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Role of Emotions in Social Problem Solving

Unlike human problem solving in the laboratory, emotional factors play a very important role in problem solving within the real-life social setting. Although a number of authors have discussed the effects of emotional arousal on social problem-solving performance (George, 1974; Janis, 1982; Janis & Mann, 1977; Mandler, 1982; Mechanic, 1970, 1974; Snyder, Bruck, & Sapin, 1962; Staats, 1975), the subject has received very little empirical attention to date. An adequate theory of social problem solving must account for the effects of emotional variables on real-life problem-solving performance, and problem-solving training (PST) programs must include methods for using and controlling emotions in order to maximize the efficiency and effectiveness of performance (see Chapter 8).

Sources of Emotional Arousal

There are three major sources of emotional arousal in social problem solving: (1) the objective problematic situation, (2) problem orientation, and (3) problem-solving proper—that is, the application of problem-solving skills. These emotional responses may be either positive or negative, and they may either facilitate or inhibit performance.

The Objective Problematic Situation

In addition to setting the occasion for problem-solving behavior, the objective problematic situation may also elicit natural (unlearned) or learned emotional responses. Natural emotional responses are produced by stimulus conditions that are aversive or pleasurable to most people

independent of any prior learning experiences with those conditions. Problematic situations commonly include one or more of the following natural aversive conditions:

- Harmful or painful stimuli which threaten the homeostatic balance of the body, including various pathogens and any intense physical stimulus (e.g., noise, heat, cold, pressure) (Selye, 1983).
- Conflict (e.g., competing stimulus demands, interpersonal conflict) (Epstein, 1982; Janis & Mann, 1977; Phillips, 1978).
- Frustration (i.e., an obstacle preventing a goal response) (Mather, 1970).
- Loss or deprivation of customary reinforcers (Mowrer, 1960).
- Uncontrollability and unpredictability of aversive events (Hamberger & Lohr, 1984).
- Ambiguity (Wrubel et al., 1981).
- Complexity or novelty that cannot be assimilated successfully with stored information or prior experience (McClelland & Clark, 1966; Hunt, 1963).

Jane lived alone and loved her pet parakeet very much. She liked to feed it, listen to it chirp, and walk around the apartment with it on her shoulder. One morning Jane woke up and went to feed her pet, but she found that it was dead and immediately got very upset (loss of customary reinforcer). After a few days, she was feeling even more upset because an image of the dead bird would often come to her mind and she could not stop thinking about it (uncontrollability of an aversive event). It was particularly disturbing that the image could occur to her suddenly at anytime, in any place, without any warning (unpredictability of an aversive event).

Jim graduated from college with a degree in banking and finance. He took a job as an office worker with a small financial company. Because Jim was very ambitious and wanted to advance rapidly in his career, after 6 months he applied for a new job with much more responsibility in a major financial corporation. Prior to the job interview, Jim became somewhat anxious because the job description that was sent to him was very vague (ambiguity). After obtaining a more specific description, he became anxious when he learned that he lacked a particular skill that was important for the job (obstacle preventing a goal response). During his interview, he became even more anxious when he was asked several questions

he could not adequately answer due to his lack of experience in the field (complexity or novelty that cannot be assimilated successfully with stored information or prior experience). After failing to get the job, Jim later became upset during a discussion with his wife because she urged him to stay in his present job for a few more years, whereas he wanted to continue applying for new jobs (conflict).

Learned emotional responses may result from stimulus elements in the problematic situation that have acquired the capacity to elicit emotional responses because they have been associated with emotional events or experiences in the past. These emotional responses are likely to vary greatly in subjective quality and intensity between individuals and across situations because of individual differences in past learning experiences.

Mary's roommate, Beth, frequently criticizes her and disapproves of her behavior in the apartment as well as in social life outside the apartment. Although Mary believes that the negative evaluation is often unfair, unjust, and inappropriate, it provokes excessive anxiety in her because of past experiences in which negative evaluation was frequently followed by harsh physical punishment from her parents. Because of her extreme anxiety, Mary is having difficulty coping with this problem and usually tries to avoid Beth by staying out of the apartment as much as possible.

Although the emotions generated by objective problematic situations are often negative or unpleasant (e.g., anxiety, anger, depression), many situations include stimulus elements and activities that produce positive emotions as well. For example, a particular problematic situation may occur within a context that includes loved family members, good friends, enjoyable social activities, satisfying job activities, exciting sporting events, pleasurable recreational activities, and highly valued goals, such as getting an important promotion, winning an election, or winning the Oscar. If these positive emotions are strong enough, they might help to reduce, minimize, or even override any negative emotions produced by the situation.

Problem Orientation

Problem orientation has been described as a generalized set of orienting variables that begin with problem perception (recognition of problems)

and also includes problem attribution, problem appraisal, perceived control, and time/effort commitment. By definition, problem perception consists of a state of "unknowing" or uncertainty concerning an effective or adaptive coping response, which tends to be noxious or aversive to most people. Problem perception is likely to be even more anxiety-provoking if the person has a low tolerance for uncertainty or frustration (i.e., has the irrational belief that uncertainty or frustration cannot be tolerated; see Chang & D'Zurilla, 1996b). Depending on the nature of the other problem orientation variables, a person's general problem orientation may produce positive or negative emotions. Specifically, positive emotions are likely to occur when the person accepts problems as a normal part of living, appraises problems as a challenge or opportunity for benefit or gain, believes that he or she is capable of solving problems and implementing solutions effectively, believes that problems are solvable, understands that successful problem solving often takes time and effort, and tolerates uncertainty and frustration until the problem is solved. In contrast, negative emotions are likely to occur when the person blames him- or herself for problems, appraises problems as a significant threat to well-being, doubts his or her ability to solve problems or carry out solutions effectively, believes that problems are unsolvable, believes that a competent person should be able to solve problems quickly and effortlessly, and believes that uncertainty and frustration are intolerable.

The sales manager has informed John that he is expected to increase his sales performance next month by 50%. John is not immediately aware of how he can accomplish this goal, but he approaches the problem with feelings of hope and confidence. These positive feelings are the result of the way John thinks about problems in living and his own problem-solving ability. Instead of blaming himself for the problem and thinking that he is incompetent or inadequate, John realizes that problems such as this are a normal, inevitable part of life. In addition, he views the problem as a challenge or opportunity to learn something and improve himself. He believes in the philosophy that it is better to take on a challenge and fail than to avoid the problem and not try to solve it at all. John also believes that there is a solution to the problem and that he is capable of finding it on his own if he tries hard enough. He realizes that solving the problem might take time, effort, and persistence, but he values independent problem solving and is willing to tolerate the frustration and uncertainty until the problem is solved.

Bob has also been informed by the sales manager that he is expected to increase his sales performance next month by 50%. Like John, Bob is not immediately aware of how he can accomplish this goal but, unlike John, he approaches the problem with feelings of anxiety, self-doubt, and hopelessness. These negative feelings are a result of the way Bob thinks about problems in living and his own problem-solving ability. Bob blames himself for the problem, thinking that he does not have the ability or the personality to be a successful salesman. Instead of viewing the problem as a challenge or opportunity for benefit or gain, he only sees it as a threat to his well-being. He doubts his ability to solve the problem on his own and even doubts that there is a solution for it. He believes that a competent person should be able to solve problems quickly and without much effort. Furthermore, he believes that frustration and uncertainty are intolerable. As a result, he gives up easily when he cannot find a solution quickly and decides to quit the job and try to find some other kind of work.

Problem-Solving Proper

In Chapter 3, problem-solving proper was described as the process by which a person searches for a solution to a problem through the application of four major problem-solving skills: (1) problem definition and formulation, (2) generation of alternative solutions, (3) decision making (judging, comparing, and choosing a solution), and (4) solution implementation and verification (evaluating the actual solution outcome). Each skill was described as a specific goal-directed task that has a unique purpose or function in the problem-solving process. Positive or negative emotions may occur during any of these tasks, depending on the level of the person's skills and other resources (e.g., sources of relevant information and advice). Good skills and resources will facilitate successful task performance which, in turn, is likely to produce positive emotions. On the other hand, poor skills and resources are likely to result in poor task performance which produces negative emotions.

In addition to the emotional effects of successful versus unsuccessful task performance, other emotional responses may be generated during each of the above problem-solving tasks. When attempting to define and formulate the problem, cognitive distortions may occur, which cause emotional distress. While generating alternative solutions, specific solution ideas may elicit conditioned emotional responses based on past

emotional experiences with those particular solutions. During decision making, anticipation of the positive or negative consequences of particular solution alternatives may produce positive or negative emotions. During solution implementation and verification, the performance of specific solutions may elicit conditioned emotional responses based on past emotional experiences with those solutions. In addition, the positive or negative outcomes of specific solutions may produce positive or negative emotions.

Effects of Emotions on Problem Solving

Emotions from all three sources described above can either facilitate or inhibit problem-solving performance, depending on such variables as subjective quality (positive vs. negative), intensity, duration, and the ability of the problem solver to use and control his emotions in a constructive manner. Specifically, these emotions may influence (a) problem recognition, (b) motivation for problem solving, (c) goal setting, (d) solution preferences, (e) evaluation of solution outcomes, (f) the likelihood of future problem-solving behavior, and (g) the efficiency of problem-solving performance.

Problem Recognition

Emotional responses elicited by the objective problematic situation might facilitate problem solving if the person uses them as cues to monitor his or her transactions with the environment and correctly identify the problematic situation that is causing them. On the other hand, if the individual dwells on his negative emotions instead of focusing on the life situation that is producing them, he might mislabel the problem as an "emotional problem" rather than a situational problem (e.g., a marital problem, a job problem), which is likely to inhibit effective problem solving.

Motivation for Problem Solving

Emotional responses produced by the objective problematic situation and the person's problem orientation might generate approach or avoidance motivation, depending on the nature and intensity of these re-

sponses. Positive emotions and mild or moderate negative emotions are most likely to motivate the person to confront the problem "head on" and attempt to solve it, whereas strong negative emotions are more likely to motivate the person to avoid problem solving by ignoring or denying the problem, putting off problem solving until a later time, waiting for the problem to resolve itself, or shifting the responsibility for solving the problem to someone else. Moreover, the amount of effort, persistence, and tolerance of frustration and uncertainty that the person shows during problem-solving proper is likely to be influenced by these emotions as well as any new emotions that are generated by the four problem-solving tasks (e.g., problem definition and formulation, generation of alternative solutions, etc.).

Goal Setting

Emotions from the objective problematic situation and the person's problem orientation are also likely to influence the problem-solving goals that are set during problem definition and formulation. When strong negative emotions threaten to disrupt problem solving aimed at problem-focused goals, the problem solver might first set a goal of reducing or controlling these disruptive emotions. In addition, when a problematic situation is perceived as unchangeable or only partially changeable, the most realistic and valuable problem-solving goal might be to reduce, minimize, control, or tolerate the emotions that are generated by the situation.

Solution Preferences

Emotions linked to specific solution alternatives and their anticipated consequences are likely to have a significant effect on solution preferences and choices. In Chapter 3, emotional well-being (i.e., anticipated emotional consequences) was identified as an important criterion to consider when judging and comparing possible solutions. Some decision-making research has suggested that people tend to prefer solutions that avoid or minimize negative emotional outcomes more than solutions that maximize positive emotions (Kahneman & Tversky, 1979; Tversky & Kahnemann, 1981).

Evaluation of Solution Outcomes

The emotional consequences of solution implementation are important criteria to consider when evaluating solution outcomes. Positive emo-

tional consequences may contribute to a "satisfactory" judgment and a decision to terminate the problem-solving process. Negative emotions, on the other hand, are more likely to contribute to an "unsatisfactory" judgment, which may set the occasion for "troubleshooting" and "recycling" in an attempt to find a better solution to the problem.

Likelihood of Future Problem-Solving Behavior

Based on Mowrer's (1960) learning theory, there are four kinds of solution consequences that elicit four kinds of emotions that can influence future problem solving: (1) something desirable happens (hope), (2) something noxious or undesirable is escaped from or avoided (relief), (3) something undesirable happens (anxiety), and (4) something desirable fails to occur or is lost (disappointment). Hope and relief are likely to reinforce (increase) future problem-solving behavior, whereas anxiety and disappointment are likely to decrease or discourage future problem solving.

Efficiency of Problem-Solving Performance

Emotional arousal from all three sources can combine to have a significant, generalized effect on performance efficiency throughout the problem-solving process. The variables that influence the relationship between emotional arousal and problem-solving performance efficiency have not yet been clearly established, but they are likely to include the subjective quality, intensity, and duration of emotional arousal. In general, positive emotions are likely to facilitate performance, whereas negative emotions are likely to inhibit performance. In addition, however, the effects of emotions on performance may also depend to a considerable extent on the intensity of arousal. If we apply the Yerkes-Dodson Law (Yerkes & Dodson, 1908) to social problem solving, we might expect an inverted U relationship between emotional arousal and performance efficiency. When arousal is low, performance efficiency should be poor, but as arousal increases, performance should also increase to an optimal level, after which a further increase in arousal should result in a deterioration in performance. The intensity of arousal is also likely to influence the subjective quality of the emotional experience. Arousal levels above the optimal point are likely to be experienced as negative affect, whereas arousal below the optimal level may be experi-

enced as either positive or negative affect, depending on the person's interpretations and appraisals of the specific cues in the situation.

While the inverted U model has much common sense appeal, its generality has been seriously questioned (Hockey & Hamilton, 1983; Mandler, 1982). According to Hockey and Hamilton (1983), there is general support for the positive part of the curve, but less unambiguous direct support for the detrimental effects of "excessive" arousal. Studies have produced conflicting results. One possible reason is that the measures of arousal have varied widely. Moreover, Lacey (1967) has argued that there is no single unitary and useful concept of arousal. Another explanation more relevant here is related to the cue utilization hypothesis of Easterbrook (1959). According to this view, as emotional arousal increases, a narrowing or restriction in attention occurs, reducing the number of cues attended to. Easterbrook points out that in some cases a narrowing of attention may result in an improvement in performance. For example, when the excluded cues are irrelevant to the task, performance might improve because of the activating effects of arousal. However, on complex tasks, which require attention to a wider range of cues, as is often the case in problem solving, a narrowing of attention is more likely to reduce performance efficiency.

According to Mandler (1982), the narrowing of thought processes under high emotional stress may affect the generation of alternatives and decision making in such a way that only obvious solution alternatives and outcomes are considered, thus severely limiting the range of available solutions and the range of outcomes affecting solution choice. In a similar vein, Janis (1982, 1983) points out that high emotional stress is likely to result in cognitive deficiencies, which include narrowing the range of perceived alternatives, overlooking long-term consequences, inefficient information-seeking, erroneously evaluating expected outcomes, and using oversimplified decision rules that fail to take into account the full range of values relevant to the choice.

Janis and Mann (1977) have identified two maladaptive decision-making patterns that result from high emotional stress: (1) defensive avoidance and (2) hypervigilance. Defensive avoidance is characterized by procrastination and by attempts to shift responsibility for decision making to someone else. Hypervigilance is a paniclike state in which the decision maker searches frantically for a solution, rapidly shifting back and forth between alternatives, and impulsively seizing upon a hastily contrived solution that seems to promise immediate relief.

Thus far, our discussion has focused on the effects of the intensity and subjective quality of emotional arousal on performance efficiency. Another variable that may influence these effects is the duration of

emotional stress. Prolonged emotional stress may result from frequent exposure to difficult life problems, emotional oversensitivity to problems, and/or inability to solve problems effectively, resulting in frequent "punishment" (i.e., aversive consequences, loss of reinforcement) and a perception of uncontrollability.

What are the possible effects of repeated or prolonged exposure to stressful problems on performance efficiency? Although this question has not yet been adequately studied, stress research by Hans Selye (1983) has provided some clues. Working with both animals and human subjects, Selye found that a nonspecific pattern of biochemical responses occurs when an organism is continuously exposed to any "stressor" or strong demand for adjustment. This nonspecific response pattern, called the general adaptation syndrome, evolves over time through three stages: (1) the alarm reaction, (2) the stage of resistance, and (3) the stage of exhaustion. The alarm reaction is the organism's initial reaction to the occurrence of a strong demand for adjustment. This reaction has two phases: shock and countershock. In the shock phase, there are physical symptoms such as tachycardia, loss of muscle tone, decreased temperature, and decreased blood pressure. In the countershock phase, there is a rebound reaction marked by a mobilization of the body's defenses, involving an increase in blood pressure, enlargement of the adrenal cortex, and secretion of corticoid hormones.

According to Selye, most of the acute stress diseases correspond to the two phases of the alarm reaction. It appears that this reaction is associated with high levels of autonomic arousal and negative affect, which are likely to reduce performance efficiency and increase vulnerability to additional problems or stressors, as well as contribute to or exacerbate negative physical symptoms. With continued exposure to the stressor, the body's hormonal defenses allow the alarm reaction to give way to the stage of resistance, when full adaptation to the stressor occurs, including an improvement in or disappearance of the physical symptoms. During this stage, autonomic arousal seems to decrease somewhat, but it still remains relatively high. The affective experience is still likely to be negative, but less unpleasant. Therefore, performance efficiency is likely to improve during this stage, but this improvement is very tenuous, since the person still remains more vulnerable to an increase in the intensity of the stressor or the occurrence of new problems.

If the stressor is intense and prolonged enough, the hormonal reserves eventually become depleted and the organism enters the stage of exhaustion, when physical symptoms reappear and there is decreased ability to resist either the original stressor or other new stressors. During this stage, arousal level drops and the individual is likely to experience a

sensation of fatigue and an affective experience of "apathy" or "depression," with a consequent reduction in performance efficiency. The clinical implications of this stage are clear: When a depressed client has a history of ineffective problem solving, the depression may not simply be a result of lack of reinforcement or negative self-evaluations. Instead, a major contributing factor may be prolonged emotional stress, which may or may not involve a deficit in stress-resisting hormones.

When excessive or prolonged emotional distress appears to be a disruptive factor in problem solving, PST programs should include training in various stress- and anxiety-management techniques. Potentially useful methods include: cognitive restructuring (Beck et al., 1979; Ellis & Dryden, 1997; Goldfried, Decenteceo, & Weinberg, 1974), self-instruction (Janis, 1983; Meichenbaum & Cameron, 1983), and relaxation/desensitization techniques (Bernstein & Borkovec, 1973; Woolfolk & Lehrer, 1984). Cognitive restructuring methods, especially rational reappraisal of threat, help to reduce anxiety resulting from irrational beliefs and exaggerated threatening appraisals. Self-instructional techniques help the problem solver learn to focus on task-relevant cues and on beliefs and expectations that are likely to facilitate problem-solving performance. Finally, relaxation and desensitization techniques help the problem solver maintain an optimal level of arousal for effective problem solving. These techniques might include progressive muscle relaxation, meditation, the use of "relaxation breaks" during difficult or extended problem solving, and the use of imaginal rehearsal, where problem solving under emotional conditions is practiced in the imagination. The latter procedure may be used to "desensitize" an individual to problem-solving situations, or to provide practice in the use of relaxation as an active coping skill in such situations.

Summary

Unlike human problem solving in the laboratory setting, emotional factors play a major role in problem solving in the real-life setting. There are three sources of emotional arousal in social problem solving: (1) the objective problematic situation, (2) problem orientation, and (3) problem-solving proper—that is, the application of problem-solving skills. Emotional responses from all three sources may either facilitate or inhibit problem-solving performance, depending on such variables as subjective quality (positive vs. negative), intensity, duration, and the ability of the problem solver to use and control his emotions in a construc-

tive manner. Specifically, emotional variables may influence (a) problem recognition, (b) motivation for problem solving, (c) goal setting, (d) solution preferences, (e) evaluation of solution outcomes, (f) the likelihood of future problem-solving behavior, and (g) the efficiency of problem-solving performance.

Awareness and control of emotional responses is important for efficient and effective problem-solving performance. When excessive or prolonged emotional distress appears to be a disruptive factor in problem solving, the problem-solving training program should include instruction in various stress- and anxiety-management techniques. Important techniques include cognitive restructuring (reappraisal of threat, correcting misconceptions) self-instruction (coping self-directions, positive self-talk) and relaxation/desensitization techniques.