

FROM NEO-BEHAVIORISM TO SOCIAL CONSTRUCTIVISM?:
THE PARADIGMATIC NON-EVOLUTION
OF ALBERT BANDURA

By

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ABSTRACT

Albert Bandura's (1986) social cognitive theory is incorrectly considered by many scholars to represent a neo-behaviorist view of human behavior. Because the behaviorist paradigm is currently on the wane in psychology and education, scholars who view a theory in those terms are increasingly likely to ignore it and question its contribution to informed scholarship. I contend that Bandura's brand of social cognition represents a social constructivist view of human learning and development. In this paper, I first outline the problems inherent in misinterpreting the stance of a major force in American psychology and education. I then provide a structure for identifying constructivist thought by sifting out five tenets to which constructivist theories subscribe. With these tenets as an organizing framework, I analyze Bandura's two major theoretical treatises, Social Foundations of Thought and Action: A Social Cognitive Theory and Self-Efficacy: The Exercise of Control, as well as several conceptual articles to discover the paradigmatic assumptions that undergird his social cognitive theory. Results of this analysis reveal that Bandura's major theoretical tenets, key contentions, and psychological constructs are not only consistent with social constructivist thought but are also antagonistic toward mechanistic, positivistic, or behavioral views of human functioning. I conclude that an accurate interpretation of Bandura's work is critical to informed teaching, research, and scholarship.

INTRODUCTION

"Once established, reputations do not easily change."

Albert Bandura

Italo Calvino (1986) wrote that "everything can change, but not the language we carry inside us, like a world more exclusive and final than one's mother's womb" (p. 341). Calvino was of course referring to literature, a medium in which authors adopt a style and tone that often accompanies them throughout their literary careers. If, as Vygotsky (1978) suggested, language is the primary psychological tool for humans—almost akin to mind—then Calvino's passage can also be understood to imply that people themselves do not change, that their minds are set into patterns of thought that resist change. It is these patterns of thought that William James (1892/1958) called habits of mind.

Kuhn (1962/1996) observed that the language scientists use is inexorably tied to their paradigms, those basic, foundational beliefs that provide the assumptions and direction for scholarship and undergird the theoretical orientations of researchers. Kuhn posited that the language used by members of competing paradigms differs at such a rudimentary level that it is difficult for scholars with different worldviews to even communicate with one another. If Kuhn is correct that researchers cannot adequately converse across paradigms, Calvino's (1987) caution that language, that mind, is

unalterable appears especially plausible in scientific enterprises. The literature on conceptual change supports the contention that individuals' beliefs, assumptions, implicit theories, and world views are exceedingly resistant to change (e.g., Basili, 1989; Chan, Burtis, & Bereiter, 1997; Nisbett & Ross, 1980; Pajares, 1992; Posner, Strike, Hewson, & Gertzog, 1982; Rokeach, 1960; Stofflett, 1994; Thorley & Stofflet, 1996). Max Planck addressed the difficulty that scholars have in changing their paradigmatic framework when he wrote that "a new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it" (as cited in Kuhn, p. 151). In essence, the Kuhnian take on conceptual change in the world of academic research is that researchers seldom change paradigms. Calvino's observation, then, that individuals are incapable of changing their habits of language is consistent with Kuhn's description of how paradigms and paradigm holders dominate scientific discourse. Albert Bandura's paradigmatic evolution from the neo-behaviorist to the social constructivist paradigm is an example of the exception that proves the rule.

Statement of the Problem

After Albert Bandura received his doctorate in clinical psychology from the University of Iowa in 1953, he became a professor of psychology at Stanford University, where he has been since (Evans, 1989). His first contributions to psychology and to education were thought to be embedded in the neo-behaviorist tradition prevalent at the time. As part of his early work on adolescent aggression, for example, he argued that environmental conditions of frustration produce an aggressive drive (Bandura & Walters, 1963). Bandura's research during this time was in what he termed "social learning

theory." It is usually summarized in textbooks by what is popularly known as the "Bobo Doll Experiment," in which 4-year-old children were shown a film of a man punching a life-size, inflated doll on a base that swayed as it was hit (Bandura, 1965). Results of this experiment revealed that children imitated aggressive acts and that imitative responses often followed classical behaviorist tenets. Bandura demonstrated that children can imitate others, but that this imitation will vary considerably depending on who the models are and how they perform. The importance of these results was that it presumed that people are capable of learning rules that generate and regulate their actions without going through an arduous process of trial and error. Bandura articulated that this phenomenon, what he came to call vicarious learning, was instrumental to human learning. Social learning theory also emphasized the difference between learning and performance. Although individuals may pay attention to, learn, and even practice certain actions, their motivations—based on reinforcement and punishment—affect whether they will perform that behavior.

Although both the language and outlook of his social learning theory showed a marked departure from traditional behaviorist beliefs of their day, Bandura's initial contributions were judged by many to represent a refinement of behaviorism, a neo-behaviorism of sorts, rather than a parting of ways (e.g., Conner et al., 1998; Sexton & Griffen, 1997). But Bandura contended that modeling and imitation alone are not sufficient to explain learning and development and he turned increasingly to a focus on cognitive constructs. He wrote that, in observing the behavior of others, an individual draws on various cognitive processes (e.g., memory, language, evaluation, anticipation) that allow the individual to integrate and mentally represent experiences (Muuss, 1996).

By 1986, therefore, Bandura's theoretical perspective included a focus on self-regulation, self-perceptions, self-reflective thought, and the power of belief in human functioning.

Although Bandura's views, research, and theory have embodied a social cognitivist outlook since he first presented a social learning theory of human functioning, numerous scholars continue to view him as a proponent of the neo-behaviorist tradition in psychology (Tudge & Winterhoff, 1993). There are two reasons for this. First, Maslow (1962) described the tendency of individuals to rubricize each other, to place each other in categories that serve to separate individuals based on their supposedly incompatible views. The phenomenon of rubricization, for Maslow, reflects a human drive to simplify things, to break concepts down so what remains is an easily identifiable generalization. It may be that this phenomenon also occurs in academic settings, that scholars too easily rubricize the theorists they cover in class lectures or textbooks. That is, they concentrate on relatively narrow aspects of each theory, aspects that, when taken independently of the overarching theories, result in the magnification of any differences between them (e. g., Green, 1989).

Zimmerman (1993) provided another reason why critics have been too quick to dismiss Bandura as a neo-behaviorist. Many reviewers have formed judgments based on their own interpretations of early versions of his work—social learning theory rather than social cognitive theory. In doing so, they have either misinterpreted Bandura's theoretical stance or are unaware of his early contributions to psychological thinking. For example, Bandura's first major publication was a lengthy chapter on "Social Learning Through Imitation" in the 1962 Nebraska Symposium on Motivation, in which he conceptualized observational learning. Bandura describes how on pages 260-261 of that chapter,

I presented a parody on how trying to shape auto driving skills through operant conditioning would unshape the driver and the surrounding environment. In it, I rejected Miller and Dollard's (1941) view of imitation as merely a special case of instrumental conditioning. While behaviorists were plotting learning curves as a function of number of reinforced trials, I published a chapter on "No trial learning" in a volume edited by Berkowitz. (Bandura, personal communication)

Rubricization is typically a result either of first impressions or of misimpressions (Maslow, 1962). In much the same way that individuals create formalistic beliefs about certain races, age groups, or cultures based only on those first impressions, so may professors and reviewers have rubricized Bandura such that his reputation, in their eyes, will remain one of a neo-behaviorist.

Bandura in Textbooks

Because textbooks are a primary reference for students' learning of new material, the accuracy of information presented in an academic text should be held to the highest standards. However, authors of textbooks often fail to include Bandura's contemporary research, instead rubricizing him based on his past work. For example, Sexton and Griffin (1997) write that Bandura is an example of a theorist operating under the exogenous paradigm, that is, he "attempt[s] to explain development in terms of learning, which is believed to be controlled by environmental factors" (p. 22). Gage and Berliner (1998) present Bandura's theory in a chapter entitled "Behavioral and Social Views of Learning." Rather than a focus on Bandura's (1986, 1997) recent contributions to cognitive psychology, the authors describe observational learning, modeling, and mentoring, the essential components of social learning theory. Eggen and Kauchak (1997) group social cognitive theory with behaviorism and conclude that "social cognitive theory extends behaviorism and focuses on the influence that observing others has on behavior," and that "modeling lies at the core of social cognitive theory" (p. 231). Elliott, Kratochwill,

Littlefield, and Travers (1996) discuss Bandura's social cognitive perspective under the heading "Behavioral Psychology and Learning" and present the following chart, in which imitation is listed as the central element of the theory and modeling is listed as the construct that best explains human motivation (see figure 1). As I will subsequently illustrate, the authors have erred on both counts.

| Motivational Theorists and their Basic Ideas | | | |
|---|----------------------|----------------------------------|----------------------------------|
| Name | Theory | Central element of theory | Explanation of motivation |
| Maslow | Humanistic | Needs hierarchy | Needs satisfaction |
| Bruner | Cognitive | Intrinsic processes | Mixed motives |
| Skinner | Operant conditioning | Reinforcement | Schedules of reinforcement |
| Bandura | Social cognitive | Imitation | Modeling |

Figure 1: Chart excerpted from Elliott et al., (1996).

Bandura in Books of Theory

As I will later show, Bandura's social cognitive theory represents a departure from neo-behaviorism and emphasizes the primary importance of the individual in knowledge acquisition. Yet, even in books written after the publication and dissemination of Social Foundations of Thought and Action: A Social Cognitive Theory (1986), he remains rubricized as a social learning theorist. Miller's (1993) extensive coverage of the key theories of human development includes Bandura in a chapter entitled "Social Learning Theory." Crain (1994) writes that Bandura believes that "children's minds are structured by the environment, by the models and social training practices the environment provides" (p. 186). Green (1989) describes Bandura's departure from the behaviorist paradigm by observing that "social learning theory is a natural outgrowth of the S-R learning tradition. It retains the spirit of the behaviorist movement: the experimentally

rigorous study of how basic learning occurs as a result of environmental forces" (p. 229).

One could reasonably speculate that Bandura (1986) subtitled his theoretical treatise "A Social Cognitive Theory" in part to emphasize his evolution from the social learning theories with which he had come to be associated. Even in theory books in which the author has kept abreast of Bandura's current research, miscategorizations remain.

Although Green's (1989) description of social cognitive constructs such as self-efficacy, self-reflection, and triadic reciprocity indicate attention to Bandura's current ideas, he rubricizes Bandura as a theorist operating under the exogenous paradigm and pairs him with noted behaviorist B. F. Skinner (see figure 2).

| <u>Structural Components</u> | <u>Exogenous Paradigm</u> | | <u>Constructivist Paradigm</u> |
|------------------------------|---|---|---|
| | <i>Skinner</i> | <i>Bandura</i> | <i>Piaget</i> |
| Internal Principles: | -Differential reinforcement -Discriminative stimulus -Shaping | -Triadic reciprocity (behavior, cognition, environment) | -assimilation, accommodation, equilibration -organization and adaptation |
| Bridge Principles: | -Schedules of reinforcement -Generalization -Chaining | -Differential contributions -Temporal dynamics -Fortuitous determinants | -Schemes -Operations -Cognitive structures |
| Change Mechanism: | -Reinforcement | -Production processes -Motivation processes | -Equilibration (of maturation, experience, social transmission) |

Figure 2: Chart excerpted from Green (1989).

Green (1989) describes Bandura's (1986) social cognition as a form of cognitive neo-behaviorism: "It may be that the use of human rather than animal subjects is what led Bandura to extend radical behaviorism into cognitive behaviorism" (p. 153).

Bandura on the World Wide Web

Because the Internet is rapidly becoming both students' and professors' preferred method of accessing information, one must be alert to misreadings and misperceptions of theorists by the creators of web pages who aim to provide helpful information to students, teachers, and researchers. Huitt and Hummel (1997), who designed the psychology site for a state university, link to a page about Bandura and social learning theory from a page entitled "An Overview of Behavioral Psychology." Another site lists Bandura as a behaviorist without any description of his theory (Southern Adventist University, 1997). Yet another includes a page called "The Behavioral Approach" and places the contributions of Bandura following those of Ivan Pavlov, John Watson, and B. F. Skinner, and under a description of classical and operant conditioning. (Bustamante, Howe-Tennant, & Ramo, 1998). Another web site offers the following chart:

| <i>Theory</i> | <i>Behaviorism</i> | <i>Neo-behaviorism</i> | <i>Cognitivism</i> | <i>Constructivism</i> | <i>Humanism</i> |
|------------------|--------------------------------|-------------------------|--------------------------------------|-----------------------|--------------------------------------|
| Theorists | Skinner Thorndike Watson | Hebb Hull Bandura | Piaget Gagné Bruner Ausubel | Piaget Papert | Rogers Maslow Knowles Vella |

Figure 3: Chart from web page (Conner et al., 1998).

Many professors have begun to post the syllabi for their classes on the world wide web. One Psychology 100B syllabus lists Bandura as a "key behavioral theorist" despite providing a short description of social cognitive theory and the model for reciprocal determinism (Fekken, 1998). A web syllabus for Psychology 221, Basic Dynamics in Personality, details assignments, grading, and the topics to be discussed during each class period (Doherty, 1998). The link to "Rotter's and Bandura's Social Learning Theory" opens a page where Bandura is described as sharing "a basic behaviorist foundation." Just as any person browsing the Internet should be wary of sites for investment advice or easy

employment opportunities, individuals must be alert to misinformation provided on educational sites as well.

Current Developments

Especially relevant to the discussion of the miscategorization of Bandura is that recent research shows that the behaviorist paradigm has lost much of its predominance in psychological research (Robins, Gosling, & Craik, 1999). Through a study of keywords in articles, dissertations, and citation indexes, Robins and his colleagues demonstrated that, sometime during the 1970s, the prominence of the behaviorist movement in psychology gave way to the ascension of the school of cognitive psychology. Interestingly, the authors observed that prominence provides an indication of "the degree to which the mainstream of the field pays attention to a school's scientific products" (p. 126). The decline in behaviorism reflects as the psychology community's belief that the scientific merit of behaviorism has diminished. Because this view has lost predominance in educational and psychological research, many in the academy may not read, or seriously consider, the work of theorists they presume to be part of the behaviorist paradigm. (Zimmerman, 1993). The conceptual choices made by professors of psychology or of education—in this instance, not to research or teach this outdated paradigm—will likely result in their students likewise avoiding such intellectual sources (Kuhn, 1962/1996). Because Bandura's work is often miscategorized as behaviorist or neo-behaviorist, this potential avoidance is a serious concern, both because students are incorrectly informed and educated and because Bandura's progressive ideas are not disseminated or clearly understood.

Purpose of the Study

The purpose of this thesis is to demonstrate that the current conceptions that make up Albert Bandura's (1986) social cognitive theory are social constructivist in nature. First, I will provide a historical analysis of the constructivist paradigm that will serve to orient the reader with the philosophical tenets that form constructivism. Second, I will outline key tenets of constructivism that will clarify the paradigm and will provide a structure within which to analyze the work of Bandura. Finally, I will critically examine Bandura's (1986, 1997) social cognitive theory, detailing how his conceptual framework is both an example of constructivist thinking and contrary to behaviorism.

Significance of the Study

There are fewer processes as antagonistic to the development of refined thought as the distortion of scholarship (Pajares, 1992). The accurate interpretation of a theorist's work is critical to informed research and teaching. A psychology of education curriculum that misunderstands, misinstructs, or fails to account for the contributions of a scholar or a movement is neither modern nor sufficient for a complete understanding of the current directions in educational research. Information provided by an analysis of Bandura's contribution can provide professors and researchers with information that will likely result in students approaching the theory with a more open mind—a difficult task when his work has been grouped with that of others who have come to be viewed as outmoded (Robins et al., 1999). I also hope that my contentions will be convincing enough to cause professors to rethink their current understanding of Bandura's (1986, 1997) social cognitive theory.

CONSTRUCTIVISM'S PHILOSOPHICAL ROOTS: A HISTORICAL ANALYSIS

From philosophy's beginnings in ancient Greece to its modern incarnations, individuals have asked questions about human understanding. Epistemology is the branch of philosophy that attempts to explain the nature of knowledge (Airasian & Walsh, 1997). Constructivism, classified as such in the field of education, has risen to prominence among research paradigms. However, the ideas that make up constructivism have been around for a very long time.

The Foundations of Constructivism

Pre-Socratic philosophy was primarily concerned with the source of knowledge. Milesian philosophers wrote that all things are one thing, be that thing water (Thales), air (Anaximenes), or the "unlimited" (Anaximander) (Hyland, 1973). Although each of these philosophers desired some sort of unity in his view of nature, they all agreed on one concept: that humans can only look at results—they cannot know how that source became the many. Thus, for the Milesians, nature was primary to man's thought. Heraclitus, conversely, believed that all things are changing and that permanence is an illusion. He wrote that the mind is itself a part of nature, and that this public mind is what lets us see the truth in something. The idea of a triangle, for example, can be shared within public reason. We think about something that we can all understand. Thus knowledge is generated by ideas being shared by the public mind.

The fifth century BCE saw the Sophists rise to prominence, chief amongst them Protagoras (Hyland, 1973). He is probably most recognized for the following statement:

"Man is the measure of all things, of the things that are, that they are, of the things that are not, that they are not" (p. 331). After decades of philosophers believing in abstract concepts like "mind" or "unlimited," Protagoras wrote that no matter what one's epistemology, that belief system—and all the knowledge it generates—is essentially human, because a human has created it and because all humans are bound by their humanity.

The ideas of the pre-Socratics, despite their obvious contributions to constructivist thought, are often overlooked in the desire to hand the "father of constructivism" designation to two philosophers from the modern era: Giambattista Vico and Immanuel Kant.

In the early part of the 18th century, Vico wrote that humans are only able to clearly understand what they have themselves constructed; since God created the world, only God could truly know it in its infiniteness (Gruender, 1996). The emphasis here is on the person's own construction. Also important for Vico was the construction metaphor, as he frequently used words such as "creates," "assembles," "builds," and "shapes" (Sexton & Griffin, 1997). To build anything, one needs material. For Vico, that material was only available within the experience of each individual. In that vein, Vico was the first to use the word "construction" to describe the individual process of knowledge acquisition (von Glasersfeld, 1995). Vico's other significant contribution to the constructivist model was his description of language as a component of knowing. "To know," for Vico, meant "to know how to make," since people can only understand a thing when they know how to explain it (Yager, 1991). That explanation will come from one of the two types of knowledge: rational knowledge or poetic wisdom. The former can be

expressed in "vulgar language." These words discuss the world of everyday experience and the relations abstracted from them. The poetic, which includes fables, myths, and stories, is expressed in metaphors that point beyond the rationally accessible (von Glasersfeld, 1995). These are metaphors, for Vico, because only half of what is being recounted is actually knowledge, that is, the experience of human beings. As the phenomena described are beyond experience, these will always remain myth, and not true knowledge. Thus the contributions of Vico formed a foundation for constructivism, a foundation that was built on by Immanuel Kant.

Kant reinforced some of Vico's insights toward constructivism, but he also added many ideas to the foundation, which is why many writers cite Kant as the first true constructivist (e.g., Crain, 1994). Like Vico, Kant put a limit on what humans could possibly know. He wrote that every item and action in the world exists in both the realm of nature (knowledge) and the realm of freedom (thought). The realm of nature is what we can know because of our own sense perceptions. As Sexton and Griffin (1997) explained, nature is the collective conception of all experience. The freedom realm, then, is everything for which humans do not have sensory experience. Although Kant wrote that people cannot know freedom, they also cannot deny it. This shows Kant's belief that people can learn only through their own personal experience. However, knowledge for Kant does not simply appear out of experience. Each person's mind imposes its own inherent structures on the particulars of thought and action (Mahoney, 1995). Kant wrote that knowledge can be developed in people's minds only by organizing information into fundamental built-in cognitive principles ("categories") to organize experience (Heylighen, 1997). Kant also wrote about redefining "objectivity" to mean

"intersubjectively valid." This means that rather than each person's mind conforming to the world, as had traditionally been presumed, Kant considered whether the world might not conform to mind-in-general. Therefore, although humans cannot know things-in-themselves, we can at least establish objectivity once a certain concept has been experienced by enough people. These Kantian insights further developed the philosophical conception of constructivism. Psychologists would then take the concept and run with it.

Modern Constructivism

It is only fitting that William James, the Father of American Psychology, played a major role in developing modern educational psychology's dominant paradigm. In a series of lectures given to preservice teachers, James (1892/1958) presented ideas that would later become key parts of constructivism. James is most often associated with the pragmatist school of thought. He believed that people were primarily practical animals whose minds help them adapt to their environment.

James (1892/1958) wrote that humans are born with "native reactions," and that these reactions form the basis of human development. Three of these can be seen in what theorists today call constructivism. The reaction of curiosity is the impulse toward better cognition; James believed that humans are naturally driven to learn. Another Jamesian idea that made its way into constructivism is the native reaction of ownership. According to James, people have an instinct to make ideas their own, that is, to make personal, internal associations of ideas, with some of the associations becoming habit. James also posited the native reaction of emulation, the impulse to imitate others. Because people do not want to consider themselves inferior to others, James wrote that "the deepest spring of

human action is the sight of action in another" (p. 49). This reaction is reflected in Bandura's (1965, 1986) constructs of modeling and observational learning. Another constructivist idea that can be taken from the work of James is that of the complex organizational skills of the human brain (Leary, 1992). When people pay attention to that which interests them, the result is apperception, the act of placing a thing into the mind. Human understanding comes from the ability to incorporate novel experiences and concepts into what has already been learned. With pragmatism as a foundation for both his psychology and philosophy, William James had insights into the human mind that were decades ahead of their time, insights as significant today as they were generations ago.

At the turn of the past century, John Dewey published an array of material related to educational practice, bringing the doctrine of progressive education to the forefront of American academia, in turn influencing American psychology as well. In Dewey's philosophy, instrumentalism, truth and logic are instruments used by people to solve problems. These instruments must change as human problems change. Thus, for Dewey (1916), there is no objective, eternal Truth and no need for the rote memorization that was the hallmark of American schools in the early 1900s: "Education is not an affair of 'telling' and being told, but an active and constructive process" (p. 43). Dewey's view was that the only purpose of thought is attaining a state of equilibrium—plausible truths and beliefs—that solve a person's pressing problems while preparing the individual for further inquiry (Cahan, 1992). Like James, Dewey also wrote that only a student's own internal motivation can provide the initiative for long-term successful learning (Gruender, 1996). Another Deweyan idea that made its way into constructivist thinking is the pivotal

role of language in meaning construction. All meanings emerge from making common an idea between two or more people, a critical aspect of Kant's philosophy—objectivity as intersubjectivity (Garrison, 1995). Just as Dewey's philosophy built on the foundations laid by the thinkers who came before him, Deweyan concepts became part of the base on which modern constructivism was built.

Constructivism is an epistemology with a history spanning centuries, so it is not surprising to see crucial concepts repeated by different theorists along the way. The first modern theorist, though, to synthesize all of these varied ideas into one comprehensive psychology was Jean Piaget

In an era when psychoanalysis and behaviorism were competing for the attention and research of psychologists worldwide, Piaget united philosophy and psychology to transform society's conception of childhood thought and intelligence, paving the way for a new paradigm in psychology and education.

Piaget's (1926, 1965, 1969) contributions to constructivism included his descriptions of the internal processes that provide individuals with both the ability and motivation to learn. Piaget posited that the human mind creates schemata—structures by which individuals intellectually adapt to and organize the environment. Schemata can be thought of as concepts or categories that adapt or change with mental development. Because the schemata of the adult evolve from the schemata of the child through the processes of adaptation and organization, intellectual development is a constant process of both construction and reconstruction (Wadsworth, 1996). For Piaget, this process takes place via the dual methods of assimilation and accommodation. Take, for example, the case of a young girl whose family owns a small dog. For this child, this animal comprises

the entire schema of "dog." When the child is first presented with a cat, she might think, "small, furry, tail; it must be a dog." This is assimilation—a relatively passive incorporation of experience into a representation already available to an individual. However, if an older sibling or parent were to explain the difference between a cat and a dog, the child would then be forced into cognitive conflict. That is, the discrepancy between the task demand (recognizing the difference between a dog and a cat) and the child's cognitive structures (the preexisting "dog" schema) would become too great, forcing the child to reorganize her thoughts (Anderson, Reder, & Simon, 1999). This reorganization—the creation of new schemata, what Piaget termed accommodation—is the process by which new knowledge is created.

Originally trained in biology, Piaget believed that every healthy child was capable of these constructive processes (Beilin, 1992). From his former discipline, he borrowed the concept of homeostasis, the tendency of an organism to maintain internal balance by adjusting its physiological processes, and applied it to psychology, calling the process equilibration. Thus, whenever someone is presented with new information, the individual loses cognitive balance. The person is biologically motivated to return to equilibrium, a task that is accomplished by either assimilating or accommodating the novel material. Most importantly, for Piaget, development is not governed by internal maturation or external teaching. It is an active construction process in which people, through their own activities, build increasingly differentiated and comprehensive cognitive structures.

As Piaget (1926) was publishing his groundbreaking work on child development, the Russian psychologist L. S. Vygotsky was reading Piaget and writing that his emphasis was centered too closely on the internal processes of individuals. Vygotsky

(1978) viewed cognitive development primarily as a function of cultural, historical, and social interaction rather than of individual construction. Vygotsky believed that people create psychological tools to master their behavior, the most important of these being language. Once the child acquires language, it mediates cognition: "This produces new relations with the environment in addition to the new organization of behavior itself" (p. 25). Thus, Vygotsky assumed that mental processes occur between people (Wertsch & Tulviste, 1992). As a result, Vygotsky contended that what children can do with the assistance of others might be more indicative of their intellectual development than what they can do on their own. This is the basic premise behind the Zone of Proximal Development, defined by Vygotsky as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (p. 86). Therefore, teachers were empowered to be both guides and instructors of their students, adding a stronger social perspective to developmental psychology.

PRINCIPLES OF CONSTRUCTIVIST THOUGHT

Although most students and professors of educational psychology would readily identify the ideas of Piaget and Vygotsky as "constructivist," they may well consider themselves constructivists without being able to identify the tenets that underlie the paradigm (Airasian & Walsh, 1997). Given that researchers are constantly speculating on which psychological paradigm is most prominent (Robins et al., 1999), it may be impractical to try to break down a paradigm into its constituent parts. Although constructivism is a complex paradigm consisting of tightly interwoven explanations for phenomena, explanations that resist categorization, analysis of existent research and theories reveals five principles of constructivist thought.

The Active Construction of Meaning

A key tenet of constructivism is that meaning is actively constructed by learners (Airasian & Walsh, 1997; Akyalcin, 1997; Crowther, 1997; Geary, 1995; Hein, 1991; Heylighen, 1997; Mahoney, 1995; Murphy, 1997; Piaget, 1926; Sexton & Griffin, 1997; von Glasersfeld, 1995; von Glasersfeld & Steffe, 1991; Vygotsky, 1978). Active agency, likely the single most influential and widely held belief amongst constructivist thinkers, is centered around Piaget's (1926, 1952, 1965) concept of equilibration. All people organize their experiences into cognitive structures called schemata, which adapt and change with mental development (Wadsworth, 1996). Experiences or concepts that are encountered for the first time undergo one of two processes: assimilation, subsuming a new idea into an existing schema, or accommodation, creating new schema to contain

novel information. This organization and reorganization takes place constantly within the human mind, thus learning and development build on themselves to create more complex cognitive structures.

Although the process of equilibration can be described as simply as it has been above, constructivist thinkers attribute a much deeper significance to this process. Constructivism holds that people are acutely aware of when their expectations or predictions are not confirmed by experience. This cognitive conflict results in disequilibrium, the feeling that something is not right, and that it must be fixed. Piaget (1952) contended that this feeling motivates individuals to either assimilate or accommodate to return to a state of mental balance. To return to equilibrium, though, individuals must act on their environment. That is, they must manipulate objects, interact with others, or even think to themselves about how to deal with this information. Therefore, individuals' actions are both the cause of disequilibrium and the means to restore cognitive balance. Behaviorist thought contends, conversely, that the human mind is a tabula rasa on which the environment acts; stimuli cause actions, reinforcement make those actions likely to be repeated. Equilibration makes up what constructivists have termed the self-righting mechanism, the idea that the direction in which individuals choose to concentrate their efforts will influence their ability to adapt to their surroundings.

Social Influences on Construction

A second tenet of constructivism is that learning and development are socially situated activities that are enhanced in meaningful contexts (Airasian, & Walsh, 1997; Ertl & Kraan, 1997; Gruender, 1996; Harris & Graham, 1994; Hein, 1991; Mahoney,

1995; Sexton & Griffin, 1997; St. Pierre Hirtle, 1996; von Glasersfeld & Steffe, 1991; Vygotsky, 1978; Yager, 1991). Constructivism emphasizes the role of the other in the learning process. Individuals learn at different rates due both to their inborn characteristics (i.e., personal factors) and to the external factors that affect them (i.e., environment, including other people). Concepts that might otherwise not be discovered on one's own until later in life can be learned with assistance from another individual who has already developed those skills. Language is one of many symbols that humans use to facilitate learning and development. Thinking takes place in communication (Vygotsky, 1978). Ideas and thoughts cannot be communicated such that meaning is packaged into words and "sent" to another who unpacks the intended meaning from the utterances. "Language does not transport pieces of one person's reality into another's—it merely prods and prompts the other to build up conceptual structures that, to this other, seem compatible with the words and actions the speaker or writer has used" (von Glasersfeld and Steffe, 1991, p. 98). For constructivism, language is a symbol that enables individuals to make connections beyond what has been learned in the past. As Vygotsky wrote, language is a synthetic tool because in the formulation of words, sentences, and paragraphs, learners must organize their thoughts into communicable ideas, a process that often results in a gain of knowledge. Language, however, is only one type of tool. Other symbols characteristic to humans are gestures, imagination, religion, mathematics, and art. These symbols must be developed and taught by continuous interaction with other members of society. In behaviorism, however, the physical nature of the stimulus-response mechanism is responsible for learning. Therefore, it is possible for an individual to learn without the efforts of other people, and certainly without

symbols, as the environment will act on a person regardless of others' or the self's participation. Constructivist thought contends that people create meaning from the interaction between their existing knowledge or beliefs and the new ideas and situations that they encounter—ideas and situations that can only be effectively found in social settings.

Importance of Self-Regulatory Practices

Another critical principle of constructivism is that learning and development are self-regulated processes (Anderson, 1996; Ertl & Kraan, 1997; Piaget, 1926; Vygotsky, 1978; Wadsworth, 1996). Constructivism emphasizes the role of self-regulation in learning and development, providing for the capability of individuals to control their thoughts, feelings, motivations and actions. The self has an influence over the behavior individuals choose, their motivation and persistence toward a goal, and their emotional reaction to the environment. Behaviorism, conversely, views the learner as a relatively moldable object that can be shaped by examples, practice, and above all, reinforcement. To that end, what individuals learn and how they develop can be regulated by the environment in which they live. John Watson, considered the founder of American behaviorism, has been widely quoted as saying that he could, irrespective of talent, tendency, and ability, train healthy infants to become whatever he might select—doctor or lawyer, beggar or thief (Crain, 1992). Constructivism contends that the environment is unable to exert such a complete influence over individuals. After constant bombardment from the environment, people fall out of cognitive equilibrium. The self would not be able to regulate the actions if it were not first able to identify that a state of disequilibrium has been reached. Once individuals are aware of cognitive conflict, they must decide how

much, and in what ways, to expend their efforts to return to balance. Finally, after these actions have been taken, the self analyzes the outcome of the situation, concluding if those actions were sufficient to return to equilibrium, or if more actions are necessary. One example of self-regulation in constructivist theory is Vygotsky's (1978) conception of the zone of proximal development. Interactions with others can cause an individual to realize that his or her understanding of a given concept is insufficient. This person must then seek out the assistance of individuals who are more knowledgeable about this concept, who will, in turn, provide the information and instruction required to allow the learner to return to a balanced state. Therefore, people are able to return themselves to equilibrium only until the processes of self-regulation are again required.

The Role of Mental Operations

A fourth principle of constructivism is that individuals are capable of formalized operations and abstract thought (Airasian & Walsh, 1997; Piaget, 1952; Wadsworth, 1996). To solve complex problems, people must first determine what skills or information are relevant to finding the solution. This process also helps people discover needs for further learning. Inhelder and Piaget's (1958) conception of formal operations includes an emphasis on hypothesis building and scientific reasoning as well as a highly developed understanding of causation. Individuals who have obtained formal operations can operate on the logic of a problem independent of its content; these operations serve to motivate individuals toward future goals. Finally, individuals are able to construct entirely new knowledge based only on information already available.

Constructivism, Truth, and Experience

Although it may be considered controversial, the fifth tenet of constructivist thought is that cognition serves the organization of the experiential world, not the ontological reality. Reality represents an interpretation, so truth is viewed as viability, not validity. (Airasian & Walsh, 1997; Crowther, 1997; Ertl & Kraan, 1997; Gruender, 1996; Heylighen, 1997; Murphy, 1997; Stewart, 1994; von Glasersfeld, 1995; von Glasersfeld & Steffe, 1991; Yager, 1991). As conceptions of modern constructivism grew during the middle of the twentieth century, theorists attempted to reconcile the subjectivity of Freud's (1923/1960) psychoanalytic school with the strict stimulus-response model of behaviorism. Thus, constructivism came to hold that because all individuals lead different lives, the purpose of learning is to allow people to organize what they have experienced. Rather than "knowing" cold facts about "reality," learning provides humans with beliefs about the world in which they live. Furthermore, information is sifted by the individual to create beliefs from interpretations of self-referent information and environmental contingencies. Behaviorism has no such subjective component—the environment acts on individuals, causing them to learn. There is, of course, a real world to be known, but every individual's knowledge of that world is always under construction and never fully constructed (Wadsworth, 1996). This phenomenological viewpoint is exemplified in the philosophy of Schutz (1970), who contended that people have

a common surrounding to be defined by our common interests, his and mine. To be sure, he and I will have a different system of relevances and a different knowledge of the common surrounding if for no other reason that he sees from 'there' everything that I see from 'here.' (p. 237)

As Husserl (1950/1997) wrote, "only an uncovering of the horizon of experience ultimately clarifies the 'actuality' and the 'transcendancy' of the world, at the same time showing the world to be inseparable from transcendental subjectivity, which constitutes actuality of being and sense" (p. 62). Three people who witness a car accident would all agree that there was an objective, real event. However, each of the witnesses will likely provide divergent descriptions. To distinguish constructivist thought from absolute relativism, i.e., the assumption that any model of reality is as adequate as any other, it is essential to note that the disparate ways that those three individuals construct the meaning of an accident are colored by their beliefs and their previous experiences. People's beliefs, motivations, and actions are dependent primarily on their interpretations of their experiences and of the world around them. Construction is linked to interpretation.

Summary

When students of psychology and education are introduced to the paradigm of constructivism, perhaps the defining characteristic they are taught is that constructivism emphasizes the idea that individuals construct the meaning of their experiences. To this central tenet, I have added four more principles. Constructivist theories of human functioning must acknowledge that individuals cannot effectively construct meaning in isolation. The theories should account for people's ability to self-regulate. They must include an explanation of humans' ability for formal operations. Finally, constructivist theories must adhere to a principle which states that reality is a personal interpretation, dependent on how individuals perceive their experiences. Having established the basic tenets of constructivism, let me now provide you with a basic overview of social cognitive theory and subsequently analyze its major theoretical tenets, key contentions,

and psychological constructs to show how it is not only consistent with social constructivist thought but also antagonistic toward mechanistic, positivistic, or behavioral views of human functioning.

OVERVIEW OF SOCIAL COGNITIVE THEORY

In 1941, Miller and Dollard proposed a theory of social learning and imitation that rejected behaviorist notions of associationism in favor of drive reduction principles. It was a theory of learning, however, that failed to take into account the creation of novel responses or the processes of delayed and non-reinforced imitations. In 1963, Bandura and Walters wrote Social Learning and Personality Development, broadening the frontiers of social learning theory with the now familiar principles of observational learning and vicarious reinforcement. By the mid-1970s, Bandura was becoming aware that a key element was missing not only from the prevalent learning theories of the day but from his own social learning theory. In 1977, with the publication of "Self-efficacy: Toward a unifying theory of behavioral change," he was at last able to identify an important piece of that missing element—self beliefs.

Bandura found the fundamental contention of behaviorism—that it is primarily one's environment that causes behavior—inadequate for describing complex human functioning. Bandura argued that the cause and effect relationship between environmental forces and behavior outcomes are reciprocal, that people's environments and their behavior simultaneously create and affect each other. With the publication of Social Foundations of Thought and Action: A Social Cognitive Theory, Bandura (1986) advanced the notion that individuals possess beliefs that enable them to exercise a measure of control over their thoughts, feelings, and actions, that "what people think, believe, and feel affects how they behave" (p. 25). These beliefs comprise a self system

endowed with five basic human competencies: symbolizing, forethought, vicarious, self-regulatory, and self-reflective capabilities. Human behavior is the result of the interplay between this personal system and external sources of influence. The contributions of social cognitive theory to psychological and academic research are best illustrated by the three essential constructs that the theory posits: observational learning, self-regulation, and self-efficacy.

Observational learning is the conceptual embodiment of one of Bandura's five human competencies, namely, vicarious capability. Any discussion of this construct invariably harkens back to a series of experiments dealing with aggression in children, the Bobo Doll studies. Bandura's (1965) findings indicated an incongruity in behaviorist ideology, as these experiments demonstrated individuals' ability to develop novel behavior without the effects of rewards or punishments. Having empirically established that such a process exists in humans, Bandura's next step—a step that would distance him from behaviorist thinking—was to provide a theoretical interpretation of these findings.

He began by positing the steps involved in the observational learning process. To learn anything by watching others, Bandura (1986) wrote, one needs to be paying attention to them. How closely one observes a model becomes a key variable that determines how well the modeled behavior is learned. If, for example, observers are not in peak physical condition due to being tired, emotionally drained, or drugged, their learning will be impaired. Similarly, the learning process will be impeded by the observer being distracted by competing stimuli. Attention is also affected by the characteristics of the model itself. If the model demands attention by using dramatic gestures or colorful language, observers pay more attention. If the model has prestige, physical attractiveness,

or high competence for the task being performed, again, observers will pay more attention. Model similarity—how closely observers see the model as like themselves—affects how they identify with the model, and thus how much attention they pay to it.

Attention would not be a useful first step in the process of observational learning if it were not immediately succeeded by retention, the ability to remember what it was to which one previously paid attention. Retention is based on another of the five human competencies, the capability to construct and use symbols. Symbolic activities involve the cognitive and linguistic processes that people use to internalize experiences and events, to provide means of communicating with others, to use in solving problems, to help in anticipating future events and to structure future behavior. Imagery and language thus serve as the cognitive foundations for future action.

For observational learning to be complete, observers must reproduce the modeled behavior, a process that requires motivation to act. This first requires the ability to duplicate what has been observed. No matter how many perfect strikes I watch a major league pitcher deliver to the plate, unless I were able to similarly deceive professional hitters with my repertoire of pitches, I would not be able to reproduce his behavior at all. However, if I could fire baseballs with nearly the same expertise as an elite hurler, my performance would in fact improve by watching his performance on the mound. Observational learning is aided by practicing the modeled behavior and is further aided by the observer simply imagining successful duplication of the model's actions.

Of course, attention and retention will not lead to reproduction without some motivation for the observer to reconstruct the model's behavior. Bandura acknowledged the potency of the classic behaviorist motivators, past rewards and punishments, but

added the conceptions of promised reinforcement, observers' symbolic representation of the positive or negative results of their actions, and vicarious reinforcement, the motivation that results from observing the consequences of the model's actions. Whereas behaviorist thought had previously posited these things as the source of learning, Bandura redefined them as people's motivation to display what they had already learned. By arguing that the reaction to reinforcement was neither the impetus nor the most prevalent form of learning, Bandura parted ways with theorists operating under the behaviorist paradigm. He would stray even further away with his explanation of the role of the self in human functioning.

Social cognitive theory asserts that individuals have self-regulatory mechanisms that provide for the potential for self-directed change and for the ability to influence one's own behavior. This ability, in turn, is influenced by the subprocesses of self-observation, judgment, and self-reaction. That is, the manner and degree to which people affect their own behavior involve the accuracy and consistency of their self-observation and self-monitoring, the judgments they make regarding their actions, choices, and attributions, and, finally, the evaluative and tangible reactions to their own behavior that they develop through the self-regulatory process. This last subfunction includes evaluations of self (self-concept, self-esteem, values) and tangible self-motivators that act as personal incentives to behave in self-directed ways. In all, Bandura paints a portrait of human behavior and motivation in which the beliefs that people have about themselves are key elements.

In addition to self-regulation, individuals use self-referent thought to mediate between knowledge and behavior. This self-reflective capability, wrote Bandura (1986),

is the one characteristic that is most "distinctly human" (p. 21), for it permits individuals to reflect on and evaluate their own experiences and thought processes. Through reflection, individuals can engage in self-evaluation and may alter their own thinking and subsequent behavior. Knowledge and skill, Bandura argued, are often poor predictors of subsequent performance, for the beliefs we hold about our abilities and about the outcome of our efforts powerfully influence the ways in which we will behave.

Bandura (1986) contends that, of all beliefs, self-efficacy, "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391), is the most influential arbiter in human agency and plays a powerful role in determining the choices people make, the effort they will expend, how long they will persevere in the face of challenge, and the degree of anxiety or confidence they will bring to the task at hand. It is this perceived self-efficacy that helps explain why people's behavior differs widely even when they have similar knowledge and skills. What we do, how we behave, is better predicted by our beliefs about our capabilities than by what we are actually capable of accomplishing, but "competent functioning" requires accuracy of perception and harmony between self-efficacy beliefs on the one hand and possessed skills and knowledge on the other.

Bandura wrote that self-beliefs affect behavior in four ways. First, they influence choice of behavior. People are likely to engage in tasks in which they feel competent and confident and avoid those in which they do not. Second, self-beliefs help determine how much effort people will expend on an activity and how long they will persevere. The higher the sense of efficacy, the greater the effort expenditure and persistence. This function of self-beliefs helps create a type of self-fulfilling prophecy, for the

perseverance associated with high efficacy is likely to lead to increased performance which in turn raises one's sense of efficacy, whereas the giving-in associated with low efficacy limits the potential for improving self perceptions. The third way that self-beliefs affect human agency is by influencing an individual's thought patterns and emotional reactions. People with low efficacy, for example, may believe that things are tougher than they really are, a belief that may foster stress and a narrow vision of how best to go about a problem. High efficacy, on the other hand, may be responsible for feelings of confidence and serenity in approaching difficult tasks. The last way in which self-beliefs affect behavior is by recognizing humans as producers rather than simply foretellers of behavior. In brief, self-confidence breeds success which in turn breeds more challenging performance; self-doubt breeds hesitancy, defeat, and failure to try. Our perceptions of efficacy help determine how we think, feel, and behave. The important point, however, is not only that self-beliefs influence behavior, but that people actively use these beliefs to influence how they behave, the foundation of Bandura's concept of reciprocal determinism.

Having provided an overview of the major tenets of social cognitive theory, I now turn to a closer examination of these tenets, key contentions, and psychological constructs in relation to the principles of constructivism outlined above. I will analyze Bandura's two major theoretical treatises, Social Foundations of Thought and Action: A Social Cognitive Theory and Self-Efficacy: The Exercise of Control, as well as several conceptual articles to show that Bandura's key ideas and theoretical tenets are not only consistent with social constructivist thought but are also antagonistic toward mechanistic, positivistic, or behavioral views of human functioning.

SOCIAL COGNITIVE THEORY AS SOCIAL CONSTRUCTIVISM

Researchers who rubricize Bandura as a neo-behaviorist tend to cite his focus on modeling and observational learning (e. g., Eggen & Kauchak, 1997; Elliott et al., 1996; Gage & Berliner, 1998; Green, 1989; Sexton & Griffen, 1997). Their misunderstanding of Bandura overlooks his emphasis on the role of individuals' beliefs in human functioning. In behaviorist research, the principles harvested from experiments in controlled laboratory settings are applied to complex social situations: The environment is the stimulus that elicits responses (Muuss, 1996). Bandura's (1997) social cognitive theory does not rely on the environment as the only mechanism that affects human behavior: "Social cognitive theory explains human functioning in terms of triadic reciprocal causation. In this causal model, cognitive and other personal factors, behavior, and environmental events all influence one another bidirectionally" (p. 454). The rest of this paper will illustrate how the key tenets of Bandura's (1986, 1997) social cognitive theory are both compatible with the principles of constructivism earlier presented and incompatible with the neo-behaviorist tradition with which he is often associated.

The Active Construction of Meaning

For any theory to be considered constructivist, it must place a primary focus on subscribing to the principle that individuals actively construct the meaning of their experience. The theory must affirm that people are aware of when they are unable to reconcile their current knowledge with new information presented by the environment. Furthermore, the theory must allow for individuals to select the environment in which

they act so that they can search for and find the information needed to correct these deficiencies. Social cognitive theory succeeds on both counts.

Construction is a Process of Equilibration

As one would expect of any constructivist ideology of psychological functioning, social cognitive theory explains many aspects of human functioning similarly to the descriptions of Jean Piaget. For example, in concert with the Piagetian (1926, 1952) conception of adaptation, Bandura (1986) argues that learning and development require "distinguishing between standards of what one knows and standards of what one desires to know. It is the latter standards, together with perceived self-efficacy, that exert selective influence over which of many activities will be actively pursued" (p. 482). Piaget contended that when people realize that their understandings are deficient, they will be internally motivated to cognitively construct new schemata to account for the novel experience. Bandura explains that when people recognize that they are lacking comprehension, they will decide whether they need to and want to learn something new to gain that understanding. If they are motivated to do so, they will construct new meaning. Bandura (1986) also noted that "attentional processes determine what is selectively observed in the profusion of modeling influences and what information is extracted from ongoing modeled events. Selective attention is, therefore, one of the crucial subfunctions of observational learning" (p. 51). Whereas Piaget contended that the motivation to learn and develop results from a biological need to resolve cognitive conflict, Bandura believes that people's motivation comes from an active choice of whether or not to construct new knowledge. Otherwise, Bandura claims, because people constantly encounter new information, their minds would be permanently preoccupied

with the acquisition of new meaning, leaving no time for other mental activities such as reflection, forethought, or even daydreaming: "The process of attention is not simply a matter of absorbing sensory information that happens to impinge on a person. Rather, it involves self-directed exploration of the environment and construction of meaningful perceptions from ongoing modeled events" (p. 53). Bandura's (1997) explanation of discrepancy reduction in motivation also recalls Piaget's construct of adaptation.

People initially motivate themselves through proactive control by setting themselves valued performance standards that create a state of disequilibrium. They then mobilize that effort on the basis of their anticipatory estimation of what it would take to reach those standards . . . Self-regulation of motivation and action thus involves a dual hierarchical control process of disequilibrating discrepancy production followed by equilibrating discrepancy reduction. (p. 131)

Bandura uses the Piagetian concepts equilibrium and equilibration to underscore his agreement with Piaget's constructivist notions regarding how individuals adapt to environmental contingencies and organize mental events. Piaget contended that individuals are born without mind. Similarly, Bandura contends that "the newborn arrives without any sense of self. The self must be socially constructed through transactional experiences with the environment" (p. 164). More than 20 years ago, Bandura (1977) wrote that social cognitive theory "posits a central processor of efficacy information. That is, people process, weigh, and integrate diverse sources of information concerning their capability, and the regulate their choice behavior and effort expenditure accordingly" (p. 212). This central processor is the human mind, the construct that Bandura makes the focus of triadic reciprocity. Although Bandura (1989) places his emphasis on the social origins of disequilibrium with his description of "emergent interactive agency" (p. 1175) whereas Piaget emphasized the individual's internal motivation to discover new

knowledge, both theorists emphasize that the process of acquiring meaning is rooted in actively organizing one's experience.

People Choose their Environments

Bandura (1986) maintains that, for learning and development to take place, individuals are required to exercise their own personal agency, the ability to influence themselves and their environment with their thoughts and conduct. In social cognitive theory, people actively choose, at least in part, the environment in which they live. According to Bandura, "people select and process sensory information, rather than simply react to whatever impinges on their sense organs" (p. 198). He posits the existence of a human mind that interprets and constructs meaning rather than one that only responds to environmental stimuli. This is the basis for the cornerstone of social cognitive theory—triadic reciprocity—in which personal factors, behavior, and the environment continually and bidirectionally affect each other. Personal factors, which include the mind, influence what behavior is chosen as well as the environment in which that behavior is carried out:

What part of the environment becomes the actual environment thus depends on how people behave. Similarly, personal determinants are inoperative as influencers unless they are activated . . . Thus, behavior partly determines which of the many potential environmental influences will come into play. (pp. 28-29)

Bandura's emphasis on the individual selection of both environmental stimuli and behavior demonstrates his belief that learning and development are processes of active construction. Bandura (1991) contends that one's choice of environment is also subjectively affected: "Self-efficacy beliefs alter thought processes, the level and persistency of motivation, and affective states, all of which contribute

importantly to the types of performances that get realized. In short, performances do not just happen to us, we do a lot to bring them about" (p. 160).

People are Active Agents, Not Passive Recipients

Bandura (1997) believes that to learn and develop people actively extract relevant information from the environment. They are not mechanically conditioned. He writes that "in the social cognitive view, people function as active agents in their own motivation rather than being simply reactive to discordant events that produce cognitive perturbations" (p. 133). This does not ignore the influence that environmental consequences can have on people's motivation. However, as with all environmental stimuli, consequences are actively processed and given meaning by the individual who experiences them, resulting in the same consequence affecting two individuals differently.

People do not respond to each bit of feedback as an isolated experience. Rather, they process and synthesize feedback information from sequences of events over time to gain knowledge of what is needed . . . consequences alone often produce little change in behavior until people become aware of what actions are being rewarded or punished. (1986, p. 229)

Behaviorist thought holds that the stimulus-response operation essentially begins anew each time the environment acts on the individual. Social cognitive theory contends that the active construction of meaning is an ongoing process that relies on the human mind's ability to select the stimuli it deems important to find a solution to a given problem.

Bandura (1997) believes that freedom is not conceived negatively as exemption from social influences or situational constraints. Rather, it is defined positively as "the exercise of self-influence to bring about desired results . . . It is because self-influence operates deterministically on action that some measure of freedom is possible" (p. 7). Skinner

(1948) depicted in Walden Two the behaviorist contention that freedom is an illusion. In other words, behaviorism holds that human freedom is the ability to behave without the effects of environmental stimuli. Since this is impossible, behaviorists argue that freedom does not exist. Because Bandura views freedom as individuals' ability to affect both themselves and the environment by their own actions, the theory allows for human freedom. Social cognitive theory also differs from behaviorist thought as regards the source of human behavior. Bandura contends that the complex actions and performances that people constantly undertake are

neither the products of an act of will nor simply the emissions of implants of external rewarding and punishing experiences. Rather, they are constructions that are organized and controlled, in large part, by cognitive and other self-regulative subskills. Building a sense of personal efficacy through mastery experiences is not a matter of programming ready-made behavior. It involves acquiring the cognitive, behavioral, and self-regulatory tools for creating and executing effective courses of action to manage ever-changing life circumstances. (p. 80)

The vocabulary behaviorists use to describe the causes of action include "responding," "shaping," and "chaining." In contrast, the vocabulary of social cognitive theory as regards this process uses terms such as "building," "creating," and "executing"—terms that imply an active construction. Even Bandura's (1997) description of the process of encoding information into memory involves a separation from behaviorist thought. It is "an active process of transforming and restructuring information about events for memory representation in the form of rules and conceptions" (p. 90). Behaviorism does not allow for the cognitive reproduction of environmental stimuli, whether the process is viewed as "active" or not. Human behavior for Bandura is determined by an active and reciprocal interaction between the environment and the individual, rather than the unidirectional influence of the environment onto the individual.

Active Construction Occurs in Diverse Settings

Bandura (1989) has extended the scope of social cognitive theory to include an examination of active human functioning in such varied environments as the home, the workplace, medicine, and academia. Most of what people do on a daily basis are activities that they have constructed many times in the past and no longer require much thought, conduct that falls into the category of habit (see James, 1892/1958). However, Bandura contends that "if routinized behavior fails to produce expected results, the cognitive control system again comes into play. New courses of action are constructed and tested" (p. 1181). Even the most routine task can be adjusted to conform to environmental demands. As with all aspects of life, Bandura (1997) believes that learning and development on the job involves effort on the part of the individual: "Because of the self-construction aspect of jobs, successful occupational functioning is a dynamic process rather than a simple plugging of personal attributes into specified job requirements" (p. 446). This helps to explain why certain people are considered "do-anything" types whereas others are perceived as one-dimensional laborers. Those who place more effort into constructing a beneficial job environment will find that this active process results in more opportunities for advancement and job satisfaction. Furthermore,

when people are acquiring cognitive skills, behavioral competencies, and adaptational patterns, they are very much aware of what they are thinking and doing. They do not rely on an unconscious mind to teach them how to fly airplanes, perform brain surgery, or solve problems. Rather, they use thought to construct, motivate, and regulate their actions. (p. 341)

Very few successful managers force their employees to learn new aspects of a job through trial and error, rewarding those who master the tasks, punishing those who fail. Because social cognitive theory contends that all meaning making is an active process,

the best training programs teach skills with an emphasis on ensuring that all employees have constructed the new information for themselves. In school, individuals routinely contemplate the skills and abilities that later influence performance substantially.

The development of people's conceptions of academic capabilities are a social construction based on appraisals of their performances in different academic subjects, repeated social comparisons with the attainments of their peers, and construals of the academic expectations and ability evaluations conveyed by their teachers either directly or in subtle indirect ways. (p. 242)

People do not simply "discover" opinions about themselves, nor do environmental stimuli reward people for positive self-evaluations and punish for negative ones. In fact, social cognitive theory contends that behaviorism lacks the theoretical capacity to sufficiently explain the fact that people develop beliefs about themselves. Bandura (1986) writes that "behavioristic theories are reluctant to grant the organism a working memory and reasoning skills, let alone the capacity for consciousness of its own knowledge" (pp. 109-110). In rejecting behaviorism, social cognitive theory affirms the individual's active construction of knowledge.

Socially Situated Symbol Use

A constructivist theory of human functioning must acknowledge that individuals cannot effectively construct meaning in isolation. Constructivism also holds that the principal means through which others help the individual to learn and develop is through the use of symbols, chief among them language.

Symbols are Constructed Internally

For Bandura (1997), active agency results from individuals' interactions with their surroundings. This process of constructing meaning occurs inside the mind because of symbol use. Bandura describes symbols as "cognitive guides for the construction of

complex modes of behavior. These knowledge structures are formed from the results of observational learning, exploratory activities, and innovative cognitive syntheses of acquired knowledge" (p. 34). Whereas both behaviorism and social cognitive theory acknowledge the environment as essential for human functioning, social cognitive theory places an emphasis on people's internal, mental structures. "The power of thought resides in the human capability to represent events and their interrelatedness in symbolic form . . . Knowledge is represented in terms of abstracted similarities and shared meanings, rather than in details of discrete events" (p. 455).

A stimulus-response model does not allow for knowledge structures that represent both the events that take place in the environment and the rules and strategies of effective action. Bandura (1997) further emphasizes the weakness of the behavioral model of learning: "Intricate skills can be symbolically constructed much faster by seeing the behavior modeled in an already integrated form than by trying to construct it gradually from observing the results of one's trial and error efforts" (p. 378). The process of symbol construction is contingent on social interaction. Bandura's contention, however, should not be taken to mean that symbols are passed down through cultural practices or transferred among people through conversations. Symbols are cognitive constructions of the internal human mind.

Symbol Creation Requires an Interaction with Society

Bandura (1986) devotes much of his work to explaining the function of symbols in everyday human life. In social cognitive theory,

thoughts are symbolic constructions, and thinking is the process of operating on the fund of knowledge one possesses to realize different purposes . . . Cognitive skills are usually developed by initially performing operations on actual objects and then translating the external procedures

into covert symbolic ones of increasing complexity and abstraction.
(p. 462)

This is the process by which people's experiences are interpreted by the human mind. For people's actions to have meaning, individuals must interpret their effects, along with those of the environment, and store them by representing the interpretation symbolically. However, Bandura (1986) contends that not all learning is the result of enactive experience. Individuals also gain many conceptual representations through observing models. "Symbolic transformation primarily involves a constructive rather than a template-matching process. Most modeled information is learned and retained in abstract symbols that bear little resemblance to the surface characteristics of observed events" (p. 59). It follows that the internal representation of moral conduct is dependent on social interaction. Bandura (1996) believes that, "in the course of socialization, moral standards are constructed from information conveyed by direct tuition, evaluative social reactions to one's conduct, and exposure to the self-evaluative standards modeled by others" (p. 364). A hypothetical individual kept isolated from the rest of the world would thus have no conception of morality. If people watch a video describing how certain people achieved great success, Bandura (1986) believes that individuals will construct generalizable symbols of the successful strategies rather than schemata that simply reflect how those particular people succeeded in their particular domains. This process of symbol construction is not one that can be accomplished in one step or on one's own.

The relevant cues must be identified from among numerous irrelevancies through selective attention. The cues must then be integrated by a rule. This can be achieved by instructive modeling or tuition, drawing on knowledge gained from past experiences, or, if the appropriate rule is unavailable, by constructing different compound rules and testing their accuracy against informative feedback. (pp. 210-211)

Social cognitive theory contends that individuals' creation of symbols is in itself an active process, determined by the information people have at hand as well as their available social resources.

The Use of Symbols is Essential to Development

Constructivists emphasize the developmental function of symbols, a topic that Bandura (1986) addresses in detail. The most prevalent symbol in human functioning is language (cf. Vygotsky, 1978). Once individuals develop this skill, the pace of learning and development is rapidly accelerated.

After children learn the names for things and how to represent conceptual relationships in words, language can influence how children perceive, organize, and interpret events. Language thus becomes not only a means of communication but also shapes the form of thought. (p. 498)

This contention is analogous with that of Vygotsky (1978), who argued that the egocentric speech of young children becomes, as they develop, internalized thought.

Bandura (1997) writes that

the construction of self is not entirely a matter of private reflection on one's experiences . . . Based on their growing personal and social experiences, [children] eventually form a symbolic representation of themselves as a distinct self capable of making things happen. (p. 167)

Individuals without the ability to use symbols would be in jeopardy of developing without a firm belief in their agency and would thus be prone to unhealthy development. However, once symbolic skills have been internalized, "people can cognitively bridge delays between actions and later outcomes. They profit from the distal effects of their behavior without requiring a stream of external cues to keep telling them what they must do to gain eventual benefits" (Bandura, 1986, p. 134). Because people use symbols as internal motivators, the behaviorist claim that environmental rewards and punishments

control people's conduct is considered by social cognitive theory to be neither necessary nor sufficient to explain human functioning. The development of active agency would be impossible without symbols because, as Bandura (1989) writes, "the capability for intentional and purposive action is rooted in symbolic activity" (p. 1179). If it were not for the human ability to represent environmental events internally through the use of symbols, people could very well be subject to the type of control behaviorism suggests is the fate of human agency.

Observational learning is Dependent on the Use of Symbols

Bandura's conception of modeling and observational learning—the constructs that many theorists use to describe him as a behaviorist—are actually consistent with constructivist tenets, as evidenced by Bandura's (1997) contention that "guided mastery by mutual structuring of environments conducive to growth of knowledge, competencies, and affirmative self-beliefs bears some likeness to Vygotskian tutoring by social guidance" (p. 227). The Zone of Proximal Development, or ZPD, (Vygotsky, 1978) is perhaps one of social constructivism's best known constructs. Vygotsky asserted that individuals should be judged not by the tasks they are currently capable of performing, but instead by the tasks they can perform after receiving instruction from adults or more capable peers. Before Vygotsky's theory gained recognition in the U.S., teachers who used constructivist ideas in their classrooms believed that they needed to allow students to actively construct meaning on their own. To these teachers, this meant serving as facilitators who allowed students to discover knowledge themselves rather than as directors who told the students what to learn and when to learn it. Vygotsky revolutionized constructivist teaching practices, as the pedagogy shifted to an emphasis

on learning with the assistance of teachers and peers. Although Bandura alludes to the Zone of Proximal Development, he also states that social cognitive theory, unlike Vygotskian theory, gives attention to

how people construe, select, and construct learning environments . . . The social genesis of cognitive competencies encompasses much more than collaborative instruction. Although much learning is socially situated, after people develop self-regulatory capabilities, they learn a lot on their own. (p. 227)

Thus people are able to construct their own Zones of Proximal Development. After identifying deficiencies, people set goals for themselves to discover what they need to know. They actively seek out information from the environment, choose which stimuli to give attention, and reflect on what they have learned. Bandura (1977) also writes that environmental contingencies—those effects that, for behaviorism, are the cause of learning and development—are simply a special case of observational learning: "In this mode of conveying response information, the conception of the appropriate behavior is gradually constructed from observing the effects of one's actions rather than from the examples provided by others" (p. 192). Individuals learn from observing their behavior using the same method as when they learn from watching that of others. Social cognitive theory (1986) holds that models, symbols, and other instructive aids "greatly augment the influence of contingent experience by conveying explicit conceptions of new behavior patterns and how they can best be executed" (p. 136).

Self-Regulation

A constructivist theory of human learning and development should account for people's ability to self-regulate. The theory must include discussions of how individuals determine that they need to self regulate, how they construct and evaluate different

courses of action, the motivation they must find to begin to self-regulate, and a measure of how they are able to sustain their self-regulatory processes in the face of stressful impediments and competing stimuli.

Self-Regulation Occurs in Diverse Settings

Bandura (1986) often cites the example of a novelist as the ultimate self-regulator. He explains that the process of writing does not involve someone sitting behind an author selectively reinforcing each written statement until a quality manuscript has been produced. People must create symbolic representations of what they believe to be correct behavior. These general standards provide the basis for self-regulation. Self-evaluation also provides intrinsic motivation for actions: "In most activities from which people derive lasting enjoyment, neither the behavior itself nor its natural feedback is rewarding. Rather, people's self-reactions to their own performances constitute the principle source of reward" (p. 241). Bandura contends that when people do the things that they relish, they do not need money or recognition or reinforcement to put forth their best efforts. They delight in the action. If they were to put forth a less than stellar effort, they would be disappointed in themselves. Self-motivation is thus an indispensable component of self-regulation. Writers are also able to "direct their efforts toward valued goals by enlisting cognitive guides and self-incentives and by arranging environmental conditions conducive to goal attainment" (p. 39).

Bandura (1991) believes that the success of human evolution throughout history is due largely to people's ability to self-regulate: "Adaptation requires recognizing conditional relations between environmental events and between actions and outcomes" (p. 159). Because people have the ability to influence the environments in which they

work, constructing one's surroundings to best suit one's goals is an important component of self-regulation. Bandura (1997) highlights how self-regulation contributes to improved capacities for human action: "Skilled performances are usually achieved by repeated corrective adjustments of enactments to the guiding conception as the skills are being behaviorally constructed and improved" (p. 26). By observing their actions, "people eventually construct conceptions of new behavioral patterns and the circumstances in which it is appropriate to perform them" (1986, p. 111). Bandura's description of self-regulation accentuates people's ability to recognize when their actions are not producing the desired results and to change their behavior to ensure success. In generalizing social cognitive theory to real-world applications, Bandura (1986) contends that whereas most people who commit crimes avoid prosecution at the hands of law enforcement authorities, the reason most people do not break laws is that

deterrents arising from self-standards are considerably more effective in keeping forbidden conduct in check than are external threats that carry a low risk. People constantly preside over their own conduct, whereas enforcement agents are rarely present in situations inviting transgressive behavior. (p. 331)

When people contemplate the likely results of their actions, one of their considerations becomes how they will construe the perceived outcome. More than the threats of the law or the negative reactions of others, what keeps people from acting out of accordance with society's expectations is their own self-regulatory skills, the functional basis of morality.

Personal Agency Characterizes Meaning Construction

Bandura (1986) contends that individuals have the ability to influence both their behavior and the environment by their cognitive processes: "In exercising personal

control, people adopt internal standards, monitor their actions, and use self incentives to mobilize and sustain their efforts until they accomplish what they set out to do" (p. 261). Behaviorist researchers contend that what people set out to do is regulated by the reinforcing properties of the environment. People do not act unless their surroundings stimulate them into activity. Even then, a lack of continued positive stimuli or an introduction of negative stimuli could interrupt a person's conduct before the goal is achieved. Bandura, however, within his discussion of human self-regulatory capabilities, unequivocally separates social cognitive theory from behaviorism.

Theories that seek to explain human behavior as solely the product of external rewards and punishments present a truncated image of human nature because humans possess self-directed capabilities that enable them to exercise some control over their thoughts, feelings, and actions by the consequences they produce for themselves. (p. 335)

Even the most moderate neo-behaviorist would disagree that humans are self-regulatory creatures that control their behavior by transforming their environment. Self-regulation is not a process that takes place only after an event has taken place. Bandura (1989) writes that

Monitored enactments serve as the vehicle for transforming knowledge into skilled action. Performances are perfected by corrective adjustments during behavior production until a close match is eventually achieved between conception and action . . . Negative feedback operates as a complementary but subordinate mechanism in the process of active construction. (p. 1181)

In addition to being an active process, Bandura (1986) considers self-regulation, like all human functioning, to be a reciprocal process as well. Thus, "a full explanation of self-regulatory processes must include the self-control determinants of environments, as well as the environmental determinants of self control" (p. 372). Bandura acknowledges the powerful influence of environmental contingencies on a person's desire and ability to

execute self-regulation. However, Bandura believes that the self has the ability to administer rewards and punishments at least as effectively as one's surroundings.

There is a marked difference between conforming to the demands of others and behaving in accordance with one's own standards. Withholding freely available rewards until self-acceptable performances have been achieved is a critical aspect of self-regulation. To ignore this important difference is to neglect the very essence of self-directedness. (p. 366)

It follows, then, that self-regulation is one of the major constructivist components of social cognitive theory.

Formalized Operations

Constructivist theories must include an explanation of humans' ability for formal operations. Linked to the process of self-regulation, formalized thought allows individuals to determine exactly what information or abilities are missing from their current aptitude that would enable them to perform given tasks. Further, the symbolization of desired outcomes that provides for internal motivation is a component of formal operations. Finally, formalized operations allow people to construct new knowledge from only the representations that have previously been acquired through experience. Social cognitive theory fully accounts for all of these ideas.

People Anticipate Events; They do not Simply React to Stimuli

Simply by positing the human ability to construct thoughts about the future, social cognitive theory distances itself from behaviorism. Bandura (1986) argues that

social cognitive theorists stress the informative and motivating function of prospective outcomes; radical behaviorists believe that outcomes automatically strengthen the responses they have followed . . . Behaviorists consider awareness to be a by-product, rather than a determinant, of performance. Being aware of aspects of one's behavior does not cause the behavior of which one is aware. (p. 364)

Behaviorist thought contends that the results of individuals' actions serve as the reinforcement for both present and future actions. Bandura believes that people's expectations about what will happen in the future serve as motivation to either act or not act. In effect, punishments themselves do not keep people from behaving in certain ways. Instead, one's thoughts about "violating one's own standards and anticipated social censure for violating societal codes serve as the principle restraining mechanisms" (p. 264). If people simply reacted to stimulus events, as behaviorists contend, there would be no active engagement with the environment, nor any use for symbols or self-regulation. Bandura writes, then, that humans "interpret the events and organize the information derived from them into beliefs about what leads to what. Causal beliefs, in turn, affect which features of environmental events are attended to and how they are cognitively processed and interpreted" (p. 183). Tracing the path of human action backward from its conclusion, how people construct meaning is dependent on how they behave in the environment, which is itself dependent on forethought to begin the process. A large portion of the "personal factors" component of triadic reciprocity is, therefore, people's application of forethought. Moreover,

people anticipate the likely consequences of their prospective actions, they set goals for themselves, and they otherwise plan courses of actions for cognized futures . . . The capability for intentional and purposive action is rooted in symbolic activity. Future events cannot serve as determinants of behavior, but their cognitive representations can have a strong causal impact on present action . . . By representing foreseeable outcomes symbolically, people can convert future sequences into current motivators and regulators of foresightful behavior. (p. 19)

Recall the earlier discussion of Vygotsky's (1978) contention that children's egocentric language is transformed into internal thought. Although language is a symbol, it is not until people internalize language as thought that they possess the capability to

formally postulate a future. Once individuals have formal operations at their disposal, self-motivation and self-regulation follow. Bandura (1986) also comments on the evolutionary nature of formal operations: "The capacity to extrapolate future consequences from known facts enables people to take corrective actions that avert disastrous futures" (p. 136). Without the ability to test outcomes symbolically, anyone experimenting with new ideas would be subject to a dangerous research methodology. For example, consider the situation of a 200-pound man who wants to cross a river, notorious for its powerful undercurrent, on a thin cardboard raft. Whereas constructivist thought acknowledges the man's ability to use forethought to predict the morbid results of this risky course of action, in a behaviorist world he would be forced to undergo the dangerous process of trial-and-error. In an evolutionary sense, if human beings lacked formalized operations, our ancestors likely would not have survived long enough to make this a point of contention in an honors thesis manuscript. Bandura's (1997) constructivist theory thus reveals an optimistic philosophy of the human condition: "People are proactive, aspiring organisms. Their capability to exercise forethought enables them to wield adaptive control anticipatorily rather than being simply reactive to the effects of their efforts" (p. 131).

Formalized Operations are Used in Varied Settings

Social cognitive theory focuses on many social milieus that illustrate the applicability of forethought to countless modes of human functioning. Bandura's (1986) description of formalized operations can be described as constructing a possible self "from personal experiences, the vast array of actual and symbolic models, and sociocultural influences that shape life pursuits" (p. 25). Models, however, do more than

simply provide specific cues for actions. "In their transactions with the environment, they exemplify the rules for constructing response patterns and for predicting likely outcomes" (p. 209). Bandura (1997) believes that in watching models, observers can be shown the same forethought strategies that help the models succeed at their tasks, and can then internalize them for use at a later time. The social cognitive view of athletic functioning asserts that "forethought enables people to play a proactive role in their own learning. Thus, people learn faster, remember more, and construct physical skills better with the use of cognitive aids than without them" (p. 370).

Bandura also contends that metacognition, the detailed consideration of one's cognitive activities, is one of the major functions of formalized thought. In an academic setting, strong metacognitive skills could help a student study for a test if she were to channel her attention to the task at hand, draw on relevant factual and procedural information, appraise the adequacy and versatility of her skills, and evaluate and revise her plans and strategies based on the results her efforts produced. The uses of formalized thought carry over to the workplace, where managers must

figure out managerial rules that enable them to predict and exercise influence over the collective effort . . . Initially, managers must draw on their existing state of knowledge in constructing provisional composite rules for how various motivational factors may affect group performance. The optimal value of the various predictive factors must be tested by varying them systematically and [cognitively] assessing how they affect group performance. (p. 453)

Social cognitive theory's constructivist method of determining the most useful and productive course of action conflicts with the behaviorist ideology that for people to become more effective workers, they must be properly conditioned.

Self-efficacy is a Formalized Operation

Self-efficacy, a principal component of social cognitive theory, reflects humans' ability to formalize operations. These beliefs about one's capabilities to organize and perform specific courses of action often serve as predictors of people's ability and motivation because of their function in forethought. Just as efficacy beliefs are themselves examples of formalized operations, Bandura (1997) believes that

Most courses of action are initially shaped as thought. Cognitive constructions then serve as guides to action in the development of proficiencies. People's beliefs about their efficacy influence how they construe situations and the types of anticipatory scenarios and visualized futures they construct. (p. 116)

People's subjective beliefs, one of the most important being self-efficacy, will be further examined for their own constructivist origins in the next section.

The Experiential Component of Human Functioning

Finally, constructivist theories must adhere to a principle which states that reality is an personal interpretation, dependent on how individuals perceive their experiences. Learning's purpose, therefore, is to organize people's experiences so that they can later use formalized operations to guide their future actions. Further, beliefs are constructed out of people's interpretations of reality. As with each of the preceding principles, social cognitive theory is in agreement with this tenet of constructivist thought.

Experience is Itself an Active Construction of Meaning

Bandura (1986) believes that how people feel, think, and act is based more on what they believe than on what is objectively the case.

While beliefs provide direction and meaning to experience, they distort it as well. Adherents see what they want to see, reinterpret incongruities to their liking, and even rewrite their memory of events they have experienced. Moreover, by influencing actions anticipatorily, beliefs

channel social interactions in ways that create their own self-validating results. (p. 36)

Because people actively construct their own knowledge, they organize and regulate their behavior largely on the basis of individual experience. The importance of such a claim is that, "to a large extent, people act on their images of reality" (p. 324). In other words, every aspect of human functioning revolves around people's constructive interpretations of life's events, interpretations that then serve as reality to each individual.

Self-efficacy is an Experiential Construct

Of all of the possible interpretations and beliefs available to human thought, perhaps none occupies a more crucial function than self-efficacy. Bandura (1986) writes that efficacy beliefs affect health functioning. The way in which information about one's physical condition is cognitively processed can affect how active a life people lead: "Those who read their fatigue, aches, and lowered stamina as signs of declining physical capacity are likely to curtail their activities more than those who regard such signs as the result of sedentariness (p. 408). Even though two people might be in similar physical condition, a person who believes the first interpretation will consider himself unable to return to physical health due to a loss of ability. A person who believes the latter interpretation will be willing to put forth the effort required to become healthy again, as he believes that a little work can get him back into shape. Also related to people's health is Bandura's (1997) explanation that

stress reactions are governed largely by beliefs of coping efficacy rather than being triggered by the objective properties of threats and environmental demands. It is the perception of life events as overwhelming one's coping capabilities that becomes the stressful reality. (p. 262)

Social cognitive theory contends that it is not necessarily life's pressures that cause stress. Rather, how an individual perceives these supposed stressors will govern one's reaction to them. Recall that social cognitive theory is being rubricized with others that maintain that environmental stimuli act on the individual to produce responses. In the realm of academic functioning, "children with the same level of cognitive skill development differ in their intellectual performances depending on the strength of their perceived efficacy" (p. 216). People's beliefs about their abilities affect their performances as well as their choices of whether to even try. Bandura (1986) found that if individuals have not developed a firm belief in what they are able to accomplish, the self-impeding consequences of perceived inefficacy are fully experienced in young adulthood when individuals confront their job options in seeking employment. "It is not the subskills that selected college students possess but how they perceive and use them that makes the difference" (p. 432). Bandura (1997) further writes about these subjective ideas that, "it is not experience or skills per se but the beliefs of personal efficacy constructed from those experiences that shape academic performance and career choices" (p. 423). People's beliefs about their ability is invariably reflected in the life choices they make. It could be argued that this focus on belief is enough to separate social cognitive theory from behaviorist thought.

Experiential Beliefs are Bidirectionally Influenced

Because beliefs contain a subjective component, Bandura (1986) contends that they often differ from actuality. When this happens,

it is not always beliefs that change in the direction of social reality. Acting on erroneous beliefs can alter how others behave, thus shaping the social reality in the direction of the mistaken beliefs . . . As with all human

transactions, the influence process is best represented by bidirectional causality between belief and social reality. (p. 230)

It is not unusual for people acting on what they believe to cause changes in their surroundings that can also affect other individuals. This is, again, a key contention of triadic reciprocity. Personal factors affect one's behavior, which affect one's environment, both of which then act on one's personal factors. "A host of factors, including personal, social, situational, and temporal circumstances under which events occur, affect how personal experiences are cognitively appraised" (p. 401). For this reason, even exceptional performances do not necessarily provide individuals with pleasure. Bandura (1991) believes that "performance information is just raw data that is not inherently enlightening. Rather, it becomes instructive only through cognitive processing" (p. 184). Take, for example, two students who each receive a "B" on a paper. The interpretation of that "B" could leave one student elated and the other crushed. The students' subjective reactions to the grade determines the resultant reality for each of them. Bandura (1977) argued that because people are able to control their own actions, and since interpretation should be considered a form of behavior, it follows that how people represent their conduct is subject to the workings of the mind: "Behavioral control not only allows one to manage the aversive aspects of an environment. It also affects how the environment is likely to be perceived. Potentially stressful situations that can be controlled are construed as less threatening, and such cognitive appraisals further reduce anticipatory emotional arousal" (p. 199). Beliefs, behavior, and the environment reciprocally determine each other.

Experience can Cause Misinterpretations

People have the freedom to construct experiences in the way that is most adaptive for them, so instances of individuals developing incorrect beliefs are bound to occur. Bandura (1989) contends that when people erroneously believe that they are unable to accomplish a given task, people will choose not to act despite the promise of a rewarding consequence: "Self-perceived inefficacy can thus nullify the motivating potential of alluring outcome expectations" (p. 1180). Bandura (1986) determined that "misbeliefs would not last long were it not for the fact that they influence selection and production of experiences. Coincidental association is often converted through misbeliefs into a genuine correlation" (p. 219). He argues that misbeliefs are the source of superstition in human functioning. Athletes are notorious examples of this phenomenon. After a baseball game in which a batter gets four hits, he enters the locker room to discover that he wore his left sock inside-out that day. Rare is the athlete who does not interpret that left sock as a partial contributor to his quality performance.

Misbeliefs of self-efficacy, however, are often the impetus for extraordinary achievements.

When people err in their self-appraisals, they generally overestimate their capabilities. In nonhazardous activities, optimistic efficacy appraisals are a benefit, whereas veridical judgments can be self-limiting. If efficacy beliefs always reflected only what people can do routinely, they would remain steadfastly wedded to overly conservative judgments of their capabilities that would beget only habitual performances. (Bandura, 1997, p. 72)

As opposed to constructivism, and thus social cognitive theory, behaviorist conceptions of remarkable actions presumably involve a fortuitous combination of environmental rewards and punishments that shape an individual such that the person is motivated to

succeed. Were it only so easy, the study of biography would be a science on par with psychology, as individuals would scour history to locate the circumstances that made a great leader or thinker, only to try to reproduce this state of affairs in an attempt to create their own Martin Luther King or Albert Einstein.

Experience Affects Constructions in Varied Settings

Just as Bandura's (1986) model of triadic reciprocity involves an interweaving of its component influences, the capabilities that Bandura ascribes to human beings also overlap. Symbolic and observational learning are affected by the subjective component of belief: "The same model performing the same responses with the same outcomes can have markedly different effects on different observers, because each draws different inferences from what they have observed" (pp. 329-330). This is why, for modeled instruction on video or the Internet to be effective, the teaching process must include some measure of verbal explanation of the modeled actions, as well as an opportunity for the observers to pose questions that would clarify the demonstration. Because many of people's social experiences involve conversations with other individuals, Bandura (1977) contends that the way individuals interpret the credibility of the people to whom they are listening affects how they construct their beliefs, an example of one subjective interpretation affecting another. "The more believable the source of information, the more likely are efficacy expectations to change" (p. 202). In the process of self-regulation, the experiential component acts when

preexisting self-conceptions exert selective influence on which aspects of one's ongoing behavior are given the most attention, how they are perceived, and how performance information is organized for memory representation. Mood states also affect how one's performances are self-monitored and cognitively processed. For example, when people are in a despondent mood they interpret events negatively and recall unpleasant

events easily, whereas in a positive mood they take a more favorable view of matters and bring positive experiences more easily to mind. (p. 337)

Because of the existence of these differing beliefs, social cognitive theory contends that two genetically identical twins separated at birth onto mirror planets—growing up in the exact same environment and experiencing the exact same world—would not be the exact same person. Individual interpretation is key to constructivist thought.

The Experiential Component is Anti-Relativist

Social cognitive theory should not be interpreted as radically relativist. Bandura (1997) contends that nothing that happens in the world is independent of an individual's interpretation, but that interpretations are not independent of the actual surroundings in the external world: "Life is full of reality checks that, in consequential matters, can bear down unmercifully on foolish actions spawned by faulty judgment . . . Some interpretations of reality have greater explanatory, predictive, and operative power than do others" (p. 475). Just as some beliefs are better suited than others to deal with life's realities (see James, 1907/1981), so is Bandura's social cognitive theory more reflective of the human condition than the behaviorist perspective to which Bandura's thought has been unfortunately associated.

CODA

As a graduate student who earned his doctorate in 1953 working under a professor affiliated with the behaviorist paradigm, Bandura's initial contributions to psychology were founded in behaviorism. His early work on aggression focused on principles of reinforcement and motivation. Hence, it was reasonable, at the time, to group Bandura with neo-behaviorist theorists.

Bandura's (1986) Social Foundations of Thought and Action: A Social Cognitive Theory introduced new ideas and concepts and marked an evolution from neobehaviorist to constructivist ideology. Unfortunately, as Bandura (1986) prophetically mused, "Once established, reputations are not easily changed" (p. 417). Although Bandura's thinking has evolved into an elegant expression of social constructivist thought, many scholars continue to perceive him as a "cognitive behaviorist" of sorts. Whether in books of theory, in textbooks, or on the Internet, professors and students are exposed to inaccurate or outdated information about Bandura. Given the documented decline of the behaviorist paradigm in psychology and education, if the academic community continues to view social cognitive theory as an example of behaviorist thought, Bandura's insights will not easily be disseminated.

Bandura's evolution from neo-behaviorism to social constructivism has also been marked by an incorporation, rather than an abandonment or reformation, of the psychological constructs that he introduced early on. Constructs such as observational learning, modeling, and vicarious experience, part of Bandura's social learning theory,

today occupy a prominent place in social cognitive theory. Moreover, social cognitive theory's emphasis on individuals' beliefs and interpretations of their experiences is consistent with his earlier formulation of these ideas. Bandura has illustrated the crucial role beliefs about oneself and others play in the process of observational learning.

Although many still consider Bandura a neo-behaviorist of sorts, paradoxically, many also consider him a father of cognitive psychology (e. g., Boeree, 1998). Bandura's introduction of reciprocal determinism, with its emphasis on observational learning, self-regulation, and self-efficacy, has spurred much research and has become the centerpiece of recent efforts to understand and identify the complex interrelationships between cognitive events, environmental influences, and behavioral outcomes. Moreover, it has provided psychology with a model that portrays people as both products and producers of their own environments.

Gardner (1997) might well consider Bandura a Maker, one who is instrumental in constructing a new domain.

Typically, [an Exemplary Maker] has grown dissatisfied with current work in a domain. Prevailing approaches block access to crucial phenomena or promising lines of inquiry. Sooner or later, she arrives at a new formulation that makes sense to her, that has the potential to affect others, and that may ultimately transform the domain in which she works. Try though she may, E. M. cannot control the uses to which others put her work; and she may well be disappointed or frustrated by these misuses, even as she is likely to be gratified (publicly or privately) by increasing signs of public recognition. (pp. 75-76)

In reaction to behaviorist theories prominent in the 1950s and 1960s, Bandura broadened psychology's understanding of how individuals create personal meaning by emphasizing the role that self-perceptions and self-beliefs play in every aspect of human functioning. In doing so, he helped pave the way for a new understanding of the role that social

cognition plays in learning and human development. Gardner found that the work of Exemplary Makers is typically misunderstood and misinterpreted by those to whom it is presented. In Bandura's case, this phenomenon was no doubt exacerbated by his neo-behaviorist roots and the perhaps natural consequences of his being rubricized as a behaviorist scholar early in his career.

In this, the last year of the twentieth century, Albert Bandura is typically considered America's greatest living psychologist. Interestingly, he is often the only living theorist included in books outlining theories of learning or development (e. g., Crain, 1992). That his work should be misunderstood, misinterpreted, and poorly disseminated is a disservice both to the fields of education and psychology and to students who represent the next generation of scholars, scientists, and educators. Kuhn (1962/1996) warns that "whatever its force, the status of the circular argument is only that of persuasion. It cannot be made logically or even probabilistically compelling for those who refuse to step into the circle . . . As in political revolutions, so in paradigm choice—there is no standard higher than the assent of the relevant community" (p. 94). This paper represents an effort to persuade the scientific communities of education and psychology to review their understandings of social cognitive theory, to reexamine Bandura's assumptions and theoretic insights, and to acknowledge Bandura's paradigmatic stance as social constructivist. An important result, I believe, would be a more accurate understanding of the paradigmatic framework on which social cognitive theory is founded.

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