Albert Bandura: The Man and his Contributions to Educational Psychology

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In June 1993, Albert Bandura's colleagues and former students surprised him by gathering in California's verdant Napa Valley for a two-day Bandurafest. Months of secretive planning behind his back had eluded his typically observant eye, and he came to the event under a cover story. That so many people attended the gathering may seem remarkable because no papers were presented and no Festschrift publication was planned. Instead, the two days were spent in lively informal discussions, a delightful picnic in the vineyards amidst the noble grapes, and a joyous celebratory dinner. The primary reason that people came from near and far was to honor their esteemed mentor, colleague, and friend. He was affectionately described as the "jovial genius" by one of his former students for his wisdom, humility, and wonderful sense of humor. In this intimate gathering, joined by his wife Ginny and his daughters Mary and Carol, Al expressed his gratitude to everyone present and others who could not attend for enriching his life. In this chapter we attempt to recapture the spirit of the Bandurafest by reviewing Al's life and contributions to the study of human behavior. Although he was trained as a clinical psychologist, his theories and research have had broad impact on many disciplines, especially educational psychology.

The Man

Albert Bandura was born on December 4, 1925 in Mundare, a hamlet in northern Alberta, Canada, which is located about 50 miles east of Edmonton. He has described the forbidding climate of his northern Alberta home humorously as the birthplace of widely feared arctic cold fronts that sweep out of Canada into the United States (Stokes, 1986a). He was the youngest child and only boy among six children in a family of Ukrainian descent. Interestingly, the name bandura refers to a Ukrainian 60-stringed musical instrument, and for Al, portended a lifelong love of classical music. His unique early education experiences would prove formative to his subsequent view of learning as an essentially social and self-directed experience. His entire pre-collegiate education was

conducted in just one school building. Having only two high school teachers and few instructional resources, Bandura and his schoolmates had to develop their own academic skills at an early age. He described their adaptive ingenuity in following way, "The students had to take charge of their own education. . . .Very often we developed a better grasp of the subjects than the overworked teachers" (Stokes, 1986a, p. 2). This unusual reversal of academic roles produced several memorable incidents for Al. For example, the entire curriculum of his high school mathematics class comprised a single textbook, which one beleaguered teacher endeavored to read ahead of her small but bright class of students. As a prank, the students conspired and stole the trigonometry book, which reduced the teacher to desperate pleading and homework concessions so that the class could resume. Although far off well trodden paths to academe, this humble intellectual environment produced some extraordinary dividends: Approximately 60% of Bandura's class went on to pursue degrees at various universities throughout the world, which was unprecedented for that farming community. Bandura drew an important conclusion from his early educational experience, "The content of most textbooks is perishable, but the tools of self-directedness serve one well over time" (Stokes, 1986a, p. 2).

Not all of Bandura's educational experiences were confined to the school. During the summer of his senior year in high school, he sought to earn tuition money for college by repairing the Alaska highway in the far north tundra region of the Yukon from yearly ravages due to freezing and thawing. As a member of a road crew, he encountered some truly colorful characters, "refugees from creditors, probation officers, draft boards, or alimony demands" (Stokes, 1986 p. 2) -- the flotsam and jetsam of society who sought an honest day's wage with few questions asked. Needless to say, the ingenuity of this motley crew took some unusual forms. To supply themselves with alcoholic refreshment in their wild and isolated environs, they built a still for distilling vodka from

potatoes and sugar, but on one occasion, several resident grizzly bears arrived before the enterprising distillers and devoured their alcoholic mash, which was much more zestful than berries. Needless to say there was much despondency among the men but great frolicking among the bears! The humor and yet pathos of these social learning experiences left an indelible mark on Bandura's understanding of the human condition -- an enduring appreciation for the value of human agency, even among the dispossessed, in a world of real consequences.

To escape the severe weather of northern Alberta, Bandura enrolled in 1946 at the University of British Columbia in Vancouver, which enjoys a mild Pacific coastal climate and a fine intellectual reputation. Upon entering the university, Al did not intend to study psychology, but fortuitously, he rode to school in a carpool with several engineering and pre-med students who had enrolled in early morning classes. He decided to register for a psychology course to fill this early time slot, and became so fascinated by the topic, he decided to pursue it as a major. He was a exemplary student who graduated in just three years with the Bolocan Award in psychology. The impact of his accidental entrance into the world of psychology would influence his theorizing later. In the seminal article “The Psychology of Chance Encounters and Life Paths,” he (Bandura, 1982) discussed how personal initiative often places people into circumstances where fortuitous events can shape the courses lives take. Rather than treating fortuity as uncontrollability, Bandura focused on how to make chance work for one through self-development to exploit fortuitous opportunities.

For graduate study, Bandura sought the "stone tablets" of psychology, which he was advised resided in the University of Iowa. In the early 1950s, Iowa had such stellar faculty as Kenneth Spence and Kurt Lewin, and the intellectual environment was lively with high quality research and debate. It was also the scene of occasional clever pranks designed to raise Spence's blood pressure, such as when the graduate students pinned a rat that had expired on the Departmental bulletin board

with an explanatory note, "This rat ran according to Tolman's theory" (Hilgard, 1989, p. 4). When Spence spied the rodent, he snatched it away with an explosive expletive.

Because of a close allegiance between Spence and Clark Hull at Yale University, students and faculty at Iowa followed theory and research at Yale closely. In the 1930s, social learning theory was born at the Yale Institute of Human Relations under the direction of Mark May with the intellectual leadership of Hull. They sought to provide learning explanations for key aspects of personality and social development discussed by Freud, such as dependency, aggression, identification, conscience formation, and defense mechanisms. Among the key collaborators with Hull at the institute were John Dollard, Neal Miller, and Robert Sears, who sought to reconcile Freudian and Hullian perspectives during their subsequent careers. For example, to study the cause of children's identification with adults, Miller and Dollard conducted a series of experimental studies of social modeling, which they described as a form of instrumental conditioning in a book entitled Social Learning and Imitation (1941). Despite Spence's missionary zeal at Iowa, Bandura was not attracted to Hullian theory because of its emphasis on tedious trial-and-error learning. He felt that cultures transmitted social mores and complex competencies primarily through vicarious experience and that Miller and Dollard's studies of modeling and imitation revealed an alternative way that humans acquired competences and knowledge.

While Bandura was engaged in his graduate study at Iowa, another pivotal event in his life resulted from a chance encounter. As he explained:

> Seeking relief from an uninspiring reading assignment, a graduate student departs for the golf links with his friend. They happen to find themselves playing behind a twosome of attractive women golfers. Before long the two twosomes become one foursome and, in the course of

> events, one of the partners eventually becomes the wife of the graduate golfer. (Bandura, 1982, p. 748)

Had Al not sought to break the drudgery of that reading assignment by golfing, he might never have met Ginny Varns, who was on the teaching staff in the College of Nursing. After they were married, they went to Wichita where he completed a postdoctoral internship at the Wichita Guidance Center, and she worked as a supervisor in an obstetrics hospital. Bandura received a master's degree in 1951 and a Ph.D. in clinical psychology from the University of Iowa in 1952.

In 1953, Bandura was recruited by Robert Sears to join the psychology department at Stanford University as an instructor. Bandura was very attracted by this offer, but he had already accepted a position at another institution. Sears pressed Bandura to ask for a release from the other institution, which he did reluctantly because he felt a strong sense of obligation to honor his word. This decision proved momentous to Bandura's career. Although he had to reverse his steps to take the path to Stanford, he had the opportunity to work with exceptional colleagues and students at that renowned institution.

Influenced by Sears' work, Bandura undertook a systematic program of research on social and familial antecedents of aggression with Richard Walters, his first doctoral student. They were fascinated with the unconventional challenge of explaining antisocial aggression in boys who came from intact homes in advantaged residential areas rather than simply demonstrating that multiple adverse conditions tend to spawn behavioral problems.

Bandura and Walters discovered evidence of the key role of modeling influences in these advantaged families, which they reported in a book entitled, Adolescent Aggression (Bandura & Walters, 1959). They found that parents of "hyper-aggressive youngsters were modeling very hostile attitudes. They would not tolerate any aggression in the home, but they demand that their

son be tough, that he settle disputes with peers physically if necessary, and they sided with their son against the school. They would go to school and become very aggressive toward the school system and toward peers that were giving their son a tough time. The youngsters modeled the aggressive hostile attitudes of their parents" (Hilgard, 1989, p. 11). Clearly, the vicarious influence of seeing a model meting out punishment outweighed the suppressive effect of receiving punishment directly for aggressive acts. These findings conflicted with the Freudian-Hullian assumption that direct parental punishment would internally inhibit children's expression of aggressive drives.

These results led Bandura to conduct a program of research with Dorrie and Sheila Ross on social modeling involving the now famous inflated plastic Bobo doll. At that time, it was widely believed in accordance with the Freudian theory of catharsis that modeled violence would drain observers' aggressive drives and reduce such behavior. The children in these studies were exposed to social models who demonstrated either novel violent or nonviolent behaviors toward these rebounding dolls (Bandura, Ross, & Ross, 1961, 1963). Children who viewed violent models subsequently displayed the novel forms of aggression toward the Bobo doll whereas control children rarely, if ever, did so. These results revealed the occurrence of observational learning in the absence of reinforcement to the observers. Bandura and his colleagues also demonstrated that children could learn new patterns of behavior vicariously without actually performing them or receiving rewards. This line of theorizing was discordant with the views in vogue at the time that learning is a consequence of direct reinforcement. The results conflicted with Miller and Dollard's (1941) conditioning account of modeling and imitation, and led Bandura to distinguish between the cognitive effects of modeling on acquisition and the motivational effects of rewards on imitative performance. This research was summarized in a second book published in 1963 entitled Social

Learning and Personality Development and led Bandura and Walters to conclude that modeling was a powerful process that could account for diverse forms of learning. They sought to free explanations of social learning from theoretical dependence on Freudian assumptions about the role of identification and catharsis and from Hullian and Skinnerian assumptions about the need for direct reinforcement.

During the 1960s, Bandura launched a second major program of research on children's development of self-regulatory capabilities. This research foreshadowed his development of an agentic perspective in which people are viewed as self-regulatory and self-reflective organisms, not just reactive ones to environmental influences. Bandura explored with his student Carol Kupers (1964) the acquisition of performance standards for self-reward. They used a bowling game wherein children could reward themselves with candy for whatever performance level they felt merited the reward. Children watched an adult or peer model bowl and reward himself according to either a high or a low performance standard. When the children had an opportunity to bowl, those who witnessed a model set a high standard of self-reward adopted a more stringent performance criterion for self-reward than observers who watched a model set a lax standard. In a related study, children who were given high performance standards achieved more due to self-rewards than to external rewards (Bandura & Perloff, 1967). Bandura and a colleague at Stanford, Walter Mischel, found that children who observed a model forego small immediate rewards in favor of larger long-term rewards increased their preference for delayed rewards (Bandura & Mischel, 1965).

These pioneering studies of the social origins of children's self-motivation and self-regulation provided a new and experimentally testable alternative to personality trait theories. The role of a person's situational context would become a major focus of Mischel's (1968) subsequent research on a wide variety of personal attributes, such as conscientiousness and friendliness, and

would become a defining property of Bandura's view of self-referential thought.

During the 1960s and 1970s, Bandura, along with a growing legion of students and colleagues, began to study the role of social modeling in children's cognitive and linguistic development. This theoretical and experimental work helped to shift descriptions of modeling from simple response mimicry (i.e., "imitation") to abstract modeling of rules and structures embodied in exemplars. He hypothesized that children's acquisition of abstract conceptual classes and linguistic rules could also be acquired vicariously from adult and peer models. In collaboration with another colleague at Stanford, Fred McDonald, Bandura conducted the first study of abstract modeling using Piaget's moral reasoning task (Bandura & McDonald, 1963). Piaget had discovered that the moral reasoning of immature children focused on the consequences of actions (such as the number of glasses broken) whereas the reasoning of more mature youngsters centered on intentions (whether a glass was broken purposely or accidentally). Piaget attributed preschoolers' deficiencies in moral reasoning to an their stage-related egocentrism (i.e., a first-person visual perspective) rather than their social learning experiences. Bandura and McDonald demonstrated that exposure to models who judged culpability by intentions of the characters in moral stories increased children's use of intentions in their own judgments of culpability. Like children's acquisition of novel forms of aggression, their moral reasoning was greatly influenced by social learning experiences.

Bandura then turned his attention to children's language development through abstract modeling. With his student Mary Harris, they found that children could induce linguistic rules from diverse modeled exemplars embodying the rules (Bandura & Harris, 1967). Another of Bandura's students, Ted Rosenthal with his colleagues Barry Zimmerman and Kathy Durning (1970), studied children's vicarious learning of a model’s conceptual style of inquiry (e.g., asking cause and effect questions). Children exhibited high levels of conceptual learning with very little exact copying or

mimicry of a model's specific behaviors. This series of studies included stringent transfer tests of observational learning. In Bandura's book, Principles of Behavior Modification (1969), he noted that evidence of transfer showed observers responded to new stimulus situations in a manner consistent with the model's dispositions even though they never witnessed the model's response to the same stimuli. By inducing rules underlying modeling exemplars, observers could create novel but rule-consistent sequences that extended beyond what was seen or heard. Modeling could also lead to divergent forms of abstraction, such as when brain storming by a model led observers to think unconventionally (Arem & Zimmerman, 1977; Harris & Evans, 1973; Harris & Fisher, 1973; Zimmerman & Dialessi, 1975).

This evidence of abstract modeling freed social learning accounts from the shackles of narrow conceptions based on behavioral mimicry of a model. These empirical demonstrations of the effect of abstract modeling on children's moral judgments, linguistic rules, and conceptual styles of inquiry attracted many adherents who were looking for alternatives to stage views of children's development. The impact of this initial research on abstract modeling of conceptual or linguistic rules was reviewed in the edited book entitled Psychological Modeling -- Conflicting Theories (Bandura, 1971). Bandura's discussion of the role of abstract modeling in the observers' formation and use of symbolic processes stimulated a wave of successful training studies during the 1970s on diverse aspects of children's cognitive and linguistic functioning that challenged stage conceptions of development (Bandura, 1977; Rosenthal & Zimmerman, 1978; Zimmerman & Rosenthal, 1974).

To further understand the process of abstraction in vicarious learning, Bandura investigated the impact of observers' symbolic coding of modeling events (Bandura & Jeffrey, 1973). Symbolic coding greatly enhanced observational acquisition of complex patterns of motor behavior. Clearly

the quality of observers' learning from a model was affected by their cognitive or linguistic facility. Bandura (1986) described the role of this symbolic capacity of learners in the following way, "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" (p. 1182). Through advances in the technology of telecommunications during the latter part of the Twentieth Century, symbolic modeling is playing a paramount role in the worldwide diffusion of ideas, values, and styles of behavior. Despite differences in place and local time, learners can symbolically encode vicarious experience to better understand and transform their environments. Bandura put it this way, "Most of the images of reality on which we based our actions are really based on vicarious experience . . . We have a vast new world of images brought into our sitting-rooms electronically" (Stokes, 1986a, p. 3). Through symbolic modeling, people give structure, meaning, and continuity to their lives.

In 1974, Bandura unexpectedly received a letter from the American Psychological Association (APA) informing him that he had been nominated for the office of the Presidency. Because he had very little contact with the organization and its politics, he viewed the whole matter as an amusing fluke -- his fifteen minutes of Andy Warholian fame with low risk of election. However, one Saturday, he was in the upper reaches of a mulberry tree in his yard pruning and trimming the branches when he received a phone call came from APA headquarters. When Bandura picked up the receiver, the executive director greeted him with terse announcement, "Well, you're it!" Later Bandura described his selection to the Presidency humorously as "the most rapid evolutionary descent on record from the trees into an organizational board room" (Hilgard, 1989, p. 15). During Bandura's term of office, American psychologists were threatened by cuts in training grants by the Nixon administration, by cuts in reimbursements for psychological treatment for

veterans, and by adverse publicity regarding the dangers of behavior modification. To combat these public policy problems, Bandura presided over the founding of the Association for the Advancement of Psychology (AAP) as an advocacy group for promoting the influence of psychology in public policy initiatives and congressional legislation. This advocacy group was viewed as very influential, and it became a model for other professional groups. The powerful senator from the state of Washington, Henry "Scoop" Jackson, was so impressed with the work of the Association that he asked APA to assist his senate committee and staff on legislation having important social implications. In that same year, Bandura was awarded the David Starr Jordan endowed chair of Social Sciences in Psychology at Stanford University. He served as Chair of the Department of Psychology at Stanford during 1976-1977 academic year.

At the time, Bandura had begun to extend his research on the acquisition of standards for self-reward practices to include other self-regulation processes, such as managing disabling fears. He and his students Bernie Ritter and Ed Blanchard developed a highly effective guided treatment for people plagued with incapacitating animal phobias and recurrent nightmares (Bandura, Blanchard & Ritter, 1969). He labeled this technique "participant modeling" because patients' were taught to overcome their phobic dread with the benefit of coping modeling and graduated performance induction aids. Participant modeling and guided performance mastery cured phobias and terrifying nightmares that haunted the people for a lifetime (Bandura, Jeffery, & Wright, 1974). In follow-up assessments, the participants expressed gratitude for curing their phobias but explained that the rapid transforming experience had a more profound personal impact. It instilled a sense that they can exercise some measure of control over their lives. Unless people believe that they can attain a desired outcome by their actions, they have little incentive to act and persevere in the face of difficulties.

Bandura's research on self-regulation and self-efficacy culminated in a 1977 book entitled Social Learning Theory, in which he analyzed human learning and self-regulation in terms of triadic reciprocal causations involving a complex interplay between personal (cognitive-affective), behavioral, and environmental determinants (see Figure 1). "Perceived self-efficacy not only reduces anticipatory fears and inhibitions but, through expectations of eventual success, it affects coping efforts once they are initiated. Efficacy expectations determine how much effort people will expend, and how long they will persist in the face of obstacles and aversive experiences. The stronger the efficacy or mastery expectations, the more active the efforts" (Bandura, 1977, p. 80). Bandura (1986, p. 25) summarized this triadic perspective as follows, "What people think, believe, and feel affects how they behave. The natural and extrinsic effects of their actions, in turn, partly determine their thought patterns and affective reactions." This formulation avoided the pitfalls of classical cognitive approaches (Sampson, 1980), which minimized the interactive role of one's behavior and social environmental context on human thought.

During the 1980s, Bandura increasingly turned his attention to studying the impact of self-efficacy beliefs in new areas of functioning. With his student Dale Schunk, he investigated the self-regulatory effects of personal goal setting during children's mastery of mathematical competencies that had eluded them (Bandura & Schunk, 1981). They discovered that students who set proximal personal goals (i.e., completing a certain number of problems during each study session) developed higher self-efficacy, intrinsic interest, and competency than students who pursued only distal goals or no goals. Bandura shifted his program of research to shed light on the self-efficacy belief system: its origins, structures, and functions, diverse effects, and how this knowledge could be used for personal and social benefit. He viewed perceived efficacy as the foundation of human motivation and action.

This research on self-regulatory processes, such as goal setting and self-efficacy beliefs, led Bandura to integrate his earlier modeling research with his later research on the role of self-referent thought in a 1986 book entitled Social Foundations of Thought and Action: A Social Cognitive Theory. At the time, Bandura decided to re-label his theoretical approach as social cognitive because he felt the breadth of his theorizing and research had expanded beyond the scope of the social learning label. Moreover, the label had become increasingly misleading because it applied to several theories founded on dissimilar tenets, such as Miller and Dollard's drive theory, Rotter's (1966) expectancy theory, and Gewirtz's (1971) operant theory. In this book, Bandura presented a social cognitive vision of the origins of human thought and action and the influential role of self-referential processes to motivation, affect, and action. He depicted people as self-organizing, proactive, self-reflective, and self-regulative in thought and action rather than as merely reactive to social environmental or inner cognitive-affective forces.

During the 1990s, Bandura undertook a series of studies of the interactive influences of families, peers, and schools on children's development of self-efficacy and its impact on developmental trajectories. "The capabilities of self-influence are developed, one is not born with them. They are developed by mastering experience, by modeling, and by what people persuade us we can or cannot do" (Stokes, 1986a, p. 3). In research with Barry Zimmerman and Manual Martinez-Pons, he discovered that students' self-efficacy beliefs about regulating their academic learning activities and writing were highly predictive of their academic goal setting and achievement (Zimmerman, Bandura, & Martinez-Pons, 1992; Zimerman & Bandura, 1994). The inclusion of perceived self-efficacy in path models increased prediction of students' academic achievement by more than 30 percent while controlling for their prior grades or performance on standardized achievement tests. Working with Claudio Barbarelli, Gian Vittorio Caprara, and

Concetta Pastorelli in Italy, Bandura found that parents' self-efficacy beliefs and goals for their children significantly affected the offspring's self-efficacy beliefs, aspirations, level of depression, and adherence to moral codes of conduct (Bandura, Barbarelli, Caprara, & Pastorelli, 1996a). Children's self-efficacy was assessed in a variety of areas of social functioning, such as perceived social efficacy and efficacy to manage peer pressure for detrimental conduct, both of which were found to contribute to the youngsters' academic attainments.

Because of strong international interest in the construct of self-efficacy, Bandura was invited to organize a conference for researchers under the auspices of the Jacob Foundation on the topic of young people's beliefs in their personal efficacy to manage the demands of rapidly changing societies. It was held in the beautiful Marbach Castle at the headwaters of the Rhine River in Germany in November of 1993. In this idyllic setting, the participants shared research findings, exchanged ideas, identified topics in need of further research, and forged new transcontinental relationships during the day and were wined and dined in the evening. In addition to Bandura's sumptuous culinary choices, his wisdom, wit, and humanity made the conference truly memorable. The papers presented at the conference were published in 1995 book that Bandura edited entitled Self-Efficacy in Changing Societies.

In 1997, Bandura published the volume entitled Self-efficacy: The Exercise of Control, which presented the theoretical foundations of the theory and the numerous applications of the knowledge to education, health, treatment of clinical problems (e.g., stress, depression and substance abuse), athletics, organizational functioning, and collective efficacy of our social and political systems. In all of these diverse spheres of functioning, perceived self-efficacy predicts people's style of thinking, level of motivation, emotional well-being, and performance accomplishments.

His Contributions to Human Development and Education

It should come as no surprise to readers to learn the impact of Bandura's own program of research represents only a small part of his enormous influence in psychology and education. Apart from his own research, he exerted major impact through his modeling and writing on the collective efforts of his many colleagues, students, and followers. His immense secondary impact stems from the compelling quality of his theory and its ready social applicability. Readers are attracted to his theorizing because they can apply his constructs and methods to a wide range of pursuits that contribute to scientific progress. As a result, Bandura has achieved one of the highest citation indexes in the field of education as well as psychology (e.g., Gorden, et al., 1984). The sections that follow illustrate the ways in which his research and writing profoundly altered educators' methods of instruction and view of students' development.

Understanding Children's Social Development. Before Bandura began his seminal research, educators' conceptions of students' aggression were dominated by the Freudian view that such behavior was the product of intrapsychic forces operating largely unconsciously. Students' aggression on the playground or in school was seen as a recurring expression of underlying impulses requiring release in minimally detrimental ways. Teachers and societal leaders who looked to psychologists for guidance in these matters received much misleading advice. In the early 1960s, the story lines in television programs and motion pictures became more violent, and network executives and movie producers defended this fare as socially beneficial by citing the Freudian theory of catharsis. Bandura's Bobo doll experiments disputed these claims, revealing instead the power of televised or filmed violence on children's aggressive proclivities. His pioneering studies led in considerable part to the U.S. Surgeon General's commissioning of a panel to evaluate the research in this area (Comstock & Rubinstein, 1972). The report acknowledged the

adverse effects of televised violence and the conditions governing the magnitude of that impact

The Bobo doll studies have achieved continuing fame because photographs of the modeling effects are included in introductory psychology books and virtually all undergraduates enroll in the introductory course. This high visibility would, on one occasion, merit Bandura a substantial room upgrade in a Washington D.C. hotel when the clerk at the registration clerk discovered that the father of the Bobo doll studies was registering for the night. Clearly paternity has its benefits!

Bandura's modeling research also showed how social modeling could be used to diminish aggression and promote prosocial functioning and foster adoption of moral standards for judging moral dilemmas. Bandura and his colleagues also showed how children could be taught prosocial behavior, such as empathy, sharing, and altruism, through modeling (Bandura & Rosenthal, 1966; Harris, 1968; Rosenhan & White, 1967; Zimmerman & Brody, 1975). In 1973, Bandura published Aggression: A Social Learning Analysis in which he compared social learning and alternative theories and discussed their implications for social policy and management of schools' social environments. Many current violence prevention programs in the schools are based on social modeling and self-regulatory principles.

Much of theorizing regarding students' aggression and its prevention has focused on the role of moral thought but has neglected the issue of moral conduct. Bandura has suggested that students' moral conduct is embedded in their capability to self-regulate. That is, students monitor their conduct and the conditions under which it occurs, judge it in relation to their moral standards and perceived circumstances, and regulate their actions by the consequences they apply to themselves. They do things that give them a sense of self-worth. They refrain from behaving in ways that violate their moral standards because such conduct brings self-condemnation. However, it is well known

that normally considerate individuals can engage in extreme cruelty in certain circumstances.

Bandura explains a breakdown in moral self-regulation in terms of people's selective disengagement of moral self-sanctions from even murderous acts. He describes the fascinating account of Sgt. York, a deeply religious individual from Tennessee, who was a conscientious objector to military service during World War I until a recruiter cited chapter and verse in the Bible to convince him it was his Christian duty to fight (Stokes, 1986b, p. 3). York went on to become the American sharpshooter who killed the greatest number of enemy soldiers in that war. Bandura has identified eight mechanisms of moral disengagement and diffusion and displacement of responsibility, such as moral justification, used to disengage moral self-sanctions, such as Sgt. York's initial pacifist standards. Other forms of disengagement such as minimizing, ignoring, or misconstruing consequences or dehumanizing morally disengage reprehensible conduct from its detrimental effects on victims (see Figure 2). Bandura warns, "You don't have to change a person's basic codes or transform their personality, all you have to do is to create conditions for disengagement of moral control" (Stokes, 1986b, p. 3).

In addition to explaining people's inhibition of aggression, a social cognitive model of moral agency explains people's proactive power to behave humanely, such as coming to aid those who are in distress or making civic commitments to improve improved the lives of others, in terms of self-regulatory processes. Individuals who invest their sense of self-worth in strong humane convictions and social obligations will act against people or practices that they regard as unjust or immoral even though their actions may incur heavy personal costs. Failure to do what is right according to their moral standards would incur heavy self-devaluation. Many of these strong convictions emerge from direct or symbolic exposure to exemplary social models, such as Christ, Gandhi, and Martin Luther King. In addition to the powerful role of self-sanctions, people's self-efficacy beliefs about

regulating their conduct play an important role in moral behavior. In studies conducted in Italy, Bandura, Barararanelli, Caprara, and Pastorelli (1996b) found that low self-regulatory efficacy increased students' readiness to disengage their moral standards. In subsequent research (Bandura, Caprara, Barararanelli, Pastorelli, and Regalia, 2001), students' perceived academic and self-regulatory efficacy concurrently and longitudinally deterred transgressions both directly and by fostering prosocial behavior and adherence to moral self-sanctions for harmful conduct. As expected, moral disengagement led to greater transgressions over time. Interestingly, prosocial behavior, such as cooperating, helping, sharing, and consoling, was highly predictive of not only social preferences by peers but also students' academic achievement in school (Caprara, Barararanelli, Pastorelli, Bandura, and Zimbardo, 2000). Teachers and peers are attracted to prosocial children and provide greater academic support and guidance to these youngsters. It appears that prosocial students proactively create an enduring personal social environment that is conducive to their subsequent academic learning.

Educators' views of children's pro-social and antisocial functioning have been profoundly influenced by Bandura's research and writing. There is now widespread awareness that modeling experiences and self-efficacy and self-regulatory processes greatly influence children's coping with conflict, frustration, academic stressors, and failure.

Understanding children's cognitive development. Educators' conceptions of children's cognitive and linguistic development during the 1960s and 1970s were greatly influenced by stage views. Piaget, Kohlberg and Chomsky each made strong maturational assumptions about children's development and were generally constrictive about efforts to teach stage-related skills precociously, except perhaps during brief periods of stage transition. Some educators believed it unwise to teach abstract mathematical concepts to preschoolers because of their limited preoperational level of

reasoning, and other educators believed that efforts to teach higher ethical reasoning to young children would be unsuccessful because of their stage-related egocentrism. Bandura and his colleagues challenged these stage views as unduly pessimistic and insensitive to the role of social and cultural learning experiences in children's development "Most developmental models of human behavior presuppose a developmental predeterminism in which childhood experiences pretty much set the course of later development" (Stokes, 1986a, p. 2). "Stage theories have at best specified only vaguely the conditions that lead to changes in behavior from one level to another" (Bandura & Walters, 1963, p. 25). To address these issues, social learning researchers conducted numerous abstract modeling studies to demonstrate the acquisition of higher-order competencies (Zimmerman & Rosenthal, 1974). More specifically, they questioned claims that children (a) displayed homogeneous stage functioning across tasks and situational contexts and (b) could not be taught Piagetian concepts, grammatical rules, and Kohlbergian or Piagetian moral judgments precociously.

Mary Harris, Robert Liebert, Ted Rosenthal, James Sherman, Grover Whitehurst, and Barry Zimmerman among many others, used abstract modeling to teach advanced stage functioning among children of a variety of ages (Rosenthal & Zimmerman, 1978). Although age-related shifts in children’s functioning were of interest to Bandura and his colleagues, they showed these outcomes were influenced by changes in social learning experience, hierarchies of goals and knowledge, and motoric competence. They cautioned educators that shifts in children's functioning at the approximate ages of two, seven, and 12 years emphasized by stage theories are better predicted by social learning experiences and accomplishments, such as the acquisition of speech and mobility, entrance into school, and the experiences associated with the onset of puberty. Regarding later life-span development, Bandura (1982, 1998) emphasized pivotal adult life path experiences like his own in education, marriage, and employment rather than developmental stage

indices. The paths that lives take are influenced by the interplay of diverse events on which individuals play an agentic role. In their highly regarded text, Advanced Educational Psychology Pressley and McCormick (1996) document the role that Bandura and his colleagues played in the growing disenchantment with stage theories.

Understanding observational learning. Bandura and colleagues' research on observational learning provides considerable guidance for teachers who are interested in instructional modeling and teaching by demonstration. It should be noted that the root meaning of the word teach is "to show." Educators have acknowledged the importance of modeling to effective teaching from the time of the ancient Greeks (Rosenthal & Zimmerman, 1978). For example, Isocrates (circa 390 B.C.E.) urged teachers not just to expound upon the principles of oratory but to model effective speech for students to emulate their example. The Roman statesman and philosopher Cicero recommended placing students of oratory under the guidance of eloquent models. Despite its auspicious place in the pantheon of instructional methods throughout the ages, modeling received very little scientific study before Bandura's research and writing.

Among the different facets of observational learning, those dealing with abstract modeling are of special pedagogical relevance (Bandura, 1977). The research revealed first that, for abstraction to occur, students need multiple demonstrations of a conceptual rule across a variety of tasks and settings, such as different types of Piagetian conservation problems. The common instructional technique used by novice teachers is to model a single conceptual exemplar for students, but this procedure will not produce abstraction and transfer because irrelevant contextual features of the task are not varied systematically. Social learning researchers also showed that teachers' explanations linked to their demonstrations significantly enhance students' conceptual learning. Abstract modeling needed to be adapted for very young children to learn. For example,

preschool children experienced difficulty learning from extended modeling sequences because of limitations in attention and memory. But they were able to learn observationally from an alternating approach involving turn-taking on a series of tasks (Rosenthal & Zimmerman, 1972).

Bandura's research on participant modeling underscored the need for teachers to decompose complex or difficult tasks into component subfunctions. Task analysis and sequential demonstrations are especially important if the subfunctions are novel. In addition, coping models, who gradually overcame difficulties through perseverant effort had greater impact than mastery models who performed flawlessly from the outset (Kitsantas, Zimmerman, & Cleary, 2000; Schunk & Hanson, 1985; Schunk Hanson, & Cox, 1987). Coping modeling instilled higher levels of self-efficacy through perceived similarity. In addition, studies of peer modeling were conducted to show how students learn from knowledgeable classmates (Schunk, 1987). How, when, and where to structure those peer interactions form an important part of social learning research on instructional modeling.

To translate knowledge of modeling to instructional practice, teachers need an informative theory. Bandura provided a theory specifying four subfunctions: attention, symbol representation, production, and motivation (see Figure 3). Attentional processes refer to students' attending to and extracting the key elements of modeled events. Retention processes are concerned with students' cognitive construction of modeled information in symbols and their rehearsal. Production processes refer to students' representational guidance and corrective adjustment of enactments. Motivational processes refer to various types of incentives to perform. In this conceptual formulation, deferred observational learning can be traced to breakdowns in one or more of these subfunctions. For example, a student may fail to learn a complex computer software program, through modeling because of inattention to key features of the demonstration. Or the failure may be due to the

observer's inability to analyze and encode the model's strategies. Or perhaps the failure resides in difficulty in converting the knowledge into proficient performance. Or finally, students may have insufficient motivation to put into practice what they have learned , such as fears of making a serious mistake. There is considerable research indicating that each of these four subfunctions affect the quality of observational learning. This type of particularized knowledge provides a useful guide for instructional interventions (Bandura, 1986; Zimmerman, 1977).

Understanding self-regulation. Historically, educators have attributed students' inability to self-regulate their learning to insufficient willpower in the face of more attractive environmental distractions. This led teachers to exhort their students to work harder and resist the temptations of television, computer games, or phone conversations with friends. These exhortations are not only ineffective, they can have a counterproductive self-fulfilling effect. Bandura (1986) has explained that students who rely on increased willpower to succeed face self-debilitating attributions especially if they view "willpower" as a fixed trait they lack. Failure to learn leads students to make attributions of insufficient willpower, which is de-motivating and self-handicapping.

Willpower theories provide little guidance for teachers. Bandura notes, "Dualistic doctrines that regard mind and body as separate entities do no provide much enlightenment on the nature of the disembodied mental state or on how an immaterial mind and bodily events act on each other" (Bandura, 1986, p. 17). By contrast, Bandura's triadic model of causation posits a complex interplay between personal, behavioral, and environmental determinants (see Figure 1). Through their thoughts and actions, people are able to exert self-regulatory control over their level of functioning and the events in their lives. "The degree of reciprocity in social transactions in part depends on the personal resources people have to draw upon and on the extent to which they exercise what is theirs to command. The more they bring their influence to bear on themselves and

others, the greater the likelihood they will realize desired futures" (Stokes, 1986a, p. 2). Teachers can help students to monitor the impact of their activities and immediate environment on their cognitive and behavioral functioning and to enlist self-management strategies and self-incentives to increase their effectiveness.

Bandura (1986) has recommended teaching students how to self-regulate personal, behavioral and environmental aspects of their lives through three essential self-management processes: self-observation, judgmental process, and self-reaction (see Figure 4). Self-observation refers to specific efforts to monitor various dimensions of one's performance, such as self-recording of the quality of one's solutions to mathematical problems. Judgmental process refers to evaluating of one's performances against personal standards, referential performances, personal values, and performance determinants. Self-reaction refers to one's cognitive, affective, and tangible responses to those performance evaluations. The self-reactions may involve self-corrections and affective and motivational self-inducements. Students with deficits in self-regulation have been studied in terms of these three interdependent processes to determine whether their problems in managing their learning activities stem from deficient monitoring, inadequate performance evaluations, or insufficient motivational self-incentives.

Bandura described the role of self-judgment standards in following way. "It is through this internal source of guidance that people give direction to their lives and derive satisfaction from what they do" (Stokes, 1986a, p. 2). However, these personal standards have social origins according to Bandura, "The internal standards through which people influence their own motivation and actions are acquired through modeling and evaluative reactions by significant others" (Stokes, 1986a, p. 2). As an example of these social influences on development of personal standards, Bandura tells the joke about the opera tenor who struggled throughout an evening performance.

When he took his final curtain call, he was amazed to receive thunderous applause. So as an encore, he sang the signature aria with which he struggled. Despite another labored effort, the audience again erupted with applause. After several such encores, the tenor returned to the stage remarking, "I don't know what to say." From the upper balcony, an admonishing voice growled, "You are going to sing it until you get it right!"

Educational interventions that address these three subfunctions of self-regulation have been highly effective in improving students' motivation, strategies, and academic achievement (Schunk & Zimmerman, 1994; 1998). Bandura comments on the diverse benefits of the capacity for self-directedness: "These [self-regulatory] types of personal resources expand freedom of action and enable people to serve as causal contributors to their own life course by selecting, influencing and constructing their own circumstances" (Stokes, 1986a, p. 2).

Understanding self-efficacy beliefs. From the outset of Bandura's career, he questioned reinforcement accounts of human motivation. He viewed reinforcement operations not as strengtheners of responses but as providing information for constructing performance outcome expectations. "When [outcome] belief differs from actuality, which is not uncommon, behavior is weakly controlled by its actual consequences until repeated experience instills realistic expectations" (Bandura, 1977, p. 167). His research on the self-regulative role of beliefs of personal efficacy revealed that outcome expectancies alone are insufficient guides and motivators of behavior. People are often aware of techniques that are expected to produce desired outcomes, but they do not develop them because they doubt they have what it takes. Although self-efficacy and outcome expectations were both hypothesized to affect motivation, he assigned causal priority to efficacy beliefs: "The types of outcomes people anticipate depend largely on their judgments of how well they will be able to perform in given situations@ (Bandura, 1986, p. 392). He argued that

expectancy-value theories of motivation sacrifice explanatory and predictive power if they ignore efficacy beliefs. In his view, the self-efficacy belief system is the foundation of human motivation and action.

The explanatory power of Bandura's self-efficacy construct is attributable in large part to its triadic behavioral and contextual qualities. Self-efficacy beliefs involve people's self-judgments of performance capabilities in particular domains of functioning rather than omnibus trait or a global self-concept. For example, students are asked to judge their capabilities for certain classes of mathematical operations not their concept of their academic self. Students' self-efficacy beliefs differ across domains of academic functioning, such as linguistic, mathematical, and scientific subjects. The contextual linkage of self-efficacy measures differed markedly from omnibus trait measures that dominated research on self-beliefs in the 1970s.

The predictive power of self-efficacy beliefs on students' academic functioning has been extensively verified (Pajares & Miller, 1994; Schunk, 1984; 1998; Zimmerman, 1995, 2000). A meta-analysis of the self-efficacy literature regarding academic achievement, (Multon, Brown, & Lent, 1991) revealed an effect size of .58 for students' academic performance across a variety of student samples, experimental designs, and criterion measures. This effect size is considered as large according to indices of statistical power. Efficacy beliefs and student achievement are more highly related for low-achieving students (.56) than for youth making good academic progress (.33), suggesting the undermining effects of low self-efficacy. The relationship between perceived self-efficacy and academic attainment was also higher for high school and college subjects (.41 and .35 respectively) than for elementary school youngsters (.21), suggesting that older students may be better able to assess their academic capabilities in school. The relation between efficacy beliefs and achievement depended on the type of outcome measure selected,

with the strongest effect size attained for basic cognitive skills (.52), an intermediate effect for performance in course work (.36), and the smallest effect by standardized tests (.13). This pattern of statistical effects supports Bandura's assumptions about the domain-relatedness of self-efficacy judgments. Other meta-analyses corroborate the predictiveness of perceived self-efficacy in organizational functioning, health, and athletic performance (Holden, 1991, Holden, Moncher, Schinke, & Baker, 1990; Stajkovic & Luthans, 1998).

Bandura has analyzed how children's perceived efficacy, teachers' beliefs in their instructional efficacy, and schools' collective sense of efficacy contribute to academic achievement. Many educators have been particularly intrigued with research demonstrating the importance of teachers' self-efficacy beliefs. For example, Bandura has noted that teachers with high instructional efficacy devote more classroom time to academic activities, provide students experiencing difficulties with more guidance, and praise their students' accomplishments more frequently than teachers with low efficacy (Gibson & Dembo, 1984). Bandura (1997) put it as follows, "Teachers who believe strongly in their ability to promote learning create mastery experiences for their students, but those beset by self-doubts about their instructional efficacy construct classroom environments that are likely to undermine students' judgments of their abilities and their cognitive development" (p. 241). Teachers' perceived efficacy also affects their own vulnerability to stress, burnout, and commitment to the educational profession.

Bandura has extended the conception of human agency to proxy and collective agency. In many activities, people do not have direct control over social conditions and institutional practices that affect their lives. They seek to advance their well-being and security through proxy agency. In this socially-mediated form of perceived efficacy, people

envision getting a mediator with resources and expertise to wield influence and power on their behalf to obtain desired personal outcomes. Relatively little research has been devoted to proxy agency to date, but the study of collective agency has yielded important results. In collective efficacy, the focus is on the perceived capabilities of social subsystems such as families, communities, educational systems, business organizations, social and political institutions. Being socially situated and interdependent, people form shared beliefs about their combined capabilities and aspirations. Bandura (1997) defined the concept of collective self-efficacy as "a group's shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainments" (p. 477). In the case of schools, Bandura (1997) has suggested, "The belief systems of the staff also create an organizational culture that can have vitalizing or demoralizing effects on the perceived efficacy of its members" (p. 248). School staffs with a high collective sense of efficacy have principals who "excel in their ability to get their staff to work together with a strong sense of purpose and belief in their abilities to surmount obstacles to educational attainments" (p. 248).

In his research, Bandura (1993) found that the collective efficacy of school staff play a key causal role in path analyses predicting school achievement in reading and mathematics. Characteristics of the student body, such as their socioeconomic and ethnic backgrounds, had a small direct role on school level achievement but a large indirect effect mediated through teachers' collective efficacy to motivate and educate their students. Self-efficacy measures have been used successfully in educational settings to understand the motivational engagement and academic accomplishment of students and teachers (Bandura, 1997; Pajares, 1996; Schunk, 1984; Zimmerman, 2000). Advances in electronic technologies and growing

globalization of human connectedness offer new opportunities for people to exercise some measure of control over their personal development and their national life. Web-based connectedness enables world-wide opportunities for distance learning, social "chat rooms, " on-line library information, and business transactions. These rapidly evolving realities greatly expand human perceptions of collective efficacy.

Thus, the management of daily life requires a blend of individual, proxy, and collective agency. These diverse sources of personal agency to manage one's life circumstances also play a key role in effecting societal changes (Fernandez-Ballesteros, Diez-Nicolos, Caprara, Barbaranelli, & Bandura, 2001), such as improving the quality of schools.

Evaluations of Bandura's contribution to the Field of Education

Bandura has created one of the few grand theories that continues to thrive at the beginning of the Twenty-first Century. He has defied the general trend in psychology and education toward mini-models by focusing on processes that are influential in diverse areas of human functioning, be they education, sports, health, organizational settings, medicine, mental health, and social political spheres. The broad scope of Bandura's theory stems from his diverse scientific interests, and his theory's ready applicability. Social modeling, self-enabling beliefs, and self-regulation are pervasive across contexts and domains of human functioning.

The nature of the learner. Throughout his brilliant career, Bandura took issue with many prominent psychological perspectives, such as Freudian, Hullian, Operant, Trait-factor, developmental stage, and classic cognitive theories that focused on intrapsychic conflicts, uncontrollable drives, unfavorable environments, immutable personal dispositions, or reified cognitive stages or structures. In Bandura's (1997) view, these theories underestimate the power of people over the paths their lives take: People are producers as well as products of environments. In

his address as honorary President of the Canadian Psychological Association, he takes the psychological discipline to task for emphasizing theories of failure that grossly over-predict psychopathology. He documents how people can override adversity through the exercise of self-influences and social supports. Bandura's reciprocal view of functioning is not only more optimistic than other views about the possibility of personal and social change, it is broader in scope because it includes both proactive and reactive processes. Through proactive forethought, learners are able to increase their self-regulatory control over events that affect the course of their lives.

Although Bandura acknowledges the important role of biological forces in human development and functioning but rejects biological reductionism. In his view, biological endowment is a loose potential that allows diverse expression rather than a tight determinant of people's lives. His research elucidates the power of social experience and coping self-beliefs over basic biological systems. For example, he cites evidence that guided mastery through participant modeling raises perceived efficacy in phobics, which in turn predicts reductions in stress-related hormones (Bandura, Taylor, Williams, Mefford, & Barchas, 1985). Bandura (1997) reported that, "Perceived coping inefficacy is accompanied by elevated biological stress reactions, but the same threats are managed without stress when beliefs of coping efficacy are strengthened" (p. 266). Such findings give testimony to biological as well as psychological plasticity. Like personal environments, human biological forces are potentialities that must be activated by specific personal beliefs and actions (Bandura, 1999). By regulating their motivation and activities, students produce experiences that form the neurobiological substrate of functioning. These agentic actions shape brain development and foster brain cell growth underlying learning, memory and other aspects of functioning throughout the course of life (Diamond, 1988; Kolb & Whishaw, 1998).

The nature of the learning processes. From the outset of his career, Bandura has envisioned

human learning as a profoundly social event in which children learn about the world around them through social transactions and media sources. Much of this social learning is not under the direct control of teachers or parents, but rather, arises from contact with siblings, peers, co-workers, and mass media sources. Bandura felt these vicarious sources of experience had many benefits compared to discovery learning, such as the avoidance of adverse consequences. Bandura has humorously warned learners who intend to learn dangerous skills, such as driving or skiing, from discovery to check their health insurance coverage first! His view of social learning was broader and more cognitive than the formulations of modeling and imitation that preceded him.

Bandura's vision of learning entails more than the acquisition of knowledge in a cognitively reactive sense, it involves the development of self-beliefs and self-regulatory capabilities of students to educate themselves throughout their lifetime. Self-regulatory skills for acquiring knowledge, such as goal setting, self-monitoring, and self-evaluation, are essential for contemporary students because of the rapid pace of technological change and accelerated growth of knowledge. However, these skills are of little avail if people cannot get themselves to apply them persistently in the face of difficulties, stressors, and competing attractions. Students' self-efficacy beliefs not only enhance academic achievement, they promote intrinsic interest and reduce academic anxiety. Contrary to common belief, academic anxiety is a effect of perceived efficacy, not a co-determinant of academic performance. Perceived efficacy shapes not only students' cognitive development but also their subsequent career choices (Hackett, 1995), which is a major fork in their path through life.

Thus, self-regulatory mechanisms are embedded in an agentic perspective regarding self-development, adaptation, and change. Bandura (1999) emphasizes the importance of consciousness at the center of people's phenomenal and functional life; it is the agentic base for making sound

judgments about one's capabilities, anticipating the probable effects of different events and actions, ascertaining sociostructural opportunities and constraints, and regulating behavior. Agentic consciousness goes beyond mere knowledge of one's functioning to actually changing it, such as students' self-efficacy beliefs about improving their academic study methods. This personal consciousness is linked also to one's sense of identity. The identity people create for themselves derives, in large part, from how they live and reflect upon their life. For example, there is evidence (Steinberg, Brown, & Dornbusch, 1996) that students' identities as "nerds," "druggies," or "jocks" can profoundly influence their academic aspirations and accomplishments.

Optimal conditions of instruction. To facilitate students' learning, Bandura (1986) recommended guided mastery approach. For each instructional step:

> A variety of opportunities are provided for guided practice in when and how to use cognitive strategies in the solution of diverse problems. The level of social guidance is progressively reduced as competencies are being acquired. Activities, incentives, and personal challenges are structured in ways that ensure self-involving motivation and continual improvement. Growing proficiencies are credited to expanding personal capabilities. Self-directed mastery experiences are then arranged to strengthen and generalize a sense of personal efficacy. Each of these modes of influence is structured in ways that build self-regulative capabilities for exploratory learning and strengthen students' beliefs that they can exercise some control over their intellectual self-development (pp. 226-227)

Drawing on knowledge from Patrick Suppes' research on computer-assisted instruction at Stanford University, Bandura and Schunk devised self-directed learning programs with proximal challenges for children who were markedly deficient in mathematical skills. These mastery experiences convert mathematical disinterest and deficiency into a high sense of mathematical

efficacy and competence.

Instructional programs that incorporated these principles have significantly enhanced students' self-efficacy beliefs and academic achievement on diverse educational tasks, such as mathematics, reading, and writing (Bandura, 1997). In an extensive series of studies using self-guided instruction, often with students having learning disabilities, Schunk (1989) found that students' self-efficacy beliefs predicted their rate of progress during instructional sessions (range of rs = .33 to .42) and posttest level of self-efficacy and academic skill (range of rs = .46 to .90). Regression analyses revealed that efficacy beliefs significantly increased prediction of academic attainment over and above prior performance attainments (range of R^2 = .17 to .24).

The nature of important learning-instructional outcomes. In order to capture the triadic interdependence of person-related processes during efforts to learn, Bandura (1986) has advocated situationally-specific forms of assessment and microanalyses of self-regulatory processes, such as self-efficacy beliefs, self-monitoring, judgments, and self-reactions. He stressed the importance of his methodology following way, "Understanding how personal factors affect actions and situations is best advanced through the microanalysis of interactive processes. This requires measures of personal determinants that are specially tailored to the domain of functioning being analyzed" (p. 28). Bandura cautions that to be effective, microanalyses must capture specific transactions among all three triadic determinants in Figure 1-- especially, how socio-structural influences operate through psychological mechanisms to produced behavioral effects. Although many constructivist accounts envision intellectual development as situated in culturally proscribed contexts, they fail to specify the precise mechanisms through which socio-cultural influences produce their effects, such as when a teacher's modeling influences students' self-efficacy beliefs. Because people are

producers as well as products of social systems, researchers' need a methodology, such as microanalysis, that can capture the dynamic interplay between individuals and the social systems they and others create.

Bandura's approach dramatically shifts the methods of educational researchers away from traditional trait psychological measures, "The study of trait measures derived from omnibus tests is a method of convenience which unfortunately sacrifices explanatory and predictive power" (Bandura, 1986, p. 28). Trait formulations, including "Big-Five" super traits (i.e., extroversion, agreeableness, conscientiousness, neuroticism, and openness to experience), are not equipped to predict variations of an individual's behavior in a given domains of activity under different situational circumstances. Attempts to enhance prediction by aggregating trait measures have met little success when focusing on actual behavior in different situations rather than self-reports of behavior (Rushton, Brainerd, & Pressley, 1983). Traits are essentially clusters of habitual behaviors that are assumed to be unchanged after early adulthood due to students' innate endowment and unspecified early experiences. Bandura suggests that the source of human personality resides in the self-system not in its behavioral expressions. This system includes (among other things) people's knowledge structures, their skills, self-efficacy beliefs, self-regulatory capabilities, which operate through goals and outcome expectancies rooted in a value structure. There is an extensive body of evidence indicating that task-specific measures, such as goal setting and self-efficacy beliefs, are good predictors of academic performance outcomes (Bandura, 1997).

The availability of task-specific measures has enabled teachers to expand their instructional goals to include students' self-regulatory development. "Teachers face the challenge of adapting their instruction to students' differing levels of educational self-

directedness in ways that build underdeveloped self-regulatory skills" (Bandura, 1997, p. 227). A focus on self-regulation instruction means that teachers need look beyond mere knowledge. "Students often know what to do but cannot translate that knowledge into proficient performance. Even if they can make skilled translations of knowledge, they often fare poorly when left on their own because they cannot get themselves to put in the necessary effort to fulfill difficult task demands" (Bandura, 1997, p. 227). Teachers who consider their students' self-efficacy beliefs, goal setting, strategy use, and other forms of self-regulation in their instructional plans not only enhance students' academic knowledge, but they also increase their students' capability for self-directed learning throughout their life span.

Bandura's Legacy

Because of the scope and power of his research and theory, Bandura is one the most widely cited researchers in psychological and educational literatures living today, and his list of prestigious awards has few peers. His vita includes nine authored or edited books and 230 articles and chapters, many of which have been reprinted in other publications. He was elected President of the American Psychological Association (APA), President of the Western Psychological Association, and appointed Honorary President of the Canadian Psychological Association. He has received numerous awards including the (APA) Distinguished Scientific Contributions Award, and the American Psychological Society's William James Award. He was given the Distinguished Contribution Award by the International Society for Research in Aggression, the Distinguished Scientist Award of the Society of Behavioral Medicine, and a Guggenheim Fellowship. He has been elected to the American Academy of the Arts and Sciences and to the Institute of Medicine of the National Academy of Sciences. He is the recipient of many honorary degrees from American and foreign universities.

Al Bandura has had a long and distinguished academic career (see a summary of milestones in Table 1), and for his contributions to the field of educational psychology, he was awarded the E. L. Thorndike Award in 1998. Despite his many accolades, he remains the consummate model of a teacher and researcher. He continues to prepare diligently for classes, presents stimulating lectures and engages them in academic activities that expand their knowledge and develop self-managerial skills that can serve them a lifetime. He expects the same high quality work from others that he demands of himself, and he devotes whatever time is necessary with students to ensure that they make progress and develop self-efficacy for succeeding. When not engaged in scholarly pursuits, he may be found dining at fine restaurants, hiking mountainous trails, attending musical events, sampling the noble grape, or traveling. He is cherished by his friends, colleagues, and students as a person who lives his life according to the same agentic principles that he has studied throughout his extraordinary career.

References

Arem, C. A., & Zimmerman, B. J. (1976). Vicarious effects on the creative behavior of retarded and non-retarded children. American Journal of Mental Deficiency, 81, 289-296.

Bandura, A. (1969). Principles of Behavior Modification. New York: Holt, Rinehart, & Winston.

Bandura, A. (Ed.) (1971). Psychological Modeling: Conflicting Theories. Chicago: Aldine/Atherton

Bandura, A. (1973). Aggression: A Social Learning Analysis. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1977). Social learning theory. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1982). The psychology of chance encounters and life paths. American Psychologist, 37, 747-755.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (Ed.) (1995). The exercise of personal and collective efficacy in changing societies. Self-efficacy in changing societies (pp. 1-45). New York: Cambridge University Press.

Bandura, A. (1998). Exploration of fortuitous determinents of life paths. Psychological Inquiry, 9, 95-115.

Bandura, A. (1997). Self-efficacy: The exercise of control. New York: W.H. Freeman.

Bandura, A. (1999). Social cognitive theory of personality (pp. 154-196). In L. Pervin & O. John (Eds.), Handbook of personality (2nd ed.). New York: Guilford.

Bandura, A., Barbaranelli C. Caprara, G. V., & Pastorelli, C. (1996a). Multifaceted impact of self-efficacy beliefs on academic functioning. Child Development, 67, 120-1222.

Bandura, A., Barbaranelli C. Caprara, G. V., & Pastorelli, C. (1996b). Mechanisms of moral disengagement in the exercise of moral agency. Journal of Personality and Social Psychology, 71, 364-374.

Bandura, A., Blanchard, E. B., & Ritter, B. (1969). Relative efficacy of desensitization and modeling approaches for inducing behavioral, affective, and attitudinal changes. Journal of Personality and Social Psychology, 13, 173-199.

Bandura, A., Caprara, G. V., Barbaranelli C., Pastorelli, C., & Regalia (2001). Sociocognitive self-regulatory mechanisms governing transgressive behavior. Journal of Personality and Social Psychology, 80, 125-135.

Bandura, A., & Jeffery, R. W. (1973). Role of symbolic coding and rehearsal processes in observational learning. Journal of Personality and Social Psychology, 26, 122-130.

Bandura, A. & Harris, M. B. (1966). Modification of syntactic style. Journal of Experimental Child Psychology, 4, 341-352.

Bandura, A., Jeffery, R. W., & Wright, C. L. (1974). Efficacy of participant modeling as a function of response induction aids. Journal of Abnormal Psychology, 83, 56-64

Bandura, A., & Kupers, C. J. (1964). Transmission of patterns of self-reinforcement through modeling. Journal of Abnormal and Social Psychology, 69, 1-9

Bandura, A., & McDonald, F. J. (1966). The influence of social reinforcement and the beahior of models in shaping children's moral judgments. Journal of Abnormal and Social Psychology, 67, 274-281.

Bandura, A., & Mischel, W. (1965). The influence of models in modifying delay of gratification patterns. Journal of Personality and Social Psychology, 2, 698-705.

Bandura, A., & Perloff, B. (1967). Relative efficacy of self-monitored and externally

imposed reinforcement systems. Journal of Personality and Social Psychology, 7, 111-116.

Bandura, A., Taylor, C. B., Williams, S. L., Mefford, I. N., & Barchas, J. D. (1985). Catecholamine secretion as a function of perceived coping self-efficacy. Journal of Consulting and Clinical Psychology, 53, 406-414.

Bandura, A., & Rosenthal, T. L. (1966). Vicarious classical conditioning as a functioning of arousal level. Journal of Personality and Social Psychology, 3, 54-62.

Bandura, A., Ross, D., & Ross, S. A. (1961). Transmission of aggression through imitation of aggressive models. Journal of Abnormal and Social Psychology, 63, 575-582.

Bandura, A., Ross, D., & Ross, S. A. (1963). Imitation of film-mediated aggressive models. Journal of Abnormal and Social Psychology, 66, 3-11.

Bandura, A. & Schunk, D. (1981). Cultivating competence, self efficacy, and intrinsic interest through proximal self motivation. Journal of Personality and Social Psychology, 41, 587-598.

Bandura, A., & Walters, R. H. (1959). Adolescent Aggression. New York: Ronald

Bandura, A. & Walters, R. H. (1963) Social learning and personality development. New York: Holt, Rinehart & Winston.

Caprara, G. V., Barbaranelli C., Pastorelli, C., Bandura, A., & Zimbardo, P. (2000) Prosocial foundations of children's academic achievement. Psychological Science, 11, 302-306.

Comstock, G. A., & Rubinstein, E. A. (Eds.) (1972). Television and social behavior Vol. 3. Television and adolescent aggressiveness. Washington D. C.: Government Printing Office.

Diamond, M. C. (1988). Enriching heredity. New York: The Free Press.

Gewirtz, J. L. (1971). Conditional responding as a paradigm for observational, imitative learning, and vicarious-reinforcement. In H. W. Reese (Ed.), Advances in child development and behavior (Vol. 6, pp. 273--304). New York: Academic press.

Fernandez-Ballesteros, R., Diez-Nicolos, J., Caprara, G. V., Barbaranelli, C., & Bandura, A. (2001). Structural relation of perceived personal efficacy to perceived collective efficacy. Applied Psychology: An International Journal.

Gorden, N. J., Nucci, L. P. West, C. K., Herr, W. A., Uguroglo, M. E., Vukosavich, P., & Tsar, S. (1984). Productivity and citations of educational research: Using educational psychology as the data base. Educational Researcher, 13, 14-20.4

Harris, M. B. (1968). Some determinants of sharing in children. Unpublished doctoral dissertation, Stanford University.

Harris, M. B., & Evans, R. C. (1973). Models and creativity. Psychological Reports, 33, 763-769).

Harris, M. B., & Fisher, J. L. (1973). Modeling and flexibility in problem solving. Psychological Reports, 33, 19-23.

Hilgard, E. (1989). Presidents' oral history project interview of Albert Bandura, Ph.D. President 1974. Unpublished manuscript. Washington, D.C.: American Psychological Association.

Holden, G. (1991). The relationship of self-efficacy appraisals to subsequent health related outcomes: A meta-analysis. Social Work in Health Care, 16, 53-93.

Holdern, G., Moncher, M. S., Schinke, S. P., & Barker, K. M. (1990). Self-efficacy of children and adolescents: A meta-analysis. Psychological Reports, 66, 1044-1046.

Kitsantas, A., Zimmerman, B. J., & Cleary, T. (2000). The role of observation and emulation in the development of athletic self-regulation. Journal of Educational Psychology, 91, 241-250.

Kolb, B., & Whishaw, I. Q. (1998). Brain plasticity and behavior. Annual Review Of Psychology, 49, 43-64.

Miller, N. & Dollard, J. (1941). Social learning and imitation. New Haven, CT: Yale University Press.

Mischel, W. (1968). Personality and Assessment. New York: Wiley.

Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. Journal of Counseling Psychology, 18, 30-38.

Pajares, F. (1996). Self-efficacy beliefs in academic settings. Review of Educational Research, 66, 543-578.

Pajares, F., & Miller, M. D. (1994). Role of self-efficacy and self-concept beliefs in mathematical problem solving: A path analysis. Journal of Educational Psychology, 86, 193-203.

Pressley, M., & McCormick, C. B. Advanced educational psychology: For educators, researchers, and policymakers. (1995). New York: Harper Collins.

Rosenhan, D., & White, G. M. (1967). Journal of Personality and Social Psychology, 5, 424-431.

Rosenthal, T. L., & Zimmerman, B. J., (1972). Modeling by exemplification and instruction in training conservation. Developmental Psychology, 6, 392-401.

Rosenthal. T. L. & Zimmerman, B. J. (1978). Social learning and cognition. New York: Academic Press.

Rosenthal, T. L., Zimmerman, B. J. & Durning, K. (1970). Observationally-induced changes in children's interrogative classes. Journal of Personality and Social Psychology, 16, 631-688.

Rotter, J. (1966). Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 80 (1, Whole No. 609).

Sampson, E. E (1981). Cognitive psychology and ideology. American Psychologist, 36, 730-743.

Schunk, D. H. (1984). The self-efficacy perspective on achievement behavior. Educational Psychologist, 19, 199-218.

Schunk, D. H. (1987). Peer models and children's behavior change. Review of Educational Research, 57, 149-174.

Schunk, D. H. (1998). Teaching elementary students to self-regulate practice of mathematical skills with modeling. In D. H. Schunk & B., J., Zimmerman (Eds.), Self-regulated learning: From teaching to self-reflective practice (pp. 137-159). New York: Guilford.

Schunk, D. H., & Hanson, A. R. (1985). Peer models: Influence on children's self-efficacy and achievement. Journal of Educational Psychology, 77, 313-322.

Schunk, D. H., Hanson, A. R. & Cox, P.D. (1987). Peer model attributes and children's achievement behaviors. Journal of Educational Psychology, 79, 54-61.

Schunk, D. H., & Zimmerman, B. J. (Eds.) (1994). Self-regulation of learning and performance: Issues and educational applications. Hillsdale, NJ: Erlbaum, Inc.

Schunk, D. H., & Zimmerman, B. J. (Eds.) (1998). Self-regulated learning: From teaching to self-reflective practice. New York: Guilford Press.

Stajkovic, A. D., & Luthans, F. (1998). Self-efficacy and work-related performance: A meta-analysis. Psychological Bulletin, 124, 240-261.

Steinberg, L., Brown, B. B., & Dornbusch, S. M. (1996). Beyond the classroom. New York: Simon & Schuster.

Stokes, D. (1986a). Chance can play key role in life psychologist says. Campus Report. (June 10), 1-4.

Stokes, D. (1986b). It's no time to shun psychologists, Bandura says. Campus Report. (June 11), 1-3.

Zimmerman, B. J. (1977). Modeling. In H. Hom and P. Robinson (Eds.), Psychological processes in early education (pp. 37-70). New York: Academic Press.

Zimmerman, B. J. (1995). Self-efficacy and educational development. In A. Bandura (Ed.), Self-efficacy in changing societies (pp. 202-231). New York: Cambridge University Press.

Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. Contemporary Educational Psychology, 25, 82-91.

Zimmerman, B. J., & Brody, G. H. (1975). Race and modeling influences on the interpersonal play patterns of boys. Journal of Educational Psychology, 67, 474-489.

Zimmerman, B. J. & Dialessi, F. (1973). Modeling influences on children's creative behavior. Journal of Educational Psychology, 65, 127-134.

Zimmerman, B. J., & Bandura, A. (1994). Impact of self-regulatory influences on writing course attainment. American Educational Research Journal, 31, 845-862.

Zimmerman, B. J., Bandura, A., & Martinez-Pons, M. (1992). Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal setting. American Educational Research Journal, 29, 663-676.

Zimmerman, B. J., & Rosenthal, T. L. (1974). Observational learning of rule governed behavior by children. Psychological Bulletin, 81, 29-42.

Table 1

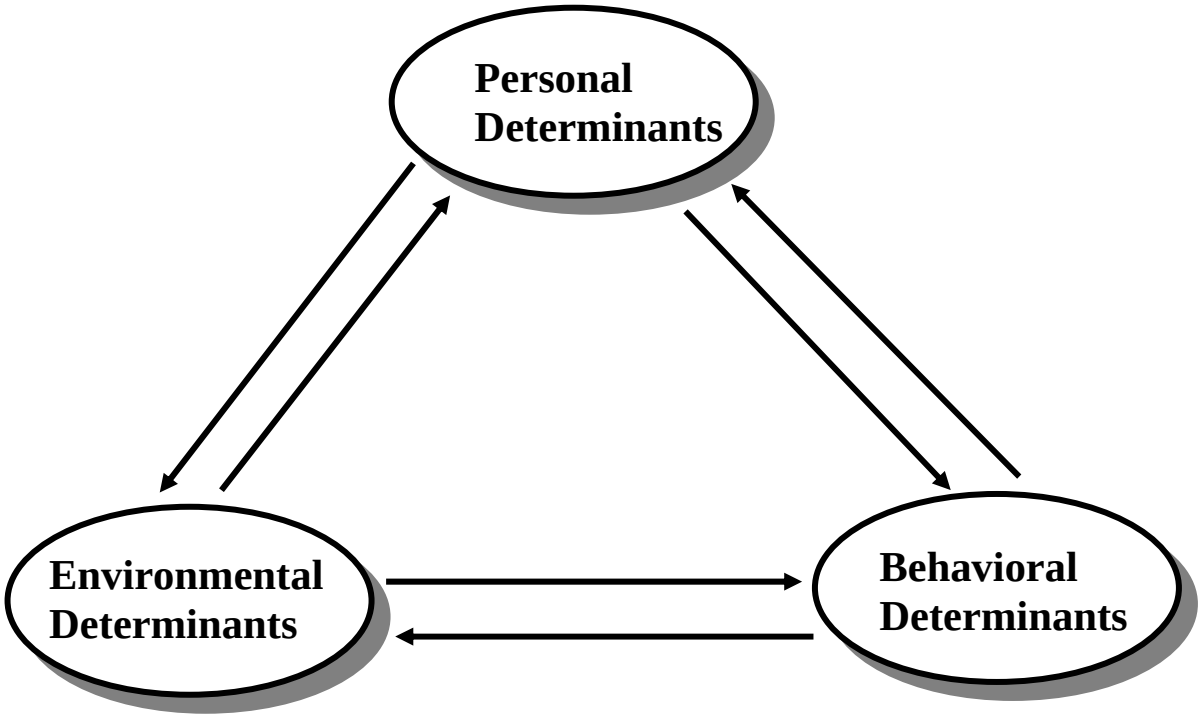
Time Line of Bandura's Life

1925 Born in Mundare, Alberta, Canada
1946 Graduated from high school
1949 Completed B.A., University of British Columbia
1951 Completed M.A., University of Iowa
1952 Completed Ph.D., University of Iowa, Clinical Psychology
1953 Instructor, Stanford University
1959 Published Adolescent Aggression
1963 Published Social Learning and Personality Development
1964 Professor, Stanford University
1964 Fellow, American Psychological Association
1969 Published Principles of Behavior Modification
1969 Special Research Fellowship, National Institute of Mental Health
1969 Fellow, Center for Advanced Study in the Behavioral Sciences
1971 Published Psychological Modeling: Conflicting Theories
1972 Distinguished Scientist Award, Division 12, American Psychological Association
1972 Guggenheim Fellowship
1973 Published Aggression: A Social Learning Analysis
1973 American Men and Women of Science
1973 Distinguished Scientific Achievement Award, California Psychological Association
1974 President, American Psychological Association
1974 David Starr Jordan Professor of Social Science in Psychology, Stanford University
1976 Chair, Dept of Psychology, Stanford University
1977 Published Social Learning Theory
1978-present Who's Who in America
1979 Honorary Doctor of Science, University of British Columbia
1980 President, Western Psychological Association
1980 Fellow, American Academy of Arts and Sciences
1980 Distinguished Contribution Award, International Society for Research on Aggression
1980 Distinguished Scientific Contributions Award, American Psychological Association
1982 Fellowship, Japan Society for the Promotion of Science
1983 Honorary Degree, University of Lethbridge
1985 Honorary Degree, University of New Brunswick
1986 Published Social Foundations of Thought and Action: A Social Cognitive Theory
1987 Honorary Degree, State University of New York, Stony Brook
1988 Sir Walter Scott Distinguished Visiting Professor, University of New South Wales, Australia
1989 William James Award, American Psychological Society
1989 Institute of Medicine of the National Academy of Sciences
1990 Honorary Degree, University of Waterloo
1990 Honorary Degree, Freie Universitat Berlin

1992 Honorary Degree, University of Salamanca
1993 Honorary Doctor of Humane Letters, Indiana University
1994 Honorary Degree, University of Rome
1995 Published Self-Efficacy in Changing Societies
1995 Honorary Degree, University of Leiden
1995 Honorary Degree, Alfred University
1997 Published Self-Efficacy: The Exercise of Control
1998 Distinguished Lifetime Contributions Award, California Psychological Association, 1998
1999 Honorary Degree, Pennsylvania State University
1999 E. L . Thorndike Award, American Psychological Association
2000 Honorary President, Canadian Psychological Association

Figure Captions

Figure 1. Reciprocal Causation among Triadic Classes of Social Learning Determinants


Personal
Determinants
Environmental
Determinants
Behavioral
Determinants