Abstract

This chapter addresses personal and social change in terms of the exercise of human agency. By exerting influence over their own motivation, thoughts and actions, people exercise some control over their accomplishments and shape the nature of their environment. Among the mechanisms of agency, none is more central or pervasive than beliefs of personal efficacy. It is the foundation of human agency. Unless people believe they can produce desired outcomes by their actions, they have little incentive to act or to sustain their efforts in the face of difficulties. Social cognitive theory posits a multifaceted causal structure in which efficacy beliefs operate in concert with other determinants in regulating human functioning. Knowledge of sociocognitive determinants and mechanisms lends itself readily to the development of models of personal change that are not only effective but have high social utility. Human adaptation and change are rooted in social systems. Human agency, therefore, operates within a broad network of sociostructural influences in which people are products as well as producers of social systems. Many human problems are social in nature not just personal. This requires changing the practices of social systems rather than just treating the casualties of adverse systems. Macrosocial applications of sociocognitive principles enable people to improve their lives.

Exercise of Agency in Personal and Social Change
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In its brief history, psychology has undergone wrenching paradigm shifts. The theoretical changes in the field at large are mirrored in how human dysfunctions and their treatment are conceptualized within the clinical enterprise. In these transformations, the theorists and their followers think, argue and act agentically, but their theories about how other people function grant them little, if any, agentic capabilities. It is ironic that a science of human functioning should strip people of the very capabilities that make them unique in their power to shape their environment and their own destiny.

Behavioristic Model

The behavioral component of cognitive-behavior therapy was originally founded on behavioristic principles that embraced an input-output model linked by an obscure black box. In this view, human behavior is conditioned and regulated by environmental stimuli. This line of theorizing was eventually put out of vogue by the advent of the computer, which filled the black box with a lot of self-regulatory capabilities created by inventive thinkers.

One brand of behaviorism survived with an even more stringent orthodoxy in the form of the operant model of human behavior. Operant conditioners not only stripped humans of any agentic capabilities, but imposed strict methodological prohibitions that even natural scientists reject. Scientific advances can be achieved by two types of theories: those that simply seek to identify correlations between observable events without regard to linking mechanisms; and those that specify the mechanisms governing the relations between observable events (Bandura, 1996).

Operant analysts declared that the only legitimate scientific approach is one confined to linking observables. In this extreme methodological prescription, they are much more restrictive than are natural scientists. In commenting on the issue of observability in scientific inquiry, Nagel (1961) explains that some of the most comprehensive theories in the natural sciences are not about factors that are "observable." Physicists, for example, created remarkable things with atomic theory, including bombs of mass destructiveness, even though atoms are not given to public view.

The notion that one need only correlate observable environment with observable behavior ran into serious problems. Human behavior does not covary all that well with stimulus events. People are often unresponsive to situational cues, and unaffected by the consequences of their actions. Therefore, operant analysts had to look elsewhere for a better explanation of human behavior. The explanatory burden fell increasingly on determinants inside the organism, namely, the implanted history of reinforcement. Behavior was presumably controlled by external stimulation acting together with the implanted organismic state. Like other internal determinants, history is neither observable or directly accessible. Operant analysts extol the nonobservables they like, but decry those posited in other theories.

There is a growing rift among operant analysts about the shift in emphasis within their own conceptual framework from models of environment-based control to organism-based control (Machado, 1993). The organismic control is nonagentic, however. People are merely repositories for past stimulus inputs and conduits for external stimulation, but they can add nothing to their performance. They undergo actions rather than construct, select and regulate them.

Mind as Digital Computer

The advent of the computer transformed the psychological franchise and radically altered its research agenda. If computers can perform cognitive operations that solve problems, regulatory thought could no longer be denied to humans. The input-output model was supplanted by an input-linear throughput-output model. The mind as digital computer became the conceptual model for the times.

Although the mindless organism became a mindful one, it was still devoid of consciousness and agentic capabilities. Explanations of human dysfunctions and their treatment were conceptualized in terms of defective styles of information processing rather than defective environmental conditioning. For decades, the reigning computer metaphor of human functioning was a linear computational system in which information is fed through a central processor that cranks out a succession of computational operations according to preordained rules. The architecture of the linear computer at the time dictated the model of the mind. People were jumping on the bandwagon without paying much attention to what they were boarding and where it was going.

Connectionist Model of Mind

The linear model was eventually supplanted by more dynamically organized computer models that perform multiple operations simultaneously and interactively to mimic better how

human brains function. In this connectionist model of mind, input activates a multifaceted dynamic throughput that produces the output. These dynamic models include multilevel neural networks with agentic functions lodged in a hidden network operating without any consciousness, which is the very substance of mental life. Sensory organs deliver up information to the hidden network acting holistically as the cognitive agent that does the construing, planning, motivating and regulating. However, without consciousness people are mere automatons undergoing actions devoid of any conscious control or phenomenological life.

As Green and Vervaeke (1996) note, originally connectionists regarded their conceptual models as approximations of cognitive activities. But more recently, many connectionists have become eliminative materialists, likening cognitive factors to the phlogiston of yesteryear. In their view, people do not act on beliefs, goals, aspirations and expectations. Rather, activation of their network structure makes them do things. The phlogiston argument is sophistry. Phlogiston never had any explanatory or predictive value, whereas cognitive factors do quite well in accounting for variance in human behavior and guiding successful interventions. To make their way successfully through a complex world, people have to make sound judgments about their capabilities, anticipate the probable effects of different events and actions, ascertain sociostructural opportunities and constraints and regulate their behavior accordingly. These belief systems represent a working model of the world that enables people to achieve desired results and avoid untoward ones. Reflective and forethoughtful capabilities are, therefore, vital for survival and progress. Agentic factors that are explanatory, predictive, and of demonstrated functional value may be translatable and modeled in another theoretical language but not eliminatable (Rottschaefer, 1985; 1991).

A good deal of the current clinical theorizing is a discordant mixture of constructivism, computational functionalism and automatic connectionism. On the one hand people are portrayed as proactive agents who select, construct, and construe realities. On the other hand, they are portrayed as onlooking hosts whose behavior is produced without their conscious patricipation by environmental events activating their neural network.

Marked Decline of Intervention Research

The field of psychosocial change is witnessing a flurry of research on dysfunctional cognitions spawned by faulty information processing. But research on the effectiveness of interventions and their mechanisms of operation has been atrophying and is just about extinguished in our leading periodicals on cognitive-behavior therapy. As shown in Figure 1, the percent of regular articles on interventions of a clinical, analogue or conceptual sort in Behaviour Research and Therapy has steadily declined to an all-time low of 8 percent in the current year. Research on modes of treatment, their outcomes and operative mechanisms has also essentially disappeared from the journal, Cognitive Therapy and Research.

Insert Figure 1 about here

The abandonment of intervention research is reminiscent of the psychodynamic enterprise of yesteryear, where researchers conducted minute content analyses of interviews but

made no effort to assess whether this activity improved the efficacy of their mode of treatment and whether it works through the mechanisms they posited. Without research on theory-linked interventions there is no way of knowing whether the research on faulty cognitive processing is informing therapeutic practices in ways that improve their effectiveness and elucidate the operative mechanisms, or is a disjoined, self-contained activity. Clearly, the field of psychosocial change must restore serious reality checks if it is to make further progress.

Physicalistic Theory of Human Agency

People have the power to influence what they do and to make things happen. They contribute to their motivation and action through the exercise of personal agency. They are not just onlooking hosts of internal mechanisms orchestrated by environmental events. People are agents of experiences rather than simply undergoers of experiences. The sensory, motor, and cerebral systems are tools people use to accomplish the tasks and goals that give meaning, direction and satisfaction to their lives (Harré & Gillet, 1994).

Research on brain development is providing new insights on how agentic action shapes the brain. It is not just exposure to stimulation, but agentic action in exploring, manipulating, and influencing the environment that counts. By regulating their own motivation and activities, people produce the experiences that form the functional neurobiological substrate of symbolic, social, psychomotor and other skills.

Social cognitive theory subscribes to a model of emergent interactive agency (Bandura, in press). Thoughts are not disembodied immaterial entities that exist apart from neural events. Cognitive processes are emergent brain activities that exert determinative influence. The human mind is generative, creative, and proactive, not just reactive. The dignified burial of the dualistic Descartes, forces us to address the formidable explanatory challenge for a physicalistic theory of human agency and a nondualistic cognitivism. How people operate as thinkers of the thoughts that exert determinative influence on their actions? What is the functional circuitry of forethought, proaction, intention, aspiration, self-appraisal and self-reflection?

Sperry (1993) has argued cogently that cognitive agents regulate their actions by cognitive downward causation as well as undergo upward activation by sensory stimulation. People can designedly conceive different novel courses of action and choose to execute one of them. Intentionality and agency raise the fundamental question of how people orchestrate the brain processes that characterize the exercise of agency for realizing particular intentions and aspirations.

Mechanisms of Human Agency

Among the mechanisms of human agency, none is more central or pervasive than beliefs of personal efficacy. It is the foundation of human agency. Unless people believe they can produce desired effects by their actions, they have little incentive to act or to persevere in the face of difficulties. Social cognitive theory addresses the various aspects of the exercise of agency through efficacy belief (Bandura, 1997). These aspects include: The nature and structure of efficacy beliefs; their determinants; their diverse effects; the intervening processes through which efficacy beliefs exert their effects and the modes of influence by which a resilient sense of

efficacy can be developed to enhance human functioning.

Diverse lines of research verify the psychological processes through which people's beliefs in their efficacy regulate their accomplishments and psychological well-being (Bandura, 1995; 1997; Maddux, 1995; Schwarzer, 1992). People who have a low sense of efficacy in a given domain of activity shy away from difficult tasks which they perceive as personal threats; have low aspirations, and weak commitment to the goals they choose; turn inward on their self-doubts and social concerns instead of thinking how to perform successfully when they encounter problems; dwell on personal deficiencies, obstacles and adverse consequences of failure; attribute failures to deficient capability; slacken their efforts, or give up quickly in the face of difficulties; are slow to recover their sense of efficacy after failures or setbacks; and easily fall victim to stress and depression.

In contrast, people who have a strong sense of efficacy approach difficult tasks as challenges to be mastered rather than threats to be avoided; set challenging goals and sustain strong commitment to their goals; concentrate on how to perform successfully in difficult situations rather than dwell on themselves and their perturbing reactions; attribute failures to insufficient effort, lack of skill or faulty strategies all of which are remediable; redouble their efforts in the face of difficulties; display low vulnerability to stress and depression; and quickly recover their sense of efficacy after failures or setbacks. Success usually comes through renewed effort after failed attempts. It is resiliency of personal efficacy that counts.

Multifaceted Causal Structure

Social cognitive theory posits a multifaceted causal structure in which efficacy beliefs operate in concert with other determinants in regulating human functioning (Bandura, 1986). People motivate and regulate their behavior by the outcomes they expect their actions to produce. Goal aspirations serve as another motivating force. Moreover, there are a host of impediments or obstacles to personal and social change. Whether people view impediments as insurmountable or ones they can overcome affects their life choices and staying power in difficult undertakings.

Perceived efficacy is a key factor in causal structures because it operates on motivation and action both directly and through its impact on these other determinants. For example, efficacy beliefs play a major direct and mediational role in the self-regulation of motivation. Most human motivation is cognitively generated. There are three forms of cognitive motivators around which different theories have been built. (Figure 2) These include causal attributions, outcome expectancies and cognized goals. The corresponding theories are attribution theory, expectancy-value theory and goal theory.

Insert Figure 2 about here

Much human motivation and behavior is regulated, anticipatorily, by the outcomes expected for given actions (Bandura, 1986). The outcome expectations may take the form of material costs and benefits; positive and negative social reactions; and the self-approving and

self-devaluative consequences of behavior rooted in one's system of values. The capacity to exercise self-influence by personal challenge through goal setting provides another major cognitive mechanism of motivation and self-directedness (Locke & Latham, 1990). Once people commit themselves to valued goals, they seek self-satisfaction from fulfilling them, and intensify their efforts by discontent with substandard performances. The causal attributions people make for their performances also affect their motivation (Weiner, 1986).

Efficacy Determination of Motivators

The effects of goals, outcome expectations and causal attributions on motivation are partly governed by beliefs of personal efficacy (Bandura, 1997). The outcomes people anticipate depend largely on their beliefs of how well they can perform in given situations. Those of high efficacy will expect to gain favorable outcomes; those who expect poor performances of themselves will conjure up negative outcomes. There are many activities which, if done well, guarantee valued outcomes. But they are not pursued by people who doubt they can do what it takes to succeed. Such exclusions of entire classes of options are made rapidly on self-efficacy grounds without bothering to examine costs and benefits. Rational models of decision making that exclude efficacy judgment sacrifice explanatory and predictive power.

It is partly on the basis of efficacy beliefs that people choose what goal challenges to undertake, how much effort to invest in the endeavor, and how long to persevere in the face of difficulties. When faced with obstacles, setbacks and failures, those who doubt their capabilities slacken their efforts, give up or settle for mediocre solutions. Those who have a strong belief in their capabilities redouble their effort to master the challenges.

Efficacy beliefs also influence causal attributions. People who regard themselves as highly efficacious ascribe their failures to insufficient effort, inadequate strategies or unfavorable circumstances. Those of low efficacy attribute their failures to low ability. The effects of causal attributions on achievement strivings are mediated almost entirely through efficacy beliefs.

Personal and social change would be trivially easy is there were no impediments to surmount. Some of the impediments are personal ones, others are situational, and still others are rooted in societal conditions and practices. Perceived impediments is another factor governing motivation and staying power in the face of difficulties. Here, too, efficacy beliefs play an influential role in how formidable obstacles appear. People of high perceived efficacy view impediments as surmountable; those of low efficacy view them as daunting obstacles over which they can exert little control. The causal structure depicted in Figure 3 specifies the paths of influence through which the various social cognitive factors regulate motivation and action.

Insert Figure 3 about here

Self-Efficacy in Threat Management and Affect Regulation

People's beliefs in their coping capabilities play an influential role in threat management and affect regulation as well as in motivation. There are four ways in which efficacy beliefs

affect stress, anxiety and phobic behavior.

Construal of Threats. Efficacy beliefs influence how potential threats are perceived and cognitively processed (Bandura, 1997). If people believe they can mange threats they are not distressed by them. But if they believe they cannot control potential threats, they experience high anxiety. They dwell on their coping deficiencies. They view many aspects of their environment as fraught with danger. They magnify possible risks, worry about perils that rarely happen and engage in a lot of catastrophic thinking. Through inefficacious thinking they distress themselves and constrain and impair their functioning.

The power of perceived efficacy to transform, cognitively, threatening situations into safe ones is illustrated in a study of agoraphobics by Sanderson, Rapee, and Barlow (1989). Inhaling carbon dioxide usually provokes panic attacks in agoraphobics. Agoraphobics received the same amount of carbon dioxide but under different beliefs of control. One group could do nothing to control the amount of carbon dioxide they received. A second group was led to believe they could regulate the amount of carbon dioxide they received by turning a dial. Unbeknown to them, the valve was disconnected and had no effect on the flow of carbon dioxide. Agoraphobics who believed they were exercising control rarely experienced panic attacks or catastrophic thoughts, and maintained a low level of anxiety. In striking contrast, those who knew they could not exercise any control experienced mounting anxiety. They had a high rate of panic attacks, and catastrophic thoughts about dying, going crazy and losing control.

Transformational Action. People who have a high sense of coping efficacy adopt courses of action and strategies that enable them to change threatening environments into safe ones (Bandura, 1997). In this mode of emotion regulation, efficacy beliefs reduce stress and anxiety through their impact on controlling behavior. The stronger the perceived efficacy, the bolder people are in tackling the problems that breed stress and anxiety. And the greater is their success in shaping the environment to their liking.

Phobics display little subjective anxiety or physiological activation to threats they believe they can control. But as they cope with threats for which they distrust their coping efficacy, their heart rate accelerates. Their blood pressure rises. And they show heightened catecholamine activation. After perceived coping efficacy is raised to high levels by guided mastery experiences or simply by modeling coping strategies, phobics manage these same threats without experiencing any distress, autonomic arousal or catecholamine activation.

Thought Control Efficacy. People have to live with a psychic environment that is largely of their own making. Many human distresses result from failures to control disturbing thoughts. The exercise of control over one's own thought processes is, therefore, a key factor in self-regulation of affective states. The process of efficacious thought control 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 hair."* Indeed, research shows that it is not the sheer frequency of obsessive and apprehensive thoughts, but the perceived helplessness to turn them off that is the main source of distress (Kent, 1987; Kent & Gibbons, 1987).

Affective Control Efficacy. In addition, people can exercise control over their affective

states in palliative ways without altering the causes of their emotional arousal. Self-relaxation, engrossment in diversionary activities, calming self-talk, and seeking the solace of social support, are examples of palliative ways of reducing stress and anxiety whatever the sources. Belief that one can relieve unpleasant emotional states, should they arise, makes them less aversive (Arch, 1992a,b).

These different types of efficacy beliefs usually work together in regulating anxiety, depression and biological stress reactions. This is shown in a study designed to help women to deal with the pervasive threat of sexual violence (Ozer & Bandura, 1990). They were taught, through a guided mastery program, how to defend themselves against unarmed assailants by disabling them instantly with a powerful strike to vital areas of the body. They mastered the self-defense skills in repeated simulated assaults by assailants wearing heavily padded gear.

Mastery modeling raised their perceived coping efficacy to protect themselves and to control distressing intrusive thoughts. They lived freer and more active lives.

Insert Figure 4 about here

Figure 4 shows the path analysis of the causal structure. Perceived efficacy influences behavior through two pathways. The solid line to behavior is the path to avoidance behavior; the broken line is the path to socially active behavior. In one path of influence, a strong sense of coping efficacy reduces perceived vulnerability and increases ability to distinguish between safe and risky situations. These changes reduce avoidant behavior and increase engagement in valued activities in the community. In the second path of influence, cognitive control efficacy reduces ruminative aversive thoughts, anxiety arousal and avoidant behavior. Strong assurance in one's efficacy to ward off assaults makes it easier to dismiss frightening thoughts that intrude on one's consciousness. An adequate test of self-efficacy theory of anxiety should measure the diverse ways in which efficacy beliefs regulate stress and anxiety through their impact on action, thought and affect regulation.

Self-Efficacy and Phobic Behavior

Perceived coping efficacy regulates avoidant and phobic behavior as well as anxiety arousal. The view that avoidant behavior is motivated by anxiety and reinforced by anxiety reduction is still widely espoused despite massive evidence to the contrary (Bandura, 1969; Barlow, Leitenberg, Agras, & Wincze, 1969; Black, 1965; O'Brien & Borkovec, 1977; Orenstein & Carr, 1975; Schroeder & Rich, 1976; Rescorla & Solomon, 1967; Wynne & Solomon, 1955). Anxiety does not control phobic behavior. It is a good thing it does not. If people shunned or promptly terminated activities every time they felt anxious, their life would be severely constricted and they would be immobilized much of the time. People often perform activities while highly anxious as long as they believe they can master them. For example, intense state fright does not stop actors from going on stage or highly anxious students from taking exams. Conversely, people routinely take protective action in potentially dangerous activities without waiting around for anxiety to move them to action. In short, both anxiety and phobic behavior are coeffects of a low sense of coping efficacy.

People base their actions on efficacy beliefs in situations they regard as risky. This is corroborated by Williams, who analyzed, by partial correlation, numerous data sets from intervention studies (Williams, 1992). The findings are summarized in Table 1. Perceived efficacy predicts agoraphobic behavior when anticipated anxiety is partialed out. But anticipated anxiety does not predict phobic behavior when perceived efficacy is partialed out. Nor do anticipated panic, or perceived dangerous outcomes predict agoraphobic behavior after controlling for the influence of efficacy beliefs. These findings indicate that treatments should be directed at building people's coping efficacy rather than trying to correct catastrophic outcome expectations, while ignoring the low sense of efficacy that spawns those outcome expectations and anxieties.

Insert Table 1 about here

The predictive superiority of efficacy belief over anxiety arousal is replicated across a variety of threats. These intimidating situations include academic activities (Meece, Wigfeld, & Eccles, 1990; Pajares & Johnson, 1994; Pajares & Miller, 1994a; Pajares, Urdan, & Dixon, 1995; Siegel, Glassi, & Ware 1985); athletic competitions (McAuley, 1985); catastrophic worrying in taxing problem solving (Davey, Jubb, & Cameron, 1996); engagement in physically risky activities (Tinetti, Mendes de Leon, Doucette, & Baker, 1994); and self-protective behavior in socially risky environments (Ozer & Bandura, 1990).

These convergent findings from divergent lines of research carry important implications for verifying the determinants of avoidant patterns of behavior. Studies that correlate anxiety with avoidant and phobic behavior without including perceived self-efficacy in the causal analyses are reporting spurious causal relations that continue to reinforce the belief that anxiety causes avoidant behavior.

Self-Efficacy Pathways to Depression

A low sense of efficacy to exercise control over things one values can give rise to feelings of futility and despondency as well as anxiety. There are three major efficacy pathways to depression. One pathway is through unfulfilled aspirations. The satisfactions people derive from what they do are largely determined by the standards against which they evaluate their attainments (Bandura, 1991; Locke & Latham, 1990). A low sense of efficacy to fulfill personal standards of worth gives rise to self-devaluation and depression (Kanfer & Zeiss, 1983). As shown in Figure 5, perceived efficacy operating in concert with personal goals predict the directional effects of failure experiences in highly valued pursuits (Bandura & Abrams, 1986). Failure does not breed despondency when people believe they have the efficacy to fulfill difficult goals and continue to strive for them. Those who judge that they lack the efficacy to fulfill difficult goals abandon them and become apathetic rather than depressed. In contrast, people become despondent when they judge that they lack the efficacy to attain difficult goals but continue to demand those attainments of themselves for any sense of satisfaction and self-worth.

Insert Figure 5 about here

A second pathway to depression is through a low sense of social efficacy to develop social relationships that bring satisfaction to people's lives and enable them to manage chronic stressors. A secure social efficacy fosters positive companionship with others, whereas low social efficacy fosters socially-alienating behaviors (Bandura, Pastorelli, Barbaranelli, & Caprara, 1997). Social support reduces vulnerability to stress, depression and physical illness. But social support is not a self-forming entity waiting around to buffer harried people against stressors. People have to go out and find, create and maintain supportive relationships for themselves. These interpersonal attainments require a strong sense of social efficacy. Holahan & Holahan (1987) have shown that a low sense of social efficacy contributes to depression both directly and by curtailing development of social supports.

Figure 6 about here

Evidence indicates that social support reduces vulnerability to depression only to the extent that it raises perceived coping efficacy. This is illustrated in postpartum depression (Cutrona & Troutman, 1986). The effects of temperamental difficulty of the infant and social support on depression is mediated entirely through perceived efficacy (Figure 7). Major and her colleagues similarly report that social support reduces depressive reactions to abortion only to the extent that it raises perceived coping efficacy (Major, Mueller & Hildebrandt, 1985; Mueller & Major, 1989).

Insert Figure 7 about here

Another efficacy pathway to depression is through the exercise of control over depressing thoughts themselves. All people experience depressive episodes from time to time in response to rejections, losses, failures and setbacks on things that matter to them. But they vary in how quickly they get over them (Nolen-Hoeksema, 1991). Most rebound rapidly but some sink into a deepening despondency that lasts for a long time. Low efficacy to regulate ruminative thought contributes to the occurrence of depressive episodes, how long they last, and how often they recur following cognitive-behavioral treatment (Kavanaugh & Wilson, 1989).

Longitudinal research sheds further light on the influential role of perceived efficacy in development of vulnerability to childhood depression (Bandura, et al., 1997). Efficacy beliefs operate through different pathways in boys and girls that help to explain the greater proneness of girls to depression. The source of depression for boys centers mainly on low perceived academic efficacy through its negative impact on academic achievement, dissocialness and problem behavior. The self-efficacy pathways to depression are not only more pervasive for girls, but they operate almost entirely through the quality of interpersonal relationships. All aspects of perceived efficacy—social, academic and self-regulatory—contribute to depression through the mediation of low prosocial relationships. Girls get depressed over beliefs about their academic

efficacy rather than over their actual academic attainments. Reducing vulnerability to depression in boys should center on enhancing perceived efficacy and skill in academic and social domains to reduce academic underachievement and problem behaviors that breed depression. Reducing vulnerability to depression in girls requires a heavier focus on the interpersonal aspects of their lives and self-negating beliefs regarding their academic capabilities.

Multifaceted Applicability of Social Cognitive Theory

Social cognitive theory lends itself readily to social applications because the determinants it posits are empirically anchored in different aspects of functioning, and the prescriptive features of the theory make the influential factors amenable to change. The determinants and mechanisms through which they operate are spelled out so the theory provides explicit guidelines on how to structure conditions that foster personal and social change.

Therapeutic enterprises must be judged for social utility as well as effectiveness. If we are to have an appreciable social impact, our efforts must center, not only on the development of effective modes of treatment but on vastly improving our productivity. If what we have to offer is mainly talking therapies administered individually by professionals our contribution to the human condition is but a tiny ripple in the vast sea of human problems, however effective such methods might be.

There are several ways of enhancing productivity or social utility. It is much more effective to prevent problems than to try to change them after they become debilitating lifestyles. Preventive programs have a good payoff on the rare occasions when serious efforts are made to develop them (Gillham, Relvich, Jaycox, & Seligman, 1995; Mrazek & Haggerty, 1994). More of our resources must be devoted to the development of prevention models that can be applied by others in educational, social, and primary care settings. But the theories guiding preventive practices would do well to shift their emphasis from just risk reduction to promotion of positive development.

Reactive Risk Models vs. Proactive Mastery Models

Our theories grossly overpredict psychopathology (Bandura, in press). This is because they favor a reactive risk model rather than a proactive mastery model. For example, families in inner cities are living under adverse conditions of high poverty, physical decay, social disorganization and deficient human services. These environments provide few prosocial opportunities but many antisocial ones. Our theories would lead one to expect that most of the children living in these impoverished, risky environments would be heavily involved in crime, addicted to drugs or too psychically impaired for a normal life. In fact, most of the children make it (Furstenberg, Eccles, Cook, & Sameroff, in press). In adulthood, most support themselves through legitimate jobs, form partnerships and stay clear of criminal activities. Families achieve these results through perseverant effort and self-sacrifice (Bandura, 1977).

Our theories similarly overpredict the inability to overcome substance abuse because we study the refractory relapsers but essentially ignore the millions who overcome dependence on addictive substances without treatment or assistance of self-help groups (Robins, 1974; Vaillant, 1995). Granfield and Cloud (1996) put it well when they characterized the inattention to

successful self-changers as "The elephant that no one sees."

Risk factors command our attention. Enablement factors, that equip people with the skills and self-beliefs to exert control over their lives receive little notice. When enabling factors are considered, as in theories of resilience, they are depicted in static, epidemiological terms as protective factors. Protectiveness presumably shields individuals from harsh realities or weakens their impact. In contrast, enablement equips people with the personal resources to select, and structure their environments in ways that set a successful course for their lives. An agentic view of resilience also differs from the diathesis-stress model of psychopathology (Bandura, 1997). In the diathesis-stress model, external stressors act upon personal vulnerabilities to produce emotional and behavioral disorders. In fact, people play a proactive role in their adaptation, rather than simply undergo happenings in which environments act upon their flawed dispositions.

Another way of enhancing productivity is to apply knowledge of self-management in ways that embed the guides and motivators for beneficial styles of behavior in the structure of the interventions themselves. When the power resides heavily in the properties of the interventions, one can draw on the large resource of people, selected for appropriate talents, to implement change programs under professional guidance. Moreover, interactive information technologies open up vast possibilities for preventive and promotive guidance (Bandura, 1997).

Most of our interventions are built on individualistic models, even though many human problems are social in nature. This raises the major issue of whether we confine our efforts to treating the causalties of adverse social practices, or also apply our knowledge to altering the social practices producing the causalities. We can greatly expand our productivity by developing socially-oriented models of change. Multifaceted social interventions succeed where individualistic ones achieve little change (Bandura, 1997). If intervention research is getting harder to detect in our journal radar scopes, preventive and socially-oriented research rarely appear at all.

Devising Efficacious Models With Social Utility

The application of knowledge of self-regulatory mechanisms to health promotion and disease prevention provides an example of efforts to devise efficacious models with high social utility. In recent years, there has been a major change in the conception of health from a disease model to a health model. Viewed from this perspective, human health is heavily dependent on lifestyle habits and environmental conditions. By exercising control over health habits, people can live longer, healthier and slow the process of aging. They can stay healthy if they exercise. Do not smoke. Reduce the amount of fat in their diet. Keep their blood pressure down. And develop effective ways of coping with stressors. If the huge health benefits of these few lifestyle habits were put in a pill, it would be declared a spectacular breakthrough in the field of medicine.

New health promotion systems structured around self-regulatory principles are reducing major health risks, retarding the rate of biological aging and enhancing health. In one such system, developed by DeBusk and his colleagues, people are provided with guidelines on how to change detrimental health habits (DeBusk, et al., 1994). To motivate and regulate their actions,

people must monitor their health habits and the conditions under which they vary. They must set explicit goals and apply self incentives to sustain their efforts. They must exhibit strategic flexibility tailored to the progress they are making.

These principles are built into the self-regulatory model (Figure 8). Participants monitor their health habits and set short-term goals for themselves. They receive periodic graphic feedback of progress toward their goals and informative guides on how to manage particularly troublesome situations. Efficacy ratings identify areas in which self-regulatory skills must be developed and strengthened if beneficial changes are to be achieved and maintained.

Insert Figure 8 about here

The productivity of the system is vastly expanded by combining self-regulatory principles with the power of computer-assisted implementation. A single implementer, assisted with a computerized coordinating and mailing system, provides intensive individualized training in self-management to large numbers of people simultaneously.

In formal tests of the preventive value of this system, employees in the workplace lowered elevated cholesterol levels by altering eating habits high in saturated fats (Figure 9). They achieved even larger reductions if their spouses took part in the program. The greater the room for dietary change, the greater the reduction in plasma cholesterol. A single nutritionist implemented the entire program at minimal cost for large numbers of employees. In patient populations with elevated cholesterol, it is especially encouraging that those who need to change their eating habits most achieve the greater and more sustained reductions in plasma cholesterol (DeBusk, et al., 1997).

Insert Figure 9 about here

Haskell and his colleagues used this self-regulatory system to promote lifestyle changes in patients suffering from coronary artery disease, which places them at high risk of heart attacks (Haskell, et al., 1994). At the end of four years, those receiving medical care by their physicians showed no change or a worsening of their condition (Figure 10). In contrast, those aided in self-management of health habits achieved substantial reductions in risk factors. They lowered their intake of saturated fat, lost weight, lowered their bad cholesterol, and raised their good cholesterol, exercised more and increased their cardiovascular capacity.

Insert Figure 10 about here

The program also altered the physical progression of the disease. Those receiving the self-management program had 47% less build-up of plaque on artery walls and a higher rate of reversal of arteriosclerosis (Figure 11). They also had fewer coronary events, fewer

hospitalizations for coronary heart problems and fewer deaths.

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The success of this self-regulatory system is currently being compared against the standard medical post-coronary care to reduce morbidity and mortality in patients who have already suffered a heart attack (DeBusk, et al., 1994). As shown in Figure 12, the self-regulatory system is more effective in reducing risk factors and increasing cardiovascular functioning than the standard medical care.

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The self-regulatory system is well received for several reasons. It is individually tailored to people's needs. It provides them with continuing personalized guidance and informative feedback that enables them to exercise better control over their own change. It is a home-based program that does not require any special facilities, equipment or attendance at group meetings that usually have high drop-out rates. It can serve large numbers of people simultaneously. It provides valuable health-promotion services at low cost. And finally, it is not constrained by time and place. Linking the interactive aspects of the self-management model to the Internet can vastly expand its availability for preventive and promotive guidance.

People who adopt healthful habits not only live longer, but healthier with less need and demand for medical services (Fries, et al., 1993). With people living longer, nations face the major challenge of keeping people healthy throughout their lifespan, otherwise they will be swamped with staggering health costs that drain resources needed for its national programs.

As Sobel (1995) has noted, national efforts to control escalating health costs have focused heavily on reducing, rationing and limiting access to medical services on the supply side. But they do little to reduce the demand for medical services by enabling people to stay healthy through efficacious self-management of habits that promote health and curtail those that impair it. His review shows that enabling psychosocial programs lower medical costs while improving health and the quality of life.

The self-management of chronic diseases provides another example of translation of self-regulatory and self-efficacy theory to cost-effective implementation models with high social utility. Chronic disease has become the dominant form of illness and the major cause of disability. The treatment of chronic disease must focus on self-management of physical conditions over time (Holman & Lorig, 1992). In a four-year follow-up of arthritic patients, the self-regulatory program, implemented with guidance by arthritic patients themselves, retarded the biological progression of the disease, raised perceived efficacy, reduced pain, and decreased the use of medical services and improved the quality of life (Figure 13). Both the baseline

efficacy beliefs and the efficacy beliefs instilled by the intervention predict the health benefits four years later. The self-management program produces health benefits for people suffering from other types of chronic diseases.

Insert Figure 13 about here

Macrosocial Applications

Social modeling also plays a paramount role in enabling people to improve their lives. Modeling is not only an important component in most modes of change, but an essential one for short cutting the tortuous process of competency development. The revolutionary advances in the communications technologies have vastly expanded the power of symbolic modeling. In modern day life, the electronic media feeding off the communications satellites are shaping lifestyles worldwide, transforming institutional practices and serving as a major vehicle of sociopolitical change (Bandura, 1997).

Symbolic modeling is readily applicable to macrosocial application. Space limitations will permit but one example. The soaring population growth and the environmental devastation it produces is the most urgent global problem (Ehrlich, Ehrlich, & Daily, 1995). The world population is doubling at an accelerating rate that will exceed the earth's carrying capacity if left unchecked. Sabido (1981) drew on several social cognitive principles in creating radio and television dramatic serials that are being applied internationally with notable success in stemming this massive tide. The story lines model family planning, women's equality, beneficial health practices and a variety of effective life skills.

Worldwide applications of this creative format in Africa, Asia and South America are raising people's efficacy to exercise control over their family lives, enhancing the status of women and lowering the rates of childbearing. A controlled study in Tanzania compared changes in family planning and contraception use in half the country that received a radio dramatic series, with the rest of the country that did not (Vaughan, Rogers, & Swalehe, 1995). The radio series significantly increased perceived efficacy. Families in the broadcast area adopted family planning and contraceptive methods at a higher rate than in the control part of the country (Figure 14).

Insert Figure 14 about here

Some of the story lines centered on safer sexual practices to prevent the spread of AIDS, where infection rates are high among long-distance truckers and prostitutes at truck stops. The National AIDS Control Program distributed 2 million condoms in the control region and 32 million in the broadcast region (Figure 15). Those in the broadcast area also reduced the number of sexual partners. The greater the exposure to the modeled patterns, the stronger the effects on perceived efficacy to control family size and risky sexual practices. Tanzania has a population 27 million, an annual per capita income of $100 and a projected doubling of the population in about

25 years. No amount of economic development will arrest the disastrous course unless the population growth is contained.

Insert Figure 15 about here

Kenya provides another example of the impact of mass communications on reproductive behavior. The heavier the exposure to media messages, the stronger the preference to limit family size and the greater the use of contraceptives. The relationship remains after multiple controls for demographic and socioeconomic factors. These macrosocial applications of media ingenuity in translating sociocognitive principles into practice illustrate how a small collective effort can make a huge difference in an urgent global problem.

Insert Figure 16 about here

Concluding Remarks

The value of a psychological theory is judged by three criteria. It must have explanatory power, predictive power and, in the final analysis, it must demonstrate operative power to improve the human condition. Well-founded theory provides solutions to human problems. In this chapter I reviewed an agentic theoretical approach to human understanding and betterment and traced some of the applications of this theory at both individual and macrosocial levels.

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Footnote

Portions of this chapter include revised and updated material from the book, <u>Self-Efficacy: The Exercise of Control</u>, Freeman, 1997.

Figure Captions

Figure 1. Percent decline in articles published on clinical or analogue studies of interventions and their conceptual analyses across successive decades of publication in two leading journals devoted to cognitive-behavior therapy.

Figure 2. Schematic representation of conceptions of cognitive motivation based on cognized goals, outcome expectancies, and causal attributions.

Figure 3. Paths of influence through which key social cognitive factors regulate motivation and action.

Figure 4. Path analysis of the causal structure of coping behavior involving interpersonal threats. The numbers on the paths of influence are the significant standardized path coefficients. The solid lines to behavior represent avoidant behavior; the dotted line represents participant behavior (Ozer & Bandura, 1990).

Figure 5. Change in depressive mood as a function of strong perceived self-efficacy with goal adherence, weak perceived self-efficacy with goal adherence, and weak perceived self-efficacy with goal abandonment. (Bandura & Abrams, 1986).

Figure 6. Path analysis of the contribution of perceived social inefficacy to depression both directly and through its influence on development of socially supportive relationships. (Holahan & Holahan, 1987).

Figure 7. Path analysis showing that the influence of social support and temperamental difficulty of infants on postpartum depression is mediated through the effects on mothers' beliefs in their parenting efficacy. (Cutrona & Troutman, 1986).

Figure 8. Computer-assisted self-regulatory system for altering health habits.

Figure 9. Levels of reduction in plasma cholesterol achieved with the computerized self-regulatory system. Mean cholesterol reductions achieved in applications in the workplace by participants who used the system by themselves or along with their spouses; those who did not receive the system provided a control baseline. Mean cholesterol reduction achieved with the self-regulatory system by patients whose daily cholesterol or fat intake was high or relatively low at the outset of the program.

Figure 10. Reduction in multiple risk factors of patients with coronary atherosclerosis depending on whether they received the usual care of their physician or training in self-management of health habits (After Haskell, et al., 1994).

Figure 11. Diverging rates of coronary events, hospitalizations for coronary heart problems and deaths for patients suffering from coronary artery disease who received the self-management program or medical care by their physicians. (After Haskell, et al., 1994).

Figure 12. Changes in coronary risk factors of patients during the first year after acute myocardial infarction depending on whether they received the usual medical care or training in self-management of health habits (After DeBusk, et al, 1994).

Figure 13. Enduring healthful changes achieved by training in self-management of arthritis as revealed in a follow-up assessment four years later. The 9 percent biological progression of the disease is less than half the 20 percent disease progression one would normally expect over four years for this age group. (After Lorig, 1990).

Figure 14. Mean number of new family planning adopters per clinic in the Ministry of Health Clinics in the broadcast area and those in the control area. (Vaughan, Rogers, & Swalehe, 1995).

Figure 15. Number of condoms distributed by the National AIDS Control Programme in the broadcast area and control areas of Tanzania. The arrow indicates the year in which the serial drama was introduced. (Vaughan, Rogers, & Swalehe, 1995).

Figure 16. Percent of women using contraceptive methods depending on the amount of exposure to family planning communications in the media. The white bars report the level of contraceptive use after controlling for the women's demographic and socioeconomic characteristics (Westoff & Rodriguez, 1995).