Human Agency in Social Cognitive Theory

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ABSTRACT: The present article examines the nature and function of human agency within the conceptual model of triadic reciprocal causation. In analyzing the operation of human agency in this interactional causal structure, social cognitive theory accords a central role to cognitive, vicarious, self-reflective, and self-regulatory processes. The issues addressed concern the psychological mechanisms through which personal agency is exercised, the hierarchical structure of self-regulatory systems, eschewal of the dichotomous construal of self as agent and self as object, and the properties of a nondualistic but nonreductional conception of human agency. The relation of agent causality to the fundamental issues of freedom and determinism is also analyzed.

The recent years have witnessed a resurgence of interest in the self-referent phenomena. One can point to several reasons why self processes have come to pervade many domains of psychology. Self-generated activities lie at the very heart of causal processes. They not only contribute to the meaning and valence of most external influences, but they also function as important proximal determinants of motivation and action. The capacity to exercise control over one's own thought processes, motivation, and action is a distinctively human characteristic. Because judgments and actions are partly self-determined, people can effect change in themselves and their situations through their own efforts. In this article, I will examine the mechanisms of human agency through which such changes are realized.

The Nature and Locus of Human Agency

The manner in which human agency operates has been conceptualized in at least three different ways—as either *autonomous* agency, *mechanical* agency, or *emergent interactive* agency. The notion that humans serve as entirely independent agents of their own actions has few, if any, serious advocates. However, environmental determinists sometimes invoke the view of autonomous agency in arguments designed to repudiate any role of self-influence in causal processes.

A second approach to the self system is to treat it in terms of mechanical agency. It is an internal instrumentality through which external influences operate mechanistically on action, but it does not itself have any motivative, self-reflective, self-reactive, creative, or self-directive properties. In this view, internal events are mainly products of external ones devoid of any causal efficacy. Because the agency resides in environmental forces, the self system is merely a repository and conduit for them. In this conception of agency, self-referent processes are epiphenominal by-products of conditioned responses that do not enter into the determination of action. For the material eliminativist, self-influences do not exist. People are not intentional cognizers with a capacity to influence their own motivation and action; rather, they are neurophysiological computational machines. Such views fail to explain the demonstrable explanatory and predictive power of self-referent factors that supposedly are devoid of causal efficacy or do not even exist.

Social cognitive theory subscribes to a model of emergent interactive agency (Bandura, 1986). Persons are neither autonomous agents nor simply mechanical conveyers of animating environmental influences. Rather, they make causal contribution to their own motivation and action within a system of triadic reciprocal causation. In this model of reciprocal causation, action, cognitive, affective, and other personal factors, and environmental events all operate as interacting determinants. Any account of the determinants of human action must, therefore, include self-generated influences as a contributing factor. Empirical tests of the model of triadic reciprocal causation are presented elsewhere and will not be reviewed here (Wood & Bandura, in press). The focus of this article is on the mechanisms through which personal agency operates within the interactional causal structure.

Exercise of Agency Through Self-Belief of Efficacy

Among the mechanisms of personal agency, none is more central or pervasive than people's beliefs about their capabilities to exercise control over events that affect their lives. Self-efficacy beliefs function as an important set of proximal determinants of human motivation, affect, and action. They operate on action through motivational, cognitive, and affective intervening processes. Some of these processes, such as affective arousal and thinking patterns, are of considerable interest in their own right and not just as intervening influencers of action.

Cognitive Processes

Self-efficacy beliefs affect thought patterns that may be self-aiding or self-hindering. These cognitive effects take various forms. Much human behavior is regulated by forethought embodying cognized goals, and personal goal setting is influenced by self-appraisal of capabilities. The stronger their perceived self-efficacy, the higher the goals people set for themselves and the firmer their commitment

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to them (Locke, Frederick, Lee, & Bobko, 1984; Taylor, Locke, Lee, & Gist, 1984; Wood & Bandura, in press). As I will show later, challenging goals raise the level of motivation and performance attainments (Locke, Shaw, Saari, & Latham, 1981; Mento, Steel, & Karren, 1987).

A major function of thought is to enable people to predict the occurrence of events and to create the means for exercising control over those that affect their daily lives. Many activities involve inferential judgments about conditional relations between events in probabilistic environments. Discernment of predictive rules requires cognitive processing of multidimensional information that contains many ambiguities and uncertainties. In ferreting out predictive rules, people must draw on their state of knowledge to generate hypotheses about predictive factors, to weight and integrate them into composite rules, to test their judgments against outcome information, and to remember which notions they had tested and how well they had worked. It requires a strong sense of efficacy to remain task oriented in the face of judgmental failures. Indeed, people who believe strongly in their problem-solving capabilities remain highly efficient in their analytic thinking in complex decision-making situations, whereas those who are plagued by self-doubts are erratic in their analytic thinking (Bandura & Wood, 1989; Wood & Bandura, 1989). Quality of analytic thinking, in turn, affects performance accomplishments.

People's perceptions of their efficacy influence the types of anticipatory scenarios they construct and reiterate. Those who have a high sense of efficacy visualize success scenarios that provide positive guides for performance. Those who judge themselves as inefficacious are more inclined to visualize failure scenarios that undermine performance by dwelling on how things will go wrong. Cognitive simulations in which individuals visualize themselves executing activities skillfully enhance subsequent performance (Bandura, 1986; Corbin, 1972; Feltz & Landers, 1983; Kazdin, 1978; Markus, Cross, & Wurf, in press). Perceived self-efficacy and cognitive simulation affect each other bidirectionally. A high sense of efficacy fosters cognitive constructions of effective actions, and cognitive reiteration of efficacious courses of action strengthens self-perceptions of efficacy (Bandura & Adams, 1977; Kazdin, 1979).

Self-efficacy beliefs usually affect cognitive functioning through the joint influence of motivational and information-processing operations. This dual influence is illustrated in studies of different sources of variation in memory performance. The stronger people's beliefs in their memory capacities, the more effort they devote to cognitive processing of memory tasks, which, in turn, enhances their memory performances (Berry, 1987).

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Motivational Processes

People's self-efficacy beliefs determine their level of motivation, as reflected in how much effort they will exert in an endeavor and how long they will persevere in the face of obstacles. The stronger the belief in their capabilities, the greater and more persistent are their efforts (Bandura, 1988a). When faced with difficulties, people who are beset by self-doubts about their capabilities slacken their efforts or abort their attempts prematurely and quickly settle for mediocre solutions, whereas those who have a strong belief in their capabilities exert greater effort to master the challenge (Bandura & Cervone, 1983, 1986; Cervone & Peake, 1986; Jacobs, Prentice-Dunn, & Rogers, 1984; Weinberg, Gould, & Jackson, 1979). Strong perseverance usually pays off in performance accomplishments.

There is a growing body of evidence that human attainments and positive well-being require an optimistic sense of personal efficacy (Bandura, 1986). This is because ordinary social realities are strewn with difficulties. They are full of impediments, failures, adversities, setbacks, frustrations, and inequities. People must have a robust sense of personal efficacy to sustain the perseverant effort needed to succeed. Self-doubts can set in quickly after some failures or reverses. The important matter is not that difficulties arouse self-doubt, which is a natural immediate reaction, but the speed of recovery of perceived self-efficacy from difficulties. Some people quickly recover their self-assurance; others lose faith in their capabilities. Because the acquisition of knowledge and competencies usually requires sustained effort in the face of difficulties and setbacks, it is resiliency of self-belief that counts.

In his revealing book, titled *Rejection,* John White (1982) provides vivid testimony that the striking characteristic of people who have achieved eminence in their fields is an inextinguishable sense of efficacy and a firm belief in the worth of what they are doing. This resilient self-belief system enabled them to override repeated early rejections of their work. A robust sense of personal efficacy provides the needed staying power.

Many of our literary classics brought their authors repeated rejections. The novelist, Saroyan, accumulated several thousand rejections before he had his first literary piece published. Gertrude Stein continued to submit poems to editors for about 20 years before one was finally accepted. Now that is invincible self-efficacy. Such extraordinary persistence in the face of massive uninterrupted rejection defies explanation in terms of either reinforcement theory or utility theory. James Joyce's book, the *Dubliners,* was rejected by 22 publishers. Over a dozen publishers rejected a manuscript by e. e. cummings. When his mother finally published it, the dedication, printed in upper case, read: "With no thanks to . . ." followed by the long list of publishers who had rejected his offering.

Early rejection is the rule, rather than the exception, in other creative endeavors. The Impressionists had to arrange their own art exhibitions because their works were routinely rejected by the Paris Salon. Van Gogh sold only one painting during his lifetime. Rodin was repeatedly

rejected by the Ecole des Beaux-Arts. The musical works of most renowned composers were initially greeted with derision. Stravinsky was run out of Paris by an enraged audience and critics when he first served them the *Rite of Spring*. Many other composers suffered the same fate, especially in the early phases of their career. The brilliant architect, Frank Lloyd Wright, was one of the more widely rejected architects during much of his career.

To turn to more contemporary examples, Hollywood initially rejected the incomparable Fred Astaire for being only "a balding, skinny actor who can dance a little." Decca Records turned down a recording contract with the Beatles with the nonprophetic evaluation, "We don't like their sound. Groups of guitars are on their way out." Whoever issued that rejective pronouncement must cringe at each sight of a guitar.

It is not uncommon for authors of scientific classics to experience repeated initial rejection of their work, often with hostile embellishments if it is too discrepant from the theories in vogue at the time. For example, John Garcia, who eventually won well-deserved recognition for his fundamental psychological discoveries, was once told by a reviewer of his oft-rejected manuscripts that one is no more likely to find the phenomenon he discovered than bird droppings in a cuckoo clock. Verbal droppings of this type demand tenacious self-belief to continue the tortuous search for new Muses. Scientists often reject theories and technologies that are ahead of their time. Because of the cold reception given to most innovations, the time between discovery and technical realization typically spans several decades.

It is widely believed that misjudgment produces dysfunction. Certainly, gross miscalculation can create problems. However, optimistic self-appraisals of capability that are not unduly disparate from what is possible can be advantageous, whereas veridical judgments can be self-limiting. When people err in their self-appraisals, they tend to overestimate their capabilities. This is a benefit rather than a cognitive failing to be eradicated. If self-efficacy beliefs always reflected only what people could do routinely, they would rarely fail but they would not mount the extra effort needed to surpass their ordinary performances.

Evidence suggests that it is often the so-called normals who are distorters of reality, but they exhibit self-enhancing biases that distort appraisals in the positive direction. The successful, the innovative, the sociable, the nonanxious, the nondespondent, and the social reformers take an optimistic view of their personal efficacy to exercise influence over events that affect their lives (Bandura, 1986; Taylor & Brown, 1988). If not unrealistically exaggerated, such self-beliefs foster the perseverant effort needed for personal and social accomplishments. The findings of laboratory studies are in accord with the records of human triumphs regarding the centrality of the motivational effects of self-beliefs of efficacy in human attainments. It takes a resilient sense of efficacy to override the numerous dissuading impediments to significant accomplishments.

Affective Processes

People's beliefs in their capabilities affect how much stress and depression they experience in threatening or taxing situations, as well as their level of motivation. Such emotional reactions can affect action both directly and indirectly by altering the nature and course of thinking. Threat is not a fixed property of situational events, nor does appraisal of the likelihood of aversive happenings rely solely on reading external signs of danger or safety. Rather, threat is a relational property concerning the match between perceived coping capabilities and potentially aversive aspects of the environment.

People who believe they can exercise control over potential threats do not conjure up apprehensive cognitions and, therefore, are not perturbed by them. But those who believe they cannot manage potential threats experience high levels of stress and anxiety arousal. They tend to dwell on their coping deficiencies and view many aspects of their environment as fraught with danger. Through such inefficacious thought they distress themselves and constrain and impair their level of functioning (Bandura, 1988b, 1988c; Lazarus & Folkman, 1984; Meichenbaum, 1977; Sarason, 1975).

That perceived coping efficacy operates as a cognitive mediator of anxiety has been tested by creating different levels of perceived coping efficacy and relating them at a microlevel to different manifestations of anxiety. Perceived coping inefficacy is accompanied by high levels of subjective distress, autonomic arousal, and plasma catecholamine secretion (Bandura, Reese, & Adams, 1982; Bandura, Taylor, Williams, Mefford, & Barchas, 1985). The combined results from the different psychobiological manifestations of emotional arousal are consistent in showing that anxiety and stress reactions are low when people cope with tasks in their perceived self-efficacy range. Self-doubts in coping efficacy produce substantial increases in subjective distress and physiological arousal. After perceived coping efficacy is strengthened to the maximal level, coping with the previously intimidating tasks no longer elicits differential psychobiological reactions.

Anxiety arousal in situations involving some risks is affected not only by perceived coping efficacy but also by perceived self-efficacy to control intrusive perturbing cognitions. The exercise of control over one's own consciousness is summed up well in the proverb: "You cannot prevent the birds of worry and care from flying over your head. But you can stop them from building a nest in your head." Perceived self-efficacy in thought control is a key factor in the regulation of cognitively generated arousal. It is not the sheer frequency of aversive cognitions but the perceived inefficacy to turn them off that is the major source of distress (Kent, 1987; Salkovskis & Harrison, 1984). Thus, the incidence of aversive cognitions is unrelated to anxiety level when variations in perceived thought control efficacy are controlled for, whereas perceived thought control efficacy is strongly related to anxiety level when the extent of aversive cognitions is controlled (Kent & Gibbons, 1987).

The role of perceived self-efficacy and anxiety arousal in the causal structure of avoidant behavior has also been examined extensively. The results show that people base their actions on self-perceptions of coping efficacy in situations they regard as risky. The stronger the perceived coping efficacy, the more venturesome the behavior, regardless of whether self-perceptions of efficacy are enhanced through mastery experiences, modeling influences, or cognitive simulations (Bandura, 1988b). Perceived self-efficacy accounts for a substantial amount of variance in phobic behavior when anticipated anxiety is partialed out, whereas the relationship between anticipated anxiety and phobic behavior essentially disappears when perceived self-efficacy is partialed out (Williams, Dooseman, & Kleifield, 1984; Williams, Kinney, & Falbo, in press; Williams, Turner, & Peer, 1985). In short, people avoid potentially threatening situations and activities, not because they are beset with anxiety, but because they believe they will be unable to cope with situations they regard as risky. They take self-protective action regardless of whether they happen to be anxious at the moment. The dual control of anxiety arousal and avoidant behavior by perceived coping efficacy and thought control efficacy is revealed in analyses of the mechanisms governing personal empowerment over pervasive social threats (Ozer & Bandura, 1989). One path of influence is mediated through the effects of perceived coping self-efficacy on perceived vulnerability and risk discernment, and the other through the impact of perceived cognitive control self-efficacy on intrusive aversive thoughts.

Perceived self-inefficacy to fulfill desired goals that affect evaluation of one's self-worth and to secure things that bring satisfaction to one's life can give rise to bouts of depression (Bandura, 1988a; Cutrona & Troutman, 1986; Holahan & Holahan, 1987a, 1987b; Kanfer & Zeiss, 1983). When the perceived self-inefficacy involves social relationships, it can induce depression both directly and indirectly by curtailing the cultivation of interpersonal relationships that can provide satisfactions and buffer the effects of chronic daily stressors (Holahan & Holahan, 1987a). Depressive rumination not only impairs ability to initiate and sustain adaptive activities, but it further diminishes perceptions of personal efficacy (Kavanagh & Bower, 1985). Much human depression is also cognitively generated by dejecting ruminative thoughts (Nolen-Hoeksema, 1987). Therefore, perceived self-inefficacy to exercise control over ruminative thought figures prominently in the occurrence, duration, and recurrence of depressive episodes (Kavanagh & Wilson, 1988).

Other efficacy-activated processes in the affective domain concern the impact of perceived coping efficacy on basic biological systems that mediate health functioning (Bandura, in press-a). Stress has been implicated as an important contributing factor to many physical dysfunctions. Controllability appears to be a key organizing principle regarding the nature of these stress effects. Exposure to physical stressors with a concomitant ability to control them has no adverse physiological effects, whereas exposure to the same stressors without the ability to control them impairs cellular components of the immune system (Coe & Levine, in press; Maier, Laudenslager, & Ryan, 1985). Biological systems are highly interdependent. The types of biochemical reactions that have been shown to accompany perceived coping inefficacy are involved in the regulation of immune systems. For example, perceived self-inefficacy in exercising control over cognitive stressors activates endogenous opioid systems (Bandura, Cioffi, Taylor, & Brouillard, 1988). There is evidence that some of the immunosuppressive effects of inefficacy in controlling stressors are mediated by release of endogenous opioids. When opioid mechanisms are blocked by opiate antagonists, the stress of coping inefficacy loses its immunosuppressive power (Shavit & Martin, 1987).

In the laboratory research demonstrating immunosuppression through stress mediation, controllability is studied as a fixed dichotomous property in which animals either exercise complete control over physical stressors, or they have no control whatsoever. In contrast, most human stress is activated in the course of learning how to exercise control over recurring cognitive and social stressors. It would not be evolutionarily advantageous if acute stressors invariably impaired immune function, because of their prevalence in everyday life. Indeed, in a recently completed project, my colleagues and I found (Wiedenfeld et al., 1989) that stress aroused in the process of gaining coping efficacy over stressors enhances immune function. The rate of efficacy acquisition is a good predictor of whether exposure to acute stressors enhances or suppresses immune function.

Selection Processes

People can exert some influence over their life course by their selection of environments and construction of environments. So far, the discussion has centered on efficacy-activated processes that enable people to create beneficial environments and to exercise control over them. Judgments of personal efficacy also affect selection of environments. People tend to avoid activities and situations they believe exceed their coping capabilities, but they readily undertake challenging activities and select social environments they judge themselves capable of handling. Any factor that influences choice behavior can profoundly affect the direction of personal development because the social influences operating in the environments that are selected continue to promote certain competencies, values, and interests long after the decisional determinant has rendered its inaugurating effect. Thus, seemingly inconsequential determinants can initiate selective associations that produce major and enduring personal changes (Bandura, 1986; Snyder, 1986).

The power of self-efficacy beliefs to affect the course of life paths through selection processes is clearly revealed in studies of career decision-making and career development (Betz & Hackett, 1986; Lent & Hackett, 1987). The more efficacious people judge themselves to be, the wider the range of career options they consider appropriate and the better they prepare themselves educationally for

different occupational pursuits. Self-limitation of career development arises more from perceived self-inefficacy than from actual inability. By constricting choice behavior that can cultivate interests and competencies, self-disbeliefs create their own validation.

It should be noted that the sociocognitive benefits of a sense of personal efficacy do not arise simply from the incantation of capability. Saying something should not be confused with believing it to be so. Simply saying that one is capable is not necessarily self-convincing, especially when it contradicts preexisting firm beliefs. No amount of reiteration that I can fly will persuade me that I have the efficacy to get myself airborne and to propel myself through the air. Action tendencies vary with the strength of self-beliefs of efficacy (Bandura, 1977). Efficacy beliefs exhibit a gradient of strength as a function of temporal and physical proximity to the relevant activity. One must consider the height and slope of the efficacy gradient and the threshold strength for acting on one's self-belief. These characteristics of a self-belief system are affected by the authenticity of the efficacy information on which they are based. Self-efficacy beliefs that are firmly established are likely to remain strong regardless of whether one is far removed from the taxing or threatening activities or is about to perform them. Such beliefs are resilient to adversity. In contrast, weakly held self-beliefs are highly vulnerable to change: Self-doubts mount the nearer one gets to the taxing activities (Kent, 1987; Kent & Gibbons, 1987), and negative experiences readily reinstate self-disbelief in one's capabilities.

Efficacy beliefs are the product of a complex process of self-persuasion that relies on cognitive processing of diverse sources of efficacy information. These include performance mastery experiences, vicarious experiences for judging capabilities in comparison with performances of others, verbal persuasion and allied types of social influences indicating that one possesses certain capabilities; and physiological states from which one may partly judge one's capabilities, strength, and vulnerability. Information that is relevant for judging personal capabilities is not inherently enlightening. Rather, in the self-appraisal of efficacy these different sources of efficacy information must be cognitively processed, weighed, and integrated through self-reflective thought. Acting on one's self-efficacy judgment produces confirming or disconfirming experiences that prompt further reappraisals of personal efficacy.

Development of resilient self-efficacy requires some experience in mastering difficulties through perseverant effort. If people experience only easy successes, they come to expect quick results and their sense of efficacy is easily undermined by failure. Some setbacks and difficulties in human pursuits serve a useful purpose in teaching that success usually requires sustained effort. After people become convinced they have what it takes to succeed, they persevere in the face of adversity and quickly rebound from setbacks. By sticking it out through tough times, they emerge from adversity with a stronger sense of efficacy.

Exercise of Agency Through Goal Representations

Another distinctive human characteristic through which personal agency is exercised is the capacity of forethought. People do not simply react to immediate environmental influences like weathervanes, nor are they mechanically steered by implants from their past. Most human behavior, being purposive, is regulated by forethought. The future time perspective manifests itself in many different ways. People anticipate the likely consequences of their prospective actions, they set goals for themselves, and they plan courses of action likely to produce desired outcomes. Through the exercise of forethought and self-regulative standards, they motivate themselves and guide their actions anticipatorily. Theories that seek to explain human behavior solely as the product of external influences or the remnants of past stimulus inputs present a truncated image of human nature. This is because people possess self-directive capabilities that enable them to exercise some control over their thoughts, feelings, and actions by the consequences they produce for themselves. Psychosocial functioning is, therefore, regulated by an interplay of self-produced and external sources of influence.

The capability for intentional and purposive action is rooted in symbolic activity. Future events cannot be causes of current motivation and action because that would entail backward causation in which the effect precedes the cause. However, by being represented cognitively in the present, conceived future events are converted into current motivators and regulators of behavior. Action is motivated and directed by cognized goals rather than drawn by remote aims. Forethought is translated into incentives and guides for action through the aid of self-regulatory mechanisms.

Many theories of self-regulation are founded on a negative feedback control model. This type of system functions as a motivator and regulator of action through a discrepancy reduction mechanism. Perceived discrepancy between performance and an internal standard triggers action to reduce the incongruity. In negative feedback control, if performance matches the internal standard the person does nothing. A regulatory process in which matching a standard begets inertness does not characterize human self-motivation. Such a feedback control system would produce circular action that leads nowhere. Nor could people be stirred to action until they receive feedback of a shortcoming. Although comparative feedback is essential in the ongoing regulation of motivation, people can initially raise their level of motivation by adopting goals before they receive any feedback regarding their beginning effort (Bandura & Cervone, 1983). Negative feedback may help to keep them going on a preset course, but from time to time they must transcend the feedback loop to initiate new challenging courses for themselves. Different self-regulatory systems operate in the initiation and continued regulation of motivation.

Human self-motivation relies on *discrepancy pro-*

duction as well as on *discrepancy reduction.* It requires both *proactive control* and *reactive or feedback control.* People initially motivate themselves through proactive control by setting themselves valued challenging standards that create a state of disequilibrium and then mobilizing their effort on the basis of anticipatory estimation of what it would take to accomplish them. Feedback control comes into play in subsequent adjustments of effort to achieve desired results. After people attain the standard they have been pursuing, those who have a strong sense of efficacy generally set a higher standard for themselves. The adoption of further challenges creates new motivating discrepancies to be mastered. Similarly, surpassing a standard is more likely to raise aspiration than to lower subsequent performance to conform to the surpassed standard. Self-motivation thus involves a hierarchical dual control process of disequilibrating discrepancy production followed by equilibrating discrepancy reduction. An evaluative executive control system with a proactive component must therefore be superimposed on a negative feedback operation that keeps changing aspirational standards with progressive performance attainments. To capture the complexity of human self-regulation, such an executive control system must be invested with the evaluative agentive properties shown to play an important role in self-directedness. These properties are discussed next.

Goals operate largely through self-referent processes, rather than regulating motivation and action directly. These processes provide the links between goals and action. Cognitive motivation based on goal systems is mediated by three types of self-reactive influences: (a) affective self-evaluation, (b) perceived self-efficacy for goal attainment, and (c) ongoing readjustment of internal standards. Goals create motivating involvement in activities by specifying the conditional requirements for positive self-evaluation. People seek self-satisfactions from fulfilling valued goals and are prompted to intensify their efforts by discontent with substandard performances.

Perceived self-efficacy is another self-referent factor that plays an influential role in the self-regulation of motivation through goal systems. As previously noted, it is partly on the basis of self-beliefs of efficacy that people choose what challenges to undertake, how much effort to expend in the endeavor, and how long to persevere in the face of difficulties (Bandura, 1986, 1988a). In the face of negative discrepancies between personal standards and attainments, those who are assured of their capabilities heighten their level of effort and perseverance, whereas those who are beset by self-doubts about their capabilities are easily dissuaded by failure. The goals people set for themselves at the outset of an endeavor are subject to change, depending on the pattern and level of progress they are making (Campion & Lord, 1982). They may maintain their original goal, lower their sights, or adopt an even more challenging goal. Thus, the third constituent of self-influence in the ongoing regulation of motivation concerns the readjustment of internal standards in light of one's attainments. These self-referent influences operating in concert account for the major share of variation in motivation through goal systems (Bandura & Cervone, 1986).

In brief, the agentive properties of a self-motivational control system must include (a) predictive anticipatory control of effort, (b) affective self-evaluative reactions to one's performances rooted in a value system, (c) self-appraisal of personal efficacy for goal attainment, and (d) self-reflective metacognitive activity concerning the adequacy of one's efficacy appraisals and the suitability of one's standard setting. Evaluation of perceived self-efficacy relative to task demands indicates whether the standards being pursued are within attainable bounds or are unrealistically beyond one's reach.

Exercise of Agency Through Anticipated Outcomes

The ability to envision the likely outcomes of prospective actions is another way in which anticipatory mechanisms regulate human motivation and action. People strive to gain anticipated beneficial outcomes and to forestall aversive ones. However, the effects of outcome expectancies on performance motivation are partly governed by self-beliefs of efficacy. There are many activities that, if performed well, guarantee valued outcomes, but they are not pursued if people doubt they can do what it takes to succeed (Beck & Lund, 1981; Betz & Hackett, 1986; Wheeler, 1983). Self-perceived inefficacy can thus nullify the motivating potential of alluring outcome expectations.

The degree to which outcome expectations contribute to performance motivation independently of self-efficacy beliefs is partly determined by the structural relation between actions and outcomes in a particular domain of functioning. In activities in which the level of competence dictates the outcomes, the types of outcomes people anticipate depend largely on their beliefs of how well they will be able to perform in given situations. In most social, intellectual, and physical pursuits, those who judge themselves highly efficacious will expect favorable outcomes, whereas those who expect poor performances of themselves will conjure up negative outcomes. When variations in perceived self-efficacy are partialed out, the outcomes expected for given performances do not have much of an independent effect on behavior (Barling & Abel, 1983; Barling & Beattie, 1983; Godding & Glasgow, 1985; Lee, 1984a, 1984b; Williams & Watson, 1985). Expected outcomes contribute to motivation independently of self-efficacy beliefs when outcomes are not completely controlled by quality of performance. This occurs when extraneous factors also affect outcomes, or outcomes are socially tied to a minimum level of performance so that some variations in quality of performance above and below the standard do not produce differential outcomes.

Hierarchical Dual Control Mechanisms in the Construction and Regulation of Action

As already noted, motivation is self-regulated through the joint influence of proactive and feedback mechanisms. The same dual control operates in the construction and

regulation of complex patterns of behavior (Bandura, 1986, in press-b). Foresightful conceptions of actions guide the production of appropriate behavior and provide the internal standards for corrective adjustments in the development of behavioral proficiency (Carroll & Bandura, in press). These conceptions are formed on the basis of knowledge gained through observational learning, inferences from exploratory experiences, information conveyed by verbal instruction, and innovative cognitive syntheses of preexisting knowledge. The mechanism for transforming cognition into action operates through a conception-matching process. This involves both transformational and generative operations. Execution of a skill must be constantly varied to suit changing circumstances. Adaptive performance, therefore, requires a generative conception rather than a one-to-one mapping between representation and action. By applying an abstract specification of the activity, people can produce many variations on the skill.

Conceptions are rarely transformed into masterful performance on the first attempt. 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 (Carroll & Bandura, 1985, 1987). Because errors can produce costly and injurious consequences, the prospects of healthy survival would be bleak if people had to rely solely on negative feedback to develop competencies. Negative feedback operates as a complementary but subordinate mechanism in the process of action construction.

Dual control is similarly involved in the regulation of preestablished modes of action. Forethought guides the selection of actions, and the results produced by those actions verify the adequacy of the chosen course. A system of self-regulation combining *proactive guidance* with *reactive adjustments* is best suited for adaptive functioning, especially under changing circumstances. Psychological theories that rely exclusively on a negative feedback model provide only a fractional view of human self-regulation.

Human action is, of course, regulated by multilevel systems of control. Cognitive guidance is critical during the acquisition of competences (Carroll & Bandura, in press). But after skills have been perfected, they no longer require cognitive control. Their execution is largely regulated by lower level sensorimotor systems (Carroll & Bandura, 1987). Partial disengagement of thought from proficient action frees cognitive resources for other purposes. If routinized behavior fails to produce expected results, the cognitive control system again comes into play. New courses of action are constructed and tested. Control reverts to the lower control system after an adequate means is found and becomes the habitual way of doing things.

The Power of Forethought to Override Feedback Control

Human adaptation and survival depend increasingly on the power of forethought to override immediate feedback control of action. We now possess the capacity to create technologies that can have pervasive effects not only on current life but also on that of future generations. Many technical innovations that provide current benefits also entail hazards and cumulative harmful effects that can eventually take a heavy future toll on human beings and the environment.

The capacity to extrapolate future consequences from known facts enables people to take corrective actions to avert disastrous futures. It is the expanded time perspective and symbolization of futures afforded by cognition that increase the prospects of human survival. Had humans been ruled solely by immediate consequences, they would have long ago destroyed most of the ecological supports of life. Forethought often saves us from the perils of a foreshortened perspective. However, the power of anticipative control must be enhanced by developing better methods for forecasting distal consequences and stronger social mechanisms for bringing projected consequences to bear on current behavior to keep us off self-destructive courses.

Distinction Between Self as Agent and as Object

Social cognitive theory rejects the dichotomous conception of self as agent and self as object. Acting on the environment and acting on oneself entail shifting the perspective of the same agent rather than reifying different selves regulating each other or transforming the self from agent to object. In acting as agents over their environments, people draw on their knowledge and cognitive and behavioral skills to produce desired results. In acting as agents over themselves, people monitor their actions and enlist cognitive guides and self-incentives to produce desired personal changes. They are just as much agents influencing themselves as they are influencing their environment.

The same is true for metacognitive activity. In their everyday transactions, people act on their thoughts and later analyze how well their thoughts have served them in managing events. However, the same person is doing the operative thinking and later evaluating the adequacy of his or her knowledge, thinking skills, and action strategies. The shift in perspective does not transform an individual from an agent to an object. One is just as much an agent reflecting on one's experiences as in generating and executing the original courses of action. The same self performing multiple functions does not require creating multiple selves endowed with different roles.

Human Agency and Psychoneural Processes

Human agency does not imply psychophysical dualism. Thoughts are higher brain processes rather than psychic entities that exist separately from brain activities. Ideational and neural terminology are simply different ways of representing the same cerebral processes. The view that cognitive events are neural occurrences does not mean that psychological laws regarding psychosocial functioning are derivable from neurophysiological ones.

One must distinguish between biological laws governing the mechanics of cerebral systems and psychological laws of how cerebral systems can be orchestrated to serve different purposes. Psychological knowledge of how best to structure influences to create belief systems and personal competencies is not derivable from knowledge of the neurophysical mechanisms that subserve such changes. Thus, understanding the brain circuits involved in learning does not tell one much about how best to present and organize instructional contents, how to code them for memory representation, and how to motivate learners to attend to, cognitively process, and rehearse what they are learning. Nor does understanding of how the brain works furnish rules on how to create social conditions that cultivate the skills needed to become a successful parent, teacher, or executive. The optimal conditions must be specified by psychological principles.

The influences needed to produce the neural occurrences underlying complex human behavior include events external to the organism acting together with self-generated ones. The laws of psychology specify how to structure environmental influences and to enlist cognitive activities to achieve given purposes. Although psychological laws cannot violate what is known about the physiological system that subserves them, they need to be pursued in their own right. Were one to embark on the road to reductionism, psychology would be reduced to biology, biology to chemistry, and chemistry to physics, with the final stop in atomic particles. Neither atomic particles, chemistry, nor biology will provide the psychological laws of human behavior.

The construal of cognitions as cerebral processes raises the intriguing question of how people come to be producers of thoughts that may be novel, inventive, visionary, or that take complete leave of reality as in flights of fancy. One can originate fanciful but coherent thoughts as, for example, visualizing a hippopotamus gracefully riding the waves on a surfboard. Similarly, one can get oneself to cognize several novel acts and choose to execute one of them. Cognitive production, with its initiating and creative properties, defies explanation in terms of external cueing of preexisting cognitive products. Neither situational cues, knowledge structures, conditioned responses, nor prior brainwaves are likely to be highly predictive of the specific forms fanciful thoughts will take. Emergent cognitive events draw on existing cognitive structures but go beyond them.

If thought processes are conceived of as cerebral processes, the relevant question is not how mind and body act on each other, but how people can bring into being cognitive or cerebral productions. The issues of interest concern the brain dynamics of cognitive generation. The novel scenario of the surfing hippopotamus was produced by the intentional exercise of personal agency. Intentionality and agency raise the fundamental question of how people activate the cerebral processes that characterize the exercise of agency and lead to the realization of particular intentions. In addition to asking how people originate thoughts and actions, one may also ask the intriguing question of how people occasion self-perceiving and self-reflecting cognitive activities.

Human Agency, Freedom, and Determinism

The notion of human agency also raises the fundamental issue of its relation to determinism. The term *determinism* is used here to mean the production of effects by events, rather than in the doctrinal sense that actions are completely determined by a prior sequence of causes independent of the individual. When viewed from the perspective of social cognitive theory, there is no incompatibility between human agency and determinism (Bandura, 1986). Freedom is not conceived negatively as the absence of external coercion or constraints. Rather, it is defined positively in terms of the exercise of self-influence. I have already examined how the exercise of personal agency is achieved through reflective and regulative thought, the skills at one's command, and other tools of self-influence that affect choice and support selected courses of action. Self-generated influences operate deterministically on behavior the same way as external sources of influence do. Given the same environmental conditions, persons who have developed skills for accomplishing many options and are adept at regulating their own motivation and behavior are more successful in their pursuits than those who have limited means of personal agency. It is because self-influence operates deterministically on action that some measure of self-directedness and freedom is possible.

Those who argue that people do not exercise any control over their motivation and action usually invoke a selective regression of causes in the analysis of self-regulation. They emphasize that external events influence judgments and actions, but neglect the portion of causation showing that the environmental events, themselves, are partly shaped by people's actions. Environments have causes as do behaviors. In the model of reciprocal causation, people partly determine the nature of their environment and are influenced by it. Self-regulatory functions are personally constructed from varied experiences not simply environmentally implanted. Although people's standards and conceptions have some basis in reality, they are not just ingrafts of it. Through their capacity to manipulate symbols and to engage in reflective thought, people can generate novel ideas and innovative actions that transcend their past experiences. They bring influence to bear on their motivation and action in efforts to realize valued futures. They may be taught the tools of self-regulation, but this in no way detracts from the fact that by the exercise of that capability they help to determine the nature of their situations and what they become. The self is thus partly fashioned through the continued exercise of self-influence.

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