

Negative Reactions to Increases in Perceived Personal Control

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Much research and theory suggests that an increase in perceived personal control is preferred and will result in positive reactions, whereas a decrease in personal control is not desired and will result in negative reactions. However, there are many negative as well as positive consequences to changes in personal control that contribute to one's reaction to increases in perceived control. I review research that identifies conditions under which increases in perceived control result in a tendency to relinquish personal control, negative affect, and a poorer performance on subsequent tasks. Three mediators are suggested for these effects. Changes in perceived personal control are said to result in changes in concern for self-presentation, changes in the perceived likelihood of obtaining desired outcomes, and changes in perceived predictability. Under certain conditions, each of these may lead to negative rather than positive reactions to increased control.

Over the past few decades, the concept of perceived personal control has played an important role in research and theory on a large number of topics in psychology. In general, the pattern of these research findings suggests that the perception of personal control results in positive reactions, whereas the perception of a loss of control results in negative effects. For example, maintaining a sense of personal control has been found to aid in the ability to cope with stressors (Glass & Singer, 1972). Residents of old-age homes have been found to improve in their activity levels, happiness, and health when given an increase in perceived control over their daily lives (Langer & Rodin, 1976; Rodin & Langer, 1977). On the other hand, a perceived reduction in personal control has been identified as an important step in the perception of crowding (Schmidt & Keating, 1979). Similarly, an extensive literature on learned helplessness (cf. Peterson & Seligman, 1984; Seligman, 1975) has implicated a perception of no control as a central agent in the development of depression.

Several theorists have also placed great emphasis on a human motive to seek out and maintain control. Adler (1930), for example, introduced a "striving for superiority" to explain a large number of human behaviors. White (1959) described an "effective motivation" or "competence motivation." He argued that people are motivated to seek out and engage in challenging tasks because successful completion of these tasks demonstrates general competence and mastery over the environment. DeCharms (1968) described the desire to "be the primary locus of causation for, or origin of" one's behavior as the "primary motivational propensity."

All of this work combines to suggest that perceived personal control is a very positive commodity. With only a few exceptions (e.g., Fromm, 1941), writers on this topic have suggested that the more control a person has, the better off he or she is.

Indeed, as Seligman (1976) noted, it has become "a truism that we strive to control our world" (p. 1).

Given this agreement about the positive character of personal control, research findings to the contrary are often treated as anomalies, perhaps attributable to some unknown idiosyncratic variable in the particular study. As will be seen, however, researchers have now uncovered many exceptions to the rule. Many studies have reported situations in which people willingly relinquish control or respond in a negative manner to the perception that their personal control has been increased. Occasionally these findings are predicted by the researchers. However, more often they are reported as unexpected results. The purpose of this article is to review much of this research and to identify some of the conditions under which these negative reactions occur and the mediators for these effects.

Defining Control

Before moving on to an examination of relevant research, it is important to define more clearly what is meant here by the term *control*. As several writers have observed (e.g., Averill, 1973; Steiner, 1979; Thompson, 1981), this term has been used and operationalized by researchers in several different ways, and these different operations have not always been found to be equivalent in their effects. Control is defined here as *the perceived ability to significantly alter events*. Several aspects of this definition require further elaboration. One is that it is not necessary that the person actually have control over the relevant events but rather that he or she perceive this control. It has been amply demonstrated that people often are far from accurate in perceiving the extent of personal control (e.g., Alloy & Abramson, 1979; Langer, 1975). Indeed, in many of the studies discussed in this article, subjects did not, in reality, have as much control over events as researchers led them to believe. However, it is the *perceived* level of control that appears to have determined the response.

Thus, I am also interested here in what might be called "cognitive" control strategies. This occurs when people reinterpret events in a way that allows them to believe they have more or

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less control than before (cf. Rothbaum, Weisz, & Snyder, 1982). There is evidence, for example, that people sometimes reinterpret events in a way that satisfies their need to feel in control when other efforts to maintain control fail (e.g., Taylor, 1983). However, as Rothbaum et al. (1982) have observed, people sometimes reinterpret events to see themselves as having *less* control. The situations that tend to cause both of these types of responses are identified in this review.

A related concept that probably does not fall under this definition is what has been called *information control* (Thompson, 1981). This refers to giving a person an increased understanding about what he or she is doing or what is going to happen. For example, surgery patients might be told beforehand what to expect during their hospital treatment. Unless this information actually gives the person useful information that leads to increased control or changes the person's perception of personal control (as it might), it seems more appropriate to refer to this as *predictability*. As illustrated in a later section, increased predictability that comes about with increased control appears to play an important role in determining a person's reactions to changes in perceived control.

Review of Relevant Research

The model dictating the framework of this article assumes that there are many different changes that come about from increases in a person's level of perceived personal control. As suggested from past research and theory, many of these changes are preferred and lead to positive reactions. For example, increasing perceived control can satisfy a need to feel competent and masterful (cf. Perlmutter & Monty, 1977; White, 1959). Attribution researchers have often demonstrated that people feel better about accomplishments when they attribute a positive outcome to themselves (cf. Weiner, 1985). Related to this is the ability to avoid the debilitating feelings of helplessness that come from a perception of too little control (cf. Seligman, 1975). People might also prefer control because it provides an opportunity to test and thus learn about their abilities. In addition, increasing one's control over an event often means an increased likelihood of obtaining desired outcomes. For example, the more control I have over a project, the greater the likelihood that I can do something to improve the success of that project.

Each of these positive features can influence a person's reaction to changes in his or her level of perceived control. The process can be characterized as follows: When people become aware of a change in their level of control, they quickly anticipate the advantages and disadvantages that are likely to result from this change. This mental calculation need not take place at a high level of awareness. In the case of an increase in control, people often anticipate changes that are clearly positive. The positive responses that follow from such a perception have been fairly well demonstrated in research.

However, people also figure some of anticipated negative aspects of increased control into this calculation. The following review suggests three features of increased personal control that may decrease the desirability of that control. Personal control will be seen as less desirable when it (a) leads to an uncomfortable level of concern for self-presentation, (b) decreases the likelihood that the person will be able to achieve desired outcomes,

or (c) leads to an increase in predictability that draws the person's attention to the aversive aspects of the situation.

I propose here that people who perceive an increase in their amount of personal control over significant events assess the likelihood and strength of each of the potential advantages and disadvantages of control that come to mind. The more important the event, the more the person will ponder the question. For very important events, a person may weigh many positive and negative features into the final calculation. How much weight the person gives each of the positive and negative features depends on the situation and the person. In general, situational variables that affect the perceived likelihood of obtaining desired outcomes and variables that affect the size or strength of the potential gains and losses will cause the positive or negative aspects of control to be weighed more heavily.

For example, a woman put in charge of an important company project might find the opportunity to have an impact on the company appealing. Furthermore, she may enjoy the feeling of taking charge and anticipate the satisfaction that comes from doing a challenging job well. This woman will perceive the increase in control as advantageous and thus probably will respond in a positive manner. However, another woman in this situation might have serious doubts about her ability to do a good job on the project. If her superiors indicate that their evaluation of her will suffer in the event of a poor performance, then the potential advantages of control might be overshadowed by the potential disadvantages. A negative reaction is likely to follow.

In addition to situational variables, individual difference variables play a role in the assessment of the potential effects of increased control. For example, some people are very concerned about what others think of them in the event of a poor performance (Snyder, 1987), and there are differences in the extent to which people generally find a perception of personal control desirable (Burger & Cooper, 1979). Thus, predicting a given individual's reaction to changes in perceived control requires an examination of relevant personality variables. Consequently, studies examining the impact of individual differences are reported throughout this review.

Perhaps not surprisingly, a wide variety of dependent measures have been used to examine the effects of changes in perceived control. For clarity's sake, I have divided these into three types of measures: (a) the decision to retain or relinquish personal control, (b) affective responses, and (c) performance on subsequent or concurrent tasks. This review, therefore, is structured as follows: Research demonstrating negative reactions to control on each of these three types of dependent variables is examined within each of the three types of situations previously identified as leading to a potentially negative evaluation of increased control. The conclusion is that when situational or personality variables cause an increase in perceived control to increase concern for self-presentation, decrease the perceived probability of obtaining desired outcomes, or focus attention on predictable aversive stimuli, then the likelihood of negative reactions to personal control also increases.

Self-Presentation Concerns

In many situations, increases in the amount of control one has over events is accompanied by an increase in one's concern

about evaluations by others, that is, by increases in self-presentation concerns. This is because the person with the most influence in a situation is also most likely to be held responsible for the outcome. Taking on the leadership role in a group increases a person's ability to control the behavior and productivity of the group. However, it also puts the leader in a position to accept responsibility for the group's performance, good or bad. In this case, the leader may be more worried than the less-responsible members of the group about what others will think if they fail.

Social psychologists have written a great deal in recent years about self-presentation or impression-management processes (cf. Arkin, 1981; Baumeister, 1982; Tetlock & Manstead, 1985). Arkin (1981) has identified a "protective self-presentation" style, characterized by behavior that is designed to avoid social disapproval. This aspect of self-presentation seems particularly relevant when one is trying to understand the effects of perceived personal control. In some situations, a person who has a high degree of control over an event may become overly concerned about the possibility of social disapproval following a poor outcome. This is most likely to occur when the possibility of failure is high and the price for failure is significant. Some people are more concerned about social evaluation than others, and for these people the possibility and price of failure need not be as high for the increase in control to be seen as a disadvantage. Unless the increase in control brings with it some strong advantages, people in this situation are likely to opt to relinquish control, to experience negative affect (such as anxiety), and not to perform as well on the task over which they have control.

Decision to Retain or Relinquish Control

Because the preference for personal control and success is often taken as a truism in psychology, instances in which people intentionally reduce their ability to control the outcome of an event and thereby ensure failure have captured the interest of many investigators. Research findings on what has been labeled the *self-handicapping strategy* can be understood when examined within a self-presentation framework. The self-handicapping phenomena is the tendency for a person to use a self-imposed handicap (e.g., illness, drugs) to increase the chance of failure in a situation in which the person is concerned about failing without the handicap.

Berglas and Jones (1978) first demonstrated this effect. Undergraduate students were led to believe they had performed well on an analogies task. Half of the subjects had been given relatively easy problems and thus perceived that their performance was the result of a high aptitude for this type of task. The other half, who had received impossible problems, believed that their performance had resulted from lucky guessing, and that they therefore probably would not do as well on future tasks. Subjects were then given their choice of taking a performance-enhancing drug or a performance-inhibiting drug for a second series of similar problems. As predicted, the subjects who expected they would do poorly on the second test were significantly more likely to select the performance-inhibiting drug than were those who expected success. In fact, the majority of subjects in the former condition (60%) elected to reduce their

likelihood of success with the drug, whereas only 19% in the latter condition did.

The findings from the Berglas and Jones (1978) research have been replicated with similar drug-choice procedures, as well as with other types of self-imposed disabilities, such as choosing performance-inhibiting background music (see Arkin & Baumgardner, 1985, for a review). From a perceived control analysis, the subjects in these studies have chosen to relinquish or reduce their amount of control over the situation by creating control-reducing handicaps. The decision to self-handicap is seen in part as an effort to create a positive public image that is motivated by self-presentation concerns. That is, when faced with probable failure and the blow to one's public image that comes with it, one strategy for avoiding this situation is to deliberately reduce one's control over the outcome and thereby lower public accountability.

An investigation by Kolditz and Arkin (1982) directly tested the self-presentation explanation. These researchers replicated the basic Berglas and Jones (1978) procedures, but added a condition in which the choice of drug was made in total anonymity (even the experimenters would not know which drug was chosen). In this condition, the self-handicapping effect completely disappeared. These findings provide evidence that the choice to reduce one's control over, and hence responsibility for, the task stems from a concern for what others will think. Consistent with this interpretation, Baumgardner and Brownlee (1987) recently demonstrated that people high in social anxiety, and presumably more concerned about the evaluations of others, were more likely than those low in this trait to perform poorly on an initial performance and thereby lower their partner's expectancies for their future performances.

In addition to concern for one's public image, self-handicapping behavior may be motivated by a desire to avoid admitting one's weaknesses to oneself. Indeed, Baumeister (1982) has identified a desire to behave like one's ideal self as an important feature of self-presentation. The tendency to engage in self-deception to avoid seeing oneself in an unfavorable light has been demonstrated in the lab (Quattrone & Tversky, 1984). In the self-handicapping situation, people may want to avoid control to avoid facing the truth about themselves in the event of failure.

This analysis seems related to what Rothbaum et al. (1982) have labeled *predictive control*. These researchers have argued that people sometimes engage in self-defeating behavior because they want to avoid feelings of disappointment in the event of failure. Although they identify this strategy as a secondary means of maintaining a sense of control, the analysis provided here suggests that the price of retaining primary control over the situation has become so high for these people (either in terms of what others will think of them or what they will think of themselves) that they will opt to relinquish this control if possible. Like the business executive who does not wish to be promoted to a higher level of power in an organization because he or she fears looking like a failure in that capacity, experimental subjects sometimes see personal control as a negative commodity and will choose to avoid it when given the chance.

Affective Response

It is widely accepted by psychologists that increasing one's feelings of personal control will lead to an increase in positive

affect. Depressive affect, for example, has often been associated with a perceived lack of control over important life events. Such findings suggest that one is affectively better off with the perception of more, not less, control. However, there are now several investigations demonstrating that this is not always the case.

Rodin, Rennert, and Solomon (1980) conducted a series of studies in which subjects' level of perceived control was manipulated by either giving the subject a choice or not. In some cases this choice consisted simply of choosing which personality test to take. Contrary to their expectations, subjects given this choice reported lower feelings of self-worth, as measured immediately after the selection, than subjects merely assigned one of the tests. In another investigation, subjects allowed to generate their own questions for an upcoming interview scored lower in self-esteem than did subjects given the questions by the researcher.

In a related series of experiments, Burger, Brown, and Allen (1983) gave some subjects a choice of three tasks to work on during a 20-min testing session. All subjects had been given false feedback from earlier trials indicating that they were likely to do well on one of the three tasks, and hence all chose that task. Other subjects given identical feedback were merely assigned the task for the testing session. In each of three experiments, subjects given the choice of tasks scored lower on measures of self-esteem and higher on measures of anxiety and hostility than did subjects given no choice of tasks.

The increase in negative affect with the increase in control in each of these studies can be explained in terms of the increase in concern for self-presentation that was created in the subjects given a choice. That is, these subjects were probably more concerned about making the wrong test selection, asking the wrong questions, or performing poorly on the upcoming examination than were the no-choice subjects. This concern then translated into increased negative affect, particularly anxiety. (However, it remains unclear why this manipulation would also reduce self-esteem, presumably a relatively stable personality trait.)

Both Rodin et al. (1980) and Burger et al. (1983) have provided data in support of the self-presentation interpretation. In one study, Rodin et al. told some of the choice subjects that the experimenter understood they could not make a very thoughtful choice when selecting a personality test. In this condition the decrease in self-esteem that accompanied choice disappeared. Similarly, Burger et al. led subjects in some of their experiments to believe that whether they had made a choice would not be known to the experimenter who was to administer the test. When the public statement of choice by these subjects was suddenly erased, they showed no increase in negative affect relative to appropriate control groups.

These findings provide consistent evidence that increases in perceived control will not always result in positive affect. Some degree of control may help people avoid learned helplessness and depression, but the increase in responsibility and concern for a poor performance that accompanies control can also lead to an increase in anxiety. The extent to which people feel competent to perform well on the task no doubt influences this reaction. Those certain of success are not likely to respond to increased public accountability with anxiety. In addition, individual differences should play a role in this relation. For example, Burger and Tuma (1984) found that people high in self-monitor-

ing (those very concerned about the impression they make on others) were more likely to show anxiety when given the choice of tasks in the Burger et al. (1983) paradigm than were low self-monitors. This finding also supplies support for the self-presentation interpretation of the effect. In summary, it may be that, depending on the person and the situation, there is a point of balance on the emotional tightrope at which people feel powerful enough to avoid helplessness but not so responsible that they need to worry about it.

Task Performance

Several investigations have demonstrated that allowing people a choice of task materials often results in increases in performance on that task (cf. Monty & Perlmutter, 1987). One explanation for this effect is that the choice of materials results in an increased feeling of personal control that then leads to a general increase in motivation (Perlmutter & Monty, 1977). Indeed, this increase in personal efficacy is one of the positive features of control that may offset potential disadvantages. However, the analysis presented here suggests at least one additional reaction to the increase in control that may be responsible for the improved performance. That is, selecting materials for a task may lead to an increase in self-presentation concerns, which in this case may motivate the person to perform better. This is because selecting some materials over others is tantamount to a public statement that one can do better on the task with these materials. For example, in the typical paradigm used to examine this effect, subjects select words to be used in a paired-associate memory task. In essence, these subjects are saying to the experimenter that they can do best with these words. Subjects simply assigned the words have made no such public statement. Thus, a poor performance on the task poses a greater likelihood of negative public evaluation for a person in the former condition than for someone in the latter.

How does this increase in self-presentation concern affect performance on the task? At moderate levels of concern, a small increase in motivation should lead to increased performance. This was demonstrated recently in two experiments by Burger (1987). In one experiment, undergraduates either were or were not allowed to select the response words for a paired-associate memory task. In addition, half the subjects were led to believe that the experimenter who knew of their choice would also know of their performance on the task. The other half thought that the experimenter would not know of their choice or their performance. It was found that choice improved performance on the task only when subjects also believed the experimenter would know of their choice and performance. A second experiment that offered some subjects a choice of which cognitive aptitude test to take produced the same results. Subjects given a choice of tests did better on the test (anagrams) than the no-choice subjects, but only when they believed their choice and performance would be known by the experimenter and other subjects.

These studies suggest that the increase in self-presentation concerns that comes from increases in perceived control will lead to better task performance. However, it also seems plausible that in some situations the level of concern for self-presentation that accompanies choice can become so great that people

will perform more poorly or "choke" under pressure. This was suggested in a series of investigations by Baumeister and his colleagues (Baumeister, 1984; Baumeister & Steinhilber, 1984). They found that increases in pressure to perform well, brought about by such variables as competition, a cash incentive, or audience encouragement and expectancies, often resulted in a poorer performance. Baumeister, Hamilton, and Tice (1985) demonstrated that this effect seems to be largely due to self-presentation concerns. Undergraduates in this research were given feedback indicating that they should do well on an upcoming task. Those who believed that only they knew of this high expectation did better on the task, whereas those who understood that the experimenter also expected them to do well performed more poorly. Concern for how they would look in the event of a poor performance apparently led to the poor performance.

These studies thus suggest that increased control that leads to very high levels of concern for self-presentation could lead to a decrease rather than an increase in performance. This was, in fact, what was found by Burger (1988) in a recent expansion of the paired-associate memory study. Some subjects were given a choice of words and a reason to be highly concerned about their performance (they were told that both the experimenters and the professor supervising the project would return to discuss their performance). These subjects did worse on the memory task than those who anticipated the same discussion but did not choose the words. Subjects who believed their performance would be known only to one undergraduate experimenter (a low level of self-presentation concern) again showed an increase in performance when allowed to select the words.

This experiment, combined with Baumeister's (1984) research, indicates that in some situations the increase in concern for self-presentation that comes about from increased personal control will lead to a poorer rather than a better performance. This seems particularly likely when the price of negative public evaluation is high. Sports folklore holds that all baseball players want to come to bat in the ninth inning with their team trailing by one run. However, as Baumeister and Steinhilber (1984) have demonstrated, having "the game in your own hands" in front of those who expect you to perform well may be the prescription for failure.

Probability of Obtaining Desired Outcomes

Perhaps the most obvious consequence of giving a person increased control over a situation is that he or she has an increased likelihood of influencing the outcome of the event. Very often this means that the person can increase the chances that he or she will benefit from a positive outcome or avoid the consequences of a negative outcome. However, there are limits to one's abilities. Being given the opportunity to control an event does not mean that the desired outcome will be forthcoming. If a person believes that the likelihood of a poor outcome is higher than the likelihood of a good outcome when he or she is in control, then one might expect that person to relinquish control, if possible, or to respond with negative affect, a poor performance, or both.

Decision to Retain or Relinquish Control

It should not be surprising that experimental subjects given a choice of being able or not able to influence the onset and offset of an aversive stimulus often prefer to retain this control (e.g., Pervin, 1963). For example, subjects who are allowed to engage in some response (e.g., press a button) that will terminate an aversive stimulus (e.g., a loud noise) will take advantage of their control and decrease the frequency or reduce the intensity of the stimulus. However, an interesting phenomenon in this research is that there is often a sizable minority of subjects who do not prefer control. In an early example, Pervin (1963) found that in 117 of 270 instances (43.3%) subjects preferred that the experimenter be the one to control the administration of electric shocks.

Why would a person not want to control how many electric shocks he or she receives? Miller (1979, 1980) has proposed a "minimax hypothesis" to account for when people prefer to retain control over an aversive stimulus and when they prefer to relinquish control. According to this approach, people are motivated to minimize the maximum danger to themselves. Relying on one's own response often will allow the person to ensure that an unacceptably high amount of aversiveness will be avoided. However, depending on the options available in the situation, sometimes relinquishing control is the best option for meeting this goal. In an everyday example, the person who wisely decides to ask a friend to drive him or her home from a party after consuming too much liquor is relinquishing some control, but is also minimizing the likelihood of being hurt in an accident or of being arrested.

In a demonstration of this phenomenon, Miller (1980) led undergraduates to believe that they and another subject were being assessed for reaction-time speed. False feedback was used to create conditions in which subjects believed they were better than, comparable to, or inferior to their partner on this ability. Subjects were then given the choice of giving themselves or their partner control over the receipt of electric shocks in the next part of the experiment. Subjects were told that they were yoked with this partner, such that both would receive the shock on trials when the person in control did not react quickly enough in a reaction-time test. As expected, subjects who believed they were better at the reaction-time task, and thus probably better able to avoid the shock for both people, tended to retain control by becoming the one to be tested. However, when subjects believed their partner was better able to avoid the shock for both of them because of his or her superior ability, subjects tended to relinquish control and select the partner as the one to be tested. Thus, Miller demonstrated that people often relinquish control when that option is perceived as less likely to lead to harm than retaining control.

Burger, McWard, and LaTorre (1986) demonstrated this same tendency to relinquish control in another experimental setting. They found that between 75% and 90% of undergraduates given the option of administering a blood sample to themselves (via pricking their finger) or having the experimenter administer the sample chose to have the experimenter control the administration. These researchers reasoned that the subjects relinquished control in this situation because they believed the more-qualified experimenter was less likely to cause them pain

In a test of this, some subjects were allowed to choose between themselves and the experimenter as the blood-sample taker, whereas others were given a choice between themselves and a "volunteer" (a confederate) who said he did not know anything about the procedure but would be willing to assist the experimenter. Consistent with the prediction, subjects in the former condition tended to relinquish control over the potentially painful administration to the experimenter, whereas subjects in the latter condition tended to retain control by choosing to administer the blood sample to themselves.

In yet another demonstration of this effect, Ball and Vogler (1971) found that 70% of their subjects chose self-administered over machine-administered electric shock, presumably because of the added predictability self-administered shock afforded. However, when given the choice of self-administered double shock or machine-administered single shock, only 35% opted to retain control. Interestingly, for these 35% the positive features of control were still greater than the negative aspects of doubled shocks.

Taken together, the findings provide ample evidence that people do not always prefer control over potentially aversive stimuli. When subjects anticipate that relinquishing control will reduce aversiveness (such as when an experienced experimenter takes a blood sample), they are likely to give up control to others. When perceived control is seen as likely to reduce the potential aversiveness, control is most often retained. In the case of the inexperienced blood-sample volunteer, subjects probably had no reason to believe that the volunteer would cause any more pain than they might cause themselves. However, other advantages of retaining control, such as added predictability and feelings of mastery, appear to have been strong enough to make the control retention option more desirable.

Several investigations have also implicated the role of individual differences in the process of comparing the value of retaining control with the potential aversiveness this may entail. One of these is the Type A-Type B behavior pattern. People identified as Type A have been described as generally preferring control over aversive stimuli more than do Type B individuals (Glass, 1977). Thus, a Type A person probably would have to be threatened with a much greater level of potential aversiveness before relinquishing the highly prized perception of control than would a Type B person. Data from several studies (Miller, Lack, & Asroff, 1985; Strube, Berry, & Moergen, 1985; Strube & Werner, 1985) support this reasoning. Miller et al. (1985), for example, found that Type B subjects were more likely than Type A subjects to relinquish control to a superior partner to avoid aversive noise in the partner-yoking procedure. Similarly, Burger et al. (1986) found that subjects who scored high on a measure of general desire for control (Burger & Cooper, 1979) were less likely to relinquish control in the blood-sample situation than were those scoring low on this measure. For these people, the value of seeing themselves in control was strong enough to cause many to retain control, even when faced with an increased likelihood of experiencing some pain during the blood sampling.

Affective Response

If increases in personal control sometimes mean that the person faces a greater chance of being harmed, it should not be

surprising that the situation also increases negative affect, particularly anxiety. Miller (1980) assessed changes in subjects' moods during the partner-yoking study. Those who opted to retain control, and who were hence responsible for the amount of shock both they and their partner received during the upcoming sessions, showed higher levels of anxiety and hostility than did those who opted to relinquish control. Those who anticipated that they would get more shocks by retaining control (because of false feedback) and who therefore relinquished control showed lower levels of anxiety, apparently because of their lowered concern about being shocked.

Folkman (1984) has provided a similar analysis for understanding coping strategies to stressful situations. She argues, for example, that giving patients some control over treatment may risk a "cost to the patient's physical and psychological well-being" (p. 845) because of the additional anxiety. An unexpected finding by Mills and Krantz (1979) might also be explained with this analysis. These investigators found that blood donors who were given information about what the experience would be like and who were given an element of control (choice of arm) showed an increase in stress relative to those given only the information or the choice of arms. Mills and Krantz speculated, consistent with the reasoning presented here, that these stressed subjects were unsure of their ability to effectively decrease the adversity in the situation.

Interestingly, Miller (1980) also found in the partner-yoking study greater anxiety among those who retained control and who anticipated that they would do better at avoiding shocks than their partner. This finding seems best explained in terms of the self-presentation analysis described earlier. That is, although these subjects believed they were selecting the option that would lead to the fewest number of shocks, they were also accepting the responsibility for their own shocks and those of their partner. These subjects therefore should have experienced an increased pressure to perform well that translated into increased anxiety.

Task Performance

How might the level of anticipated aversiveness with changes in perceived control affect how well a person performs on a subsequent task? It seems reasonable that a greater likelihood of harm would lead to anxiety that might then interfere with the performance. A recent study by Keinan (1987) provides support for this suggestion. Subjects were tested on a series of analogy problems. Some subjects anticipated that they would receive electric shocks during parts of the test. Half of these subjects were told the shocks could be prevented with correct responses (i.e., were controllable). The other half were not told this. Keinan found that subjects anticipating controllable shocks performed just as poorly, relative to a no-shock group, as did uncontrollable-shock subjects. Analyses of performances indicated that these controllable-shock subjects responded with anxietylike behaviors, such as nonsystematic scanning of response options, that appeared to interfere with their performances.

Predictability

In most situations, increasing a person's control over an event also increases that person's predictability for the event. This is

because giving a person the means with which to control, for example, the onset or duration of an aversive stimulus also increases his or her certainty of when the stimulus will occur or how long it will last. Although there can be exceptions, in many (if not most) situations the effects of increases in perceived personal control are confounded with the effects of increased predictability (see Burger & Arkin, 1980, and Mineka & Hendersen, 1985, for a discussion of this issue). The question for the present analysis is how this increase in predictability adds to the effects of controllability and how this might result in changes in the choice to retain or relinquish control, in affective responses, and in performance on subsequent tasks.

Before beginning this analysis, it must be acknowledged that the effects of predictability in all of these areas are probably the most complex and least understood of the phenomena examined here. Whereas many studies from this literature conclude that the perception of predictability results in positive responses and is preferred, many other studies point to the opposite conclusion. This pattern led one team of researchers to conclude that "the only thing that can be said with certainty about the effects of predictability is that they are unpredictable" (Matthews, Scheier, Brunson, & Carducci, 1980, p. 526).

It is beyond the scope of this article to provide a complete understanding of the effects of predictability. However, an examination of the conditions in which an increase in predictability leads to negative reactions suggests two variables that seem to play an important role. First, there are some individual differences in reactions to predictability that seem to be useful in identifying the effects of changes in predictability that come about from changes in perceived control. In addition, the extent to which the predictability draws attention to the aversiveness of a situation seems to be important.

It should be noted that very little direct information exists about how increased predictability independently influences the effects of increased control. Instead, most of the conclusions drawn in this section must be considered suggestive. However, research indicates that the impact of increased predictability is significant enough that it would appear to be an important part of the calculation when a person weighs the advantages of increased control against the disadvantages.

Decision to Retain or Relinquish Control

Several theorists have maintained that, all things being equal, people prefer predictable rather than unpredictable events. Kelly (1955), for example, proposed that obtaining predictability over events is a primary human motive (although he did not use the term *motive*). Kelly maintained that the inability to predict events resulted in anxiety and the need for cognitive restructuring. Berlyne (1960) argued that uncertainty about aversive stimuli leads to unpleasantly high levels of arousal, and thus predictable, less arousing aversive stimuli are preferred. Perkins (1968) has suggested that knowing when an aversive stimulus is coming allows an organism to engage in preparatory responses to lessen the impact. Finally, Seligman (1968) has argued that the existence of a warning signal for an aversive stimulus allows an organism to limit the amount of time it needs to be concerned about the stimulus (until after the signal but before the onset of the stimulus).

Thus there are many reasons to suspect that, particularly with aversive stimuli, people prefer predictable over unpredictable events. This preference should increase the likelihood that people will opt to retain control when that control also allows them some increased predictability. Indeed, there seems to be fairly consistent evidence that people prefer predictable over unpredictable aversive events (e.g., Katz & Wykes, 1985; Pervin, 1963). However, in each of these investigations there is always a sizable minority who still prefer unpredictable to predictable aversive stimuli. For example, more than one third of the subjects in the Katz and Wykes (1985) study said they did not want a warning light that would signal the approach of an electric shock.

The large number of subjects who consistently decline to increase their predictability of aversive stimuli has been a point of curiosity for many of the researchers in this area. Averill, O'Brien, and DeWitt (1977) and Averill and Rosenn (1972) have reported that subjects tend to make this selection in a relatively stable style. That is, these researchers found stable individual differences in preference for predictability across conditions when varying the degree to which subjects could use a warning signal to help prevent the occurrence of an electric shock. Most important for the present analysis, Averill et al. (1977) found, contrary to theory and conventional wisdom, that subjects who declined a warning signal for an uncontrollable electric shock reported lower levels of tension and said the shock was less painful than did subjects who opted for the warning signal.

The obvious candidate to account for this difference is some sort of personality trait variable. However, efforts to discover such a variable have been somewhat frustrating. Averill and Rosenn (1972) found no combination of individual difference scores on measures of anxiety, repression-sensitization, or locus of control that could account for the decision to choose or not choose predictability. Similarly, Katz and Wykes (1985) found no relation between this choice and measures of extraversion, neuroticism, psychoticism, or anxiety.

However, Miller (1987) has described a promising individual difference measure of cognitive response styles she calls "blunting" and "monitoring." People who fall on the upper end of the blunting dimension typically respond to threat-relevant information by avoiding or transforming the information into a less-threatening form. Those falling on the high end of the monitoring dimension typically seek out information about potentially stressful events. Miller (1987) found that subjects who were high blunters and low monitors were more likely to decline predictability (information and a warning signal) over an upcoming electric shock than were those falling on the other ends of these dimensions. In addition, those declining predictability reported lower levels of anxiety than did those seeking out information about the shock onset.

However, a recent study by Miller, Brody, and Summerton (1988) suggests that the link between individual differences in monitoring and preference for predictability and preference for control may be yet more complex. These researchers found that although high monitors wanted more information about their health care than did low monitors, they also preferred to take a less active role in their treatment. Clearly, although these results

are promising, more needs to be done in identifying the role of individual differences in reaction to changes in predictability.

Returning to the personal control question, it seems that changes in how much control one has over a situation, particularly over an aversive stimulus, often result in changes in the perceived predictability of the stimulus. For many people this is preferred, and thus is likely to lead to an increased likelihood that control will be chosen or retained. However, for many others, perhaps those identified by Miller (1987) as high blunders and low monitors, the increased predictability that comes with increased control is not preferred and will lead to an increased likelihood that control will be relinquished.

Affective Response

Research on affective responses to changes in perceived predictability has largely concentrated on anxiety, which is defined broadly here to include research dealing with measures of general negative arousal and stress (such as physiological arousal measures). However, the findings concerning the effects of predictability on anxiety have been far from consistent (cf. Averill, 1973; Miller, 1981; Thompson, 1981). Some studies have found increases in anxiety with increased predictability; others have found decreases.

One approach to this puzzle is to examine the many ways in which predictability has been operationalized. An examination of the research in this area suggests that whether the effects of increased predictability are beneficial or stressful may in part be a function of how the specific operation of predictability affects the person's focus of attention (cf. Miller, 1981). Matthews et al. (1980) have argued that a lack of predictability will lead to increased stress when one's attention is drawn to the stressor. These researchers exposed subjects working on arithmetic problems to either predictable (regular intervals and length) or unpredictable noise bursts. Subjects showed more signs of stress (in this case, reporting the existence of such things as a racing heart and headaches) when exposed to the unpredictable noise. Matthews et al. argued that this is because the unpredictable noise required more attention, thus making subjects more aware of the aversive stimulus, than did the predictable noise. In support of this interpretation, when subjects receiving predictable noise were given instructions to direct their attention to the noise, their reported signs of stress increased to the levels of the subjects receiving the unpredictable noise.

Research by Monat, Averill, and Lazarus (1972) also suggests an attention mediator of predictability effects. These investigators operationalized predictability in terms of certainty of receiving a shock at the end of a specified period of time (3 min) as compared with the uncertainty of receiving shock sometime during that period. Thus, some subjects knew they would or likely would receive a shock at the end of a 3-min countdown. They watched the hands of a countdown clock as the shock time drew near. Others had no idea when the shock was coming. Physiological and self-report measures of stress found that the predictable-shock subjects (with countdown) showed an increase in stress as time passed, whereas the unpredictable-shock subjects showed a decrease. These researchers explained the discrepancy between their findings and some earlier research in the area much the same as did Matthews et al. (1980). That is,

with this particular operation of predictability, the predictable-shock subject's attention was drawn to the approaching shock, whereas subjects in the unpredictable-shock conditions were freer to engage in "avoidant-like modes of coping" (p. 250).

Although these findings suggest that focus of attention may influence the effects of predictability, the researchers are quick to point out that the attention variable still cannot account for all of the data on the predictability-stress link. However, it seems safe to conclude that increased predictability that increases attention to an aversive stimulus tends to increase rather than decrease anxiety.

This conclusion would seem to have important implications for the question of changes in perceived personal control and affective response. As described earlier, increasing control over events often means an increase in predictability. In addition, controlling the occurrence, duration, or course of a stimulus very often requires paying attention to that stimulus. Indeed, there seems to be a widely held belief that it is difficult to exercise control over events without paying attention to and concentrating on them (Chan, Karbowski, Monty, & Perlmutter, 1986; Henslin, 1967). Knowing, for example, exactly when a loud noise will begin may be a by-product of personal control over the onset of the noise. It seems likely, therefore, that people consider the effect of increased predictability of stimuli, particularly aversive stimuli, when evaluating the impact of increased control. For some, this increase in predictability makes an increase in control more desirable. However, often this predictability makes the person more aware of, for example, the onset of an aversive stimulus. In these cases, the increased aversiveness that comes with predictability may make the control less desirable. Thus, giving a dental patient the responsibility for telling the dentist when to start and stop drilling may increase his or her perceived control, but the increased predictability that comes with this may serve only to focus attention on the drilling and thereby increase the patient's anxiety.

Task Performance

How do changes in predictability that often come with changes in personal control affect performance on concurrent or subsequent tasks? Once again, because no research was found that directly addressed this point, conclusions must be drawn from relevant research with implications for this question. In this case, data relevant to the question come from research examining the impact of environmental stressors (cf. Cohen, 1978; Glass & Singer, 1972). Unpredictable aversive noise sometimes hurts performance on tasks engaged in after the noise-exposure period (Glass, Singer, & Friedman, 1969). Cohen (1978), like researchers in the predictability-affect area, explained this effect in terms of focus of attention. According to Cohen's model, unpredictable stimuli require more attention than do predictable ones. The extra effort required to monitor unpredictable stressors results in a depletion of attentional capacity that is responsible for the poorer performance on subsequent tasks.

One might conclude from this that exposure to uncontrollable aversive stimuli results in a reduction in task performance in part because the stimuli are less predictable. However, as always, the relation may not be this simple. Cohen (1978) pointed

out that the narrowing of attention to relevant cues that comes with the unpredictable stimuli might serve to bolster performance on a relatively simple task. Drawing from the work of Easterbrook (1959), Cohen suggested that people perform better on some tasks when their attention is limited to a small number of relevant cues. On the other hand, narrowing of attention will lead to a poorer performance for those tasks that require attention to a larger number of cues. Hence, although the increase in predictability that comes with control may often lead to an increase in performance, there remains reason to challenge the generalizability of this conclusion.

In summary, it seems clear that the increase in predictability that often comes with an increase in control can have an important impact on how people respond to changes in their level of perceived personal control. However, the nature of this impact must remain speculative until more direct research is conducted on this question. The existing data do suggest that this relation is affected by individual differences, most notably Miller's (1987) cognitive coping styles, and by the extent to which the predictability also leads to an increase in focus of attention to the stimuli. As with the other variables considered in this review, relevant data again suggest that increased control is not always preferred and does not always lead to positive effects.

Conclusions

Although a large amount of research and theory indicates that the more control people have, the better off they are, many exceptions to this axiom have been found. A review of relevant research suggests three reasons why increases in perceived control might lead to a negative response. This is likely to happen (a) when the increase in perceived control leads to a high level of concern for self-presentation, (b) when the person perceives a decreased probability of obtaining desired outcomes, and (c) when the increased controllability leads to an increase in attention to the now-predictable events.

Identifying how a person evaluates the impact of increased control on each of these dimensions should go a long way in predicting if he or she will have a positive or negative reaction to the control. Generally, situational and personality variables that increase the likelihood of a poor outcome and increase the severity of the consequences of the poor outcome will lead to a greater chance that the person will relinquish control, experience anxiety, or do more poorly on a subsequent task. On the other hand, those situational and personal variables that increase the likelihood of a good outcome and increase the positive aspects of that outcome, or that highlight the positive feelings generally associated with feeling masterful and competent, will lead to the opposite reactions. Three variables that need to be considered in this calculation have been described in this article, but future research will quite likely identify others that play a role.

The conclusions drawn in this article seem to have implications for many types of psychological interventions. For example, changes in one's level of perceived personal control have been discussed as part of intervention strategies when dealing with depression (Seligman, 1975), old-age adjustment (Langer & Rodin, 1976), coping with terminal illness (Taylor, 1983), education difficulties (Dweck & Licht, 1980), and achievement

(Deci & Ryan, 1985), among others. Increasing a person's level of perceived control has been shown to result in benefits in each of these areas. However, there also may be those for whom the change in control is not helpful, and as this review suggests, those for whom the change will prove harmful.

An example can serve to illustrate this point. In working with chronically ill elderly people, Reid (1984) reported that patients often relinquish control over many health-related issues to the physicians and staff. Reid argued that the rejection of personal control in this case may lead to better adjustment and coping than would attempting to maintain as much control as possible over one's life. Consistent with Miller's (1980) minimax hypothesis, the patients believe that allowing the health professionals to make decisions about their treatment will result in better health care than if they try to control the treatment themselves. Forcing these patients to accept more responsibility for their health care, as suggested from some of the positive results with this approach found with other populations (e.g., Langer & Rodin, 1976), might likely result in increased anxiety and poorer adjustment (see Schulz & Hanusa, 1978, for a discussion of this). Indeed, Wagener and Taylor (1986) found that patients who had elected to undergo a treatment that eventually failed appeared to reinterpret the circumstances surrounding their decision so as to take less responsibility for it. In this case subjects may have been motivated to avoid the perception that they were responsible for the poor decision. A better understanding of how changes in perceived personal control affect behavior will result in a more efficient use of this powerful psychological variable.

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Received October 21, 1987

Revision received February 25, 1988

Accepted June 16, 1988 ■