

Self-Regulated Learning, Social Cognitive Theory, and Agency

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The conception and theory of agency as self-regulation that is contained within Bandura's social cognitive theory is examined and elaborated in the context of the relevant philosophical history of ideas and through consideration of recent work in theoretical developmental psychology. Implications for self-regulated learning in classrooms are considered. In particular, it is suggested that the understanding of agency contained within social cognitive theory as elaborated herein might be developed as an alternative to conceptions of self-regulation and agency within constructivist and socioculturalist theorizing in educational psychology. However, the classroom application of such an alternative would require a much less dualistic and teacher-directed form of teaching than suggested in much past and current social cognitive work on self-regulation.

During the past 2 decades, a large body of literature in educational psychology has discussed various theories of self-regulated learning (e.g., Pintrich, 1995; Schunk & Zimmerman, 1998; Zimmerman & Schunk, 1989). Research on self-regulated learning has targeted the knowledge, motivation, and volition that learners require to engage in self-regulated learning in relation to a wide variety of academic subjects, tasks, and learning environments (with respect to both classroom learning and studying). Numerous schematic models of self-regulated learning have been proposed that include relationships among task environments and learners' behavioral, cognitive, metacognitive, affective, and volitional systems, operations, and strategies. Some of these have been used to guide the development of extensive research programs and to design instructional-learning materials, systems, and environments.

If not always explicit and conceptually developed, the self as agent is pervasively implicit in most writings on the topic of self-regulated learning, as it is in the larger psychological literature on self-regulation (e.g., Carver & Scheier, 1998; McCombs & Marzano, 1990). Emphasis on the agency of learners is especially prevalent in contributions to self-regulation that have been developed in accordance with the social cognitive theorizing of Albert Bandura. For Bandura, self-regulation is intended to "expand freedom of action and

enable people to serve as causal contributors to their own life course by selecting, influencing and constructing their own circumstances" (Bandura, as cited in Zimmerman & Schunk, 2003, p. 446). Broadly speaking, *agency* is the capability of individual human beings to make choices and to act on these choices in ways that make a difference in their lives. What educational psychologists in the area of self-regulated learning hope to achieve is knowledge of "a combination of academic learning skills and self-control that makes learning easier, so [learners] are more motivated; in other words, they have the *skill* and *will* to learn" (Woolfolk, Winne, & Perry, 2000, p. 384).

More generally, considerable recent discussion has surrounded the concern that two very different conceptions of the learner are assumed in the general literature of contemporary educational psychology, even though they are not always recognized and distinguished (e.g., Martin & Sugarman, 1999; Packer & Goicoechea, 2000). One of these is a *constructivist* conception of the learner, rooted in Piagetian theorizing in education, that emphasizes the active character of a learner's interactions in learning tasks that results in the construction and reorganization of knowledge structures internal to the learner. The other is a *socioculturalist* conception of the learner, traced most often to Vygotskian theorizing in education, that emphasizes a learner's embeddedness in sociocultural practices of teaching and learning that constitute both the child or adolescent as a learner and the knowledge that is available for appropriation. For the

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constructivist, learner activity is an instrumental means of experimenting with an independent reality so that a pre-existent "mind" with agentic capability can achieve appropriate kinds of intellectual and moral development. For the socioculturalist, learner activity is a means of appropriating sociocultural practices as psychological tools of agency and personhood. In the former case, mind and agency, at least in outline, predate sociocultural involvement. In the latter case, mind and agency cannot exist outside of the social practices in which they are constituted.

It seems quite clear that most work on self-regulated learning, including that based on social cognitive theory, has assumed a broadly constructivist position. The emphasis in this literature on the acquisition of cognitive and metacognitive strategies connotes both a constructivist instrumentalism and an ontological commitment to procedural and strategic knowledge structures possessed by the learner. However, with respect to the question of agency itself, the social cognitive theory of Albert Bandura that has undergirded much work in this area (cf. Schunk & Zimmerman, 1998) seems to contain genuine elements of both constructivist and socioculturalist perspectives, especially in its more recent incarnations. Witness, for example, Bandura's (2001) increasingly strong rejection of the kinds of dualism typically featured in constructivist accounts: "Theorizing about human agency and collectivities is replete with contentious dualisms that social cognitive theory rejects" (p. 14). Moreover, Bandura explicitly protested what he regards as a too-strong duality that "pits psychological [constructivist] and sociostructural theories as rival conceptions of human behavior" (p. 14). In light of such views, a critical examination of the claims and coherence of Bandura's social cognitive theory with respect to agency has potential to inform theoretical and practical work in both self-regulated learning and educational psychology in general. Is it really possible to achieve a kind of theorizing that might reconcile, or alternatively to go beyond, such different conceptions of agency and its sources as those advanced by constructivists and socioculturalists? And, if such an alternative is possible at a theoretical level, what implications does it have for classroom practice with respect to the fostering of agentially self-regulating learners?

To set up such an examination, it is helpful first to review briefly important distinctions and positions with respect to long-standing questions of agency in human affairs. An examination of Bandura's theory of agency and how it manifests in self-regulation then can be conducted in a manner that positions Bandura's account within this more general background. In particular, such consideration will allow a greater appreciation of the way in which Bandura attempts to advance a compatibilist account of human agency as an emergent capability of persons who are constituted primarily within sociocultural contexts. To bolster Bandura's account, recent work in theoretical developmental psychology by Campbell, Christopher, and Bickhard

(2002) is considered for its potential to provide a developmental framework for Bandura's conception of agency as self-regulation. Finally, theoretical and practical implications of the social cognitive perspective on agency, as elaborated herein, are considered. In particular, it is suggested that many current applications of social cognitive theory to self-regulation of learners in classrooms tend to be unnecessarily dualistic in their emphasis on student cognitive-behavioral processes as directed by teachers.

The overall aim of the theoretical work offered is to provide a fuller account of conceptions and claims concerning human agency that underlie research on self-regulated learning that is conducted from the perspective of Bandura's social cognitive theory. This account places Bandura's theory of agency within the broader context of contemporary theoretical work in the philosophy and psychology of agency and permits a consideration of alternative possibilities for classroom applications of social cognitive theorizing about agentic self-regulation.

PERSPECTIVES ON AGENCY

Agency concerns the capability of persons to make choices and act on these choices. If framed as free will, such agency assumes that persons themselves determine their choices and actions. For some "free willists," such self-determination must be, at the very least, under the partial volitional control of the person exercising it (cf. Frankfurt, 1971). For others, the bar must be raised to include agents as the ultimate source of their choices and actions (e.g., Kane, 1996). Philosophers historically have been preoccupied by the question of whether free will is compatible with determinism. Compatibilists hold that it is; incompatibilists hold that it is not. Typically, *compatibilists* are determinists who subscribe to some notion of self-determination, such that as far as persons are concerned, determinist accounts of choice and action must include the self-determination of choosers and actors. *Incompatibilists*, on the other hand, are either libertarians or hard determinists. Libertarians believe that because free will exists, determinism is false. Hard determinists believe either that because determinism is true, free will does not exist, and/or that incompatibilist free will is unintelligible whether or not determinism is true.

Much philosophical debate in this area is a consequence of disputed conceptions of determinism and free will, intertwined with competing arguments concerning the coherence of putting such conceptions together. For example, many compatibilists since Hobbes have thought that incompatibilism itself is incoherent. Arguments of this sort typically hold that if agency is divorced from determinism, action and choice would seem to be random and therefore not under the volitional control of the agent, thus undercutting the possibility of a kind of free will worth having. On the other hand, incompatibilists frequently have maintained that

compatibilist self-determination by itself is insufficient for a free will that matters. This is because self-determination may itself be determined by factors other than the person in question. If the ultimate source of persons' self-determined choices and actions resides in some combination of biological and sociocultural factors separate from persons themselves, then persons cannot be said to be agents in the appropriate way. Moreover, this would be true even if such persons may reasonably be said to exercise voluntary control over their choices and actions.

Such philosophical disputations and arguments are especially relevant to psychologists. This is because disciplinary psychology tacitly assumes a kind of compatibilism predicated on self-determination. How else is one to make sense of the joint commitments of organized psychology to a deterministic science of human behavior on the one hand and a professional practice on the other that claims to assist its clients to exercise greater control over their lives? Clearly, the mostly unstated assumption must be that persons are capable of a kind of self-determination, the acquisition of which can be informed by the principles of deterministic psychological science and aided by the ministrations of psychological practitioners. Therefore, it should come as no surprise that psychological researchers and practitioners are increasingly preoccupied with topics such as self-control, self-efficacy, and self-regulation. Research and theoretical development in these and related areas promises knowledge of a compatibilist self-determination that might allow psychologists and disciplinary psychology to ground coherently their scientist-practitioner aspirations. What is being sought is a kind of self-determination that is both determined and determining. To fulfil its destiny, this psychological Holy Grail must be both demonstrably determined by physical, biological, and sociocultural factors and conditions, yet must somehow be taken over by persons themselves and used with intention to move them toward their goals. Only in this way can organized psychology, to echo George Miller (1969), "give itself away" (p. 1074).

Many philosophers and psychologists interested in agency and self-determination have formulated agentic capability, in terms of properties or states of the agent and in terms of events and processes involving the agent. In both disciplines, such models and theories have had a decidedly reductionistic flavor. For example, in contemporary philosophy of mind and cognitive science, most theoretical models of human choice and action have attempted to reduce generalizations linking psychological states and properties to behavior, to law-like generalizations employing only physical kinds. The guiding idea is that everything that occurs at the level of psychological kinds becomes explicable in terms of the lower level physical kinds and the systematic body of physical laws that governs them. Although no longer restricted by the reductive physicalism of central state materialism or the strictures of classical causality, contemporary functionalist and connectionist approaches still assume that an adequate ac-

count of agentic states and properties ultimately can be provided by nothing more than instantiations of physical properties and systems. This remains true even when computational analogues to, and/or bases for, human psychological functioning are posited to supervene on such physical kinds. By identifying mental kinds with functional kinds that supervene on physical kinds, most functionalist models of mind, although not classically reductive, still seem incapable of supporting and explaining an agency that might be attached to persons *per se*, especially given the worldly activities of persons in the biophysical and sociocultural context.

Similar reservations may be held about very recent connectionist proposals that claim to represent intentional thoughts as states of a computational network as a whole. All such models still require that intentional and reason-giving states and processes can be reduced to states and patterns of interaction without an intentional vocabulary and without the kind of normativity and perspectivity that seem to attend the psychological life of human persons in their everyday thoughts and actions. But, if this is so, what options remain with respect to theorizing an agency of the sort that psychology seems to require—an agency that equates with a self-determination that matters (i.e., is genuinely determining) and yet is itself of nonmysterious origins (i.e., is determined)?

In an attempt to move toward such a conception of agency, a small number of philosophers and psychologists recently have begun to revisit earlier conceptions of emergence in the physical sciences and to develop new approaches to emergence with respect to human agency. The most theoretically exciting of such proposals promise a kind of ontological emergence whereby agentic capabilities that do not exist at physical, biological, or sociocultural levels of reality emerge developmentally as properties of psychological persons. In philosophy, Timothy O'Connor (2000) began to formulate a conceptual framework for a position of this general kind. In psychology, a small number of historical and contemporary theoretical perspectives have treated human agency in emergentist terms (e.g., Bickhard, 1999; Martin, 2003; Mead, 1934). (For a recent review of such work in both philosophy and psychology, see Martin, Sugarman, & Thompson, 2003.) To date, the most widely influential of these attempts within psychology and educational psychology is the emergentist theorizing contained in Bandura's social cognitive theory.

BANDURA'S CONCEPTIONS OF AGENCY AND SELF-REGULATION

Bandura (2001) stated that "social cognitive theory subscribes to a model of emergent interactive agency" (p. 4). For Bandura, following the neurophysiologist Roger Sperry (1993), mental events are brain activities, not immaterial entities somehow existing apart from neural systems. However, such physicality does not imply reductionism. Bandura regarded processes of thought as "emergent brain activities that are not ontologically

reducible" (Bandura, 1997, p. 4), because such thought processes also require interaction within a social world external to the organism. The claim here is that mental states, as emergent properties generated by brain processes and initiated and sustained in social context, differ in novel respects from those biophysical and sociocultural elements that feature in their creation. Furthermore, such novelty is not merely a matter of increased complexity of the same properties (i.e., a mere resultant of interaction). Rather, it is altogether new, capable of exerting "downward" and "same level" causation that is in no sense reducible to the causal activity of the organism's component parts (see Sperry, 1993).

If any such emergentist theorizing can be sustained coherently and garner the necessary empirical support, it would seem to constitute a *via media* that would make the idea of a determined yet determining agency (as self-determination) intelligible and plausible. This would be an agency that is self-determined in a way that matters with respect to the phenomenal significance of human experience and the ethical and sociopolitical ascriptions of moral and legal responsibility. Yet, it would also be an agency that is nonmysterious and amenable to scientific explanation. In short, it would be an account of agency that would go beyond the seeming impasse that Packer and Goicoechea (2000) and others have described as typifying the current state of psychological theorizing with respect to Piagetian-style constructivism and Vygotskian-style socioculturalism.

Since the mid-1970s, Bandura has devoted the majority of his energies to the study of human agency as mediated by beliefs of personal efficacy. More recently (e.g., Bandura, 1997, 2001), he has attempted to offer explicitly theoretical summaries of his work on efficacy and agency. Bandura's definition of agency includes as a core feature that *agency* is "the power to originate actions for given purposes" (Bandura, 1997, p. 3). And, as already indicated, "beliefs of personal efficacy constitute the key factor of human agency" (Bandura, 1997, p. 3). Bandura further understands such beliefs as propositional and embedded in networks of functional relationships with other propositions and schemata.

As previously noted, Bandura's model of emergent interactive agency treats mental propositions and propositional networks as emergent states generated by brain activities and sociocultural context. Such states are novel, influential, and not ontologically reducible. And, once again, novelty and causal influence are not merely consequences of increased complexity of the component properties—just as emergent properties of water, such as viscosity and transparency, are not merely aggregates of the properties of oxygen and hydrogen.

Contemporary philosophers like O'Connor (2000) and earlier philosophical proponents of emergentism with respect to persons like Bunge (1977) argued against the postulation of psychological entities as emergents outside of them being understood as properties of more substantive emergents such as persons with mental abilities. They do so because they are concerned that the positing of

nonsubstantive emergents might serve to push such theorizing into territory outside of the possible purview of scientific inquiry. At times, Bandura talked about "cognitive processes as emergent brain activities that exert determinative influence" (Bandura, 2001, p. 4). However, he also talked about persons as more wholistic causal agents, as when he said, "Cognitive agents regulate their actions by cognitive downward causation as well as undergo upward activation by sensory stimulation. People can designedly conceive unique events and different novel courses of action and choose to execute one of them" (Bandura, 2001, pp. 4–5). A possible interpretation is that Bandura wishes to conceive of both persons (as agents) and their thought processes (those involved in reasoned deliberation, choice, and beliefs such as efficacy beliefs) as emergent, but understands the origination of intentional activities or actions as attributable to persons with agentic capability.

Throughout all of this, Bandura (1997) was adamant that the fact that belief, thought, and reason are cerebral occurrences does not imply that functional relationships expressed in psychological theories are reducible to those in neurophysiological theories. The psychosocial subject matter of psychology has no counterpart in neurobiological theory, and one cannot possibly derive the former from the latter, because psychosocial subject matter inevitably involves "the construction and organization of events external to the organism" (Bandura, 1997, p. 4). Such events are inescapably social and cultural and have no direct counterpart at an intraindividual level. In any event, the human agency that emerges with the formation of efficacy beliefs (i.e., beliefs in one's capability to perform particular actions) is generative and creative, not simply reactive to either its neurophysiological requirements or its sociocultural influences. In fact, "through their intentional acts, people shape the functional structure of their neurobiological systems" (Bandura, 1997, p. 5). (See Edelman, 1987, for a theory of such possibilities.)

With respect to how the self is understood and functions, Bandura rejects any dualism that might separate self as agent from self as object. Maintaining that social cognitive theory is committed to a wholistic conception of selfhood, Bandura maintains that one is just as much an agent when reflecting on one's experience as when executing a particular course of action. At a more macroscopic level of analysis, Bandura's conception of agency operates within an interdependent causal model that he called "triadic reciprocal causation" (Bandura, 1986, p. 22). In this model of self and society, internal personal factors (cognitive, affective, biological events), behavior, and environmental factors operate as interacting determinants that influence each other bidirectionally. What this broader model makes clear is that

people are both producers and products of social systems. Social structures ... do not arise by immaculate conception; they are created by human activity. Social structures, in turn,

impose constraints and provide resources for personal development and everyday functioning. But neither structural constraints nor enabling resources foreordain what individuals become and do in given situations. (Bandura, 1997, p. 6)

The self system is not merely a conduit for sociostructural influences. Although the self is socially constituted, by exercising self-influence human agents operate generatively and proactively, not just reactively, to shape the character of their social systems. (Bandura, 2001, p. 15)

For Bandura, determinism signifies the production of effects by events, including events controlled and influenced by individuals. Furthermore, because most action is codetermined by many factors, psychological events produce their effects in a probabilistic manner. Consequently, Bandura endorses a compatibilist sense of self-determination as partial influence.

There is no incompatibility between freedom and determinism. 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. This agentic causation relies heavily on cognitive self-regulation. It is achieved through reflective thought, generative use of the knowledge and skills at one's command, and other tools of self-influence, which choice and execution of action require ... It is because self-influence operates deterministically on action that some measure of freedom is possible. (Bandura, 1997, p. 7)

To summarize, Bandura's social cognitive theory of agency understands agentic capability as self-determination exercised as self-regulation, the most important volitional component of which is self-efficacy. Such self-regulating capability is socially constituted and biophysically enabled and realized, yet because of its emergent features, exerts a generative, reciprocal influence on both social systems and neurophysiological structures. For Bandura, agency as self-regulation is thus both determined and determining. Agentic self-determination is an emergent capability of developing persons. It arises out of the participation of biological human beings in sociocultural practices, yet once emergent may play a unique causal role in the subsequent development of both self and society. Moreover, such self-regulating capability cannot be reduced to its neurophysiological requirements or sociocultural constituents, even as it continues to be shaped by, and to shape, both.

Bandura's claims with respect to the emergence of agency within biophysical, sociocultural context in a way that is irreducible to either biophysical body and brain or to sociocultural practices and interactions require additional argument. One way to proceed is to recall William James' (1967) distinction between two worlds, one deterministic in a strong metaphysical sense and the other that is not governed by such strong metaphysical determinism, even though it too exhibits regularity and is not typified by radical randomness. In the strictly foreordained world, only one future is viable,

that which is fixed eternally by the past. In the second world, however, the emergence of real novelty and radical becoming are possible. This is a world in which its parts have a certain degree of loose play in relation to each other, such that the current setting of one does not totally determine the future of all the others. It is an unfinished world within which hard deterministic necessity and impossibility are replaced by genuinely real possibility for novelty, growth, and the emergence of new forms of being. In such a world, our actions make a difference. James' functionalist approach to human action fits well within such a world in that attentional processes during action sequences permit an organism to alter its own stimulation and to guide its own unfolding responses. Although habit and experience are important, they can be projected into the future in ways that anticipate and affect courses of action and outcomes, much in the way that Bandura (1997) suggested that perceptions of efficacy carry additional causal force above and beyond enactive performance alone.

What Bandura seems to have in mind is a form of compatibilism that treats self-determining processes as emergent and subsequently causally efficacious within a worldly context similar to James' second world. This kind of thinking is consistent with a broadly evolutionary viewpoint that understands the biophysical and sociocultural world as radically contingent and unpredictable in any tightly deterministic sense, but nonetheless understandable and describable in terms of probabilistic relations that pertain between past and contemporaneous states of affairs and likely future possibilities (cf. Martin, 2003). Although such a world may not answer to the requirements of hard determinism, it is arguably adequate to support the kind of compatibilism seemingly sought by Bandura, one that admits emergent self-determination into the causal ferment that determines human action in the world.

But, in what sense can it be maintained that such emergent self-determination is determined by, but not reducible to, relevant biophysical or sociocultural determinants? Against complete sociocultural determinism, it might be argued that any human action, whether or not it is understood as partially self-determined, requires the embodiment of a human actor. All conceptions of psychological continuity associated with personhood assume a singular spatiotemporal location, with a point of view on the world, and that location is one's own body. Moreover, the resultant uniqueness of any individual's worldly perspective and experience means that whatever sociocultural forces and practices shape or partially constitute the thoughts and actions of the individual will be interactive with this uniquely embodied singularity in ways that preclude full sociocultural determination.

Against full biophysical determinism, it might be argued that human actions and experiences are necessarily meaningful and value laden. Human actions involve goal-directed transactions that reflect both meanings and values. Meanings and values (significance) require a social context and cannot

be equated to biophysical properties, states, and processes under any purely physical description. This contextual requirement precludes full biophysical determinism of human action in the world. Of course, it still might be the case that sociocultural and biophysical factors and conditions interact in some complex manner to determine human action and experience. However, such a proposed determinism is not necessarily in conflict with Bandura's compatibilist emergentism, especially if such interactive, relational (and admittedly "soft") determinism issues in the emergence of those self-regulatory capabilities required for partial self-determination, in addition to whatever biophysical and/or sociocultural factors and processes continue to exert causal influence.

Interpreted in this way, Bandura's theory of self-regulation promises a possible alternative to Vygotskian socioculturalism and Piagetian constructivism, one that might help to explain how agents can be both socially constructed and agentically constructive. Unfortunately, with some noteworthy exceptions, Bandura's (1997) extensive theoretical and experimental analyses of self-efficacy and self-regulation are mostly nondevelopmental, focusing on complexes of situational, personal, and cognitive factors influencing actions in a wide variety of specific task environments. This remains mostly true even in those instances where Bandura has written explicitly about his developmental assumptions. For example, Bandura (1981) provided a very general sketch of the origins of social cognition, using self-efficacy as a case in point. This sketch consists mostly of stating that self-referring thought is initially derived from action and observational learning, and that as infants mature and develop the direct and vicarious consequences of actions create conditions that occasion increased attentiveness and competence with respect to comprehending possibilities for self-regulation. He then goes on to make equally general, although certainly very reasonable, remarks concerning the roles of familial, peer, school, adolescent, and adult experiences in the cultivation and honing of self-efficacy. With such rather "bare bones" developmental theorizing in place, Bandura (1981) turned to the careful cataloging of research evidence in support of particular factors and interactions assumed in his overall model of social cognition.

Although instructive and supportive with respect to many of his claims concerning agency, such work does not provide detailed explication nor direct argument or support for many of his more interesting and perhaps provocative developmental claims concerning the emergence of agentic self-regulatory capability. There is little in Bandura's extensive corpus of work that would begin to approach the kinds of detailed interactivist developmental formulations found in well-known works by Kagan (1984), Stern (1985), and others. Fortunately, several recent works in theoretical, developmental psychology seem consistent with many of the central features of Bandura's theory of agency and may be used to support and extend important, yet currently under-theorized, developmental aspects of his position.

THE DEVELOPMENT OF AGENCY

In particular, the neo-Vygotskian, social constructionism of Harré (1984, 1998), the neo-hermeneutic theorizing of Martin et al. (2003), and the interactivism of Campbell et al. (2002; also see Bickhard, 1999, and Campbell & Bickhard, 1986) all provide developmental theories directly concerned with the emergence of self and agency in a sociocultural context. In addition, all three perspectives discuss moral aspects of agency, which are increasingly of concern to Bandura (2001). However, it is the interactivist theorizing of Campbell et al. that perhaps fits best with Bandura's central claims concerning agency as self-regulation and offers a detailed developmental explanation of how agency thus construed can be both determined and determining.

Recall that Bandura's approach to agency claims that agency emerges from the participation of a developing human being in the physical and sociocultural world. It is the activity of a biological human individual in worldly context that somehow enables the development of agentic capability. Constructivist theorizing in psychology requires something actually to be present in the mind of the child that can be shaped and nurtured by the child's interactive involvement with the world. Almost all such theorizing, whether Piagetian, attachment theory, object relations theory, or cognitive-behavioral theory, relies on some kind of pre-existent ontology of internal working models, representations, beliefs, and/or thoughts, even if in a very primordial form. Bandura (1986) himself often used cognitive-behavioral terms and conceptions, yet his ever-present emphasis on social circumstances, together with his social learning perspective on observational learning and emotional and motivational factors, can be interpreted to imply that he is not committed to the constructivist assumption of pre-existent mental representation. On the other hand, Bandura's advocacy of the kind of self-determining agency discussed previously clearly separates him from strong versions of socioculturalism and social constructionism that would leave perhaps too little room for the developmental emergence of influential forms of cognitive representation. What Bandura's views on agency appear to require from a developmental theory is an explanation of how influential cognitive representations and structures might arise as a consequence of the worldly involvement of biological human infants. These are neonates who are not equipped initially with any such representations, despite being capable of the full range of neurophysiological, biological functioning typical of human infants.

One great advantage of such a developmental theory is that it would avoid well-known, but seldom addressed, logical difficulties with respect to how human knowledge of the world is possible. The problem for theories that invoke pre-existent representational structures is that if all of our worldly knowledge requires such structures, there is no way of explaining how these structures might develop in ways

that are more accurately in accord with the world. If our only access to the world is through our representations of it, we have no independent way of correcting these representations. Thus, we appear to be locked in our Cartesian heads, unable to realize the potential fruits of our worldly activity. It is precisely such a difficulty that the developmental theorizing of Campbell et al. (2002) addressed.

For Campbell et al. (2002), psychological development requires activity in the world. Infants and young children interact with the world. They know and learn in the context of these interactions without knowing that they know. Their initial knowing is fundamentally practical and procedural. Early in life, we have internal experiences as part of our ongoing activity in the physical and sociocultural world, but we do not know about these experiences or internal processes and do not associate them with our own life stories. We learn functional patterns for interacting with our environments through semiguided trial and error. Thus, the sociocultural meaning and significance embedded in situational conventions and social practices, and their attendant prescriptions for what it means to be a person and learner, are taken over by us in an implicit manner that precedes any explicit sense of ourselves or what we know. The self and associated capabilities of declarative knowledge, autobiographical sense, and metacognition are not present in our initial worldly activity, but emerge out of that activity. In short, the kind of cognitive and self structures assumed as pre-existent in most constructivist theorizing are developmental achievements.

The patterns of interaction that infants and young children selectively develop reflect procedural goals of the child in combination with the goals of the culture as mediated through primary caretakers and others. It is in this way that each human person is an expression of culture (Bruner, 1990).

As children mature and develop functional, procedural repertoires of interaction, they develop a second knowing level that is typified by the capacity to be conscious of their own thinking as well as that of others. For example, at about 4 years of age, children understand that they and others can have false beliefs (Flavell, Flavell, & Green, 1983) and become capable of truly autobiographical memories that are tied explicitly to themselves (Nelson, 1992). Campbell and Bickhard (1986) discussed this important shift as a *reflective abstraction*. This is a relationship between adjacent levels of knowing (in this case, between Knowing Levels 1 and 2) "in which properties resident in a given level, implicit in the organization or functioning of that level, are explicitly known at the next higher level" (Campbell & Bickhard, 1986, p. 85).

At Knowing Level 2, children have explicit goals and self-awareness. They can know about goals at Knowing Level 1 and also can understand what goals they want to have. Such goals about goals are called *values*. With both an explicit sense of self and the capacity for metagoals, the child can engage in metastrategies for managing actions in diverse life situations.

"Reflective abstraction does not stop at knowing level 2, nor does it require further maturation of the central nervous system to move higher" (Campbell et al., 2002, p. 808). Aspects of Level 2 can become known at Knowing Level 3, which in turn can become known at Level 4, and so on. Nonetheless, there always are limits to how much of ourselves and our world we consciously can know. One of the primary constraints on our knowing stems from the interactivist claim that Level 1 knowing always is ontologically primary. Our knowing, even at higher levels, always is based on what is initially implicit in our ongoing activity in the world. Of course, as we develop greater sophistication with language and abstract thought, our worldly involvement may become more and more underwritten by the intellectual practices of our societies and cultures. Nonetheless, it is always our immersion in these practices that drives our knowing and personal development. Consequently, contra Descartes, self-knowledge is never a matter of turning inward, but always a matter of "catching sight of ourselves as we are engaged and preoccupied in everyday contexts" (Guignon, 1984, p. 232). This does not mean that higher levels of knowing do not make use of metacognitive strategizing and perhaps even more abstracted forms of reflection and consideration. It means only that our knowledge always is in and of the world, in what is basically a matter of pragmatic functioning tied to particular sociocultural and task environments.

Much of the time, our agency is so embedded in our practical activities in the world that it proceeds in the absence of explicit reflection. However, when we encounter difficulties or concerns in the course of acting with respect to our goals, the problems implicit in such difficulties and concerns occasion a more self-reflective mode of responding targeted at their resolution or management. At these times, we typically search for alternative possibilities for acting that are present or suggested in the sociocultural context in which we are embedded and consciously monitor our understanding and application of such alternatives in relation to our concerns or difficulties.

Finally, knowing levels are not intended to be understood as developmental stages. People can function in different task environments at very different levels of knowing, and many rather sophisticated intellectual feats actually require movement across a number of knowing levels.

Campbell et al.'s (2002) developmental theory offers Bandura's theory of agency a set of developmental ideas and propositions that make more specific sense of what might be involved in a compatibilist claim to the effect that agency is both determined and determining. If both self and the capacity of the self to deliberate on and determine goals for acting emerge developmentally as Campbell et al. claimed, it seems plausible to hold that agency (understood as self-regulation) arises nonmysteriously from our activity in the physical and sociocultural world, yet once emergent is capable of exerting an irreducible influence on subsequent activity in the world. Moreover, to hold such a view does not appear to commit the

holder to a constructivism that assumes developed categories of mind that pre-exist the worldly involvement of persons and makes self-correction of knowledge logically problematic. Nor does it commit the holder to stronger forms of socioculturalism or social constructionism that may leave too little room for the exercise of an agency that matters in individual and collective life. (In fairness, it should be noted that some attempts to apply Vygotskian conceptions to self-regulated learning seem also to leave potential room for an agency that matters in this way—e.g., Rohrkemper, 1989. Nonetheless, explicit theorizing about agency *per se* is mostly absent in such work, and when emergence is considered it is thought of more as a characteristic of interpersonal interaction than applied to agency as a emergent capability of the developing person.)

CLASSROOM IMPLICATIONS

Many classroom applications of social cognitive theorizing concerning agentic self-regulation have assumed a structured, teacher-directed approach to the facilitation of student cognitive and behavioral strategies of self-regulation and self-efficacy in particular task environments. Although there is nothing in social cognitive theorizing that would preclude more open-ended, less structured, and learner-directed forms of classroom engagement with respect to the fostering of self-regulatory capability, the fact is that most explicit statements about, and examples of, appropriate teaching methods tend to be highly structured and teacher directed. For example, Schunk and Zimmerman (1997) discussed a social cognitive model for the development of self-regulatory competence that understands academic self-regulatory competence to develop from social to self sources. Although acknowledging that it is possible for learners to attain self-regulatory competence in the absence of explicit direction by others, Schunk and Zimmerman believe that most learners will benefit from the direct guidance of a teacher-model who provides guidance, feedback, and social reinforcement to initiate and encourage a student's acquisition of relevant behavioral and cognitive skills.

The cognitive-behavioral focus of much of the teaching advocated by social cognitive theorists is apparent in their consideration of "self-regulation as a domain-specific level of acquired skill that depends on several task-dependent processes, such as planning, strategizing, developing motoric proficiency, and self-monitoring" (Schunk & Zimmerman, 1997, p. 199). The preference for teacher direction in the acquisition of such self-regulatory processes is evident from statements such as "Most coaches can tell stories of strong-willed students who have resisted instructional advice and shifted to self-directed practice before they were ready" (Schunk & Zimmerman, 1997, p. 200). There is no doubt that this teacher-directed focus on students' cognitive-behavioral processes of self-regulation can lead to the acquisition of the kind of self-regulatory

competence targeted by social cognitive psychologists in their classroom interventions and evaluations (cf. Schunk & Zimmerman, 1998). Nonetheless, such an approach seems to retain a dualistic emphasis on personal versus social and teacher versus student aspects of classroom contexts that seems somewhat inconsistent with Bandura's more recent attempt to frame his social cognitive theory of agency in less dualistic terms (see previous section).

Without deriding extant social cognitive work in educational psychology, the developmental extension to Bandura's theory of agency proposed herein suggests an alternative form of classroom practice with respect to the fostering of student agentic self-regulation. The possibility of such an alternative may be glimpsed once it is realized that, under typical developmental conditions, young children acquire rudimentary agentic capability through their participation in the sociocultural circumstances and contexts in which they are embedded from birth. It is true that, for educational purposes, such agentic capability needs to be channeled and honed in the context of academic tasks within established traditions of disciplinary knowledge, and that this is the responsibility of teachers. However, given that most students have acquired a considerable amount of agentic self-regulatory capability by the time they come to school, insistence that students follow teacher-directed and determined strategic sequences of self-regulated processes for different tasks may unnecessarily separate self-regulatory strategies from students' ongoing engagement in task domains and reinforce a separation between teacher and student activity on a noncurricular basis of authority alone. On the other hand, it clearly would be irresponsible for teachers not to encourage student self-regulation that is tied appropriately to student acquisition of relevant curricular knowledge and socially responsible conduct. One alternative, based on the developmental extension to Bandura's theorizing just considered, is to understand the agentic self-regulation of students to issue from students' active engagement within richly furnished curricular settings with the support of teachers who encourage student risk-taking and active, self-directed experimentation with alternative possibilities available in these settings.

In such an approach, students would be encouraged to pursue tasks, the accomplishment of which is likely to challenge their existing understandings in ways that require them to access possibilities for enhanced understanding available in a variety of classroom and extracurricular sources. Students would be encouraged to recognize the difficulties and concerns raised by the tasks in which they are engaged and to experiment actively with possibilities for addressing these difficulties and concerns that are available in an appropriately and richly furnished curricular context. Comfort with risk-taking (i.e., with the possibility and actuality of "being wrong") is encouraged by teacher and peer conduct conducive to focusing on the issues, concerns, and difficulties at hand (i.e., on the task engagement of the learner). Suggestions are offered in the context of well-selected tasks and the

challenges that they present, without concern for the cognitive-social, individual-collective, student-teacher status of such suggestions. Finally, students are encouraged to evaluate the results of their experimentation, risk-taking, and resultant understanding in relation to the task concerns and difficulties that initiated their learning activity.

It is impossible to discuss in detail such an alternative in the brief space available here. For example, what might constitute an appropriate, richly furnished curricular context would require considerable space in and of itself. However, the foregoing, brief sketch of a classroom focused on encouraging students to examine their own self-regulatory activities as embedded and entwined with their ongoing, active engagement in curricular tasks, materials, and discussions stands in obvious contrast to the more pedantic forms of direct instruction in cognitive-behavioral skills and strategies favored in some, more conventional social cognitive approaches to the promotion of agentic self-regulation in classrooms. It is an approach to classroom teaching with respect to the fostering of self-regulation that is consistent with the idea of agency as determined by our active engagement within sociocultural practices of doing and knowing that encourage us to strive toward the resolution and/or management of difficulties, concerns, and problems we experience in the course of our acting and understanding. More generally, it is a conception of teaching that is tied to an understanding of students as agents who emerge from their worldly engagements through the pursuit of resolutions to concerns they experience in the process of adapting to and experimenting with the world and what it offers in the way of possibilities for being and knowing.

Examples of extant work in educational psychology that might fit easily within the general alternative outlined here include John Dewey's emphasis on learning to do by knowing and knowing by doing (McLellan & Dewey, 1889), Maria Montessori's prepared learning environments with self-correcting didactic apparatuses (Montessori, 1995), Ann Brown's concern with fostering communities of learning (Campione, Shapiro, & Brown, 1995), and Jerome Bruner's "Man, a Course of Studies (MACROS)" curriculum (Bruner, 1966). All of these examples serve to highlight the importance of genuine social engagement; the encouragement of informed guessing and action planning when problems are encountered in the course of meaningful learning activities; a focus on situation- and problem-specific, self-conscious questioning and thinking; and accountability for individual contributions within cooperative undertakings. More generally, they attempt to highlight those culturally derived agentic capabilities that are unique to human persons and that allow them to go beyond what is socially and culturally given in the way of understanding our human condition and the world within which it unfolds. In terms of Campbell et al.'s (2002) developmental theorizing, all such teaching attempts to help us catch sight of ourselves as agents embedded in sociocultural contexts and

constantly striving to advance those contexts and ourselves in the process.

Of course, the mere fact that the general approach to classroom practice outlined here may be seen as compatible with the proposed developmental extension to Bandura's theory of agency as self-regulation in no way validates the particular pedagogical practices mentioned. Theory can suggest, but cannot validate prescriptions for practice, and this is true whether the practices in question are teacher or student directed, more or less cognitive or social, or possess high or low levels of structure. Fortunately, the extensive empirical literature of educational psychology, some of which is cited previously, provides many demonstrations of the possible efficacy of the various methods mentioned so briefly here. Finally, it would be irresponsible to leave the impression that social cognitive theorists in educational psychology who have been influenced by Bandura's conception of agentic self-regulation in educational settings would be opposed to the various suggestions for implication that have been discussed. Once again, these suggestions are alternatives only in the sense that they are less commonly suggested in social cognitive contributions to self-regulation in classrooms, not in the sense that they are incompatible with the broader principles and propositions of social cognitive theorists.

CONCLUSION

The idea of self as agent is central to much research in educational psychology that focuses on self-regulated learning, especially that which is associated with Bandura's social cognitive theorizing. Nonetheless, within educational psychology in general and self-regulated learning in particular, there has been very little explicit articulation of exactly what agency consists and no attempt to link conceptions of agency in either of these general and particular literatures to the relevant philosophical history of ideas. Even Bandura's own theorizing about agency is mostly removed from this theoretical context.

By attempting a theoretical clarification and extension of Bandura's conception of agency, the aim of the theoretical work herein is to provide a broader and more explicit conceptual framework within which Bandura's work on agency might be understood and its possible implications for self-regulated learning in classrooms more fully explored. In particular, by pointing to contrasts between Bandura's work on agency and the developmental perspectives of Piaget and Vygotsky, it is possible to appreciate the potential of Bandura's theory to provide a defensible compatibilist conception of agency as self-regulation. This is a perspective that understands agency as both determined by sociocultural constituents and biological, neurophysiological requirements, yet emergent from, and not reducible, to these constituents and requirements. In many ways, it is precisely such a conception of agency that is required by disciplinary psychol-

ogy's joint commitment to both deterministic psychological science and empowering psychological practice. In educational psychology, such a view is consistent with psychological practice in education that attempts to understand determinants, including self-determinants, of student learning and to intervene in ways that enhance students' learning.

With respect to self-regulated learning in classrooms, the developmental extension to Bandura's theory of agency that was proposed suggests a form of classroom practice that is less dualistically focused on students' cognitive processes as directed by teachers than is evident in much of the extant work of social cognitive, educational psychologists. This alternative form of classroom practice emphasizes students' active engagement within richly furnished curricular settings with the support of teachers who encourage student risk taking and active, self-directed experimentation with the alternative possibilities available in such settings.

Although it sometimes may seem that conceptual analysis and theoretical extension are tasks somewhat removed from the classroom focus of educational psychology, nothing could be further from the truth. Only by making as explicit as possible those conceptions, claims, and theoretical models and assumptions underlying our inquiries and practices can we expect to achieve an integration of ideas, inquiry methods, and intervention strategies that will be both defensible and effective. Hopefully, this theoretical interpretation and extension of Bandura's social cognitive theory of agency as self-regulation provides not only a modest illustration of such an attempt, but will encourage others to undertake further development of some of the theoretical and practical possibilities considered and suggested and/or to react critically to them.

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