

## PERCEIVED SELF-EFFICACY IN THE EXERCISE OF PERSONAL AGENCY (\*)

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The recent years have witnesser a resurgence of interest in self-referent phenomena. One can point to several reasons why self processes have come to pervade the research in many areas of psychology. Self-generated activities lie at the very heart of causal processes. They not only give meaning and valence to most external influences, but they function as important proximal determinants of motivation and action. People make causal contributions to their own psychosocial functioning through mechanisms of personal agency. Among the mechanisms of agency, none is more central or pervasive than people's beliefs about their capabilities to exercise control over events that affect their lives. Self-beliefs of efficacy influence how people feel, think, and act. The present article analyses the causal function of self-percept of efficacy and the diverse processes through which they exent their effects.

### *Self-Efficacy causality*

A central question in any theory of cognitive regulation of motivation and action concerns the issue of causality. Do self-efficacy beliefs operate as causal factors in human functioning? This issue has been investigated by a variety of experimental strategies. Each approach tests the dual-causal link in which instating conditions affect efficacy beliefs, and

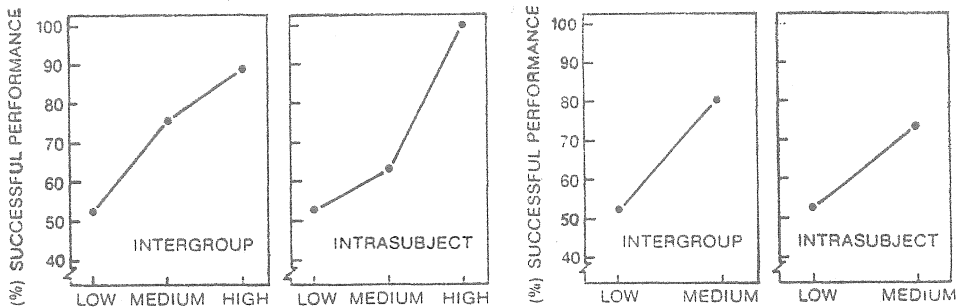
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efficacy beliefs, in turn, affect action. In one approach, perceived self-efficacy is raised in probics from virtually non-existent levels to preselected low, moderate, or high levels by providing them with mastery experiences or simply by modeling coping strategies for them until the desired level of efficacy was attained (Bandura, Reese & Adams, 1982).

As shown in Figure 1, higher levels of perceived self-efficacy are accompanied by higher performance attainments. The efficacy-action relationship is replicated across different dysfunctions and in both intergroup and intrasubject comparisons, regardless of whether perceived self-efficacy was raised by mastery experiences or solely by vicarious influence. Microanalysis of efficacy-action congruences reveals a close fit between perceived self-efficacy and performance on individual tasks.

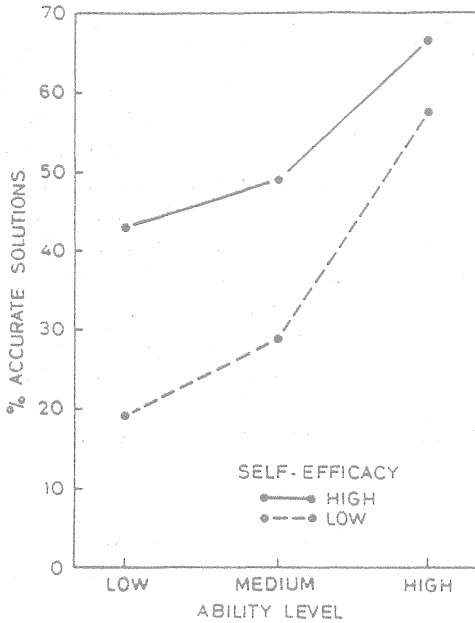
Another approach to the test of causality is to control, by selection, level of ability but to vary perceived self-efficacy within each ability level. Collins (1982) selected children who judged themselves to be of high or low mathematical efficacy at each of three levels of mathematical ability. They were then given difficult problems to solve. Within each level of mathematical ability, children who regarded themselves as efficacious were quicker to discard faulty strategies solved more problems (Figure 2), chose to rework more of those they failed, and did so more accurately. Perceived self-efficacy thus exerted a substantial independent effect on performance.

A third approach to causality is to introduce a trivial factor devoid of information to affect competency, but that can alter perceived self-



#### LEVEL OF PERCEIVED SELF-EFFICACY

FIGURE 1.—Mean performance attainments as a function of differential levels of perceived self-efficacy. The two left panels present the relationship for perceived self-efficacy raised by mastery experiences; the two right panels presents the relationship for perceived self-efficacy raised by vicarious experiences. The intergroup panels show the performance attainments of groups of subjects whose self-percepts of efficacy were raised to differential levels; the intrasubject panels show the performance attainments for the same subjects after their self-percepts of efficacy were successively raised to different levels (Bandura, Reese & Adams, 1982)



efficacy. The impact of the altered perceived efficacy on level of motivation is then measured. Studies of anchoring influences show that arbitrary reference points from which judgements are adjusted either upward or downward can bias the judgements because the adjustments are usually insufficient. Cervone and Peake (1966) used arbitrary anchor values to influence self-appraisals of efficacy. Self-appraisals made from an arbitrary high starting point biased students' perceived self-efficacy

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

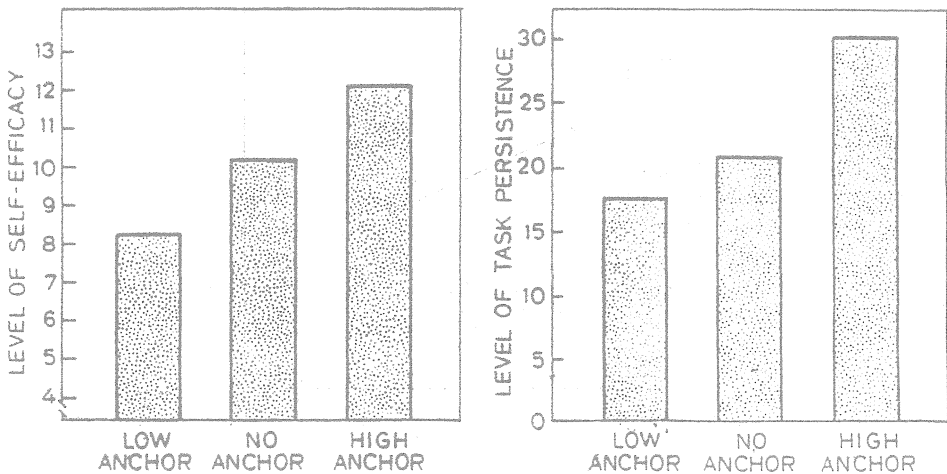


FIGURE 3.—Mean changes induced in perceived self-efficacy by anchoring influences and the corresponding effects on level of subsequent perseverant effort (Cervone & Peake, 1986)

in the positive direction, whereas an arbitrary low starting point lowered students' appraisals of their efficacy (Figure 3). The initial reference points in a sequence of performance descriptors similarly biased self-efficacy appraisal (Peake & Cervone, 1989). In a further study, Cervone (1989) biased self-efficacy appraisal by differential cognitive focus or things about the task that might make it troublesome or tractable. Dwelling on formidable aspects weakened people's belief in their efficacy, but focussing on doable aspects raised self-judgement of capabilities. In all of these experiments, the higher the instated perceived self-efficacy, the longer individuals persevere on difficult and unsolvable problems before they quit. Mediational analyses reveal that neither anchoring influences nor cognitive focus has any effect on motivation when perceived self-efficacy is partialled out. The effect of the external influences on performance motivation is thus completely mediated by perceived self-efficacy.

A number of experiments have been conducted in which self-efficacy beliefs are altered by bogus feedback unrelated to one's actual performance. People partly judge their capabilities through social comparison.

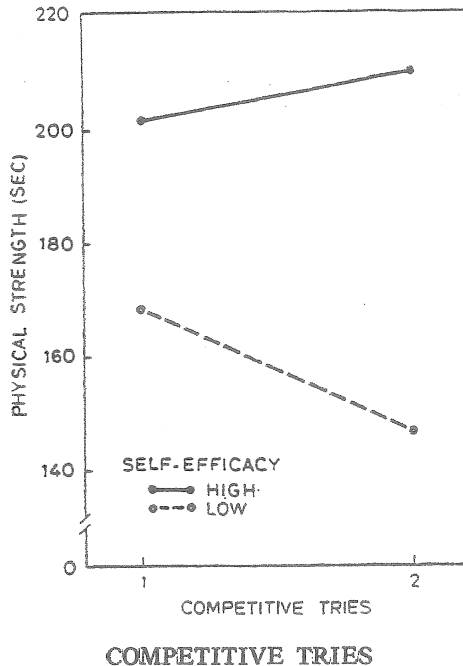


FIGURE 4.— Mean level of physical stamina mobilised in competitive situations as a function of illusorily instated high or low self-precepts of physical efficacy (Weinberg, Goud & Jackson, 1979)



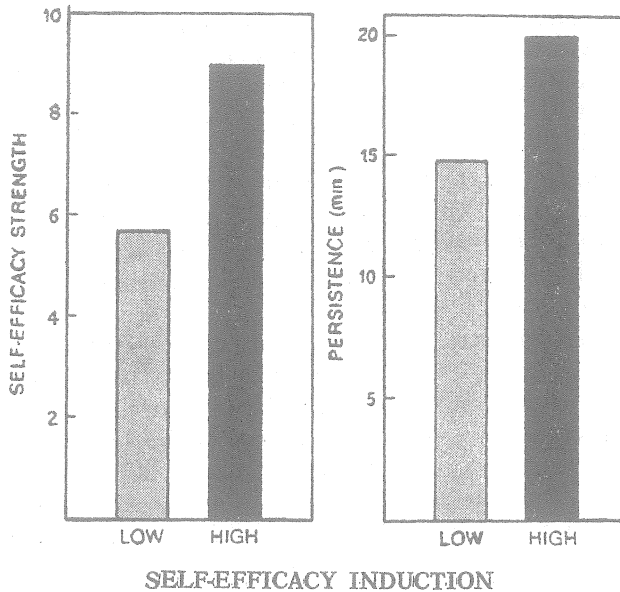


FIGURE 5.—Mean changes in perceived self-efficacy induced by arbitrary normative comparison and the corresponding effects on level of subsequent perseverant efforts (Jacobs, Prentice-Dunn & Rogers, 1984)

Using this type of induction procedure, Weinberg, Gould and Jackson (1979) showed that physical stamina in competitive situations is mediated by perceived self-efficacy. They raised the self-efficacy beliefs of one group by telling them that they lowered the self-efficacy beliefs of another group by telling them that they were outperformed by their competitor. The higher the illusory beliefs of physical strength, the more physical endurance subjects displayed during competition on a new task measuring physical stamina (Figure 4). Failure in a subsequent competition spurred those with a high sense of perceived self-efficacy to even greater physical effort, whereas failure further impaired the performance of those whose perceived self-efficacy had been undermined. Self-beliefs of physical efficacy illusorily heightened in females and illusorily weakened in males obliterated large preexisting sex differences in physical strength.

Another variant of social self-appraisal—bogus normative comparison—has also been used to raise or weaken beliefs of cognitive self-efficacy. Individuals are led to believe that they performed at the highest or lowest percentile ranks of the reference group, regardless of their actual performance (Jacobs, Prentice-Dunn & Rogers, 1984). Perceived self-efficacy heightened by this mean produces stronger perseverant effort (Figure 5). The regulatory role of self-belief of efficacy instated by unauthentic normative comparison is replicated in a markedly different

domain of functioning, namely pain tolerance (Litt, 1988). The higher the instated belief in one's capabilities, the greater the pain tolerance. Still another approach to the verification of causality employs a contravening experimental design in which a procedure that can impair functioning is applied, but in ways that raise perceived self-efficacy. The changes accompanying psychological ministrations may result as much, if not more, from instilling beliefs of personal efficacy as from the particular skills imparted. If people's beliefs in their coping efficacy are strengthened, they approach situations more assuredly and make better use of the skills they have. Holroyd and his colleagues (Holroyd, *et al.*, 1984), demonstrated with sufferers of tension headaches that the benefits of biofeedback training may stem more from enhancement of perceived coping efficacy than from the muscular exercises themselves. In biofeedback sessions, they trained one group to become good relaxers. Unbeknownst to another group, they received feedback signals that they were relaxing whenever they tensed their muscles. They became good tensers of facial muscles, which, if anything, would aggravate tension headaches. Regardless of whether people were tensing or relaxing their musculature, bogus feedback that they were exercising good control over muscular tension instilled a strong sense of efficacy that they could prevent the occurrence of headaches in different stressful situations. The higher their perceived self-efficacy, the fewer headaches they experienced. The actual amount of change in muscular activity achieved in treatment was unrelated to the incidence of subsequent headaches.

These diverse causal tests conducted with different modes of efficacy induction, varied populations, and all sorts of domains of functioning provide supporting evidence that perceived self-efficacy contributes significantly to level of motivation and performance accomplishments. Evidence that divergent procedures produce convergent results add to the explanatory and predictive generality of the efficacy mediator.

The findings of the preceding experiments should not be taken to mean that arbitrary persuasive information is a good way of enhancing self-efficacy beliefs in the pursuits of everyday life. Rather, these studies have special bearing on the issue of causality because self-efficacy beliefs are altered independently of a performance modality and, therefore, cannot be discounted as by-products of performance. They demonstrate that changes in self-beliefs of efficacy affect motivation and action. In actual social practice, personal empowerment through mastery experiences is the most powerful means of creating a strong, resilient sense of efficacy (Bandura, 1986, 1988a). This is achieved by equipping people with knowledge, subskills and the strong self-belief of efficacy needed to use one's skills effectively.

*Efficacy-Activated processes*

Self-efficacy beliefs regulate human functioning through four major processes. They include cognitive, motivational, affective and selection processes. Some of these efficacy-activated events are of interest in their own right rather than merely intervening influencers of action. These processes are analysed in some detail in the sections that follow.

*A. Cognitive processes*

Self-beliefs of efficacy affect thought patterns that can enhance or undermine performance. These cognitive effects take various forms. Much human behavior, being purposive, is regulated by forethought embodying cognised goals. Personal goal setting is influenced by self-appraisal of capabilities. The stronger the perceived self-efficacy, the higher the goals people set for themselves and the firmer their commitment to them (Bandura & Bood, 1989; Locke, Frederick, Lee & Bobko, 1984; Taylor, Locke, Lee & Gist, 1984). Challenging goals raise the level of motivation and performance attainments (Locke, Shaw, Saari & Latham, 1981; Mento, Steel & Karren, 1987).

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

A major function of thought is to enable people to predict the occurrence of events and to create the means for exercising control over those that affect their daily lives. Many activities involve inferential judgement about conditional relations between events. Discovery of such predictive rules requires effective cognitive processing of multidimensional information that contains ambiguities and uncertainties. The fact that the same predictor may contribute to different effects and the same effect may have multiple predictors creates uncertainty as to what is likely to lead to what in probabilistic environments.

In ferreting out predictive rules people must draw on their pre-existing knowledge to generate hypotheses about predictive factors, to test their judgements against the results of their action, and to remember which notions they had tested and how well they had worked. It requires a strong sense of efficacy to remain task oriented in the face of pressing situational demands and judgement failures that can have important repercussions.

The powerful influence of self-efficacy beliefs on self-regulatory cognitive processes is revealed in a programme of research on complex organisational decision-making (Wood & Bandura, 1989b). Much of the research on human decision-making involves single trial judgements in static environments (Beach, Barnes & Christensen-Szalanski, 1986; Hogarth, 1981). Judgements under such conditions may not provide a sufficient basis for developing either descriptive or normative models of decision-making in dynamic naturalistic environments which involve repeated judgements governed by learning and motivational mechanisms.

The mechanisms and outcomes of organisational decision-making do not lend themselves readily to experimental analysis in actual organisational settings. Advances in this complex field can be achieved by experimental analyses of decision making in simulated organisational environments. A simulated environment permits systematic variation of theoretically relevant factors and precise assessment of their impact on organisational performance and the psychological mechanisms through which they achieved their effects.

In this research, executives managed a computer-simulated organisation in which they had to allocate resources and to learn and implement managerial rules to achieve organisational levels of performance that were difficult to fulfil. At periodic intervals we measured their perceived self-efficacy, the goals they sought to achieve, the adequacy of their analytic thinking for discovering managerial rules, and the level of organisational performance they realised.

Social cognitive theory explains psychosocial functioning in terms of triadic reciprocal causation (Bandura, 1986). In this model of reciprocal determinism, cognitive and other personal factors, behaviour, and environmental events all operate as interacting determinants that influence each other bidirectionally. Each of the major interactants in the triadic causal structure - cognitive, behavioural, and environmental - functions as an important constituent in the dynamic simulated environment. The cognitive determinant is indexed by self-beliefs of efficacy, personal goal-setting, and quality of analytic thinking. The managerial choices that are actually executed constitute the behavioural determi-

nant. The properties of the organisational environment, the level of challenge it prescribes, and its responsiveness to managerial interventions represent the environmental determinant. Analyses of ongoing processes clarify how the interactional causal structure operates and changes over time.

The interactional causal structure was tested in conjunction with experimentally varied organisational properties and belief systems that can enhance or undermine the operation of self-regulatory determinants. One important beliefs system is concerned with the conception of ability (M. Bandura & Dweck, 1988; Dweck & Elliott, 1983; Nicholls, 1984). Some people regard ability as an *acquirable skill* that can be increased by gaining knowledge and perfecting competences. They adopt a learning goal. They seek challenges that provide opportunities to expand their knowledge and competences. They regard errors as a natural part of an acquisition process. One learns from mistakes. They judge their capabilities more in terms of personal improvement than by comparison against the achievement of others. For people who view ability as a more or less *fixed capacity*, performance level is regarded as diagnostic of inherent cognitive capacities. Errors and deficient performances carry high evaluative threat. Therefore, they prefer tasks that minimise errors and permit ready display of intellectual proficiency at the expense of expanding their knowledge and competences. High efforts is also threatening because it presumably reveals low ability. The successes of others belittle their own perceived ability.

We induced these different conceptions of ability and then examined their effects on the self-regulatory mechanisms governing the utilisation of skills and performance accomplishments (Wood & Bandura, 1989a). Managers who viewed decision-making ability as reflecting basic cogni-

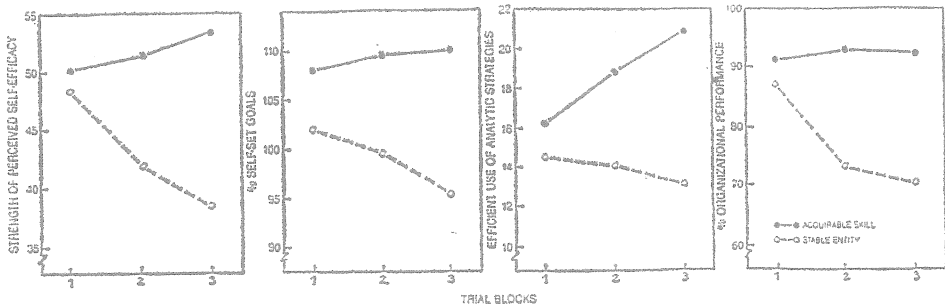


FIGURE 6.—Changes in perceived managerial self-efficacy, the performance goals set for the organisation relative to the preset standard, effective use of analytic strategies, and achieved level of organisational performance across blocks of productions orders under acquirable skill and entity conceptions of capability. Each trial block comprises six different production orders (Wood & Bandura, 1989a)

tive aptitude were beset by increasing self-doubts about their managerial efficacy as they encountered problems (Figure 6). They became more and more erratic in their analytic thinking, they lowered their organisational aspirations, and they achieved progressively less with the organisation they were managing. In contrast, construal of ability as an acquirable skill fostered a highly resilient sense of personal efficacy. Under this belief system, the managers remained steadfast in their perceived managerial self-efficacy, they continued to set themselves challenging organisational goals, and they used analytic strategies in efficient ways that aided discovery of optimal managerial decision rules. Such a self-efficacious orientation paid off in high organisational attainments.

Another important belief system that affects how efficacy-relevant information is cognitively processed is concerned with people's beliefs about the extent to which their environment is influenceable or controllable. This aspect to the exercise of control represents the level of system constraint, the opportunity structure to exercise personal efficacy, and the ease of access to those opportunity structures. Our organisational simulation research underscores the strong impact of perceived controllability on the self-regulatory factors governing decision making that can enhance or impede performance (Bandura & Wood, 1989). People who managed the simulated organisation under a cognitive set that organisations are not easily changeable quickly lost faith in their decision-making capabilities even when performance standards were within easy reach (Figure 7). They lowered their aspirations. Those who operated under a cognitive set that organisations are controllable displayed a strong sense of managerial efficacy. They set themselves increasingly challenging goals and used good analytic thinking for disco-

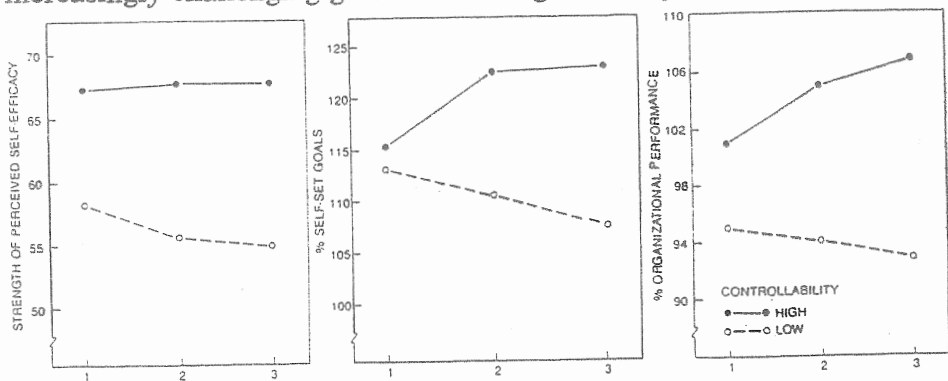


FIGURE 7.—Changes in strength of perceived managerial self-efficacy, the performance goals set for the organization, and level of organizational performance for managers who operated under a cognitive set that organisations are controllable or difficult to control. Each trial block comprises six different production orders (Bandura & Wood, 1989)

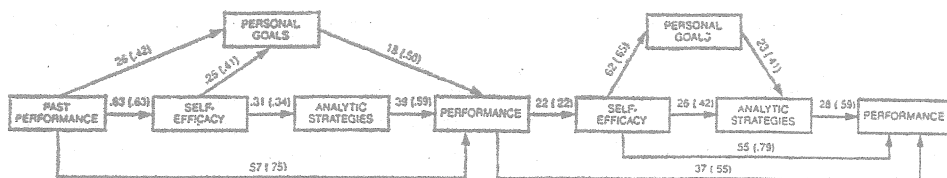


FIGURE 8.—Path analysis of causal structures. The initial numbers on the paths of influence are the significant standardised path coefficients ( $ps < .05$ ); the numbers in parentheses are the first-order correlations. The network of relation on the left half of the figure are for the initial managerial efforts, and those on the right are for later managerial efforts (Wood & Bandura, 1988b)

vering effective managerial rules. They exhibited high resiliency of self-efficacy even in the face of numerous difficulties. The divergent changes in the self-regulatory factors are accompanied by large differences in organisational attainments.

Path analyses confirm the postulated causal ordering of self-regulatory determinants. When initially faced with managing a complex unfamiliar environment, people relied heavily on their past performance in judging their efficacy and setting their personal goals. But as they began to form a self-schema concerning their efficacy through further experience, the performance system is powered more strongly and intricately by self-perceptions of efficacy (Figure 8). Perceived self-efficacy influences performance both directly and through its strong effects on personal goal setting and proficient analytic thinking. Personal goals, in turn, enhance performance attainments through the mediation of analytic strategies.

### B. Motivational processes

Self-beliefs of efficacy play a central role in the self-regulation of motivation. Most human motivation is cognitively generated. In cognitive motivation, people motivate themselves and guide their action anticipatorily through the exercise of forethoughts. They anticipate likely outcome of prospective actions, they set goals for themselves and plan courses of action designed to realise valued futures.

One can distinguish three different forms of cognitive motivators around which different theories have been built. These include *causal attributions*, *outcome expectancies*, and *cognised goals*. The corresponding theories are attribution theory, expectancy-value theory, and goal theory, respectively. Figure 9 summarises schematically these alternative conceptions of cognitive motivation. Outcome and goal motivators clearly operate through the anticipation mechanism. Causal reasons conceived retrospectively for prior attainments can also affect future actions

anticipatorily by altering self-appraisal of capability and perception of task demands.

The self-efficacy mechanism of personal agency operates in all of these variant forms of cognitive motivation. Causal attributions and self-efficacy appraisals involve bidirectional causation. Self-beliefs of efficacy bias causal attribution (Collins, 1982; Silver, Mitchell & Gist, 1989). The relative weight given to information regarding adeptness, effort, task complexity, and situational circumstances affects self-efficacy appraisal. Causal analyses indicate that the effects of causal attributions on performance attainments are mediated through self-efficacy beliefs rather than operate directly on performance (Relich, Debus & Walker, 1986; Schunk & Cox, 1986; Schunk & Gun, 1986; Schunk & Rice, 1986). The stronger the self-efficacy belief, the higher the subsequent performance attainments.

In expectancy-value theory, strength of motivation is governed jointly by the expectation that particular actions will produce specified outcomes and the value placed on those outcomes (Atkinson, 1964; Feather, 1982; Fishbein, 1967; Rotter, 1954). However, people act on their beliefs about what they can do, as well as their beliefs about the likely outcomes of various actions. The effects of outcome expectancies on performance motivation are partly governed by self-beliefs of efficacy. There are many activities which, if done well, guarantee valued outcomes, but they are not pursued by people who doubt they can do what it takes to succeed (Beck & Lund, 1981; Betz & Hackett, 1986). The predictiveness of expectancy-value theory can be enhanced by including the self-efficacy determinant (McCaul, O'Neill & Glasgow, 1988; Wheeler, 1983).

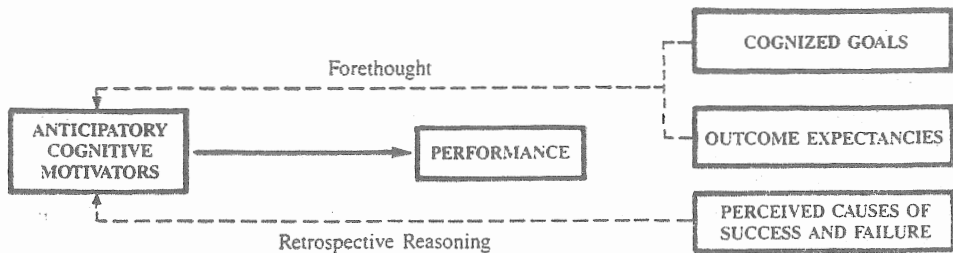


FIGURE 9.— Schematic representation of conceptions of cognitive motivation based on cognized goals, outcome expectancies and causal attributions

The degree to which outcome expectations contribute independently to performance motivation varies depending on how tightly contingencies between actions and outcomes are structured, either inherently or socially, in a given domain of functioning. For many activities, outcomes are determined by level of competence. Hence, the types of outcomes



people anticipate depend largely on how well they believe they will be able to perform in given situations. In most social, intellectual and physical pursuits, those who judge themselves highly efficacious will expect favourable outcomes, whereas those who expect poor performances of themselves will conjure up negative outcomes. Thus, in activities in which outcomes are highly contingent on quality of performance, self-judged efficacy accounts for most of the variance in expected outcomes. When variations in perceived self-efficacy are partialled out, the outcomes expected for given performances do not have much of an independent effect on behaviour (Barling & Abel, 1983; Barling & Beattie, 1983; Godding & Glasgow, 1985; Lee, 1984a,b; Williams & Watson, 1985).

Self-efficacy beliefs account for only part of the variance in expected outcomes are not completely controlled by quality of performance. This occurs when extraneous factors also affect outcomes, or outcomes are socially tied to a minimum level of performance so that some variations in quality of performance above and below the standard do not produce differential outcomes. And finally, expected outcomes are independent of perceived self-efficacy when contingencies are discriminatively structured so that on level of competence can produce desired outcomes. This occurs in pursuits that are rigidly segregated by sex, race, age or some other factor. Under such circumstances, people in the disfavoured group expect poor outcomes however efficacious they judge themselves to be.

The capacity to exercise self-influence by personal challenge and evaluative reaction to one's own attainments provides a major cognitive mechanism of motivation and self-directedness (Bandura, 1988a). A large body of evidence is consistent in showing that explicit challenging goals enhance and sustain motivation (Latham & Lee, 1986; Locke, Shaw, Saari & Latham, 1981; Mento, Steel & Karren, 1987). Goals operate largely through self-referent processes rather than regulate motivation and action directly. Motivation based on aspirational standards involves a cognitive comparison process. By making self-satisfaction conditional on matching adopted goals, people give direction to their actions and create self incentives to persist in their efforts until their performances match their goals. They seek self-satisfactions from fulfilling valued goals and are prompted to intensify their effort by discontent with sub-standard performances.

Activation of self-evaluation processes through cognitive comparison requires both comparative factors - a personal standard and knowledge of one's performance level. Simply adopting a goal, without knowing how one is doing, or knowing how one is doing in the absence of a goal, has no lasting motivational impact (Bandura & Cervone, 1983; Becker, 1978; Strang, Lawrence & Fowler, 1978). But the combined influence of

goals with performance feedback heightens motivation substantially.

Cognitive motivation based on goal intentions is mediated by three types of self influences: affective self-evaluative reactions to one's performance, perceived self-efficacy for goal attainment, and adjustment of personal standards in light of one's attainments. Perceived self-efficacy contributes to motivation in several ways. It is partly on the basis of self-beliefs of efficacy that people choose what challenges to undertake, how much effort to expend in the endeavour, and how long to persevere in the face of difficulties (Bandura, 1986; 1988b). When faced with obstacles and failures, people who have self-doubts about their capabilities slacken their efforts or abort their attempts prematurely and settle for mediocre solutions, whereas those who have a strong belief in their capabilities exert greater effort to master the challenge (Bandura & Cervone, 1983; Cervone & Peake, 1986; Jacobs, Prentice-Dunn & Rogers, 1984; Peake & Cervone, 1989; Weinberg, Gould & Jackson, 1979). Strong perseverance usually pays off in performance accomplishments.

Perceived self-efficacy contributes to motivation at different levels of discrepancy between personal standards and attainments (Bandura & Cervone, 1986). The stronger the people's self-efficacy beliefs that they can meet challenging standards, the more they intensify and sustain their efforts (Figure 10). Discontent operates as an affective motivator when attainments fall substantially or moderately short of a comparative

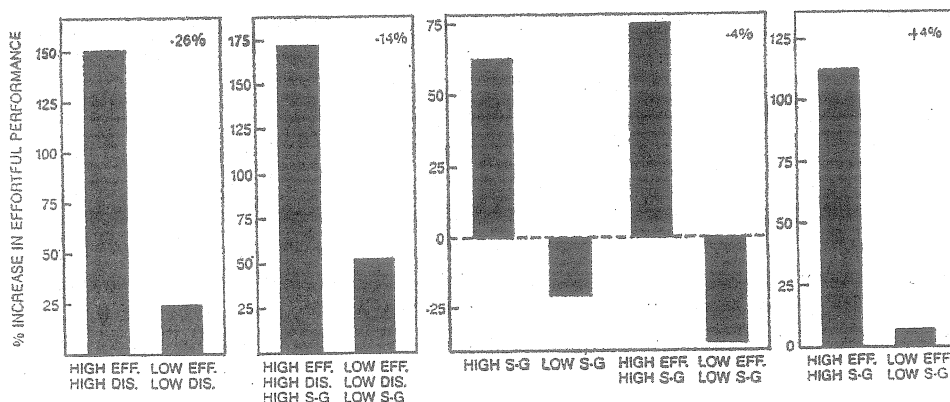


FIGURE 10. — Mean percent changes in motivational level by people who are high or low in the self-reactive influences identified by hierarchical regression analyses as the critical motivators at each of four levels of preset discrepancy between a challenging standard and level of performance attainment. EFF signifies strength of perceived self-efficacy to attain a 50% increase in effort; DIS the level of self-dissatisfaction with the same level of attainment as in the prior attempts; and S-G the goals people set for themselves for the next attempt. The second set of graphs at the -4% discrepancy level summarise the results of the regression analysis performed with perceived self-efficacy averaged over the 30-70% goal attainment range (Bandura & Cervone, 1986)

standard. The more self-dissatisfied people are with substandard attainments, the more they heighten their efforts. As people approach or surpass the adopted standard, they set new goals for themselves that serve as additional motivators. The higher the self-set goals, the more effort invested in the endeavour. Thus, notable attainments bring temporary satisfaction, but people who are assured of their capabilities enlist new challenges as personal motivators for further accomplishment. Taken together this set of self-reactive influences accounts for the major share of variation in motivation.

Many theories of motivation and self-regulation are founded on a negative feedback control model. This type of system functions as a motivator and regulator of action through a discrepancy reduction mechanism. Perceived discrepancy between performance and a reference standard motivates action to reduce the incongruity. Discrepancy reduction clearly plays a central role in any system of self-regulation. However, in the negative feedback control system, if performance matches the standard the person does nothing. Such a feedback control system would produce circular action that leads nowhere.

Human self-motivation relies on both *discrepancy production* and *discrepancy reduction* (Bandura, 1988b). It requires *proactive* control as well as *reactive* control. People initially motivate themselves through proactive control by setting themselves valued challenging standards that create a state of disequilibrium and then mobilising their effort on the basis of anticipatory estimation of what it would take to reach them. As previously shown, after people attain the standard they have been pursuing, those who have a strong sense of efficacy generally set a higher standard for themselves. The adoption of further challenges creates new motivating discrepancies to be mastered. Similarly, surpassing a standard is more likely to raise aspiration than to lower subsequent performance to conform to the surpassed standard. Self-motivation thus involves a hierarchical dual control process of disequilibrating discrepancy production followed by equilibrating discrepancy reduction.

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

faith in their capabilities. Because the acquisition of knowledge and competencies usually requires sustained effort in the face of difficulties and setbacks, it is resiliency of self-belief that counts.

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

Many of our literary classics brought their authors repeated rejections. The novelist, Saroyan, accumulated several thousand rejections before he had his first literary piece published. James Joyce's, the *Dubliners*, was rejected by 22 publishers. Gertrude Stein continued to submit poems to editors for about 20 years before one was finally accepted. Now that is invincible self-efficacy. Over a dozen publishers rejected a manuscript by E.E. Cummings. When he finally got it published by his mother the dedication, printed in upper case, read: *With no thanks to...* followed by the long list of publishers who rejected his offering.

Early rejection is the rule, rather than the exception, in other creative endeavours. The Impressionist 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 his paintings from out of the rain. Van Gogh sold only one painting during his life. Rodin was rejected three times by the Ecole des Beaux-Arts. The musical works of most renowned composers were initially greeted with derision. Stravinsky was run out of town by an enraged audience and critics when he first served them the *Rite of Spring*. Many other composers suffered the same fate, especially in the early phases of their career. The brilliant architect, Frank Lloyd Wright, was one of the more widely rejected architects during much of his career.

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

It is not uncommon for authors of scientific classics to experience repeated initial rejection of their work, often with hostile embellishments if it is too discordant with what is in vogue at the time. For example, John Garcia, who eventually won well-deserved recognition for his fundamental psychological discoveries, was once told by a reviewer

of his oft rejected manuscripts that one is no more likely to find the phenomenon he discovered than bird droppings in a cuckoo clock. Verbal droppings of this type demand tenacious self-belief to continue the tortuous search for new Muses. Scientists often reject theories and technologies that are ahead of their time. Because of the cold reception given to most innovations, the time between conception and technical realisation typically spans several decades.

The findings of laboratory investigations are in accord with these records of human triumphs regarding the centrality of the motivational effects of self-beliefs of efficacy in human attainments. It takes a resilient sense of efficacy to override the numerous dissuading impediments to significant accomplishments.

It is widely believed that misjudgement breeds dysfunction. Certainly, gross misjudgements can get one into trouble. But optimistic self-appraisals of capability that are not unduly disparate from what is possible can be advantageous, whereas veridical judgements can be self-limiting. When people err in their self-appraisal they tend to overestimate their capabilities. This is a benefit rather than a cognitive failing to be eradicated. If self-efficacy beliefs always reflected only what people can do routinely, they would rarely fail but they would not mount the extra effort needed to surpass their ordinary performances. The emerging evidence indicates that the successful, the innovative, the sociable, the nonanxious, the nondespondent, and the social reformers take an optimistic view of their personal efficacy to exercise influence over events that affect their lives (Bandura, 1986). If not unrealistically exaggerated, such self-beliefs enhance and sustain the level of motivation needed for personal and social accomplishments.

### C. *Effective processes*

People's beliefs in their capabilities affect how much stress and depressions they experience in threatening or taxing situations, as well as their level of motivation. In social cognitive theory (Bandura, 1986), perceived self-efficacy to exercise control over potentially threatening events plays a central role in anxiety arousal. Threat is not a fixed property of situational events. Nor does appraisal of the likelihood of aversive happenings rely solely on reading external signs of danger or safety. Rather, threat is a relational property concerning the match between perceived coping capabilities and potentially hurtful aspects of the environment. Therefore, to understand people's appraisals of external threats and their affective reactions to them it is necessary to analyse their judgements of their coping capabilities which, in large part, determine the subjective perilousness of environmental events.

People who believe they can exercise control over potential threats do not conjure up apprehensive cognitions and, hence, are not perturbed by them. But those who believe they cannot manage potential threats experience high levels of anxiety arousal. They tend to dwell on their coping deficiencies and view danger. Through such inefficacious thought they distress themselves and constrain and impair their level of functioning (Beck, Emery & Greenbergs, 1985; Lazarus & Folkman, 1984; Meichenbaum, 1977; Sarson, 1975).

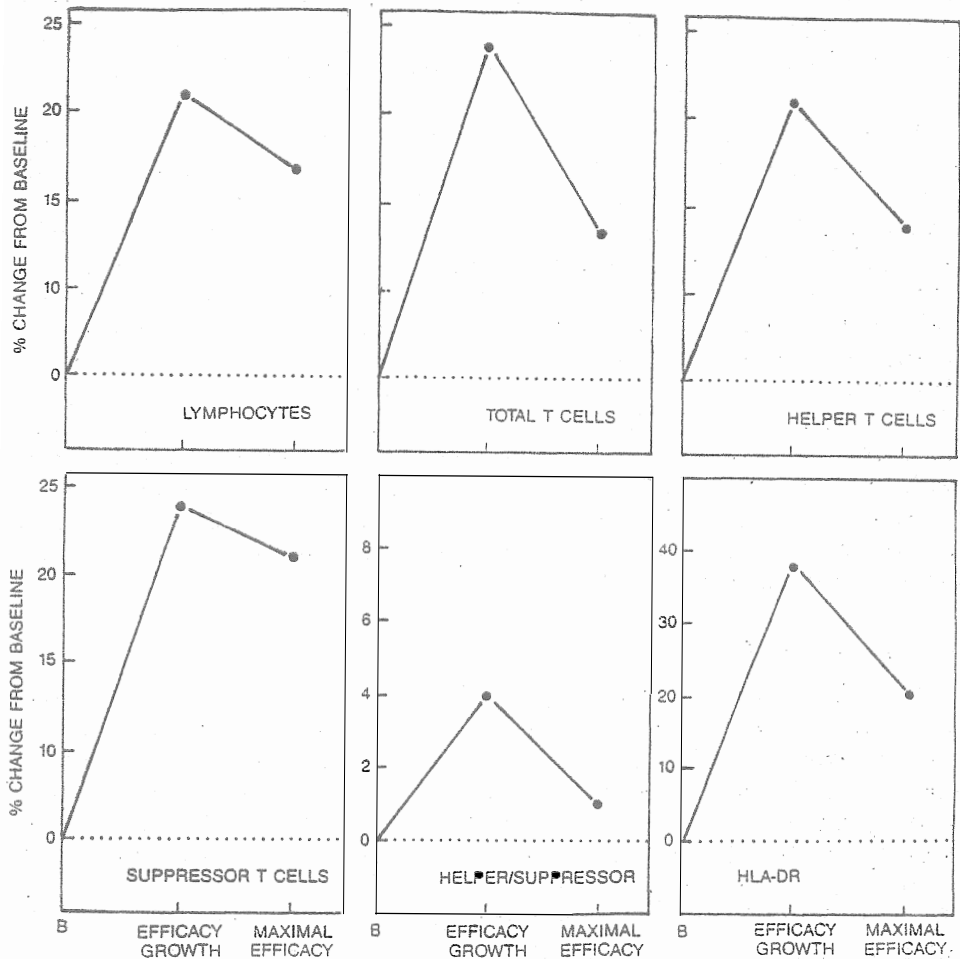


FIGURE 11.—Changes in immune function experienced as percent of baseline values during exposure to the phobic stressor while acquiring perceived coping self-efficacy (Efficacy Growth) and after perceived coping self-efficacy had been developed to the maximal level (Maximal Efficacy) (Wiedensfeld, O'Leary, Bandura, Brown, Levine & Raska, 1989)

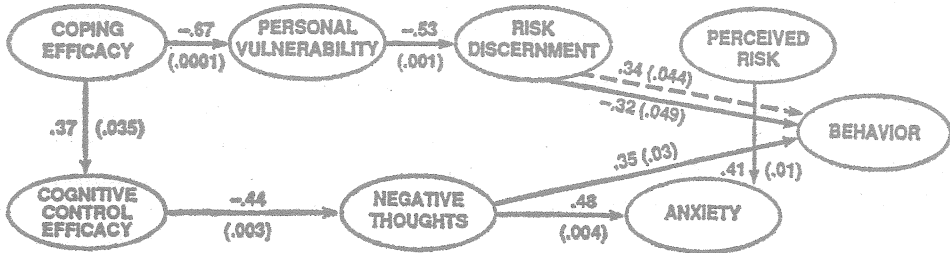


FIGURE 12.—Path analysis of the causal structure. The numbers on the paths of influence are the significant standardised path coefficients; the numbers in parentheses are the significance levels. The hatched line to behavior represents different activities pursued outside the home, the solid line represents avoided activities because of concern over personal safety (Ozer & Bandura, 1989)

That perceived coping efficacy operates as a cognitive mediator of anxiety and stress reactions has been tested by creating different levels of perceived self-efficacy and relating them at a microlevel to different manifestations of anxiety. People display little affective arousal while coping with potential threats they regard with high efficacy. But as they cope with threats for which they distrust their coping efficacy, their stress mounts, their heart rate accelerates, their blood pressure rises, and they display increased catecholamine secretion (Bandura, Reese & Adams, 1982; Bandura, Taylor, Williams, Mefford & Barchas, 1985). After perceived efficacy is strengthened to the maximal level by guide mastery, previously intimidating tasks no longer elicit differential autonomic catecholamine reactions.

Other efficacy activated processes in the affective domain concern the impact of perceived coping efficacy on biochemical mediators of health functioning. Stress has been implicated as an important contributing factor to many physical dysfunctions. Controllability appears to be a key organising principle regarding the nature of these stress effects. Exposure to stressors with controlling efficacy has no adverse physiological effects. But exposure to the same stressors without controlling efficacy impairs the immune system (Coe & Levine, 1989; Maier, Laudenslager & Ryan, 1985). Physiological systems are highly interdependent. The types of biochemical reactions that have been shown to accompany a weak sense of coping efficacy are involved in the regulation of immune systems. For example, perceived weak efficacy in exercising control over stressors activate endogenous opioid systems (Bandura, Cioffi, Taylor & Brouillard, 1988). There is evidence that some of the immunosuppressive effects of inefficacy in controlling stressors are mediated by release of endogenous opioids. When opioid mechanisms are blocked by opiate

antagonists, the stress of weak coping efficacy loses its immunosuppressive capabilities (Shavit & Martin, 1987).

In the laboratory research demonstrating immunosuppression through stress mediation, controllability is studied as a fixed dichotomous property in which animals either exercise complete control over physical stressors, or they have no control, whatsoever. They remain completely powerless in the face of unremitting bombardment by stressors. In contrast, most human stress is activated in the course of learning how to exercise control over recurring stressors. Stress aroused while gaining coping mastery may have very different effects than stress in aversive situations with no prospect in sight of ever gaining any self-protective efficacy. It would not be evolutionarily advantageous if acute stressors invariably impaired immune function, because of their prevalence in everyday life. If this were the case, people would experience continuous high vulnerability to infective agents.

There would be evolutionary benefits to experiencing a boost in immune function while one is acquiring coping mastery. But intense and prolonged stress of coping inefficacy may take its toll on the immune system. Indeed, we find that stress aroused in the process of gaining coping efficacy over phobic stressors enhances immune function (Figure 11). However, some individuals exhibit suppression of immune function during the efficacy acquisition phase. The rate of efficacy acquisition is a good predictor of whether exposure to acute stressors enhances or suppresses various components of the immune system (Wiedenfeld, O'Leary, Bandura, Brown, Levine & Raska, 1989). The slower the growth of perceived coping efficacy, the greater the immunoattenuation. High autonomic arousal and neuroendocrine activity also attenuated immune systems status, but their impact is somewhat weaker.

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

The dual control of anxiety and behaviour by perceived coping efficacy and thought control efficacy is revealed in a study of the mechan-



isms governing personal empowerment over pervasive social threats (Ozer & Badura, 1989). Sexual violence toward women is a prevalent problem. Because any woman may be a potential victim, the lives of many women are distressed and constricted by a sense of inefficacy to cope with the threat of sexual assault. To address this problem at a self-protective level, women participated in a mastery modelling programme in which they mastered the physical skills to defend themselves successfully against sexual assailants. Mastery modelling enhanced perceived coping efficacy and cognitive control efficacy, decreased perceived vulnerability to assault and reduced the incidence of intrusive thoughts and anxiety arousal. These changes were accompanied by increased freedom of action and decreased avoidant social behavior. Path analysis of the causal structure revealed a dual path of regulation of behaviour by perceived self-efficacy: One path was mediated through the effects of perceived coping self-efficacy on perceived vulnerability and risk discernment, and the other through the impact of perceived cognitive control self-efficacy on intrusive aversive thoughts (Figure 12). A strong sense of coping efficacy rooted in performance capabilities has substantial impact on perceived self-efficacy to abort the escalation or perseveration of perturbing cognitions.

Perceived coping efficacy regulates avoidance behaviour in risky situation, as well as anxiety arousal. The stronger the perceived coping efficacy the more venturesome the behaviour, regardless of whether self-beliefs of efficacy are strengthened by mastery experiences, modelling influences, or cognitive simulations. The role of perceived self-efficacy and anxiety arousal in the causal structure of avoidant behaviour has been examined in a number of studies. The results show that people base their actions on self-percepts of efficacy in situation they regard as risky. Williams and his colleagues (Williams, Kinney & Falbo, 1989; Williams, Dooseman & Kleifield, 1984; Williams, Turner & Peer, 1985) have analysed by partial correlation numerous data sets from studies in which perceived self-efficacy, anticipated anxiety, and phobic behaviour were measured. Perceived self-efficacy account for a substantial amount of variance in phobic behaviour when anticipated anxiety is partialled out, whereas the relationship between anticipated anxiety and phobic behaviour essentially disappears when perceived self-efficacy is partialled out (Table 1). Studies of other threatening activities similarly demonstrate the predictive superiority of perceived self-efficacy over perceived dangerous outcomes in level of anxiety arousal. (Hackett & Betz, 1984; Leland, 1983; McAuley, 1985; Williams & Watson, 1985).

The data taken as a whole indicate that anxiety arousal and avoidant behaviour are largely coeffects of perceived coping inefficacy rather

TABLE 1

	COPING BEHAVIOR	
	ANTICIPATED ANXIETY with Self-Efficacy Controlled	PERCEIVED SELF-EFFICACY with Anticipated Anxiety Controlled
Williams & Rappoport (1983)		
Pretreatment 1	-.12	.40*
Pretreatment 2	-.28	.59**
Posttreatment	.13	.45*
Follow-up	.06	.45*
Williams et al. (1984)		
Pretreatment	-.36*	.22
Posttreatment	-.21	.59***
Williams et al. (1985)		
Pretreatment	-.35*	.28*
Posttreatment	.05	.72***
Follow-up	-.12	.66***
Telch et al. (1985)		
Pretreatment	-.56***	-.28
Posttreatment	.15	.48**
Follow-up	-.05	.42*
Kirsch et al. (1983)		
Pretreatment	-.34*	.54***
Posttreatment	-.48**	.48**
Arnou et al. (1985)		
Pretreatment	.17	.77***
Posttreatment	-.08	.43*
Follow-up	-.06	.88**
Williams et al. (1989)		
Midtreatment	-.15	.65***
Posttreatment	.02	.47**
Follow-up	-.03	.71***

\*p&lt;.05

\*\*p&lt;.01

\*\*\*p&lt;.001

than causally linked. People avoid potentially threatening situations and activities, not because they experience anxiety arousal or anticipate they will be anxious, but because they believe they will be unable to cope successfully with situations they regard as risky. They take self-protective action regardless of whether or not they happen to be anxious at the moment. They do not have to conjure up an anxious state before they can take action. They commonly perform risky activities at lower strengths of perceived self-efficacy despite high anxiety arousal (Bandura, 1988a or b).

Perceived self-efficacy to exercise control can give rise to despondency as well as anxiety. The nature of the outcomes over which personal control is sought operates as an important differentiating factor. People experience anxiety when they perceive themselves ill equipped to control potentially injurious events. Attenuation or control of aversive outcomes is central to anxiety. People are saddened and depressed by their perceived inefficacy in gaining highly valued outcomes. Irreparable loss or failure to gain valued outcomes figures prominently in despondency.

Several lines of evidence support the role of perceived self-inefficacy in depression. Perceived inefficacy to fulfil goals that affect evaluation of self-worth and to secure things that bring satisfaction to their life can give rise to bouts of depression (Bandura, 1988a; Holahan & Holahan, 1987a, b; Kanfer & Zeiss, 1983). When the perceived self-inefficacy involves social relationships, it can induce depression both directly and indirectly by curtailing the cultivation of the very interpersonal relationships that can provide satisfactions and buffer the effects of chronic daily stressors (Holahan & Holahand, 1987a). A low sense of efficacy to fulfil role demands that reflect on personal adequacy also contributes to depression (Cutrona & Troutman, 1986). When the valued outcomes one seeks also protect against future aversive circumstances, as when failure to secure a job jeopardises one's livelihood, perceived self-inefficacy is both distressing and depressing. Because of the interdependence of outcomes, both anxiety and despair often accompany perceived personal efficacy.

Self-regulatory theories of motivation and of depression make seemingly contradictory predictions regarding the effects of negative discrepancies between attainments and standards. Standards that exceed attainments are said to enhance motivation through goal challenges, but negative discrepancies are also invoked as activators of despondent mood. Moreover, when negative discrepancies do have adverse effects, they may give rise to apathy rather than to despondency. A conceptual scheme is needed that differentiates the conditions under which negative discrepancies will be motivating, depressing, or induce apathy.

In accord with social cognitive theory, the directional effects of negative goal discrepancies are predictable from the relationship between perceived self-efficacy for goal attainment and level of personal goals (Bandura & Abrams, 1986). Whether negative discrepancies are motivating or depressing depends on beliefs on one's efficacy to match them. Negative disparities give rise to high motivation and low despondency when people believe they have the efficacy to fulfil difficult goals and continue to strive for them. Negative disparities diminish motivation and generate despondency for people who judge themselves as inefficacious to attain difficult goals but continue to demand them of themselves. People who view difficult goals as beyond their capabilities and abandon them as unrealistic for themselves become apathetic rather than despondent.

Much human depression is cognitively generated by dejecting thought patterns. Therefore, perceived self-efficacy to exercise control over ruminative thought figures prominently in the occurrence, duration and recurrence of depressive episodes. Kavanagh and Wilson (1988) found that the weaker the perceived efficacy to terminate ruminative thoughts the higher the depression ( $r = .51$ ), and the stronger the perceived thought control efficacy intilled through treatment the greater the decline in depression ( $r = .71$ ) and the lower the vulnerability to recurrence of depressive episodes ( $r = -.48$ ). Perceived self-efficacy retains its predictiveness of improvement and reduced vulnerability to relapse when level of prior depression is controlled.

#### D. *Selection processes*

People can exert some influence over their life paths by the environments they select and environments they create. Thus far, the discussion has centred on efficacy-related processes that enable people to create beneficial environments and to exercise control over them. Judgements of personal efficacy also shape developmental trajectories by influencing selection of activities and situations they believe exceed their coping capabilities, but they readily undertake challenging activities and pick social environments they judge themselves capable of handing. Any factor that influences choice behaviour can profoundly affect the direction of personal development. This is because the social influences operating in selected environments continue to promote certain competencies, values, and interests long after the decisional determinant has rendered its inaugurating effect (Bandura, 1968; Snyder, 1986). Thus, seemingly inconsequential efficacy determinants can initiate selective associations that produce major and enduring personal changes.

The power of self-efficacy beliefs to affect the course of life paths

through choice-related processes is most clearly revealed in studies of career decision-making and career development (Betz & Hackett, 1986; Lent & Hackett, 1987). The stronger people's self-belief in their capabilities, the more career options they consider possible, the greater the interest they show in them, and the better they prepare themselves educationally for different occupational pursuits.

Biased cultural practices, stereotypic modelling of gender roles, and dissuading opportunity structures eventually leave their mark on women's beliefs about their occupational efficacy (Hackett & Betz, 1981). 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 though they do not differ from men in actual ability. The self-limitation of career development arises from perceived inefficacy, rather than from actual inability. By constricting choice behaviour that can cultivate interests and competencies, self-disbeliefs create their own behavioural validation and protection from corrective influence. However, changes in cultural attitudes and practices may be weakening self-efficacy barriers. Students currently coming through the school ranks reveal a much smaller disparity between males and females in their beliefs about their efficacy to pursue successfully different types of careers (Post-Kammer & Smith, 1985).

Self-efficacy beliefs contribute to the course of social development as well as occupational pursuits (Perry, Perry & Rasmussen, 1986). The developmental processes undoubtedly involve bidirectional causation. Beliefs of personal capabilities determine choice of associates and activities, and affiliation patterns, in turn, affect the direction of self-efficacy development.

#### *Concluding remarks*

The multiple benefits of a sense of personal efficacy do not arise simply from the incantation of capability. Saying something should not be confused with believing it to be so. Simply saying that one is capable is not necessarily self-convincing, especially when it contradicts pre-existing beliefs. No amount of reiteration that I can fly, will persuade me that I have the efficacy to get myself airborne. Efficacy beliefs are the product of a complex process of self-persuasion that relies on cognitive processing of diverse sources of efficacy information conveyed enactively, vicariously, socially, and physiologically (Bandura, 1986).

The converging lines of evidence I have reported indicate that the self-efficacy mechanism plays a central role in the exercise of personal agency. The value of a psychological theory is judged not only by its

explanatory and predictive power, but also by its operational power to enhance the quality of human functioning. Social cognitive theory provides prescriptive specificity on how to empower people with the competencies, self-regulatory capabilities and resilient self-belief or efficacy that enables them to enhance their psychological well-being and accomplishments.

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**SUMMARY: PERCEIVED SELF-EFFICACY IN THE EXERCISE OF PERSONAL AGENCY.**

The Author, from the social cognitive perspective, shows that the self-perceptions of efficacy are a causal factor of the human behaviour and its efficiency predictor. The opinions we have about ourselves have influences on how we think, feel and act. People's beliefs about their capabilities are the cause of psychosocial behaviour through the cognitive, motivational and affective processes and through those processes of selection which exert some influence over the individual's life paths by the environments he selects or creates. Perceived self-efficacy affects the structure of the thought and determines living aims, the success expectations, the taking of decisions... This also plays a central role in the self-regulation of motivation through the casual attributions, outcome expectancies and cognised goals. Affective processes are mediated by self-efficacy beliefs as well, since this is a cognitive mediator of the anxiety and the stress reactions. In the same way, perceived self-efficacy in the cognitive control is extremely relevant in the regulation of the cognitively generated excitation. Finally, the self-efficacy judgments are the result of the information which is actively, vicariously and psychosocially transmitted.

**KEY WORDS:** Self-efficacy. Behaviour prediction, Social learning theory.

**SUMARIO: AUTOEFICACIA PERCIBIDA EN EL EJERCICIO DE LA ACTUACION PERSONAL.**

En este artículo, el autor afirma que las creencias de autoeficacia percibida son un factor causal en el desencadenamiento de la conducta humana; al igual que un predictor del rendimiento. Por ello, las autopercepciones positivas de eficacia van acompañadas de óptimos rendimientos.

La opinión sobre la propia eficacia es uno de los más importantes mecanismos de la conducta e influye en cómo pensamos, sentimos y actuamos. Son las creencias del sujeto sobre sus capacidades la causa de la conducta psicossocial a través de procesos cognitivos, motivacionales, afectivos y de selección de vida profesional y de los ambientes en los que van a actuar.

Los juicios de eficacia personal afectan a la estructura del pensamiento de diversas maneras: estableciendo metas, anticipando los éxitos y los fracasos, proponiendo estrategias de actuación (eficaces o no), tomando decisiones (acertadas o erróneas), percibiendo el ambiente como controlable o no, persistiendo en el esfuerzo y llegando a resultados en la ejecución.

También las autocreencias de eficacia tienen un papel central en la autorregulación de la motivación. Anticipamos cognitivamente nuestras motivaciones y en este proceso establecemos objetivos, planificamos la acción para alcanzarlos y hacemos una previsión de los resultados. Estas motivaciones cognitivas incluyen atribuciones causales, objetivos y logros conocidos y expectativas tanto de destreza como de resultados. La autoeficacia dirige la ejecución. Igualmente la autoeficacia percibida afecta a las reacciones emocionales, de tal forma que las respuestas de ansiedad o depresión, según la teoría del aprendizaje social, surgen en situaciones que el sujeto percibe como amenazadoras o aversivas, en tanto que se juzga como incapaz para afrontarlas. En estas circunstancias, cuando se cree que puede controlar tales situaciones disminuyen sus niveles de ansiedad. La eficacia de afrontamiento percibida opera como un mediador cognitivo de las reacciones de ansiedad y estrés, puesto que las cogniciones de temor anteceden a las respuestas de ansiedad. Incluso los afrontamientos de eficacia son mediadores en el funcionamiento bioquímico.

Por último, el autor afirma que los juicios de eficacia personal son causantes de nuestros proyectos de vida, seleccionando tanto las actividades como el ambiente en que vamos a desarrollarlos. De esta forma, tendemos a evitar actividades y situaciones que excedan nuestras capacidades o emprendemos actividades desafiantes y creamos o seleccionamos los ambientes si creemos que podemos controlarlos y manejarlos. Es decir, las creencias de autoeficacia afectan al curso de la vida personal a través de las elecciones profesionales. Cuanto más eficaces y competentes nos creamos, tendremos en cuenta más posibles opciones profesionales, más interés mostraremos por adquirir conocimientos y habilidades, más nos prepararemos para alcanzar nuestras metas. Del mismo modo, la autoeficacia estimada contribuye a nuestro desarrollo social eligiendo actividades y asociaciones, aunque también los patrones de afiliación aprendidos determinan el sesgo de nuestra eficacia percibida.

*(Redacción de los Sumarios: Purificación Pérez de Villar.)*