing questions. An all-encompassing analysis of the relationship between evolution and constructivism is a large undertaking, one well beyond the scope of a single article. So for now I limit myself

Received 5 May 2006; accepted 8 August 2006.

Portions of this article were presented on July 21, 2006, as a presidential address at the 12th Biennial Conference of the Constructivist Psychology Network in San Marcos, California.

I would like to thank Bob Neimeyer, Sara Bridges, Caroline Stanley, Kisa Weihs, Laurie Morano, Franz Epting, Mark Paris, Alice Andrews, Glenn Geher, and Rue Cromwell. However, I am especially indebted to Jay Efran, whose comments were particularly instructive in the selection and retention of blind variations necessary to the article's successful evolution.

Address correspondence to Jonathan D. Raskin, Department of Psychology (JFT 314), SUNY New Paltz, 600 Hawk Drive, New Paltz, NY 12561-2440, USA. E-mail: raskinj@newpaltz.edu

to five issues I believe evolutionary theory can help constructivism address: (1) realism, (2) cognitivism, (3) relativism, (4) dualism, and (5) social constructionism. It is my contention that evolutionary theory and epistemology can be useful as constructivists examine these issues. The bulk of what follows explores the implications of this premise.

Defining Constructivism

In this article, *constructivism* refers to personal construct psychology and radical constructivism, but not social constructionism. The former approaches are combined because both see meaning-making as more an individual than a social process (Raskin, 2002, 2006). While social relationships are important to the extent that people construe the construction processes of others and form role relationships with them (Leitner & Faidley, 1995), personal construct psychologists generally see knowledge construction as a highly personal endeavor—or, at the very least, individual psychology remains the clear focus. Indicative of this is that personal construct psychologists have sustained a commitment in both research and practice to eliciting the unique personal constructs of individuals (Fransella, 2003; Fromm, 2004; Jankowicz, 2003), even while acknowledging that social forces potentially inform the development of such constructs.

Similarly, while radical constructivists challenge the firm cleavage between self and object in ways that allow the personal and social to be seen as autopoietic unities (Maturana & Varela, 1992), they also see minds as closed systems only in touch with their own internal processes (Efran & Lukens, 1985; Maturana & Varela, 1992; von Glaserfeld, 1984, 1995). This makes knowing a private and individualistic affair. In contrast, social constructionism makes relationships, rather than individuals, the locus of study (Burr, 1995; Gergen, 1985, 1991, 1994; McNamee, 1996; Shotter, 1993; Stevens, 1998). Meaning-making is seen as a collaborative process, not traceable to particular individuals. In other papers, I have defined constructivism more broadly so as to include social constructionism. Here I employ a narrower definition as part of an effort to use evolution to “bridge” the constructivism–constructionism gap.

Evolutionary Theory

The Basics

Darwin's (1859) theory of evolution posits that organisms evolve over time by adapting to their environments. Natural selection is the process by which "fit" organisms survive long enough to reproduce, passing on their heritable features to the next generation. Of course, as with constructs, what is adaptive depends on environmental circumstances. Different organisms develop different features depending on the evolutionary "soup" in which they exist. Particular features cannot be described as inherently adaptive, because adaptivity is entirely context-dependent. Consequently, environment matters a great deal. Genes and environment work together in shaping evolutionary development (Barrett, Dunbar, & Lycett, 2002). Even so, traditional evolutionary theory tends to make a sharp distinction between genetic and environmental features (Lewontin, 2001).

There are many different forms and facets of evolutionary theory—far too many to survey here. A particular approach that has caught my interest is Donald Campbell's *evolutionary epistemology*. The relevance of Campbell's approach to constructivism has been noted before (Guidano, 1987; Mahoney, 1988, 1991), although in more general terms. Because Campbell's emphasis on evolution as a knowledge process is likely to resonate with constructivists, I use his model as a springboard into fuller discussion of the five previously identified issues facing constructivism.

Evolutionary Epistemology

EVOLUTION AS KNOWLEDGE PROCESS

Campbell's (1974) evolutionary epistemology, also known as *selection theory*, offers an alternative to more reductionistic and modularistic approaches to evolutionary psychology. Campbell's take on knowledge is highly relevant to constructivism (Mahoney, 1991). His primary assertion is that evolutionary processes are not limited to the physiological realm. Evolution in all its forms—whether biological, psychological, or social—constitutes a "knowledge process," which serves to help people effectively make sense of and navigate their surroundings (Campbell, 1974).

New variations at the biological, psychological, or social levels can be considered untried hypotheses. They are products of natural selection aggressively tested via the trial and error of lived experience. Those variations that enhance survival are perpetuated through genetic and social transmission to future generations.

BLIND VARIATION AND SELECTIVE RETENTION

According to Campbell, evolution occurs according to *blind variation and selective retention* (BVSR). The BVSR process contains three key features: *variation*, *selection*, and *retention* (Campbell, 1974, 1975). Variation involves means for introducing physiological, psychological, and social changes. Variations that fit the circumstances by proving advantageous are selected and retained. However, variations are blind because, when formulated, they start off untested. Evolutionary thinking about biological variations is familiar to most people. The giraffe's long neck was originally a blind biological variation. When it proved contextually adaptive, it was retained. Such biological examples are easy to grasp. But Campbell extends evolutionary thinking into the psychological and social realms, contending that BVSR is "fundamental to all inductive achievements, to all genuine increases in knowledge, to all increases in fit of system to environment" (Campbell, 1974, p. 421). Not only have people evolved biological structures, but also those structures have given rise to psychological capabilities—such as the ability to psychologically construe events. This evolved ability to construe also allows people to evolve their constructs during the course of their existence. Further, just as psychological perspectives evolve, social institutions also evolve. For example, 30 years ago the idea of gay marriage would have been unthinkable. However, what at one time were blind social variations regarding gay marriage are now widely familiar social constructions currently struggling for survival.

Although variations are blind, they need not be random. That is, the term *blind* only refers to the untested nature of new variations. While blind variations can be random and unintentional (e.g., chance genetic anomalies), they can also be anticipatory (e.g., new scientific hypotheses based on careful analysis of previous data). Future examinations might explore the implications of combining Kelly's (1955/1991a, 1955/1991b) and Campbell's (1974) terminology in order to distinguish blind

variations from *blind anticipations*. In this article, however, the term *blind variation* encompasses both random and anticipatory BVS processes.

CRITICAL HYPOTHETICAL REALISM

Central to Campbell's (1974) argument is the very constructivist idea that we need not "hold knowledge in abeyance until the possibility of knowledge is established" or "until indubitable first principles or incorrigible sense data are established upon which to build" (p. 418). Instead, we should simply embrace that all knowledge inevitably springs from a perspective. That is, "no nonpresumptive knowledge and no nonpresumptive modes of knowing are possible" (p. 418). In other words, Campbell espouses *critical hypothetical realism* because, although he accepts the existence of a real world, he also assumes that such a world is never directly accessible. This sounds very much like what Chiari and Nuzzo (1996) dub *epistemological constructivism*.

INDIRECT SHORTCUTS

Critical hypothetical realism and epistemological constructivism are similar because in both perspectives the world is never directly accessible. Organisms only know the world indirectly through their sensory systems. For example, Campbell (1974) notes how a paramecium engages in a form of BVS called *nonmnemonic problem solving* by blindly moving about attempting to ingest food. Its locomotion is utterly random. Until it stumbles across food it cannot know whether its movements will be profitable in terms of leading to sustenance. It uses its primitive sense organ to determine if food is present in a given location. The information the sense organ acquires is indirect—tied to its structure, not to mention the shape and form of the paramecium's body and nervous system. Yet while nonmnemonic problem solving is indirect, for Campbell it actually comprises the most "direct" form of knowing, in that the paramecium can only experience the presence or absence of food by going to each and every location and using its primitive food-sensing organ.

However, in Campbell's view, evolution provides even more indirect shortcuts that allow for more efficient BVS processes (Campbell, 1974). For example, many organisms use *vicarious locomotor devices* such as radar or vision. These devices allow them

to use trial and error without having to travel directly to each location. Vicarious locomotor devices are even more indirect than the nonmnemonic problem-solving techniques that preceded them. It seems pretty obvious to most people that radar does not provide direct access to the world but, rather, is a tool certain organisms have evolved that provides them with useful feedback and saves them the need to trek long distances to find what they need. That is, radar does not provide a copy of the world as it is, but it does indirectly inform an organism about the parameters of that world by using echolocation. What is interesting from a constructivist perspective is Campbell's (1974) contention that vision, though it seems to provide a direct realist picture of the world, "is just as indirect as radar" (p. 424). The conflation of vision with reality itself has created, in Campbell's (1974) view, a great deal of unnecessary confusion for epistemologically oriented philosophers.

PERSONAL AND SOCIAL EVOLUTION

As already noted, Campbell (1974) does not limit evolution to biological evolution. He extends it into the psychological realm, describing *mnemonically supported thought*. This is another indirect shortcut for producing knowledge, one in which "the environment being searched is vicariously represented in memory or 'knowledge'" (p. 427). People thus generate "intelligent," "creative," and "foresightful" thoughts, which can be tested through trial and error by comparing them to elements of their surroundings. Or, as a further shortcut, thoughts can be tested by comparing them to mental criteria substituting for an "external state of affairs" (p. 427). That is, people can use their mental powers to analyze and test ideas in their minds. Thus, one's mental representations evolve as people successively experience events. Obviously, the connections between Campbell's (1974) mnemonically supported thought and Kelly's (1955/1991a, 1955/1991b) personal construing are ripe for development.

Yet evolution also occurs in the social realm. Campbell (1974) notes how social organizations evolve and survive via the same BVS processes as individual organisms. He sees language and representation as key elements of sociality, and acknowledges that social processes play a significant role in the construction of knowledge. Campbell (1997) is particularly concerned about the

implications of his social epistemology for the conduct of science. He worries that those who see all knowledge—including scientific knowledge—as primarily a function of social processes run the risk of falling into the crevasse of an “anything goes” relativism that devalues science. Perhaps as a result, Campbell’s work has triggered ongoing efforts to specifically examine the implications of his theorizing for social construction (Heyes & Hull, 2001).

Applying Evolutionary Epistemology to Constructivist Issues

Issue 1: Realism

CRITICAL HYPOTHETICAL REALISM VS. ANTI-REALISM

Evolutionary epistemology can help constructivists respond to critics who accuse them of being “anti-realists” (Held, 1995; Mackay, 2003). For example, personal construct psychologists who advocate a critical realism (Mahoney, 1991; Noaparast, 1995; Stevens, 1998; Warren, 1998) can potentially strengthen their arguments by drawing on the critical hypothetical realism of evolutionary epistemology (Campbell, 1974, 1997). There are numerous epistemological similarities between Campbell’s (1974) approach and personal construct psychology. In personal construct psychology, people know the world via their personal constructs, but some constructs better account for reality than others. According to Stevens (1998), “Kelly seems to be admitting some minimum role” for “events to shape our experience” (p. 299). As such, “the world places limits on our constructions by providing validation evidence of specific types, and these limits form the basis of Kelly’s pragmatism” (Stevens, 1998, p. 299).

Similarly, in Campbell’s evolutionary epistemology, people know a real world through vicarious selectors such as radar, vision, and mnemonically supported thought. However, in neither personal construct psychology nor evolutionary epistemology is reality ever directly accessed. The external world of the real is presupposed, but never truly known. For Kelly, knowledge is something we construct based on experience. Thus, we create systems of knowing and, while our constructions do not capture the world as it is, the world can and does say “no” to constructions that are too far off the mark. This same sort of indirect realism is evident in evolutionary epistemology. For example,

Campbell (1974, p. 12) “sided with the skeptics” in emphasizing the “presumptiveness and indirection of the ‘foundations’ of knowledge.” He did this because “vicarious selectors, such as vision, employ presumptive vicars for ‘the environment,’ not the environment ‘directly’” (Campbell, 1997, p. 12). By emphasizing how different organisms have evolved different indirect shortcuts to knowledge, Campbell allows personal construct psychologists to root their critical realism in evolutionary underpinnings. In this line of thinking, there is a real world, but our sense organs and meaning-making capacities are merely adaptations designed to help us survive in that world rather than to know it directly. Thus, personal construct psychology can more powerfully respond to anti-realist accusations by invoking an evolutionary epistemology.

BEYOND CRITICAL HYPOTHETICAL REALISM?

Personal construct psychologists generally hold that *we only know external reality indirectly through our constructs, even though an outer reality exists* (Kelly, 1955/1991a, 1955/1991b). Radical constructivists push the envelope further, arguing that *we only know our internal reality and cannot know whether an outside world exists* (von Glaserfeld, 1995; Maturana & Varela, 1992). The radical constructivist position seems incongruent with the critical realism of Kelly and Campbell—and therefore more susceptible to anti-realist attacks. However, even here evolutionary epistemology may be useful. Recall that Campbell’s critical realism is *hypothetical*. The existence of an outside world is assumed, but impossible to prove, because all we ever know is our internal experience. Of course, critics are unlikely to be convinced by a hypothetical approach to reality. They are likely to argue that the real inevitably remains relevant in an evolutionary approach to constructivism because *adaptation has to be adaptation to something*. But radical constructivists are not in disagreement on this point. They, too, believe that adaptation is to something—namely, changes to the organism’s internal system. However, radical constructivists remain mute as to whether what triggers internal changes resides inside or outside the system. Thus, they can explain evolution just as nicely as critical realists without abandoning their agnosticism about the real.

Radical constructivists might use evolutionary epistemology to argue that people are closed systems that only know their internal processes. When they experience disruption to their

internal systems, they accommodate by altering their systems to reestablish homeostatic balance. Further, while people's closed systems have evolved so that they experience what they believe to be an outside world, in fact they are only aware of their own internal workings. Because closed systems have evolved in a way that makes it seem like there is an independent reality, it is practical to live life as if external reality exists. Thus, the paralysis that anti-realism supposedly evokes is countered.

It does not matter whether one prefers how personal construct psychology or radical constructivism can use evolutionary epistemology to respond to anti-realist criticisms because the issue of realism does not have to be resolved for constructivists to proceed. Critical constructivists can continue upholding a minimal realism in which organisms presumably adapt to an external world (Noaparas, 1995; Stevens, 1998; Warren, 1998), whereas radical constructivists can continue assuming that representation is "reality free" and that organisms adapt to their own internal changes as they maintain the structural couplings holding them together as autopoietic unities (Maturana & Varela, 1992). Regardless, any hand wringing over critical realism versus radical constructivism may be unworthy of too much attention because, from a pragmatic viewpoint, the implications for practice are no different. People have evolved in such a way that they perceive an outside world. Proving one way or another that this world exists is not, strictly speaking, necessary. Debates about realism merely divide constructivists over something of little practical import, while sometimes making them fail to notice their commonalities.

Issue 2: Cognitivism

CONSTRUCTS AS COGNITIONS?

Constructivism is often seen as a variety of cognitivism. When this occurs, constructs are equated with cognitions. This has often frustrated constructivists, who usually see construing as much more than a cognitive process. For example, in recent years personal construct psychologists have given embodiment significant and justified attention (Butt, 1998, 2004; Leitner & Faidley, 2008). In part, their interest in construing as an embodied process stems from Kelly's (1955/1991a, 1955/1991b) original efforts in personal construct psychology to overcome the

traditional distinction between cognition and affect. However, their interest also emanates from a desire to correct what they see as a misreading of Kelly—namely, the aforementioned tendency to conflate constructs with cognitions. In other words, construing has often been conceptualized as a kind of thinking, rather than a feeling, process. This presents a narrow and overly rationalistic model of construing, which affirms rather than discredits the line between thinking and feeling that Kelly found artificial and sought to obliterate (Kelly, 1955/1991a, 1955/1991b). In common parlance, thinking is usually conceived as a wholly mental process, and so it remains disconnected from bodily experience. By emphasizing embodiment—often by incorporating humanistic, existential, and phenomenological philosophical ideas into Kelly’s theorizing (Butt, 2004)—a more expansive approach to construing emerges, one clearly distinct from the model of the person typical of cognitive-behaviorism and other primarily rationalist viewpoints.

CONSTRUING AND BCSR

In addition to existential and phenomenological approaches, evolutionary epistemology offers another way for constructivists to refute the assumption that constructions are the same as cognitions. To begin with, let’s explicitly draw a parallel between BCSR and the evolution of personal constructs. Personal construct psychologists hold that people construct hypotheses, which they then test by applying them in everyday life (Kelly, 1970, 1955/1991a, 1955/1991b). When constructs prove predictive or useful in comprehending ongoing experience, they are likely to be retained. When they do not, they are typically revised or replaced. In other words, trial-and-error selection along the lines of Campbell’s (1974) BCSR process occurs in the evolution of constructs. New constructs are blind to the extent that their utility remains undetermined until they are tested. This is what makes behavior an experiment!

Much of personal construct therapy is about helping clients experiment with new constructs, not so much because it is known that these constructs will prove useful, but in order to help clients evolve new ways of anticipating life by forcing them to test novel hypotheses for living (Epting, 1984; Fransella, 2003; Winter, 1992; Winter & Viney, 2005). Constructs that work are selected for retention, while those judged ineffective are revised and retested

or discarded altogether. This is consistent with personal construct psychology's process orientation. After all, the evolution of one's meaning system is a product of adapting one's constructs to fit ever-changing circumstances.

EMBODIED AND NONEMBODIED CONSTRUING AS EVOLVED KNOWLEDGE PROCESSES

Building on this, Campbell's concept of mnemonically supported thought seems to have clear parallels to personal construing. Both involve creating depictions of the world and then using them to entertain additional possibilities for understanding. Once one enters into the mental world of mnemonically supported thinking, one's depictions can go beyond simply trying to represent the world and move into the creative realm of playing with abstract ideas that seem to have no tangible, real-world counterparts. It is quite reasonable to think about personal constructs as mnemonically supported thoughts that are vicariously selected by seeing how well they hold up during the course of daily living. But they are also more than this. While constructs show a noticeable similarity to mnemonically supported thought, to equate them solely with thought overlooks the preverbal, embodied construing that distinguishes constructivism from purely rational approaches to knowing.

It is Campbell's assertion that all sensory systems—cognitive and otherwise—always are part of an ongoing knowledge process that supports moving beyond the equation of constructs with cognitions. For example, in addition to mnemonically supported thought, Campbell discusses nonmnemonic problem solving, which focuses on how organisms use bodily sense reception as a valuable source of knowledge. The knowledge produced by nonmnemonic problem solving is of a preverbal, embodied, and noncognitive nature. Thus, nonmnemonic problem solving as an evolved knowledge mechanism provides a vital addition to constructivist discussions of embodiment. Recall that Campbell's evolutionary epistemology postulates knowledge as blind trial-and-error variation by way of vicarious sensory shortcuts. In nonmnemonic problem solving, people's bodily structures are employed to give them feedback about their surroundings. Despite relying on little more than basic bodily sensations, nonmnemonic problem solving constitutes an early (although often overlooked) evolutionary accomplishment in knowledge development. That is,

it grounds notions of preverbal and embodied construing within an evolutionary framework.

For example, feeling a knot in the pit of one's stomach is the body's way of physiologically responding to and communicating about a particular set of circumstances. The biological capacity for experiencing such a knot has been selected by trial and error because it conveys potentially important, meaningful, and adaptive information. While not rational, logical, or restricted to the mind in the way constructs are often thought to be, the bodily experience of a knotted stomach clearly constitutes knowledge. In this way, evolutionary epistemology lends credence to approaches that see a substantial amount of construing as centered on embodied and preverbal processes.

EMBODIED CONSTRUING AND ITS BIOLOGICAL UNDERPINNINGS

By using Campbell's evolutionary approach, we can study embodied knowing not simply in terms of its personal meanings but also in terms of its evolutionarily derived biological underpinnings. As one concrete example, Toomey and Ecker are presently examining how therapy clients construe at both rational and tacit levels, with the former tied to more recently evolved processes within the neocortex and the latter tied to evolutionarily older functions of the limbic system and brain stem (Ecker & Toomey, in press; Toomey & Ecker, 2007, in press). Psychotherapeutic change requires modifying not just conscious and rational understandings housed in the neocortex but also unconscious and bodily knowings of the brain stem and limbic system (Ecker & Toomey, in press; Toomey & Ecker, 2007, pp. 209–216).

Toomey and Ecker's efforts are built in part on *neural constructivism*, an exciting research paradigm asserting that cognitive and emotional development at the neural level proceeds according to constructivist principles (Quartz & Sejnowski, 1997). Neural constructivism studies the "multilevel plasticity of the brain in actively assembling both its particular models of reality and the neural architecture it uses for doing so" (Toomey & Ecker, 2007, in press). In keeping with the evolutionary themes advanced here, it is not a far leap to the idea that the brain's neural constructivist configuration evolved out of BVSR processes—and that the resulting cognitive and embodied forms of knowing are

complementary ways that human neural structure permits people to actively construct meaning.

Issue 3: Relativism

RELATIVISM AND BVSr

Accusations of relativism continue to be leveled at constructivism. Critics are quick to raise the specter of purported constructivist relativism, seeing it as generating a dangerous and nihilistic anything goes mentality (Gillett, 1998; Held, 1995; Mackay, 2003; Matthews, 1998; Parker, 1999). Despite all the controversy surrounding it, relativism is simply the idea that knowledge always comes from an evolved perspective or point of view (Bernstein, 1983; Edwards, Ashmore, & Potter, 1995; Raskin, 2001; Smith, 1988). Building on this, I suggest that relativism and its counterpart, realism/absolutism, are roughly analogous to BVSr's variation and retention, making them necessary dialectic components of any evolutionary process. Biological, psychological, and social structures are always functionally evolved relative to particular contexts. For example, fish evolved gills for survival underwater; people evolved early languages in response to social group living; and many societies have evolved definitions of childhood to help shield the young from exploitation. In each of these examples, context is central. Water helped produce gills; group living helped generate early languages; and sweat shops helped elaborate notions of childhood. Of course, when contexts change, evolved structures must also change for survival to continue. Gills, languages, and definitions of childhood are adaptive only relative to context. To remain adaptive, they need to change as the surroundings change. Thus, relativism is necessary to any knowledge structure that wishes to survive.

The centrality of relativism to knowledge evolution is evident in personal construing. For example, even if I view myself as a realist/absolutist, I fleetingly become a relativist the instant I revise any construct. Likewise, the second I commit myself to a particular construct by acting on it, I cease to be a relativist and return to being a realist/absolutist. Put more simply, whenever one changes a construct, one is a relativist, and whenever one applies a construct, one is an absolutist. Just as in Campbell's BVSr, where variation and retention always occur one at the

expense of the other, relativism and absolutism are forever at odds, forming the necessary poles of a dialectical process.

EVOLVING BEYOND “ANYTHING GOES”

Evolutionarily speaking, variation constitutes a form of relativism and retention a kind of absolutism. As such, *construct systems can only evolve by becoming relative*. Were people unable to relativize their constructs by loosening them and entertaining new ideas about what goes, constructs would never change. Yet they do change, suggesting that relativism is a part of all construct systems. Absolutism is also a part of all construct systems because, once people firm up their constructions, certain things no longer go until, perchance, the next time new possibilities are entertained. To repeat, all knowledge systems are alternately relativist and absolutist through the course of their history. Relativism and absolutism, like BVSr’s variation and retention, are necessary counterpoints. However, *relativism never means anything goes*. It simply means that knowledge is potentially evolving. What went (and perhaps even worked) *before* has changed in order to enhance survival *now*. By invoking evolutionary themes, constructivists are better prepared to respond to those accusing them of anything goes relativism.

Issue 4: Dualism

DUELING DUALISM

The issue of dualism is a thorny one, but one that an evolutionary constructivist framework may cleverly inform. Dualism is often seen as a problem in need of resolution. Mind–body dualism is perhaps the most common example. In recent years it has become popular to adopt a materialistic monism as a counterpoint to mind–body dualism. That is, rather than seeing mind and body as separate realms, we simply reduce mind to body. This has been good for neuroscientists, but somewhat less satisfying for the rest of us—especially those of us who feel something is lost when we reduce human meaning-making to nothing more than cell assembly firings in the neocortex. Of course, mind–body dualism is only one among many dualisms that frustrate and bedevil us. Within constructivist thinking alone, great efforts have been expended trying to resolve dualisms related to the person versus

the social, thinking versus feeling, freedom versus determinism, and realism versus relativism.

EVOLUTION, DICHOTOMOUS CONSTRUING, AND DUALISM

Constructivism's answer to all of these dualisms may be to underscore that people construe dichotomously. In other words, Kelly's (1955/1991a, 1955/1991b) view of constructs as bipolar dimensions of meaning that people use as lenses through which they filter experience of their surroundings suggests that dualistic thinking may be an unavoidable aspect of human knowledge construction. In terms of evolution, if the ability of human beings to dichotomously construe their circumstances came about through natural selection, then dualism is something bound to remain with us for some time to come. One potential solution is to entertain the "as if" construction that human brains have evolved to organize experience according to perceived opposites. If so, all human construing is fundamentally dualistic, and the dualisms human beings have eternally struggled with are merely those that have been selectively retained rather than discarded—ostensibly because they work reasonably well in many instances, despite the problems they produce when applied outside their range of convenience.

From this "as if" assumption that dichotomous construing is an evolved mechanism for organizing experience, it follows that even if we discard or revise classic dualisms, new dualisms (in the form of dichotomous constructive alternatives) will inevitably take their place. Trying to construe ourselves out of old dualisms will always lead to new ones if construing is an indirect shortcut people have evolved to organize experience into survival-enhancing knowledge. Because we can never know the world directly or in its entirety, dualisms may simply be constructs at the outer reaches of human meaning-making capabilities (McGinn, 1999).

But this need not mean we throw our hands in the air and give up on efforts to construe our way out of classic dualisms. Given evolutionary epistemology's emphasis on knowledge evolving at the biological, psychological, and social levels, it makes little sense to simply say that we are biologically built to remain stuck within age-old dualisms. Rather, we can continually try to construe our way out of them, even if we suspect the enterprise may fail or that alternative dualisms inevitably lie just around

the corner. After all, by continuing our efforts to construe our way out of dualisms, we never know when we might introduce a blind variation that shifts things in a wholly new direction and accomplishes the task.

Issue 5: Social Constructionism

Constructivists and social constructionists remain uneasy bed-fellows, even though both see human meanings as constructed frameworks rather than direct reflections of the real. Much of this uneasiness is because constructivists focus on individual knowledge construction, while constructionists see knowledge as emanating from relationships. While valuing the social, constructivists often feel that social constructionism's apparent rejection of individual construing goes too far. At the same time, constructionists are onto something when they emphasize how individual knowledge and personal identities are socially constituted to a much greater degree than constructivists sometimes want to admit. Plotkin (2001) uses evolutionary epistemology in an intriguing way that may help bridge the gap between constructivism and constructionism.

PSYCHOLOGY AS GROUNDING FOR SOCIAL EVOLUTION

Plotkin (2001) tries to tie the evolution of social construction to underlying psychological mechanisms. While this may seem reductionistic in a way that offends some social constructionists, Plotkin's efforts are worthy of serious attention because they can help constructivists accommodate and incorporate social constructionism into their theorizing without repudiating individualism. Plotkin posits that language and a theory of mind, combined with a susceptibility to social force, constitute the foundations from which social constructions spring. Regarding language, Plotkin endorses a nativist position, contending that the complexity of language suggests it evolved slowly over a long period of time. Combined with language is the need for a theory of mind, defined nicely as "the capacity to attribute intentional mental states to others" (Plotkin, 2001, p. 127). Plotkin sees a theory of mind as important because, in order to hold shared social constructions, people must understand that others have intentional mental states and that the content of different people's mental

states can “match.” Finally, Plotkin (2001) contends that social susceptibility is critical to the evolution of social constructions. He hypothesizes that social conformity and influence evolved to improve group coordination, which in turn enhanced individual survival. That is, common social constructions—such as believing that God is on your side in times of war (Hull, 2001)—serve not to accurately represent things but to help people functionally survive in a given group context (Caporael, 2001). This last point seems consistent with social constructionism’s social consensus approach to truth (Burr, 1995; Gergen, 1985, 1991, 1994).

Plotkin (2001) advocates developing an empirical research program to study how social constructions grow out of *psychological* predispositions such as “entering into close affectional relationships with a small number of people,” “sharing and exchanging resources, entering into alliances, responding to strangers, and joining with mutual defence arrangements” (p. 131). Plotkin grounds the social in the psychological and, even more foundationally, the biological processes. This makes sense because evolutionary approaches, being naturalistic, begin with biology as their basis. That is, personal and social experiences initially emerge from a system’s biology. However, in evolutionary epistemology, once personal and social influences emerge, they affect the course of biological evolution in a way that cannot be reversed or undone. This is consistent with a constructivist-based epigenetic systems approach, which sees human meaning-making as evolving simultaneously and interdependently at bigenic, personal-agentic, dyadic-relational, and cultural-linguistic levels (Mascolo, Craig-Bray & Neimeyer, 1997; Mascolo, Pollack, & Fischer, 1997; Neimeyer & Bridges, 2003).

Some people may be concerned that grounding the social in the psychological and biological runs the risk of privileging the latter at the expense of the former. This is an important concern, but one that can be readily handled because, even if the social is seen as emerging from the psychological, this only applies to origins. That is, here are two possible positions:

1. *The psychological is a necessary platform for the social.* Organisms evolved psychological experience first, out of which they developed a capacity for sociality and, perhaps a bit later, a cognitive capacity for reflecting on that sociality. But once the social

evolved out of the psychological, it in turn came to influence the ongoing evolution of the psychological mechanisms from which it originated.

2. *The psychological and social are mutually interdependent, both functionally and in terms of evolution.* They evolved simultaneously. Organisms that survived by living in groups came to construe the world based on sociality, and within this sociality there came to be mnemonically supported thinking patterns about selves and identities. Sociality did not evolve after psychological construing, but along with it.

In the first position, the social emerged from the psychological; in the second, they emerged simultaneously. Given that we will likely never be able to firmly prove one of these positions over the other, perhaps it is a moot question. What seems more important is that the psychological and social are intricately tied together and mutually influence one another. This is where Campbell's (1997) concept of *downward causation* is helpful (Caporael, 2001; Plotkin, 2001). Put simply, the principle of downward causation holds that "lower level processes in a hierarchical system are constrained by the laws of the higher levels that have emerged from them" (Mahoney, 1991, p. 134). In downward causation, all parts of a system are both influenced and influencing. Thus, while it often seems obvious to us that genetic processes influence human evolution, it is often less evident how social constructions do the same. However, as Plotkin (2001) observes, "warfare is seldom the consequence of human aggressive instincts. It is mostly caused by patriotism, money markets, religion, ideologies, international treaties, and ethnic identities, all of them social constructions" (p. 125).

Plotkin (2001) takes a naturalistic approach to social constructions by giving them grounding within neural and psychological processes, but this does not make social constructions simply the products of such processes. It also makes social constructions a causal force in shaping the ongoing development of these processes. Social constructions create realities for people, who then live according to those realities. People biologically and psychologically most fit to survive within a socially constructed milieu will do so. Social constructions are therefore both influenced by and are influencers of biological and psychological

evolution. Downward causation makes it clear that the social, once established, is just as influential in selecting biological and psychological features as these features are in selecting the social.

Further support for such a view is found in *developmental systems theory*, an approach espoused by a loose configuration of researchers holding an evolutionary perspective and emphasizing “joint determination by multiple causes” (Oyama, Griffiths, & Gray, 2001, p. 2). Detailed explication of developmental systems theory is beyond the current scope. However, its main idea is that “genes, organisms, and environments are in reciprocal interaction with each other in such a way that each is both cause and effect in a quite complex, although perfectly analyzable, way” (Lewontin, 2001, p. 61). Downward causation and developmental systems theory potentially provide the tools to ground the social in the biological and psychological without denying the social’s reciprocal influence. The potential outcome is maintaining the integrity of social constructionism without having to sacrifice constructivism’s emphasis on personal meaning or recast everything in social terms.

AN EXAMPLE: GENDER ROLES AND SOCIAL EVOLUTION

Plotkin’s (2001) position implies that social constructions of gender can be traced to individual constructions of gender, which in turn grew out of biologically evolved sex differences. This does not mean that current understandings of gender can be explained solely in biological terms. To do so is to overlook the complexities of downward causation. However, assume that gender roles were, at least originally, tied to biological survival. Initially, human beings developed social constructions of gender that reflected these survival needs. Over time, psychological and social constructions evolved in response to blind variations, changing what was adaptive. Psychological reflexivity allowed people to develop constructs (initially blind variations) that went beyond biologically evolved gender roles. These constructs, once widely shared, became social constructions that, in turn, exerted a powerful influence on how people lived. Certainly the women’s suffrage movement and the blind variations about women’s rights it introduced have impacted the evolution of gender roles in a way at least as important as the anatomical differences between men and women.

For example, during World War II American women entered the workforce in record numbers to take the place of young men who had gone into the military. These women were doing what had, until then, been socially construed as men's work—things like working in factories and mills. Women doing men's work was a blind variation introduced to adapt and survive in the face of challenging new circumstances. It was one of many blind social variations introduced initially for adaptive purposes, but which ultimately contributed to significant evolution in the social and psychological experience of being male or female. Within 30 years, a burgeoning women's rights movement was in full swing and social constructions about gender roles evolved rapidly. Importantly, living according to pre-World War II understandings of gender roles is no longer adaptive in today's world. Thus, notions about gender roles rooted in early ancestral adaptations are no longer true because they apply to times past. In keeping with downward causation, changing social constructions of gender impact what is psychologically and biologically adaptive—thus establishing criteria for ongoing biological and psychological evolution.

The point is that biological, psychological, and social systems mutually influence one another over the course of their evolution. New personal constructions, while constrained by social constructions, impact the evolution of those same social constructions. This in turn transforms the parameters available in developing further personal constructions. Add to this that processes of personal and social evolution also alter the confines of biological evolution and the genuine complexity of meaning system development starts to become clear.

Conclusion: Toward an Evolutionary Constructivism

Applying evolutionary theory to constructivism has a great deal of elaborative potential. Constructivists are encouraged to move forward and further explore some of the implications of an *evolutionary constructivism*. Of course, we do not yet know where such explorations will lead. After all, new theoretical constructions are yet-to-be tested blind variations. The one thing we do know is that, however these blind variations turn out, both evolutionary theory and constructivism will evolve as a consequence—moving

us, to paraphrase Kelly (1977), ever closer to that elusive truth that always lies just over the horizon.

References

- Barrett, L., Dunbar, R., & Lycett, J. (2002). *Human evolutionary psychology*. Princeton, NJ: Princeton University Press.
- Bernstein, R. J. (1983). *Beyond objectivism and relativism: Science, hermeneutics, and praxis*. Philadelphia: University of Pennsylvania Press.
- Burr, V. (1995). *An introduction to social constructionism*. London: Routledge.
- Butt, T. (1998). Sociality, role, and embodiment. *Journal of Constructivist Psychology*, *11*, 105–116.
- Butt, T. (2004). *Understanding people*. Houndmills, UK: Palgrave-Macmillan.
- Campbell, D. T. (1974). Evolutionary epistemology. In P. A. Schilpp (Ed.), *The philosophy of Karl Popper*, Vol. 14 (pp. 413–463). LaSalle, IL: Open Court.
- Campbell, D. T. (1975). On the conflicts between biological and social evolution and between psychology and moral tradition. *American Psychologist*, *30*, 1103–1126.
- Campbell, D. T. (1997). From evolutionary epistemology via selection theory to a sociology of scientific validity. *Evolution and Cognition*, *3*, 5–38.
- Caporael, L. R. (2001). Natural tensions: Realism and constructivism. In C. Heyes & D. L. Hull (Eds.), *Selection theory and social construction: The evolutionary naturalistic epistemology of Donald T. Campbell* (pp. 135–154). Albany: State University of New York Press.
- Chiari, G., & Nuzzo, M. L. (1996). Psychological constructivisms: A metatheoretical differentiation. *Journal of Constructivist Psychology*, *9*, 163–184.
- Darwin, C. (1859). *The origin of species by means of natural selection*. New York: Merrill and Baker.
- Ecker, B., & Toomey, B. (in press). Depotentiation of symptom-producing implicit memory in coherence therapy. *Journal of Constructivist Psychology*.
- Edwards, D., Ashmore, M., & Potter, J. (1995). Death and furniture: The rhetoric, politics, and theology of bottom line arguments against relativism. *History of the Human Sciences*, *8*, 25–49.
- Efran, J. S., & Lukens, M. D. (1985, May/June). The world according to Humberto Maturana. *Family Therapy Networker*, *23–28*, 72–75.
- Epting, F. R. (1984). *Personal construct counseling and psychotherapy*. New York: John Wiley.
- Fransella, F. (2003). *International handbook of personal construct psychology*. Chichester, UK: John Wiley.
- Fromm, M. (2004). *Introduction to the Repertory Grid Interview* (rev. ed.). New York: Waxman Münster.
- Gergen, K. J. (1985). The social constructionist movement in modern psychology. *American Psychologist*, *40*, 266–275.
- Gergen, K. J. (1991). *The saturated self: Dilemmas of identity in contemporary life*. New York: Basic Books.
- Gergen, K. J. (1994). *Realities and relationships*. Cambridge, MA: Harvard University Press.

- Gillett, E. (1998). Relativism and the social constructivist paradigm. *Philosophy, Psychiatry, and Psychology*, 5, 37–48.
- Guidano, V. F. (1987). *Complexity of the self: A developmental approach to psychopathology and therapy*. New York: Guilford.
- Held, B. S. (1995). *Back to reality: A critique of postmodern theory in psychotherapy*. New York: Norton.
- Heyes, C., & Hull, D. L. (Eds.) (2001). *Selection theory and social construction: The evolutionary naturalistic epistemology of Donald T. Campbell*. Albany: State University of New York Press.
- Hull, D. L. (2001). In search of epistemological warrant. In C. Heyes & D. L. Hull (Eds.), *Selection theory and social construction: The evolutionary epistemology of Donald T. Campbell* (pp. 155–167). Albany: State University of New York Press.
- Jankowicz, D. (2003). *The easy guide to repertory grids*. Chichester, UK: John Wiley.
- Kelly, G. A. (1970). A brief introduction to personal construct psychology. In D. Bannister (Ed.), *Perspectives in personal construct psychology* (pp. 1–30). London: Academic Press.
- Kelly, G. A. (1977). The psychology of the unknown. In D. Bannister (Ed.), *New perspectives in personal construct theory* (pp. 1–19). London: Academic Press.
- Kelly, G. A. (1991a). *The psychology of personal constructs: Vol. 1. A theory of personality*. London: Routledge. (Original work published 1955.)
- Kelly, G. A. (1991b). *The psychology of personal constructs: Vol. 2. Clinical diagnosis and psychotherapy*. London: Routledge. (Original work published 1955.)
- Leitner, L. M., & Faidley, A. F. (1995). The awful, awful nature of role relationships. In R. A. Neimeyer & G. J. Neimeyer (Eds.), *Advances in personal construct theory*, Vol. 3 (pp. 291–314). Greenwich, CT: JAI Press.
- Leitner, L. M., & Faidley, A. J. (2008). Embodiment in experiential personal construct psychotherapy: Theoretical and technical concerns. In J. D. Raskin & S. K. Bridges (Eds.), *Studies in meaning 3: Constructivist psychotherapy in the real world* (pp. 109–124). New York: Pace University Press.
- Lewontin, R. C. (2001). Gene, organism, and environment. In S. Oyama, P. E. Griffiths, & R. D. Gray (Eds.), *Cycles of contingency: Developmental systems and evolution* (pp. 59–66). Cambridge, MA: MIT Press.
- Mackay, N. (2003). Psychotherapy and the idea of meaning. *Theory and Psychology*, 13, 359–386.
- Mahoney, M. J. (1988). Constructive metatheory: I. Basic features and historical foundations. *International Journal of Personal Construct Psychology*, 1, 1–35.
- Mahoney, M. J. (1991). *Human change processes*. New York: Basic Books.
- Mascolo, M. F., Pollack, R. D., & Fischer, K. W. (1997). Keeping the constructor in development: An epigenetic systems approach. *Journal of Constructivist Psychology*, 10, 25–49.
- Mascolo, M. F., Craig-Bray, L., & Neimeyer, R. A. (1997). The construction of meaning and action in development and psychotherapy: An epigenetic systems perspective. In G. J. Neimeyer & R. A. Neimeyer (Eds.), *Advances in personal construct psychology*, Vol. 4 (pp. 3–38). Greenwich, CT: JAI Press.
- Matthews, W. J. (1998). Let's get real: The fallacy of post-modernism. *Journal of Theoretical and Philosophical Psychology*, 18, 16–32.

- Maturana, H. R., & Varela, F. J. (1992). *The tree of knowledge: The biological roots of human understanding* (R. Paolucci Trans, rev. ed.). Boston: Shambhala.
- McGinn, C. (1999). *The mysterious flame: Conscious minds in a material world*. New York: Basic Books.
- McNamee, S. (1996). Psychotherapy as social construction. In H. Rosen & K. T. Kuehlwein (Eds.), *Constructing reality: Meaning-making perspectives for psychotherapists* (pp. 115–137). San Francisco: Jossey-Bass.
- Neimeyer, R. A., & Bridges, S. K. (2003). Postmodern approaches to psychotherapy. In A. S. Gurman & S. B. Messer (Eds.), *Essential psychotherapies: Theory and practice* (2nd ed., pp. 272–316). New York: Guilford.
- Noaparast, K. B. (1995). Toward a more realistic constructivism. In R. A. Neimeyer & G. J. Neimeyer (Eds.), *Advances in personal construct theory*, Vol. 3 (pp. 37–59). Greenwich, CT: JAI Press.
- Oyama, S., Griffiths, P. E., & Gray, R. D. (2001). Introduction: What is developmental systems theory? In S. Oyama, P. E. Griffiths, & R. D. Gray (Eds.), *Cycles of contingency: Developmental systems and evolution* (pp. 1–11). Cambridge, MA: MIT Press.
- Parker, I. (1999). Against relativism in psychology, on balance. *History of the Human Sciences*, 12, 61–78.
- Plotkin, H. (2001). Social constructions and evolution. In C. Heyes & D. L. Hull (Eds.), *Selection theory and social construction: The evolutionary naturalistic epistemology of Donald T. Campbell* (pp. 119–133). Albany: State University of New York Press.
- Quartz, S. R., & Sejnowski, T. J. (1997). The neural basis of cognitive development: A constructivist manifesto. *Behavioral and Brain Sciences*, 20, 537–596.
- Raskin, J. D. (2001). On relativism in constructivist psychology. *Journal of Constructivist Psychology*, 14, 285–313.
- Raskin, J. D. (2002). Constructivism in psychology: Personal construct psychology, radical constructivism, and social constructionism. In J. D. Raskin & S. K. Bridges (Eds.), *Studies in meaning: Exploring constructivist psychology* (pp. 1–25). New York: Pace University Press.
- Raskin, J. D. (2006). Constructivist theories. In J. C. Thomas & D. L. Segal (Eds.), *Comprehensive handbook of personality and psychopathology. Vol. 1: Personality and everyday functioning* (pp. 212–229). New York: John Wiley.
- Shotter, J. (1993). *Cultural politics of everyday life: Social constructionism, rhetoric and knowing of the third kind*. Toronto: University of Toronto Press.
- Smith, B. H. (1988). *Contingencies of value: Alternative perspectives for critical theory*. Cambridge, MA: Harvard University Press.
- Stevens, C. D. (1998). Realism and Kelly's pragmatic constructivism. *Journal of Constructivist Psychology*, 11, 283–308.
- Toomey, B., & Ecker, B. (2007). Constructivism, coherence psychology and their neurodynamic substrates. *Journal of Constructivist Psychology*, 20, 201–245.
- Toomey, B., & Ecker, B. (in press). Competing visions of the implications of neuroscience for psychotherapy. *Journal of Constructivist Psychology*.
- von Glaserfeld, E. (1984). An introduction to radical constructivism. In P. Watzlawick (Ed.), *The invented reality: How do we know what we believe we know? Contributions to constructivism* (pp. 17–40). New York: Norton.

- von Glaserfeld, E. (1995). *Radical constructivism: A way of knowing and learning*. London: The Falmer Press.
- Warren, B. (1998). *Philosophical dimensions of personal construct psychology*. London: Routledge.
- Winter, D. A. (1992). *Personal construct psychology in clinical practice: Theory, research and applications*. London: Routledge.
- Winter, D. A., & Viney, L. L. (Eds.) (2005). *Personal construct psychotherapy: Advances in theory, practice and research*. London: Whurr.