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by Albert Bandura †

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SOCIAL COGNITIVE THEORY; ORGANISATIONAL FUNCTIONING; MASTERY MODELLING; BELIEFS; GOAL SYSTEMS.

[†] Department of Psychology, Building 420, Jordan Hall, Stanford University, Stanford, California 94305, USA.

This article was an invited address presented to the Australian Graduate School of Management in the University of New South Wales, August 1988, as the Sir Walter Scott Distinguished Visiting Professor.

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Social cognitive theory explains psychosocial functioning in terms of triadic reciprocal causation (Bandura 1986). In this causal model, behaviour, cognitive and other personal factors, and environmental events all operate as interacting determinants that influence each other bidirectionally. The present article focuses on how personal factors that contribute importantly to this dynamic interaction can be altered to improve the level of organisational functioning. Three aspects of social cognitive theory are especially relevant. They include: developing competencies through mastery modelling, strengthening people's beliefs in their capabilities so they make better use of their talents, and enhancing self-motivation through goal systems.

1. Developing Competencies Through Modelling

1.1 Guided Mastery Modelling

Modelling is being widely used with good results to develop intellectual, social and behavioural competencies (Bandura 1986). The method that produces the best results includes three major elements: First, the appropriate skills are modelled to convey the basic competencies. Second, the people receive guided practice under simulated conditions so they can perfect the skills. Third, they are helped to apply their newly learned skills in work situations in ways that will bring them success.

1.2 Modelling

Modelling is the first step in developing competencies. Complex skills are broken down into subskills. The subskills are then modelled on videotape in easily mastered steps. After the subskills are learned by this means they can be combined into complex strategies that can serve different purposes. Effective modelling teaches general rules and strategies for dealing with different situations rather than only specific responses. Trainees need to learn how to apply the rules with different people and under different circumstances. Providing many brief examples demonstrates how the rules can be widely applied and adjusted to fit changing conditions.

Human competency requires not only skills, but also self-belief in one's capability to use those skills well. Modelling influences must be designed to build self-assurance as well as to convey skills. The impact of modelling on beliefs about one's capabilities is greatly increased by perceived similarity to the models. Trainees more readily adopt modelled ways if they see individuals similar to themselves solve problems successfully with the modelled strategies than if they see the models as very different from themselves.

1.3 Guided Skill Perfection

After trainees understand the new skills they need guidance and opportunities to perfect them. Proficiency requires extensive practice. Initially, they put to test their newly acquired skills in simulated situations where they need not fear making

mistakes or appearing inadequate. This is best achieved by rôle-playing in which they practice handling the types of situations they have to manage in their work environment.

In perfecting their skills, people need informative feedback on how they are doing. Videotape replays are widely used for this purpose. Simply being shown replays of one's own behaviour usually does not produce much improvement (Hung and Rosenthal 1981). Such uninstructed self-observation does not ensure that trainees will notice what they are doing wrong or that they will figure out what kind of changes they need to make. Moreover, observing flawed performances can weaken trainees' beliefs in their capabilities. If performance feedback is to produce good results, it must direct attention to the corrective changes that need to be made. It should be given in such a way as to build self-assurance in one's capabilities. This is achieved by calling attention to successes and improvements, while correcting deficiencies.

The feedback that is most informative and achieves the greatest improvements relies on corrective modelling. In this approach, the subskills which have not been adequately learned are identified, and effective ways of performing them are modelled by those who are proficient at it. Trainees then rehearse those subskills until they master them. The simulated practice is continued until trainees can perform the skills proficiently and spontaneously.

1.4 Transfer Program: Self-Directed Success

Modelling and practice under simulated conditions are well suited for creating competencies. But new skills are unlikely to be used for long unless they prove useful when they are put into practice in work situations. People must experience sufficient success using what they have learned to believe in themselves and in the value of the new ways. This is best achieved by a transfer program in which newly acquired skills are first tried on the job in situations likely to produce good results. Trainees are assigned selected problems to manage in their everyday situation. Then they discuss their successes and where they ran into difficulties. As trainees gain skill and confidence in handling easier situations, they gradually take on more difficult problems. If people have not had sufficient practice to convince themselves of their new effectiveness, they apply the skills they have been taught weakly and inconsistently. They rapidly abandon their skills when they fail to get quick results or when they experience difficulties.

Mastery modelling is now increasingly used to develop competencies. But its potential is not fully realised if training programs do not provide sufficient practice to achieve proficiency in the modelled skills, or if they lack an adequate transfer program that helps people to experience success with their new skills in their natural environment. When modelling is combined with guided practice and success experiences, this method produces excellent results. Because people learn and perfect effective ways of behaving under lifelike conditions, problems of transferring the new skills to everyday life are reduced.

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1.5 Organisational Applications

Let us now consider some examples in which guided mastery modelling has been applied and evaluated in work organisations. Supervisors have important impact on the morale and productivity of an organisation. They are often selected for their technical competencies, but their success in their supervisory rôle largely depends on their interpersonal skills to guide and motivate their supervisees. Mastery modelling programs have been devised to teach supervisors the interpersonal skills they need in order to work effectively through others.

Latham and Saari (1979) provide one such example. They used videotape modelling to teach supervisors how to: increase motivation; give recognition; correct poor work habits; discuss potential disciplinary problems; reduce absenteeism; handle employee complaints; and overcome resistance to changes in work practices. Summary guidelines of the skills being modelled were provided to aid memory of the rules and strategies. The group of supervisors discussed and then practiced the skills in rôle-playing, using incidents they had previously had to manage in their work. They received instructive feedback to help them improve and perfect their skills.

To facilitate transfer of skills from the training situation to their work environment, at the end of each session the supervisors were given written copies of the guidelines. They were asked to use the skills they had learned with one or more employees on the job during the next week. They later reported their successes or difficulties in applying the skills. If they encountered problems, the incidents were reënacted and the supervisors received further training through instructive modelling and rôle-playing on how to manage such situations.

Figure 1 shows the differences in supervisory skills between supervisors who had received the mastery modelling and those who had not. The graph on the left shows how well supervisors resolved supervisor-employee problems enacted in rôle-play situations three months after training. The graph on the right shows the ratings of the supervisors' performance on the job one year after training.

Supervisors who had received the mastery modelling training performed more skillfully both in rôle-playing situations and on the job than did supervisors who had not received the training. Merely explaining to supervisors the rules and strategies on how to handle problems on the job without modelling and guided practice did not improve their supervisory skills. To enhance supervisory skills, supervisors need instructive modelling, guided practice with corrective feedback, and help in transferring the new skill to the job situation.

Porras and his colleagues have examined how a mastery modelling program affects the morale and productivity of organisations (Porras, Hargis, Patterson, Maxfield, Roberts, and Bies 1982). In one plant, first-line supervisors participated in the mastery modelling program to improve their supervisory skills with methods similar to those used by Latham. Two other plants of the same company did not receive the modelling-based program. Supervisors who had the benefit of the modelling program improved and maintained their supervisory problem-solving skills as rated by their employees. The plant in which the modelling program was applied had a lower absentee rate, lower turnover of employees, and a higher level

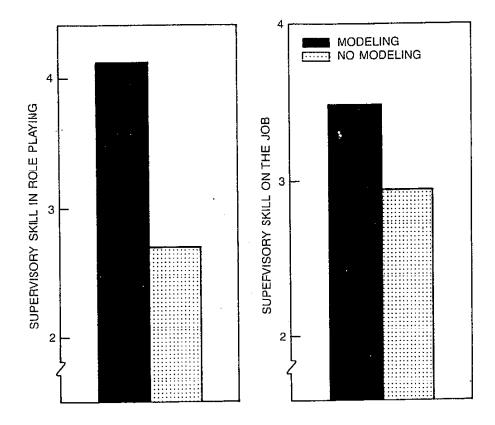


Figure 1

Degree of improvement in supervisory competencies exhibited by supervisors who had received the mastery modelling program and those who had not. (Plotted from data of Latham and Saari, 1979.)

of productivity in a six-month follow-up assessment.

2. Perceived Self-Efficacy

Modelling with guided practice is a highly effective method for developing skills and competencies. But there is a difference between possessing skills and being able to use them well and consistently under difficult circumstances. Success requires not only skills but also strong self-belief in one's capabilities to exercise control over events to accomplish desired goals. People with the same skills may, therefore, perform poorly, adequately, or extraordinarily, depending on whether their self-beliefs of efficacy enhance or impair their motivation and problem-solving efforts.

2.1 Diverse Effects of Self-Efficacy Beliefs

People's beliefs about their capabilities can effect their lives in many ways (Bandura 1988a,b,c). Such self-beliefs influence: the kinds of choices they make; how much effort they will put forth in what they do; how long they will persevere in the face of difficulties and setbacks; their resilience and bounce-back capacity after suffering failures or setbacks; and whether their thought patterns are selfhindering or self-aiding. People with a strong sense of efficacy focus their attention on how to master tasks. Those plagued by self-doubts dwell on all the things that can go wrong. Visualising failure scenarios undermines performance. Efficacy beliefs also affect the amount of stress and depression people experience in coping with environmental demands. In stress and depression, perceived selfefficacy is concerned not only with coping capabilities but with one's ability to control distressing trains of thought. It is not the mere occurrence of apprehensive thoughts but the inability to turn them off that is anxiety provoking. The exercise of control over one's own consciousness is captured well in the Chinese proverb: "You cannot prevent the birds of worry and care from flying over your head. But you can stop them from building a nest in your head." Let us now examine these diverse effects of beliefs of personal efficacy.

2.2 Choice Behaviour

In executing their rôles, people have to make decisions about what courses of action to pursue and how long to continue what they have undertaken. Such decisions are partly determined by judgements of personal efficacy. People avoid tasks and challenges they believe exceed their capabilities. But they undertake and perform confidently tasks they judge themselves capable of managing.

That belief in one's capabilities is a key to optimal use of one's skills is shown in a study by Collins (1982). She selected students at three levels of mathematical ability. At each level of ability she found students who were highly self-assured or those who distrusted their ability. All the students were then given difficult problems to solve. Within each level of ability, students who believed in their capabilities were quicker to discard faulty strategies. They solved more problems, as shown in Figure 2. They also chose to rework more of those they failed, and did so more accurately. Self-efficacy belief also influenced causal ascriptions of failure. Students who regarded themselves as highly efficacious attributed their failures to lack of effort, whereas those who were plagued by selfdoubts ascribed their failures to deficient ability. As this study shows, people who perform poorly may do so because they lack the skills or because they have the skills but they lack self-belief to use them effectively.

Research by Locke and his colleagues demonstrates how people's beliefs in their capability affect their productive creativity (Locke, Frederick, Lee, and Bobko 1984). After people's ability to think creatively was measured, they were taught strategies on how to improve creative thinking. The more the training increased people's beliefs in their capabilities, the higher the goals they set for themselves, the more strongly they remained committed to achieving their goals, and the more

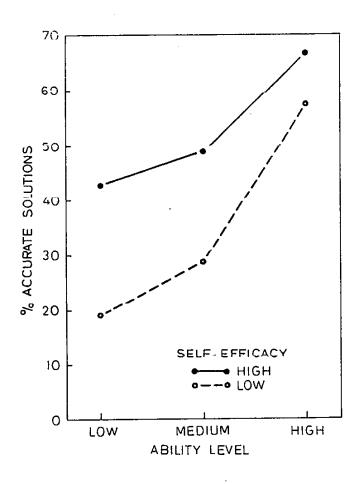


Figure 2

Mean levels of mathematical solutions achieved by students as a function of mathematical ability and perceived mathematical self-efficacy. (Plotted from data of Collins, 1982.)

productive they were in coming up with creative ideas.

People's beliefs about their capabilities can have a profound effect on the direction their development takes, by influencing the career paths they follow. The choices made in earlier years create different competencies and interests which determine the occupational options that can be realistically considered. The stronger people's self-belief of efficacy, the more career options they consider to be possible for themselves and the better they prepare themselves educationally for different occupational pursuits (Betz and Hackett 1986; Lent and Hackett 1987) People often restrict their career options because they believe they lack the necessary capabilities, although they have the actual ability. The self-limitation

arises from self-doubts rather than from inability. Women are especially prone to limit their interests and range of career options by self-beliefs that they lack the necessary capabilities for occupations traditionally dominated by men, even when they do not differ from men in actual ability.

Technological changes often reinstate old self-belief barriers requiring new remediation. For example, computer literacy is becoming increasingly important in career development and advancement. Boys are more likely than girls to master computers, which they see as necessary for their future. Socialisation practices that breed a low sense of efficacy to use computer tools are creating new career barriers for women (Miura 1987a). Boys express higher efficacy to program and operate computers than do girls. College students who distrust their capabilities show less interest and inclination to acquire computer competencies, and see computer literacy as less relevant to their careers (Miura 1987b).

2.3 Motivational Impact of Self-Efficacy Beliefs

People's beliefs in their capabilities affect their motivation as well as the activities they undertake. Significant human accomplishments require perseverant effort. It is renewed effort in the face of difficulties and setbacks that usually brings success. To give up prematurely limits one's accomplishments. Self-doubts can set in fast after a few tailures or reverses. The important matter is not that difficulties arouse self-doubt—which is a natural immediate reaction—but the recovery from difficulties. Some people quickly recover their self-confidence, others lose faith in their capabilities. It is resiliency of self-belief that counts.

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

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

A sense of humour also helps endurance. A resilient author was able to paper all four walls of his room with the thousands of rejection slips he had received. He preferred the 8×11 -inch rejection notices to the 3×5 ones, because they covered more space. From time to time, he threw rejection parties with invitations written on the backs of his surplus rejection slips. The negative

responses sometimes go beyond rejection slips. One writer received a little pile of ashes from the publisher to whom he submitted his prized manuscript.

Early rejection is the rule, rather than the exception, in other creative endeavours. The Impressionists had to arrange their own art exhibitions because their works were routinely rejected by the Paris Salon. A Paris art dealer refused Picasso shelter when he asked if he could bring in some of his paintings from out of the rain. Van Gogh sold only one painting during his life. Rodin was repeatedly rejected by the Beaux-Arts school in Paris. The portrait of Whistler's mother was condemned for her first nineteen years to the "cellar of the rejected," by the Royal Academy of artists. She was resurrected and sold for a few pounds to a pawn broker. Today she hangs majestically in the Louvre. The musical works of most renowned composers were initially greeted with derision. Stravinsky was run out of Paris by an enraged audience, and critics, when he first served them the *Rite* of Spring. Many other composers suffered the same fate, especially in the early phases of their career. The brilliant architect, Frank Lloyd Wright, was one of the more widely criticised and rejected architects during much of his career.

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

It is not uncommon for authors of scientific classics to report repeated initial rejection of their work, often with hostile embellishments. For example, John Garcia, who eventually won well-deserved recognition for his fundamental psychological discoveries, was once told by a reviewer of his manuscript that one is no more likely to find the phenomenon he discovered than bird droppings in a cuckoo clock. Verbal droppings of this type demand tenacious self-belief, to continue the tortuous search for new Muses.

Scientists often reject theories and technologies that are ahead of their time. Eminent scientists had this to say about airplanes: "Flight by machines heavier than air is impractical and insignificant, if not utterly impossible." They regarded the notion of rockets in 1902 as: "Interesting, but the impossibility of ever doing it is so certain that it is not practically useful." Considering the cold reception given to innovations, it is not surprising that the time between conception and technical realisation is awfully long: radio -24 years; radar -35 years; television -53years; antibiotics -30 years; silicone -38 years. The moral of the *Book of Rejections* is that rejections should not be accepted too readily as indicants of personal failings. To do so can be self-limiting.

People's self-beliefs of efficacy determine how much effort they will exert in an endeavour and how long they will persevere in the face of obstacles (Bandura 1988a). The stronger the belief in their capabilities, the greater and more persistent are their efforts. When faced with difficulties, people who have self-doubts about their capabilities reduce their efforts and settle for mediocre solutions or give up altogether, whereas those who have a strong belief in their capabilities exert greater effort to master the challenge. Strong perseverance usually pays off in performance attainments. Because knowledge and competencies are achieved by sustained effort, people who give up easily because they disbelieve their capabilities make poor use of their talents and give up a good deal of control over their lives. The goals people set for themselves operate as powerful selfmotivators. We shall see later that how people judge their capabilities affects the goals they adopt, and whether they become discouraged or motivated by disappointing performances.

2.4 Perceived Self-Efficacy and Stress and Depression

Pcople's beliefs in their capabilities affect how much stress and depression they experience, as well as the activities they choose to pursue, and the level of their motivation. People who believe they can cope with difficult tasks and situations are not upset by them. Those who believe they cannot manage difficult situations experience much stress. They think about their deficiencies. They see situations as full of obstacles. They worry about potential troubles that rarely, if ever, happen. In so doing, they distress themselves and impair their performances. Belief in one's capability is thus a key factor in determining how disturbing life stressors are to people.

Inability to cope with events that affect one's life can give rise to depression. People are vulnerable to depression and performance impairment when they judge themselves as deficient in capabilities, but see similar others succeed. The satisfactions people derive from what they do are determined by the standards against which they measure their accomplishments. People who become easily depressed set high standards for themselves, well above their perceived capabilities, and they tend to belittle their accomplishments. High aspirations are self-motivating, rather than self-discouraging, if one's accomplishments are measured against attainable subgoals rather than distant aspirations.

2.5 Sources of Perceived Self-Efficury

Mastery Experiences. People's beliefs about their capabilities can be instilled and strengthened in four principal ways. Information that is relevant for judging personal efficacy is not inherently instructive. A distinction must be drawn between information conveyed by experiences and the information as selected, weighted, and integrated into self-efficacy judgements. The most effective way of developing a strong sense of efficacy is through *success experiences*. Performance successes build a strong sense of capability. Failures create self-doubts. But if people experience only easy successes they come to expect quick results and are easily discouraged by failure. A resilient sense of efficacy requires experience in overcoming obstacles through perseverant effort. Some setbacks and difficulties in human pursuits serve a useful purpose in teaching that success usually requires sustained effort. After people become assured of their capabilities through repeated successes, they can manage setbacks and failures without being adversely

effected by them.

Vicarious Experience. The second way of strengthening self-beliefs is by *modelling*. Ready access to proficient models builds competencies for dealing with interpersonal and work situations. Acquiring new skills strengthens beliefs in one's capabilities. Modelling also affects self-efficacy beliefs through a social comparison process. People partly judge their capabilities in comparison with others. Seeing people similar to oneself succeed by sustained effort raises observers' beliefs about their own capabilities, whereas observing similar others fail despite high effort lowers observers' judgements of their own capabilities and undermines their efforts.

Social Persuasion. Social persuasion is a third way of increasing people's beliefs that they possess the capabilities to achieve what they seek. Realistic encouragements that lead people to exert greater effort are more likely to bring success than if people are troubled by self-doubts. But to raise unrealistic beliefs of personal efficacy runs the risk of inviting failures that discredit persuaders and undermine perceptions of personal efficacy.

Successful motivators and efficacy builders do more than convey positive appraisals. In addition to raising people's beliefs in their capabilities, they assign tasks to them in ways that bring success and avoid placing them prematurely in situations where they are likely to fail. To ensure progress in personal development, success is measured in terms of self-improvement rather than by triumphs over others.

Physiological State. People also rely partly on their level of bodily stress in judging their capabilities. They read their emotional arousal and tension as signs of vulnerability to poor performance. In activities involving strength and stamina, people judge their fatigue, aches, and pains as signs of physical incapability. The fourth way of modifying self-beliefs of efficacy is to reduce people's bodily stress and how they interpret their bodily states.

2.6 The Power of Self-Efficacy Belief

The findings of different lines of research show that people who have a strong belief in their capabilities think, feel, and behave differently from those who have doubts about their capabilities. People who doubt their capabilities shy away from difficult tasks. They have low aspirations and weak commitment to the goals they choose to pursue. Failure wrecks their motivation. They dwell on their personal deficiencies, the difficulties of the task, and adverse consequences of failure. Such negative thinking disrupts their efforts by diverting attention from how best to perform tasks to preoccupation with personal deficiencies and possible calamities. They give up quickly in the face of difficulties and are slow to recover their confidence following failure or setbacks. Because they judge insufficient performance as deficient aptitude, it does not require much failure for them to lose faith in their capabilities. They fall easy victim to stress and depression. In contrast, a strong belief in one's capabilities increases personal functioning in many ways. People who have high assurance in their capabilities approach difficult tasks as challenges to be mastered, rather than as threats to be avoided. Such an efficacious outlook fosters interest and strong involvement in activities. They set themselves challenging goals, and maintain strong commitment to them. They increase their effort in the face of failures or setbacks. They quickly recover their self-confidence after setbacks. People who believe strongly in their capabilities attribute failure to insufficient effort, which supports a success outlook. They approach threatening situations with assurance that they can exercise some control over them. As a result, they experience low stress. Such a self-confident outlook produces performance accomplishments, reduces stress, and lowers vulnerability to depression.

2.7 Benefits of Optimistic Self-Appraisal of Efficacy

Human attainments and positive well-being require an optimistic belief in one's capabilities. This is because social realities are fraught with difficulties. They are full of obstacles, adversities, frustrations, failures, and inequities. People must have a strong belief in their capabilities to sustain the effort needed to succeed.

People who experience much distress have been compared in their skills and beliefs in their capabilities with those who do not suffer from such problems. The findings show that it is often the normal people who are distorters of reality. But they display self-enhancing biases and distort in the positive direction. People who are socially anxious or prone to depression are often just as socially skilled as those who do not suffer from such problems. But the normal ones believe they are much more adept than they really are. The nondepressed people also have a stronger belief that they exercise some control over situations.

The successful, the venturesome, the sociable, the nonanxious, the nondepressed, the social reformers, and the innovators take an optimistic view of their personal capabilities to exercise influence over events that affect their lives. If not unrealistically exaggerated, such self-beliefs foster positive well-being and performance accomplishments. The strength of groups and organisations also lies partly in people's sense of collective efficacy that they can master problems and achieve desired results by concerted group effort.

2.8 Managerial Self-Efficacy

Robert Wood and I have conducted a series of studies on how managerial perceived efficacy affects organisational productivity, using a computer simulation of an organisation (Wood and Bandura 1988b). MBA students serve as managerial decision-makers. They know the organisational subfunctions that have to be performed, and they have a list of employees with a description of each one of them—their skills, experience, motivational level, and the quality of their work. Their task is to match employees to jobs. They also have to make decisions about three motivational systems to optimise the group's performance. For each employee, they have to decide what goals to set for them, what type, and amount

of instructive feedback to give them, and how to use social incentives to enhance job accomplishments.

They make their decisions from a set of options and record them in the computer. For example, in goal setting they can set no goals, encourage the employees to do their best, try to match a standard production time, better it, or approach it by a set of easier subgoals. A mathematical model computes the hours the group took to complete a work order, based on how employees were allocated to jobs and how well the mangers used the three motivational systems. They manage a series of job orders and receive feedback after each job on how long it took the group to complete it.

2.9 Conceptions of Ability

Belief systems influence whether people interpret their experiences in ways that strengthen or undermine their sense of personal efficacy. One important belief system is concerned with how people view ability. People's conceptions of intellectual ability can have powerful impact on how well they function (M. Bandura and Dweck 1988; Dweck and Elliott 1983). Two major conceptions have been identified. In one perspective, ability is viewed as an acquirable skill that can be continually enhanced by gaining knowledge and perfecting one's competencies. People with this conception adopt an inquisitive, learning goal. They seek challenging tasks that provide opportunities to expand their knowledge and competencies. They regard errors as a natural, instructive part of mastering new activities. One learns from mistakes. They view high effort as the way to gain competencies. They judge their capabilities more in terms of personal progress than by comparing themselves against others.

In the contrasting perspective, people view ability as a more or less fixed capacity with which they come equipped. For them, situations in which they might do poorly carry high threat. They regard errors and mistakes as indications they are not smart. They often compare themselves against others and become easily threatened and discouraged when others surpass them. They prefer tasks that minimise errors and permit them to demonstrate proficiency at the expense of learning new skills. They regard high effort as indicative of low ability.

When faced with difficult tasks, people who view ability as an acquirable skill take a *task-diagnostic* focus on what is causing problems and how best to master the challenges. Those who regard ability as a fixed capacity take a *selfdiagnostic* focus on personal deficiencies and possible adverse outcomes. Such intrusive thinking undermines effective use of capabilities by diverting attention from how best to master challenges to self-evaluative preoccupations.

In an organisational management study we instilled these different conceptions before the managers began the task (Wood and Bandura 1988*a*). In the acquirable skill condition, the managers were told that, like any other activity, decision making is a skill that is developed through practice. The more one works at it, the more capable one becomes. In the fixed capacity condition, the managers were told that decision making reflects their basic intellectual aptitude. The higher their underlying cognitive capacities, the better their decision making.

In managing the simulated organisation, the MBAs received a series of job orders. After each set of six production orders, they rated their perceived managerial efficacy and the production goals they were aiming to achieve. We also measured how efficiently they used strategies to discover how best to motivate their employees.

As shown in Figure 3, managers who regarded decision-making ability as an acquirable skill maintained a strong sense of efficacy in the face of performance standards that are difficult to fulfill. They set challenging goals for themselves. They used good problem-solving strategies. They did well in fostering organisational productivity.

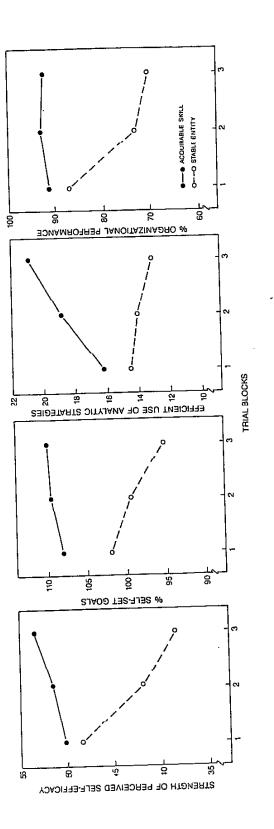
Managers who viewed decision-making ability as reflecting their basic intellectual capacities began to lose confidence in themselves as they encountered problems. They lowered their aspirations for the organisation. Their problemsolving deteriorated. Organisational productivity declined.

People who are inefficacious in running organisations tend to find fault with others. The MBAs who suffered a loss in perceived efficacy were quite uncharitable in their views of their employees. They regarded them as unmotivatable, unworthy of supervisory effort, and, given the option, they would have fired some of the employees. These findings illustrate the vulnerability of talent to the undermining effects of self-disbelief.

2.10 Perceived Controllability and Performance Stundards

Another important belief system is concerned with people's beliefs about how much personal control they can exercise over things in their everyday life. There are two aspects to the exercise of control (Bandura 1986; Gurin and Brim 1984). The first concerns the level of self-efficacy to effect changes by productive use of capabilities and enlistment of effort. This constitutes the personal side of the transactional control process. The second aspect concerns the changeableness or controllability of the environment. Social environments differ in their opportunity structures, the constraints they place on personal efficacy and in their modifiability. Belief systems about the modifiability of the environment can affect the extent to which people take advantage of potential opportunities in the situations in which they find themselves.

We examined the impact of beliefs about organisational controllability on the self-regulatory factors governing decision-making that can enhance or impede group attainments (Bandura and Wood 1988). Prior to managing the simulated organisation, one group of MBAs was told that organisations are not that easily predictable or controllable. Work habits of employees are not easily changeable, even by good guidance. Small changes do not necessarily improve overall outcomes. A second group was told that organisations are predictable and controllable. Work habits of employees are changeable through good guidance. Small changes can set in motion processes that can improve overall outcomes. Some of the MBAs were assigned easily reachable standards of organisational





Changes in perceived managerial self-efficacy, the performance goals set for the organisation relative to the preset standard, effective use of analytic strategies, and achieved level of organisational performance across blocks of production trials under acquirable skill and entity conceptions of capability. Each trial block comprises six different production orders (Wood and Bandura 1988a).

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productivity, others were given tough productivity standards.

The contrasting effects of beliefs about controllability may be seen in Figure 4. Managers who were led to believe they can influence organisational attainments by their actions maintained a robust sense of managerial efficacy, even when changes did not come easily. They adopted high organisational goals. They figured out ways of producing significant organisational attainments. Managers who believed that there was little they could do to change things lost faith in their capabilities when their efforts failed to produce quick results. Their aspirations declined and the organisational accomplishments decreased.

These findings underscore the considerable contribution of self-belief systems and nonability factors to performance attainments. Figure 5 portrays the paths of influence through which the different self-regulatory factors affect organisational attainments. The arrows in the path diagram represent the causal links and the numbers on the arrows indicate the strength of the influence. At the outset, the managers relied heavily on their past accomplishments in judging their managerial efficacy and setting their goals. But with further experience, the belief they formed about their capabilities became a more powerful determinant of their aspirations, strategic thinking, and organisational attainments.

3. Self-Regulation and Motivation Through Goal Systems

S ocial cognitive theory also emphasises human capacities for self-direction and self-motivation (Bandura 1988a). In exercising self-directedness, people adopt internal standards, they keep track of their behaviour and they arrange incentives for themselves to sustain their efforts until they accomplish what they set out to do. Through self-evaluative reactions, they keep their conduct in line with their standards.

Many of the activities that people perform are aimed at obtaining outcomes that are far in the future. Therefore, they have to create for themselves guides and motivators in the present for activities that lead to those desired futures. This is achieved by adopting goals and by evaluating one's progress in relation to those goals.

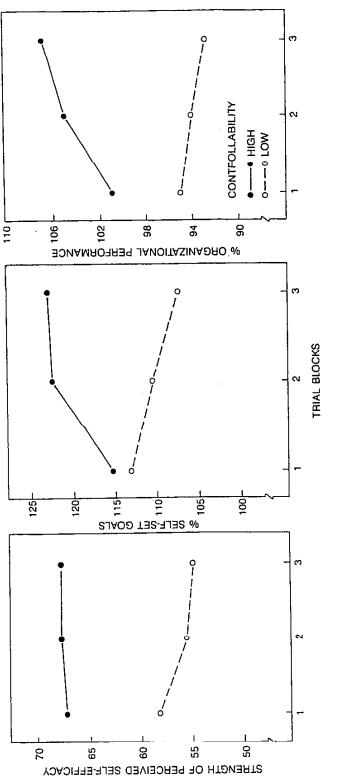
3.1 Different Effects of Goals

Goals can improve psychological well-being and accomplishments in several ways.

Motivational Effects. First, goals have strong motivational effects. They provide a sense of purpose and direction. Goals raise and sustain the level of effort needed to reach them. When people are unclear about what they are trying to accomplish, their motivation is low and their efforts are poorly directed. Specific, challenging goals lead to better performance than do general goals to do well or no goals at all (Latham and Lee 1986; Locke, Shaw, Saari, and Latham 1981: Mento, Steel and Karren 1987). Clear production goals increase productivity.

Self-Efficacy Effects. Goals not only guide and motivate performance. They also

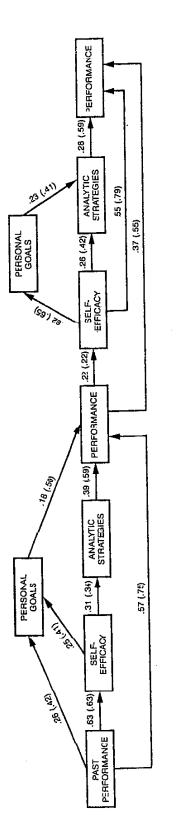
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Changes in strength of perceived managerial self-efficacy, the performance goals set for the organisation, and level of organisational performance for managers who operated under a cognitive set that organisations are controllable or difficult to control. Each trial block comprises six different production orders (Bandura and Wood 1988).







Path analysis of causal structures. The initial numbers on the paths of influence are the significant standardised path coefficients ($p_S < 0.05$); the numbers in parentheses are the first-order correlations. The network of relations on the left half of the figure are for the initial managerial efforts, and those on the right half are for later managerial efforts (Wood and Bandura 1988b).

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help to build people's beliefs in their capabilities. Without standards against which to measure their performances, people have little basis for judging how they are doing or for evaluating their capabilities. Subgoals serve this purpose well (Bandura and Schunk 1981). Success in attaining challenging subgoals increases people's self-beliefs in their capabilities.

Interest Effects. Accomplishing desired goals also creates self-satisfaction and increases interest in what one is doing. For example, to mountain climbers, it is not crawling on slippery rocks in foul weather that is intrinsically satisfying. It is the satisfactions derived from personal triumphs over lofty peaks that sustains deep engrossment in the activity. Malone (1981) analysed what it is about computer games that captures the interest of players for hours on end. He found that interesting computer games had challenging goals. Uninteresting ones did not.

Goals have these beneficial effects when they serve as challenges, rather than as onerous dictates. Motivation through aspiration provides a continuing source of personal efficacy, interest, and satisfaction. Without aspiration and active involvement in what they are doing, people are unmotivated, bored, and uncertain about their capabilities.

3.2 Psychological Mechanisms in Self-Motivation by Goals

The mechanisms through which goals motivate have been the subject of study. Goals link people's self-evaluation to what they are doing. People experience satisfaction when they reach or surpass their goals. When their performances fall short of the goal they seek to achieve, this creates self-dissatisfaction that motivates increased effort. Once they commit themselves to explicit standards or goals, they exert the effort needed to accomplish their goals.

Motivation through goals requires commitment to a clear goal and feedback of how one is doing. Having goals without knowing how one is doing, or knowing how one is doing without having any goals, does not increase motivation. When one of the comparative factors is missing, people cannot evaluate their performances. This is shown in a study we conducted in which people tried to increase their level of productivity on a task (Bandura and Cervone 1983). They increased their motivation only when they had a challenging goal and received feedback of progress (Figure 6). Goals without feedback, and feedback without goals, had no effect on their motivation.

Performances that fall short of goals can be motivating or discouraging. How people react to substandard performance will depend on their beliefs about their capability to attain their goals. Those who doubt their capabilities are easily discouraged by failure. Those who are confident in their capabilities to achieve their goal increase their efforts when their performances fall short. They persevere until they succeed.

The way in which motivation is influenced by people's self-evaluation and beliefs about their capabilities is shown in Figure 7. They rated how satisfied or disappointed they were when their performance fell short of their goal and their

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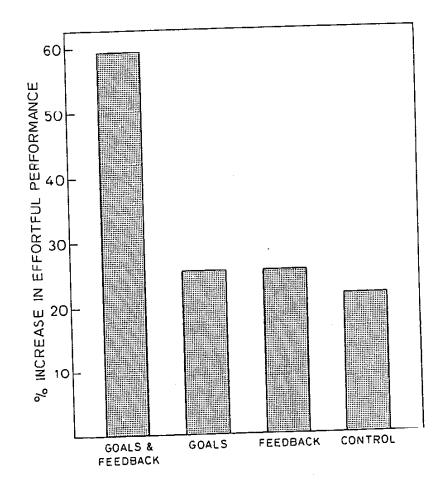


Figure 6

Percent change in level of motivation under conditions combining goals with performance feedback, goals alone, feedback alone, or with none of these factors (Bandura and Cervone 1983).

level of confidence that they could attain their goal. They then performed the task again. People who felt disappointed with a deficient performance but were highly confident that they could attain the goal increased their effort to succeed (Figure 7). Those who doubted their capabilities to attain the goal and were not too disappointed by their deficient performance abandoned the goal and lost their motivation. Either discontent with a deficient performance or strong belief in one's capabilities alone produces a moderate increase in motivation.

People's beliefs in their capability likewise predict how success affects their motivation. When accomplishments require strong effort, people do not necessarily expect to surpass each attainment with an even greater one. Figure 8

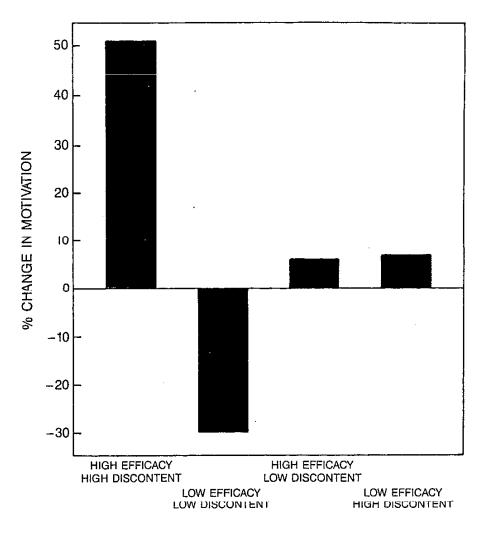


Figure 7

Percent changes over time in motivational level under conditions combining goals and performance feedback as a function of different combinations of levels of self-dissatisfaction and perceived self-efficacy for goal attainment (Bandura and Cervone 1983).

shows how people's beliefs in their capabilities affect their motivation when they surpass their goal through hard work. Those who strongly believe in their capabilities create new motivators for themselves by setting higher goal challenges for themselves. Those who doubt they could do as well again lower their goals. Their motivation declines.

These same self-influences have been shown to operate in work situations. Earley (1986) studied how employees' beliefs in their capabilities affect their productivity in manufacturing industries in England and in the United States.

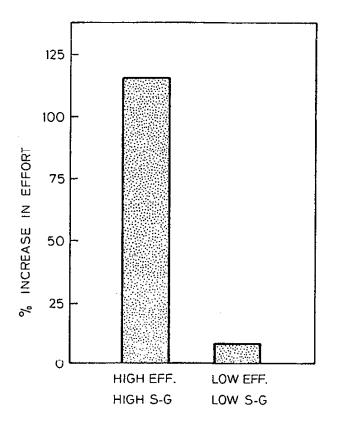


Figure 8

Percent change in motivational level after mastering a difficult goal depending on people's self-efficacy beliefs (EEF) and the new goal challenges (S-G) they set for themselves (Bandura and Cervone 1986).

Employees were taught better ways of producing tyres. They were then given production goals. Showing employees better production techniques increased their belief in their capabilities. The more they increased their self-belief of efficacy, the more strongly they accepted the production goals, and the higher was their productivity.

To summarise, goals are highly effective motivators. To increase the motivational effects of goals: people must commit themselves to definite goals, their belief in their capability to attain adopted goals should be strengthened, and they need informative feedback as to how they are doing so they can compare their performance with what they desire to achieve. Goals affect motivation through self-evaluative reactions to one's performances and beliefs in one's capabilities for goal attainment.

3.3 Motivating Goal Characteristics

Goals do not automatically operate as motivators. Certain characteristics of goals determine whether or not they will be motivating.

Definiteness. Whether goals create incentives and guides is partly determined by their explicitness (Locke et al. 1981). Definite goals give clear guides for performance and for evaluating how one is doing. General goals are too vague to regulate motivation or behaviour.

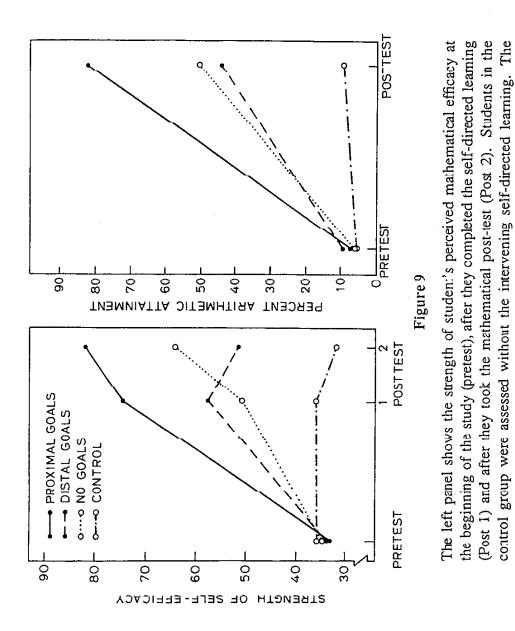
Goal Challenge. The level at which goals are set also affects motivation. Challenging goals create strong interest and involvement in activities and motivate higher performance than do easy goals. Csikszentmihalyi (1975) has studied people in different pursuits who become deeply engrossed in their work. He found that such highly motivated people set for themselves challenges that match their perceived capabilities and they can see themselves making progress toward their goal.

If goals are set too high, most performances prove disappointing and reduce motivation to continue. Because people often set overly ambitious goals for themselves, they experience much failure that reduces, rather than sustains, their efforts.

Goal Proximity. The timing or proximity of goals is another important factor. The motivating power of goals is partly determined by how far into the future they are set. Short-term, or proximal, goals raise effort and direct what one does in the short-run. Distant goals are too far removed in time to be effective self-motivators. Usually, there are too many competing influences in everyday life for distant aims to exert much control over current behaviour. By focusing on the distant future, it is all too casy to put off work in the present. This is captured well in the adage: "The more procrastinating the persons, the more they expect to do tomorrow." Motivation is best maintained by setting a long-range goal that sets the course for one's endeavours. A series of attainable subgoals guides and sustains the efforts along the way.

We tested the benefits of subgoal challenges with students who were seriously deficient in mathematics. They studied a programmed course that explained the necessary mathematical operations. One group set daily subgoals of learning a different mathematical skill each day. A second group set a long-term goal of learning all the mathematical skills by a future time. A third group of students studied the course without any goals. A fourth group did not receive the course. The effects of goal proximity are summarised in Figure 9.

Students who motivated themselves with proximal subgoals earned the mathematical skills better, became more confident in their mathematical capabilities, and developed greater interest in mathematics than did students who had only the long-term goal in mind. Students with only long-range goals did not do any better than students who studied the same course without any goals.



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right panel displays the student's level of mathematical achievement before and

after the self-directed learning (Bancura and Schunk 1981).

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Making difficult tasks easier by breaking them down into a series of subgoals also helps to reduce self-demoralisation through high aspiration. The same accomplishment indicates significant progress when evaluated against a short-term subgoal, but it may appear disappointing if compared against long-range lofty aspirations. People can be making good progress but deriving little sense of accomplishment because of the wide disparity between current standing and distal aspiration.

Research by Frayne and Latham (1987) illustrates a further application of self-regulation to work situations. They designed a program to reduce employee absenteeism, which disrupts work schedules, increases costs, and decreases productivity. Employee absenteeism costs the United States industries about thirty billion dollars (U.S.) each year. It is a serious, costly problem.

Employees who often missed work were taught in groups how to manage their motivation and behaviour more effectively. They kept a record of their work attendance. They analysed the personal and social problems that prevented them from getting to work. They were taught strategies for overcoming these obstacles. They set themselves short-term goals for work attendance, and rewarded themselves for meeting their goals. A control group of employees did not receive the program in self-regulation.

Training in self-regulation increased employees' beliefs in their capabilities to overcome the obstacles that led them to miss work. They improved their work attendance and maintained these changes over time (Figure 10). The higher their self-belief in their capabilities, the better was their work attendance. The employees expressed a strong positive attitude toward the training program. By increasing their work attendance they were able to gain benefits for themselves.

3.4 Participation in Goal Setting

Goals will not have much motivational effect if there is little personal commitment to them. When people play an active rôle in setting goals, they are likely to be strongly invested in them. They implement the goals more effectively and experience greater satisfaction with their work. The benefits of goal setting are, therefore, most likely to be realised if people are active participants in setting the goals they pursue.

4. Concluding Remarks

The value of a psychological theory is judged not only by its explanatory and predictive power, but also by its operational power to improve human functioning. Many conceptual systems are dressed up in appealing terminology but remain prescriptively ambiguous on how to effect psychological changes. Social cognitive theory provides explicit guidelines on how to equip people with the competencies, self-regulatory capabilities, and a resilient sense of efficacy that enables them to enhance their psychological well-being and personal accomplishments.

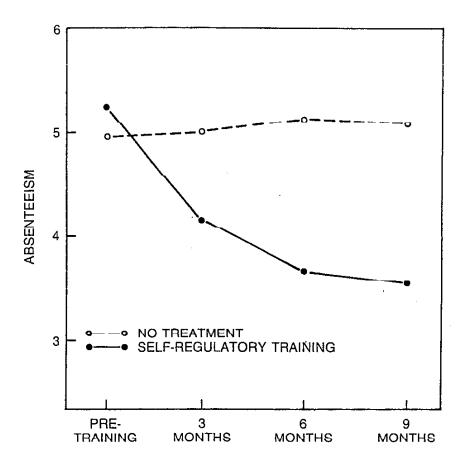


Figure 10

Reduction in absenteeism by employees who had the benefit of the self-regulatory program and those who did not. (Plotted from data of Frayne and Latham 1986.)

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