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Self-determination Theory: When Mind Mediates Behavior

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In this paper we have discussed various elements of self-determination theory (Deci, Note 1) and cognitive evaluation theory (Deci and Ryan, 1980), particularly in relation to the person-environment and mechanistic-phenomenological debates. We have shown that behaviors can be seen as being a function of both person and environment variables and a function of both mechanistic (non-consciously mediated) and phenomenological (consciously mediated) variables.

Debates about the causes of behavior have been waged in many arenas over many apparent issues. These debates can be usefully classified as falling into one of two categories: first, whether behavior is caused by variables in the environment or variables in the person; and, second, whether, if one considers the person at all, phenomenological variables or non-phenomenological, mechanistic variables are the appropriate ones for consideration.

As with most debates in psychology, the resolution of these debates involves replacing the "ors" with "ands." Both person *and* situation variables affect behavior; similarly, both phenomenological *and* mechanistic variables affect behavior.

Descriptions of either person *or* environment variables have been able to account for a reasonable amount of variance in behavior; however, a fuller understanding of behavior requires a focus on the interactive nature of the two types of variables. For example, reinforcements can affect behavior, but substances will not reinforce if the person does not need those substances. Analogously, a trait such as the affiliative trait can affect behavior, but there will not be affiliative behaviors if there is no object in the environment that is appropriate for affiliation.

Recognizing the necessity for both person and environment variables in the description of behavior is an important first step that has been taken by many psychologists. Although Skinnerian behaviorism focused only on environment variables, Hullian behaviorism took the step by considering person variables such as habit-family hierarchies, as well as environment variables. On the other hand, that particular theory considered only mechanistic variables. The second important step involves the use of phenomenological, mind variables as well as mechanistic ones when considering the role of the person in behavior. People experience

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thoughts, feelings, motives, and attitudes, all of which seem to have an antecedent relationship to behavior. These conscious processes can be considered to play a causal role in the determination of at least some behaviors, and there is mounting evidence that they have utility for integrating empirical findings from experimental psychology and for influencing the behavior of clients in clinical settings.

Increasingly over the past two decades, psychology has moved toward an emphasis on internal, person processes as determinants of behavior. Cognitions have been afforded a causal role by many researchers; motivational and affective variables have been used less frequently though they too seem to be gaining some acceptance. Acceptance of cognitive, motivational or affective variables as determinants raises the interesting and difficult question of the relationship between brain and mind. Clearly, the *brain* plays a role in *all* behaviors, but the *mind* (i.e., consciously experienced processes) also seems to play a role in the determination of *some* behaviors. Acceptance of this assertion necessitates the abandonment of a purely mechanistic, neuroreductionistic metatheory and the acceptance of an organismic metatheory in which conscious processes are seen, in some instances, as shaping brain processes and subsequent behavior. Sperry (1976) and John (1976) have proposed emergent theories that provide plausible accounts of the mind as both an effect and effector of brain processes.

Motivated Behavior

A theory of motivated behavior must take account of person as well as environment variables, and it must recognize that some person variables operate mechanistically while others do not. The latter involve mediation by conscious awareness. In this paper we shall present certain elements of self-determination theory (Deci, Note 1) and cognitive evaluation theory (Deci, 1975; Deci & Ryan, 1980; Ryan & Deci, Note 2) that highlight the interplay of the person and environment, and of mechanistic and phenomenological variables.

Self-determination theory proposes that there are two general types of motivated behaviors: those that are consciously chosen in the service of intrinsic or extrinsic needs — in other words, the *self-determined* behaviors; and those that are not consciously chosen — in other words, the "mindless" or *automated* behaviors that require less involvement of the higher cerebral functions. Later we shall distinguish two types of automated behaviors, but for now consider just the two broad classes of behavior. The distinguishing factor between self-determined and automated behaviors is that self-determined behaviors are chosen based on a conscious processing of information whereas automated behaviors are not. It is, therefore, the self-determined behaviors for which the relationship between mind and behavior is apparent. Whereas the automated behaviors — things like "uncontrollable" smoking, nail biting, and

mechanistically moving a fork from plate to mouth — lend themselves to analyses that do not involve the mind, the self-determined behaviors — those that are chosen based on one's expectations about outcomes — cannot be meaningfully analyzed without the use of mind variables. Let us consider self-determined behaviors first.

Self-determined Behaviors

A sequence of self-determined behavior begins with informational inputs from the environment and from the person. Person inputs come from one's physiology and memory, though psychologically these are characterized in terms of personality and motivation. The inputs are processed in an active way. Information is in part sought and selected from the environment based on one's salient needs (i.e., based on information from the person), just as information from internal sources is elicited by environmental stimulation. Informational inputs, that are actively perceived and organized and that instigate behavioral sequences, may or may not enter conscious awareness. Those that do are referred to as *conscious motives*; they are cognitive representations of future satisfying states.

On the basis of these conscious motives, people select behaviors that they expect, based on an evaluation of anticipated outcomes, to provide the greatest satisfaction of the conscious motives that are salient at that time. One may be aware of many motives, all of which cannot be satisfied at one time, so one chooses in an attempt to maximize motive satisfaction given the situation and its constraints. Here we see the "active" nature of the organism in two important ways: first, in the process of making choices that mediate behavior, and, second, in the function of holding motives in abeyance that cannot be satisfied at the time. These active functions require a primary energy source, and we assert that *intrinsic motivation* provides the needed energy for decision making and for managing motives. Intrinsic motivation is based in a primary organismic need for competent, self-determined interactions with the environment. In our view, it is related to what others have called effectance motivation (White, 1959), curiosity (Berlyne, 1966), independent ego energy (Hartmann, 1958), and the need for personal causation (deCharms, 1968).

Overt and covert activity. Many chosen behaviors are performed in the service of one's intrinsic need for competence and self-determination (Deci, 1975). For example, overt behaviors like practicing basketball or climbing a mountain may be intrinsically motivated, self-determined behaviors. Further, we are asserting that the covert, cognitive processes of information selection and choice of motives and behaviors are also intrinsically motivated (cf. Ryan & Deci, Note 3). The process of choosing in and of itself provides intrinsic gratification. These intrinsically motivated, covert processes may be operative in a sequence of overt

behavior that is motivated either by intrinsic or by extrinsic needs. Just as one can choose what intrinsically motivated play activity to engage in, one can also choose what extrinsically motivated, money-making activity to engage in. In either case, the choosing is intrinsically motivated.

In a sequence of self-determined behavior, after informational inputs lead to conscious motives, and they in turn lead to selection of behaviors, the person engages in the chosen behaviors, which when finished will (one hopes) yield the desired satisfaction. The satisfaction would follow directly in the case of intrinsic motivation and would be mediated by the receipt of rewards or compliance with constraints in the case of extrinsic motivation. Of course, one selects behaviors in an uncertain world, so the completion of chosen behaviors may not produce the desired satisfaction, in which case the person could select other behaviors to attain the satisfaction if the motives remain salient. In passing, we would note that the TOTE mechanism proposed by Miller, Galanter and Pribram (1960) is conceptualized as guiding the goal selection toward satisfaction of the motives, and similarly as guiding behavior toward attainment of the goals (cf. Deci, Note 1, chapter 3).

This sketchy outline of the main elements of self-determined behavior appears in Figure 1 as the central, horizontal thrust through the model. Information is continually processed throughout this sequence of self-determined behavior. Information impinges on the person and the person seeks information as it is needed. The sequence may begin when an external stimulus event is perceived or when internal stimulation, whether physiological or psychological, is perceived. No external event is necessary to initiate a sequence of self-determined behavior.

Automatized and Automatic Behaviors

The second general class of behaviors is the automated behaviors. Using behaviorist terminology, these would be called conditioned behaviors. They seem to follow mechanistically from the presentation of some stimulus event. There are numerous examples in our everyday lives. When you finish typing at your electric typewriter you probably turn it off without thinking about it; the behavior is automated. If someone asked you, two minutes later, whether you had turned it off, you would probably not know for sure since you did it without consciously attending to it.

The fact of automated responding is a great asset to the person, for it leaves one's attention and capacity for deciding free for more interesting and important considerations. Automated behavioral sequences are made up of specific, well-rehearsed or over-learned responses that get linked together into over-learned sequences.

Some automated responses are readily reprogrammable. For example, if you are accustomed to driving a car with a standard transmission and you then drive one with automatic, it will not take long before you have

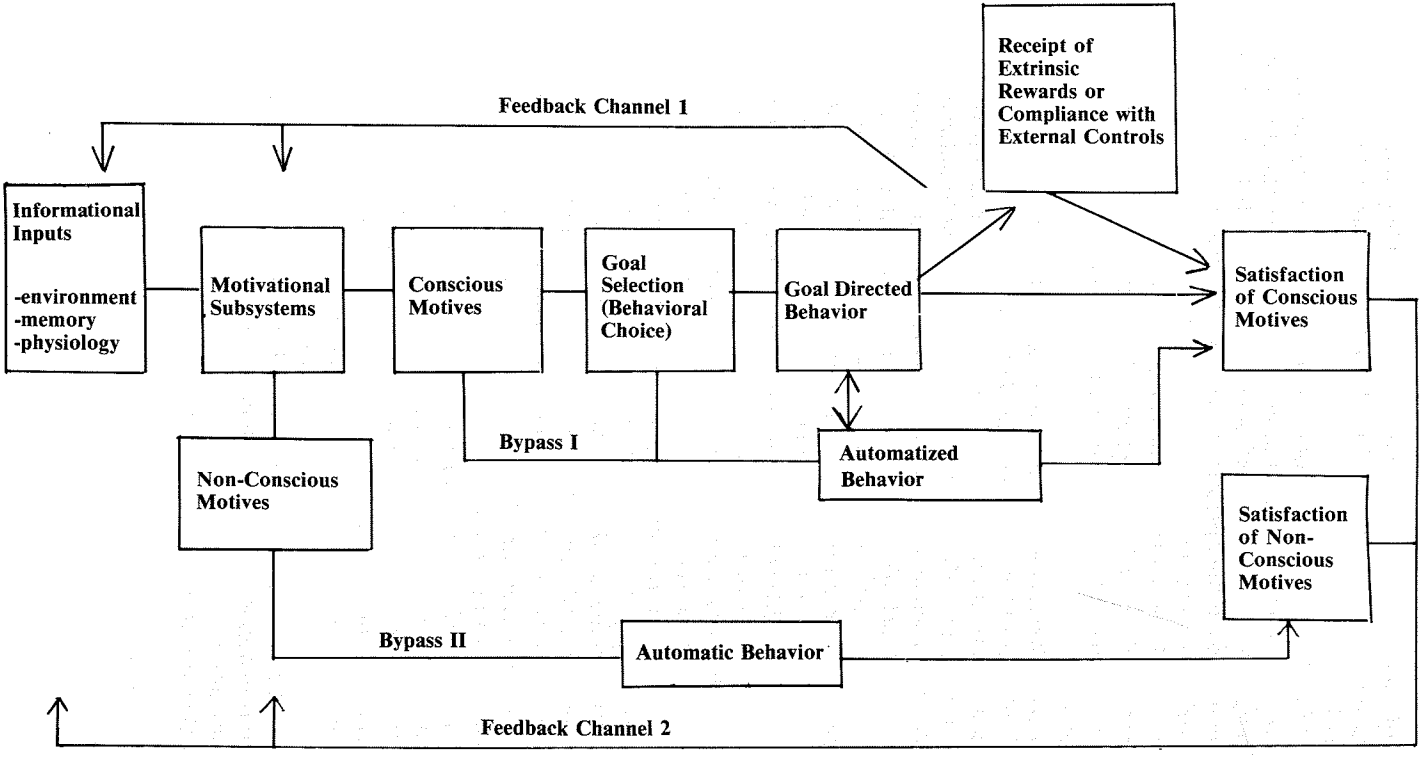

Figure 1. Schematic representation of some elements of self-determination theory (Deci, 1980).

adapted and can drive the automatic without thinking about it and without reaching for the clutch. The behavior is automated, but it remains flexible.

On the other hand there are some behaviors, such as biting one's fingernails or overeating, that are automated but that are extremely difficult to change. We propose to distinguish *automatized* behaviors from *automatic* behaviors at the operational level on the basis of the ease with which the behaviors can be reprogrammed. Those that can be easily reprogrammed will be called automatized; those that are not easily reprogrammed will be called automatic. At a dynamic psychological level, these two types of behaviors are distinguishable in terms of motivational processes.

Automatized behaviors were acquired to facilitate competent and self-determined interactions with the environment. By learning to drive, one is able to do a variety of things like driving a race car for pleasure or driving a truck for money. Many elements of driving are automatized, and are available to be used in a motivated sequence, whether the sequence is intrinsically or extrinsically motivated. Automatized behaviors may be instigated by a conscious motive and bypass the decision making phase of the sequence. For example, when you become aware of being thirsty, you might proceed directly to a familiar water fountain, without actually deciding to do it. Alternatively, the automatized behaviors might be utilized as subroutines of chosen, goal-directed behaviors. In Figure 1, automatized behaviors are represented schematically as Bypass I, proceeding from conscious motives to satisfaction, or from goal selection to satisfaction. Although, for simplicity, it is not represented schematically, the satisfaction may be mediated by an extrinsic reward. The bi-directional arrow indicates that automatized responses may exist wholly within the goal-directed behavior phase of a self-determined sequence.

Automatic behaviors are the inflexible, difficult to control behaviors, like nail-biting or overeating. These behaviors, we assert, are instigated by non-conscious rather than conscious motives. They appear to be stimulus-bound behaviors since the motivational elements are out of the person's conscious awareness and therefore seem to operate more mechanistically. Needs of the organism seek gratification whether they enter awareness as conscious motives or remain out of awareness as non-conscious motives. When the person learns not to attend to various aspects of his or her needs, they may form non-conscious motives that instigate automatic behaviors. Since these behaviors are motivated by non-conscious processes, they resist change, and as long as the processes remain non-conscious the behaviors will continue to occur automatically. They apear in Figure 1 as Bypass II.

Motivational Subsystems

Throughout this paper we have referred to behaviors' being intrin-

sically or extrinsically motivated. Our theory actually asserts that human activity is organized by three motivational subsystems. These subsystems are sets of attitudes, beliefs, affects and programs for behavior that display conceptual consistency and are organized by motivational processes. The three subsystems are intrinsic, extrinsic, and amotivational. The intrinsic motivational subsystem is based in the need for competence and self-determination and its derivative needs such as cognizance and achievement (cf. Deci, 1975, ch. 3). For intrinsically motivated behaviors, there are no rewards separate from the experience of the behavior and its accompanying affect. The perceived locus of causality (deCharms, 1968; Heider, 1958) is internal to the person. The extrinsic motivational subsystem is based in the primary drives and in acquired needs, such as the need for money or status. The reward for extrinsic behavior is clearly separable from the behavior and its affect. Here the perceived locus of causality is external; that is, some extrinsic reward is perceived to be the impetus for the behavior.

The amotivational subsystem involves a belief in a nonrelationship between behaviors and outcomes. This sytem is characterized by nonactivity rather than intrinsically or extrinsically motivated behavior. We call it a subsystem to maintain consistency in explication and because there seem to be attitudes, beliefs and affects that accompany the amotivational state. For example, when depressed, people tend not to behave, and they experience a belief in the futility of life and a feeling of hopelessness.

There are several reasons for introducing the concept of motivational subsystems. Most importantly, it deals with the behavioral consistency issue. The debate over person versus environment has often focused on behavioral and experiential consistency (or lack thereof) from situation to situation. Clearly, there is some consistency in people's behavior and experience across situations, yet there are also differences that are readily attributable to the situation. Our assertion is that there will be consistency in behaviors and experiences across situations in which a particular subsystem is primarily operative, and that there will be important differences in behaviors and experiences between those situations and situations in which a different motivational subsystem is primarily operative.

Further, the subsystems account for the fact that numerous person variables seem to be correlated. Attitudes, beliefs, feelings, desires, and programs for behavior tend to covary, and the subsystem notion provides an explanation for that. For example, in one study (Deci, Nezlek & Sheinman, Note 4), we found that when teachers were more control oriented, students tended to have both less intrinsic motivation and lower self-esteem, whereas when the teachers were more autonomy oriented, students tended to have both more intrinsic motivation and higher self-esteem. Here there was a consistency between motivation and self-esteem (i.e., attitudes and feelings about oneself) that covaried with the situation.

Cognitive Evaluation Theory

The motivation for the covert process of choosing behaviors is intrinsic motivation, the human need for competent and self-determined interactions with the environment. Thus, to the extent that one's intrinsic motivational subsystem is more operative, one will be more self-determining. If the overt, chosen behavior is one for which there is no mediating extrinsic reward or constraint, the behavior will involve an exclusive operation of the intrinsic motivational subsystem — both the overt behavior and the covert processes would be intrinsically motivated. If the overt, chosen behavior is aimed at the receipt of an extrinsic reward or compliance with an extrinsic control, the behavior would involve a mixture of the intrinsic and extrinsic subsystems — the overt behavior being extrinsically motivated and the covert processes being intrinsically motivated.

Self-determination necessitates a high degree of intrinsic motivation and a centrally operative intrinisic motivational subsystem. People's experiences with their surroundings influence the extent to which the intrinsic, the extrinsic, and the amotivational subsystems will be operative. Cognitive evaluation theory has been proposed to account for the way in which situational factors influence the relative operation of these subsystems. It suggests that there are two processes through which intrinsic motivation is affected. The first proposes that when one perceives the locus of causality (deCharms, 1968; Heider, 1958) to be more internal and feels more self-determining, one will be more intrinsically motivated; when one perceives the locus of causality for one's behavior to be external, and feels less self-determining, one will be less intrinsically motivated. When behaving in the presence of salient control structures and extrinsic rewards, one will tend to perceive the locus of causality to be external and to feel less self-determining; when behaving in the relative absence of strong external controls and rewards, one will tend to perceive the locus of causality to be internal and to feel more self-determining.

In the schematic representation, this process of *change in perceived locus of causality* is represented as Feedback Channel 1; it feeds information about the behavior/reward and behavior/constraint relationship back to one's need structure and motivational subsystems.

The second process through which one's intrinsic motivation can be affected by external factors involves a *change in perceived competence.* When an experience leaves one feeling and perceiving oneself to be more competent, one will be more intrinsically motivated. When experiences leave one feeling and perceiving oneself to be less competent, one will be less intrinsically motivated. This process appears in Figure 1 as Feedback Channel 2. Information is fed back from the satisfaction of motives to one's need structure and motivational subsystems.

Cognitive evaluation theory is stated in terms of perceptions (and

accompanying feelings). It gives cognitive evaluations a mediating causal role. This is done for heuristic reasons; it facilitates the derivation of hypotheses and the experimental test of these hypotheses. Actually, we assert that perceptions of causality and competence are cognitive components of underlying shifts in motivational processes. Thus, when behaving in the presence of salient extrinsic rewards and controls, one's intrinsic need will tend to be weakened and there will be a relative shift from the intrinsic to the extrinsic subsystem as centrally operative. Accordingly, the perceived locus of causality will become more external, one will feel less self-determining, and there will be fewer chosen, self-determined behaviors. Conversely, when behaving in the absence of salient rewards and controls, one's intrinsic need will tend to be strengthened and there will be a relative shift from the extrinsic to the intrinsic subsystem as centrally operative. Accordingly, the perceived locus of causality will become more internal, one will feel more self-determining and there will be more chosen, self-determined behaviors.

Further, information implying incompetence will tend to weaken one's intrinsic need and promote a relative shift from the intrinsic to the amotivational subsystem. Changes in perceptions, feelings and behaviors will accompany this shift. Incompetence means that one is unable to attain desired outcomes, that behavior and outcomes are independent, so one will tend to behave less. Information implying competence will tend to strengthen one's intrinsic need and promote a relative shift from the amotivational to the intrinsic subsystem, with accompanying changes in perceptions, feelings and behaviors.

Without a strong sense of competence and self-determination and the concomitant intrinsic motivation, people will be less able to manage the array of strong stimulus inputs and will therefore block these from awareness. They will operate more from the extrinsic and amotivational subsystems and will tend to engage in more automatic and less self-determined behavior.

Personality Orientations

The descriptions of the shifts among motivational subsystems and the instigation of behavior has tended to sound like the environment alone initiates the operation of the particular subsystems and the subsequent behavior. In fact, we assert, it is the interaction of these environmental factors with personality characteristics that promotes the operation of particular subsystems. Some people, for example, will be more resistent than others to a shift from the intrinsic to the extrinsic subsystem in the presence of salient controls; some will be more likely than others to remain in the amotivational subsystem even when the environment is quite responsive; and so on. These differences are due to personality factors. We use the construct of causality orientation (deCharms, 1968; Deci, 1975; Heider, 1958) as the basis for characterizing people into three

personality types. Some people have a general belief that behaviors and outcomes are related and that outcomes follow from their initiations; these people, we propose, have an *internal causality orientation* — their generalized perception is of an internal locus of causality. Other people have a general belief that behaviors and outcomes are related and that their behaviors are controlled by outcomes; these people, we propose, have an *external causality orientation* — their generalized perception is of an external locus of causality. Still others have a general belief that behaviors and outcomes are not related, that their behaviors are not instrumental to the attainment of desired outcomes; these people, we propose, have an *impersonal causality orientation* — their generalized perception is of an impersonal locus of causality.

It should be readily apparent that the three personality styles parallel the three motivational subsystems. The intrinsic motivational subsystem is primarily operative for internals; the extrinsic motivational subsystem is primarily operative for externals; and the amotivational subsystem is primarily operative for impersonals.

The elements of a situation — for example, the presence or absence of salient rewards and controls and the presence or absence of structures to provide competence feedback — will interact with the personality orientations to instigate the operation of a motivational subsystem that will in turn motivate either self-determined, automatized, or automatic behavior.

Final Statement

We have attempted to describe the interplay of self-determined, "mindful" behaviors and automatic, "mindless" behaviors. The key to the distinction is conscious, causal mediation which occurs some, though not all, of the time. Radical behavior theory has implied that conscious determination never occurs, and humanistic psychological theory has implied that it always occurs; we have attempted to integrate the two points of view, recognizing that each has made an important contribution. Although this presentation was necessarily sketchy and may therefore have been confusing, more elaborate treatments of cognitive evaluation theory and self-determination theory may be found elsewhere (Deci & Ryan, 1980; Deci, Note 1).

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