Chapter 7
Motivation

Chapter Outline

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Theories of Learning and Reinforcement

Motivation is probably the most popular topic in organizational behavior because it involves such critical questions as, "Why do people behave the way they do?" and "How can we motivate employees to perform their jobs?" Perhaps the best summary principle explaining human behavior is that people do what they expect to be rewarded for doing. However, we do not always know when a specific outcome will be perceived as a reward or if it will be the most important reward.

Numerous motivation theories address these basic questions, including both reinforcement theories and cognitive theories. The three major reinforcement theories described in this chapter include classical conditioning, operant conditioning, and social cognitive theory. These theories explain behavior in terms of the reinforcing consequences of behavior and they are also called learning theories because they explain how individuals acquire new behaviors and why their present behavior is sustained.

The three major cognitive theories of motivation are expectancy theory, equity theory, and goal setting theory. These theories explain how people analyze their situations and behave in ways that maximize the rewards that are available to them.

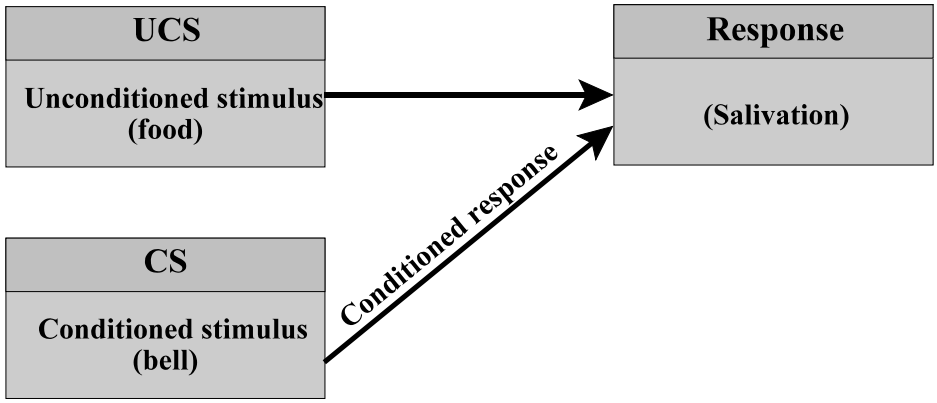
Classical Conditioning

Classical conditioning consists of connecting or pairing a neutral stimulus with a reflexive response. ***Reflexive responses***, also called respondent behaviors, consist of responses controlled by the autonomic nervous system such as blood pressure changes, salivation, and the secretion of adrenaline. These responses are normally caused by specific unconditioned (unlearned) stimuli. For example, the taste of

food causes salivation, peeling onions causes the eyes to water, and a state of stress causes the blood pressure to rise. However, these same responses can be conditioned to otherwise neutral stimuli by repeated pairings or associations of the unconditioned stimuli with the conditioned stimuli.[1]

The pioneering research on classical conditioning comes from Ivan Pavlov, the noted Russian physiologist, who was studying the automatic reflexes associated with digestion in dogs. Pavlov noted that the secretion of saliva and gastric juices were unlearned responses caused by the chemical reactions of food and he succeeded in training the dogs to salivate not only to the sight of food but also to various other signals, such as rotating disks, a metronome, or the sound of a bell. The training process consisted of presenting meat powder and the sound of a bell at the same time to a dog. After repeated pairings of the food with the bell, the dog became conditioned to salivate to the sound of the bell.[2] Exhibit 7.1 illustrates how a conditioned stimulus (bell) can become paired with an unconditioned stimulus (food) to evoke a conditioned response (salivation).

Exhibit 7.1 Classical Conditioning Process: Pairing a Conditioned Stimulus with a Conditioned Response



Classical conditioning is also called ***respondent conditioning*** or ***reflexive conditioning*** because the conditioned responses are innate reflexive responses. Some conditioned responses can be acquired quite rapidly with very few pairings of the conditioned and unconditioned stimuli. Conditioned responses also tend to extinguish rather rapidly. After the dog was conditioned to salivate to the sound of the bell, salivation would occur to the sound of the bell alone without the meat powder. However, if the meat powder was not occasionally presented with the sound of the bell, the conditioned response of salivating was soon extinguished. A dog will not endlessly salivate to the sound of the bell if it is not periodically accompanied by meat powder. However, some reflexive responses, especially those associated with pain, are very resistant to extinction.

When a reflexive response is conditioned to one stimulus, other similar stimuli will also elicit the response. If a dog is conditioned to salivate to the sound of a bell producing a tone of middle C, it will also salivate to slightly higher or lower tones without further conditioning. This principle is called ***stimulus generalization*** and explains how we are able to respond to novel situations because of their similarities to familiar ones.

Extinction does not actually destroy a conditioned response. After a period of time a conditioned stimulus may elicit the conditioned response again even though it has not recently been paired with the unconditioned stimulus. This return of the conditioned response is called *spontaneous recovery* and it suggests that extinction is some sort of active inhibition or suppression of the conditioned response, not a permanent forgetting or disappearance of the response.

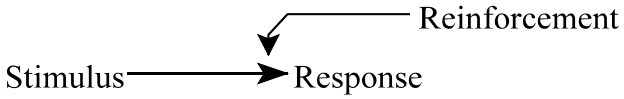
The most interesting applications of classical conditioning are found in marketing and stress management programs. Many advertising campaigns attempt to associate a particular product or brand name with a conditioned response. Commercials are designed to associate a neutral stimulus such as a new product or a brand name, with another stimulus such as the sound of pleasant music or the sight of an exciting activity to evoke a favorable emotional feeling as a conditioned response.[3]

Stress and anxiety are largely responses of the autonomic nervous system that have been classically conditioned to other stimuli. If telephone calls consist of one harassing problem after another, the sound of a ringing telephone can become a conditioned stimulus eliciting high blood pressure. If the telephone continues to ring throughout the day, and the majority of the calls are unpleasant hassles, the consequence could be chronically high blood pressure. Many stress management programs attempt to reduce excessive stress and anxiety by eliminating the association between the stimulus and the conditioned response.

Operant Conditioning

Operant conditioning focuses on learning voluntary behaviors--behaviors that are under the control of the muscle system of the body. Consequently, operant conditioning involves a much wider range of potential behavior than does classical conditioning. The term operant conditioning is derived from the idea that individuals learn to operate on their environment to achieve desired consequences. Individuals learn to repeat certain behaviors because they are rewarded by the environment, and these voluntary behaviors are called operant responses.

Stimulus-response bonds. Operant conditioning refers to the process of reinforcing a response that is made in the presence of a stimulus. This process is diagramed this way:



Stimulus-response bonds are created by the consequences of the response. In operant conditioning an environmental stimulus (S) is followed by a response (R) which is followed by an environmental consequence that can be either a positive or negative reinforcer. The response is said to be “instrumental” in receiving the consequence which explains why operant conditioning is also referred to as instrumental conditioning.[4]

According to ***operant conditioning***, if a response is emitted (occurs) in the presence of a stimulus, and this response is reinforced, this will increase the probability that on future occasions the same response will be emitted in the presence of similar stimulus. An important aspect of this definition is the word "probability." The stimulus does not cause the response, and it is not certain that an operant response will be emitted after the stimulus is presented. Operant conditioning is a probabilistic model which simply indicates that the probability of a response in a given situation is more likely if it has been positively reinforced in the past.

The principles of operant conditioning have been amply demonstrated in thousands of experimental studies using many different organisms including humans and animals, especially rats and pigeons. So much of the work on operant conditioning was pioneered by B. F. Skinner that the experimental chamber where rats and pigeons are tested has come to be known as a Skinner box. A Skinner box typically consists of three glass walls to observe the animal, a fourth wall containing a food box, and a device for making a response (such as a lever for rats to press or a key for pigeons to peck) and a wire grid floor to stand on. This experimental chamber allowed the researchers to eliminate extraneous environmental stimuli and carefully reinforce a unique operant response. The basic principles of operant conditioning so amply demonstrated in animal studies have been extensively replicated with human subjects.[5]

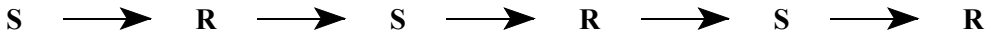
Stimulus generalization and discrimination. In a typical organization, employees are simultaneously bombarded with dozens of stimuli. Even a relatively calm office environment contains countless stimuli such as the lighting, the color of the walls, the sound of the keyboard, the conversation at the next desk, the humming of the air conditioning, the odor of perfume, and the feel of clothes that fit too tight.

Within this massive stimulus environment, the telephone rings and the employee is expected to respond to this unique stimulus by making a unique response. In this situation, the ringing of the telephone is considered a ***discriminative stimulus*** since the individual is required to discriminate the sound of the phone from all the other environmental stimuli and make a differential response. Helping individuals identify the discriminative stimulus is an important part of operant conditioning and a critical part of many training and development programs. For example, basketball players must be trained to recognize a teammate breaking toward the basket as the discriminative stimulus for the response of passing the ball without being distracted by thousands of screaming fans and other distracting stimuli.

Someone who has learned to discriminate the sound of a ringing telephone should be able to recognize a slightly different ringing sound and still make the correct response because of the principle of ***stimulus generalization***. If the new stimulus was radically different, however, then a response would probably not be emitted until the individual learned to associate it with the new response. For example, most people would have difficulty learning to respond to a telephone that ticked like a clock when someone phoned.

Operant responses. Individuals have the capacity to produce a wide variety of potential responses, called a "response repertoire." Different organisms have different response repertoires. For example, rats cannot be trained to fly, and pigeons cannot be trained to dribble a basketball and shoot free throws like humans. Nevertheless, animals have been trained to make remarkable responses that are both astonishing and entertaining. For example, chickens have been trained to play poker, ducks have been trained to play the piano, and porpoises have been trained to sing. People have been entertained by a variety of animal shows starring farm animals such as pigs, dogs, and horses, and aquatic animals such as whales, walruses, and porpoises.[6]

Chaining. Most of the responses we make are not simple responses to a discriminative stimulus. Many of the things we do are far more complex behaviors. We usually make a series of responses, each one altering the environment and setting the stage for the next response. For example, shooting a lay-in consists of dribbling a basketball several times as the player runs toward the basket, jumps, and then shoots. Each response of running, dribbling, jumping, and shooting changes the stimulus environment and calls for the next response. Frequently only the last response of seeing the ball go through the basket is reinforced. This process of stringing together stimulus response bonds is called ***chaining*** and is diagramed like this:



The concept of chaining is particularly important in the design of training programs. Rather than expecting learners to perform a complex series of responses, the task is divided into smaller steps and each stimulus-response association is presented to the learners separately. As the learners practice each response, they are reinforced and receive feedback on their performance. Gradually the responses are combined until the learners can perform the entire complex response and reinforcement is provided only for the final response.

Shaping. Shaping refers to the process of acquiring a unique response by reinforcing closer and closer approximations of it. This process is also called the "method of successive approximations." During the early stages of learning, any response that remotely resembles the correct response is reinforced. However, as learning continues, only the responses that most closely approximate the correct response are reinforced. The process of shaping is used extensively in animal training such as in teaching porpoises to sing, and ducks to play the piano. At first the porpoise is reinforced for making any sound, but gradually the sounds must become closer and closer approximations to the desired sound before reinforcement is given. The process of shaping also occurs in human learning, especially in the development of skills such as in learning to ice skate, dance, shoot a jump shot, or operate a machine.

Feedback. Performance feedback is a necessary prerequisite for learning to occur. One of the early studies on the importance of feedback was conducted by Thorndike in which blindfolded students were asked to draw a three-inch line.[7] Students who received no feedback regarding the lengths of their lines, did not improve in their ability to draw three-inch lines even after several thousand trials. Although less variability in the lengths of the lines existed after many trials, the students were no closer to the goal after thousands of trials than at the start. However, significant improvements were noted in the lengths of the lines of the blindfolded students who were told whether their lines were too long or too short.

Feedback improves performance not only by helping employees correct their mistakes but also by providing reinforcement for learning. Knowledge of results is a positive form of reinforcement by itself. Learning activities have more intrinsic interest when performance feedback is available. Performance feedback should do more than tell employees whether they were right or wrong; it should also tell them how they can avoid making mistakes in the future.[8] Merely informing individuals of their incorrect responses can be very frustrating for those who want to know why they were wrong. Studies on feedback have concluded that it is a valuable resource for individuals and it is perceived as especially important to employees who are new, who face ambiguous situations, who have ambiguous roles, and who are highly involved in their work.[9]

In general, knowledge of results is essential for learning and the sooner this knowledge comes after the learner's response the better. Studies in animal learning suggests that the ideal timing of the feedback is to have it occur almost immediately after the response has been made.[10] Some training programs are able to provide this kind of ideal feedback, but not all. Management development programs typically fail to provide any form of feedback, mainly because the managers are not given opportunities to respond until they are back on the job.

Social Cognitive Theory

Social cognitive theory developed during the 1960s and 1970s, primarily as a result of the research of Albert Bandura and others who recognized the need to consider cognitive thought processes in understanding human behavior.[11] Social cognitive theory, which was first called "social learning theory,"

also developed in part as a reaction against operant conditioning's refusal to consider thinking processes or any other psychological functions that could not be openly observed.

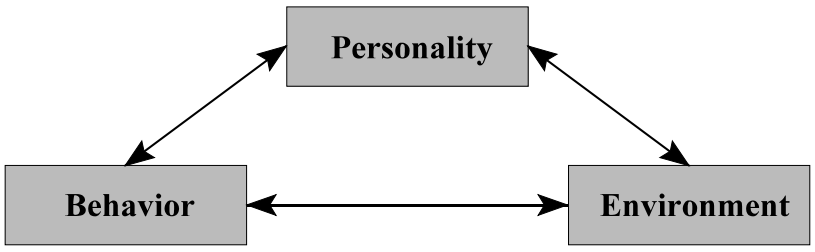
A basic proposition to both operant conditioning and social cognitive theory is that behavior is influenced by its consequences. Responses that are rewarded are more likely to occur in the future while responses that are punished probably will be terminated.

Reciprocal determinism. One of the important differences between operant conditioning and social cognitive theory concerns the degree to which individuals are controlled by the environment. According to operant conditioning, behavior is environmentally determined: the environment contains both the cues for responding, as well as the reinforcement; and if the environment changes, the behavior of individuals will also change. Although this position, called ***environmental determinism***, is a bit over-simplified, it illustrates why so much concern exists about the possibility of cultural engineering to control the behavior of people and the loss of freedom and dignity that might accompany it.

According to social cognitive theory, behavior is determined by more than just the environment; the environment, behavior, and personal factors such as skills, values, and physical limitations interact to influence each other. This interaction, called ***reciprocal determinism***, is illustrated in exhibit 7.2. According to reciprocal determinism, behavior, personality, and the environment operate as interlocking determinants of each other. Behavior is influenced by the environment, but the environment is also influenced by behavior. Individuals have the capacity to change their environment if they don't like the effect it is having on their personality and behavior. The strength of these three influences (behavior, personality, and environment) vary over time and in various settings. At times environmental factors may exercise powerful constraints on behavior while at other times personal factors may override or alter environmental conditions.[12]

Vicarious learning. Another important difference between operant conditioning and social cognitive theory concerns the analysis of thought processes. Social cognitive theory emphasizes the importance of ***vicarious learning,*** symbolic thinking, and self-regulatory processes in understanding human behavior. Vicarious learning, also called ***imitative learning,*** refers to the process of learning by observing others – watching how they behave, and seeing the consequences they experience from their behavior. An enormous amount of human learning occurs through observational learning. By observing other people perform complex behaviors, we learn quickly, and sometimes with very few errors, how to competently perform the same behaviors. Imitative learning is especially superior to trial and error learning when mistakes can produce costly or even fatal consequences. When teaching children to swim, adolescents to drive a car, or novice medical students to perform surgery, a trainer cannot rely on trial and error learning, or simply wait to reinforce correct responses.

Exhibit 7.2 Reciprocal Determinism



Another distinguishing feature of social learning theory is the idea that people can regulate their own behavior. People can effectively control their own behavior by arranging environmental rewards, by generating cognitive supports, and by producing consequences for their own actions. For example, students who think their poor academic performances are caused by a lack of study can decide to do something about it. The student can find a quite place to study, remove all distracting materials such as magazines and newspapers, record the hours spent each day in studying, set daily study goals, and give a friend six dollars which can be returned at the rate of one dollar per day only if the goals for that day are met. Although individual behavior is influenced by the reinforcers that exist in the environment, people can change their environment both physically and psychologically so that they are reinforced for doing what they want to do.

Symbolic learning. The use of symbols either as words, pictures, or mental images, greatly facilitates learning. Humans use symbols to represent events, to analyze conscious experiences, to communicate with others at any distance in time and space, to imagine, to create, to plan, and to engage in purposeful action. The use of symbols also contributes to the effectiveness of imitative learning. When a model is present the trainee can observe the model and immediately try to reproduce the same behavior. But when a model is absent, the trainee must rely on symbols such as mental images, verbal statements, or written descriptions, to reproduce the behavior. Without symbols, humans would be unable to engage in reflective thought or foresightful planning. Even conducting a careful analysis of the present environment requires being able to use symbols to represent objects, events, and relationships. According to social learning theory, symbolic activities cannot be ignored in understanding human behavior.

Our ability to use symbols presents an important implication for assessing effects of practice on learning: according to social learning theory practice is not as important as thinking in some learning situations. Operant conditioning claims that practice and repetition are necessary to help trainees learn the correct responses; learned behavior must be overlearned to insure smooth performance and a minimum of forgetting at a later date. Social learning theory, however, claims that practice is not especially necessary for learning certain behaviors. Although practice may be necessary for developing motor skills, it is not important for behavior that is learned symbolically through "central processing" of the response information. Learning how to produce an income statement, for example, does not require practicing each component activity. Instead, it involves central processing using symbols to know how to handle cash, accounts receivable, debts, and other items. Many human behaviors are performed with little or no practice. Studies of imitative behavior have shown that after watching models perform a novel behavior, observers can later describe it with considerable accuracy and given appropriate incentives, they can often reproduce it exactly on the first trial.

Reinforcement

Reinforcement theories (both operant conditioning and social cognitive theory) claim that behavior is a function of the consequences associated with the behavior. Very simply, people tend to do things that lead to positive consequences and avoid doing things that lead to unpleasant consequences. The relationship between behavior and its consequences is called a ***reinforcement contingency.*** Knowing the reinforcement contingencies associated with a person's behavior allows you to diagnose and predict that person's behavior. To change behavior requires changing the reinforcement contingencies. Five of the major reinforcement contingencies are described here along with a description of reinforcers.

Reinforcers

The greatest problem in applying reinforcement theory to human behavior is knowing what is reinforcing. People are reinforced by many objects and events and there are important individual differences in what people find attractive. Efforts to study reinforcers have focused on classifying reinforcers as positive or negative, primary versus secondary, and intrinsic versus extrinsic.

Positive and Negative Reinforcers. Positive reinforces refer to desirable consequences that people normally report as pleasant and enjoyable. Negative reinforces refer to negative consequences and are described as undesirable and disliked. Negative reinforces are also referred to as aversive stimuli.

While these definitions seem obvious, they are not acceptable to a strict behaviorist since they rely on subjective judgments to decide whether a consequence is pleasant or aversive. Strict behaviorists define positive and negative reinforces according to their influence on behavior. Anything that increases the probability of a response is a positive reinforcer and anything that decreases the probability of a response is called a negative reinforcer or punisher. These operational definitions are especially useful for conducting research on animal behavior since they do not require behavioral scientists to decide what is pleasant or aversive.

Primary and secondary reinforcers. ***Primary rewards*** are those associated with physiological needs such as food, water, sex, sleep, and the removal of pain. These rewards are satisfying because of their association with physical comforts and survival. They do not have to be learned. Food is innately satisfying to a hungry person and sex is innately pleasurable. However, various cultural forces and personal experiences influence the strength and attraction of these primary rewards. For example, food may be more reinforcing and the threat of going without food more punishing to someone who has experienced periods of starvation.

Secondary rewards are learned or acquired reinforces. Examples of secondary reinforces include social approval, money, recognition, and pride in craftsmanship. These reinforces are not innate; an individual is not born with a need for recognition or a desire for money. Furthermore these reinforces may not contribute to physical comfort. In fact the hard work and effort required to obtain secondary rewards might be physically painful.

Calling them secondary and saying that they are acquired rather than innate does not mean that their influence on behavior is less than primary rewards. Indeed, just the opposite seems to be true; secondary rewards usually have a much greater influence on day to day behavior than primary reinforcers. Social approval, for example, has been shown to be an extremely powerful secondary reward, especially during adolescence, that has a major impact on behavior and often overrides the effects of other reinforcers.[13] Because of their desire to be approved and accepted by their peers, most teenagers allow peer pressures to guide their behavior even if it is physically uncomfortable, and sometimes socially illegal. Clothing and jewelry are determined by what is socially approved, not by what is comfortable. Dieting fads and unhealthy conditions of anorexia and bulimia occur when the desire for social approval is more rewarding than other primary rewards.

Primary rewards are ineffective motivators after people become satiated. For example after people have eaten they are no longer motivated to do something for food. However, secondary rewards do not become satiated; instead, they tend to become increasingly reinforcing the more they are used.

Individuals do not get tired of being praised and complimented. In fact, as individuals receive increasing amounts of praise and recognition they tend to place a higher value on praise and recognition and they are more influenced by them in the future.

Money is a generalized secondary reinforcer because its affects can be generalized to numerous behaviors.[14] Praise and recognition are generalized secondary reinforces that have been used extensively to influence job performance. By carefully constructing the use of these rewards, their strength can be increased and their affects can be generalized to other related behaviors. For example, a 25-year service pin can be a very powerful secondary reinforcer, not because of its economic value, but because of the symbolic meaning attached to it.[15]

Extrinsic and intrinsic reinforcers. Another way to classify reinforcers is to distinguish between extrinsic and intrinsic rewards. ***Extrinsic rewards*** are administered by external sources such as coworkers, supervisors, or the organization. Financial compensation is clearly the most popular form of extrinsic rewards, including wages, salaries, bonuses, profit sharing, and incentive plans. Promotions to higher jobs and recognition from peers are also extrinsic rewards since they too are administered by external sources. Even though these rewards are not physical and tangible, they are classified as extrinsic rewards since they are administered by others. Compliments from friends and supervisors are likewise extrinsic rewards.

Intrinsic rewards are associated with the job itself and refer to the positive feelings individuals derive from the work they do. Intrinsic rewards are self-administered and are based upon the personal values of each individual. For example, individuals who have a strong work ethic, will derive satisfaction from successfully performing an outstanding job. Individuals who value being considerate and helpful will derive intrinsic satisfaction from helping someone in need. Individuals who have a high need for achievement feel rewarded when they achieve challenging goals.

The relationship between extrinsic and intrinsic rewards has been closely examined because in some situations it appears that extrinsic rewards destroy the effects of intrinsic rewards. For example, in a laboratory study when students were asked to perform an intrinsically satisfying task of solving puzzles, they tended to persist in working on the puzzles after the experiment was over longer if they were not paid for their participation. It was suggested that extrinsic rewards in the form of money tended to divert the students' interest from the intrinsically rewarding nature of the tasks themselves. The implications of this study were that individuals should not receive pay incentives for performing a job since pay incentives destroy the intrinsic satisfaction inherent to a job.[16]

Subsequent research, however, has failed to show that extrinsic rewards necessarily inhibit intrinsic rewards, especially on actual jobs where people expect to be paid for their employment. If the extrinsic rewards are exorbitant sums that make people feel bribed or paid off, the extrinsic rewards may contribute to destroying the intrinsic satisfaction. However, if extrinsic rewards appear to be fair and equitable and based upon a careful assessment of performance, the extrinsic rewards do not destroy intrinsic rewards. Instead, the extrinsic rewards combine with intrinsic rewards to create higher levels of motivation and task satisfaction.[17]

People obviously derive numerous rewards from work most of which are learned rewards. To predict how an individual will behave in a given situation, we must know all of the significant rewards and the attractiveness of each reward. In most instances, however, individuals are confronted with conflicting rewards, which makes it difficult to predict how they will behave.

Reinforcement Contingencies

Positive Reinforcement Contingencies. A positive reinforcement contingency consists of providing a positive reinforcement after the correct response has been emitted. When the pigeons made the correct response by pecking at the disk, they were reinforced with a kernel of grain. The effect of a positive reinforcement contingency is to increase the probability of the response. Consequently, the pigeon was more likely to continue pecking at the disk.

Most of the things we do in life are a result of positive reinforcement contingencies; the majority of our behaviors occur because positive consequences are associated with them. We go to movies, attend sports events, and watch TV because it is entertaining; we attend parties and visit with friends because it is fun; we eat, sleep, and rest because it makes us feel better; we study to get good grades; and we work to earn money. When you pass a friend in the hall, you smile and nod, because you have learned that this friendly gesture increases the probability that your friend will also smile and say "Hello" – a pleasant experience. When we carefully examine our behavior, we usually find that most of it can be explained by some form of positive reinforcement.

It is easy to underestimate the effects of positive reinforcement contingencies because so many of the situations where we think they exist do not produce high levels of motivation. A careful examination of these situations usually indicates that the relationship between behavior and the reward is very weak. Compensation programs illustrate this problem. Although being paid for work is a positive contingency, most employees do no think their pay is closely associated with their performance. Except for a few jobs that use direct incentives, such as commission sales or piece-rate incentives, pay is not directly tied to performance. Consequently, we tend to underestimate the potential effect of compensation on employee performance. Supervisor compliments and the recognition of others are recognized as powerful reinforcers, probably because they are more closely tied to performance.

Punishment Contingencies. A punishment contingency consists of administering a punisher or an aversive stimulus after the response has been made. In animal studies, punishment contingencies were usually created by administering an electrical shock after the animal made a response. The effect of a punishment contingency is to decrease the probability that the response will be emitted on future occasions.

Punishment contingencies also occur frequently in everyday life because we are surrounded by many forms of physical or psychological pain. When children touch things they are not supposed to, their parents slap their hands. When employees make mistakes, their supervisors reprimand them. When drivers change lanes without signaling and looking they may cause either an accident or a blaring horn from another driver. When we run on an icy sidewalk, we may fall down.

Learning theorists claim that punishment is not the most effective method of changing behavior for these reasons.[18]

1. Punishment is only effective when the threat of punishment is present. If the only reason employees do not engage in horseplay is because the supervisor is there to discipline them, the horseplay is likely to begin as soon as the supervisor leaves.

2. Punishment indicates what is wrong but not what is right. One wrong response might be replaced with another wrong response. When students are criticized for coming late to class, they might

choose to avoid class all together the next time they are behind schedule. When individuals are criticized for attempting to resolve interpersonal conflicts, they may decide to quit talking, and the interpersonal conflict continues to smolder.

3. Punishment may eliminate both good and bad behavior if both behaviors are tied together. For example, trying to help a co-worker might be seen as "getting in the way" and result in punishment. Employees may feel as if their helpfulness was punished.

4. Punishment may cause frustrated behavior because the individual's thinking becomes fixed on past errors rather than on searching for a correct solution. For example, a new employee may be so humiliated in a public meeting after incorrectly giving the name of his new department that he makes the same mistake again because the humiliation prevents him from thinking of anything else.

5. Punishment creates a negative feeling toward the punishing agent, such as a supervisor, and interferes with relationships regarding other issues. When supervisors and parents are highly critical and constantly harass subordinates and children they tend to create such a negative, emotional feeling that even friendly comments and legitimate requests are ignored.

6. Punishment is sometimes a reward since any form of attention is better than being ignored. Grade school teachers are often surprised to find that rowdy students seem to enjoy being disciplined, because it tends to raise their status in the eyes of their peers.

Escape Contingencies. An escape contingency refers to a situation where an aversive stimulus is present, and the person must make a response to terminate or eliminate it. In animal studies, a loud buzzer or electric shock was presented to the animal, and the animal was required to make a response to eliminate it. The effect of an escape contingency is to increase the probability of a response; the individual does not like the aversive stimulus and acts to remove it. Escape contingencies are also called negative reinforcement contingencies since a negative reinforcer is removed from the situation following a response.

Escape contingencies are illustrated by many of the little annoying things in life. For example, when the wind is blowing unpleasantly through the window, we close it; we fasten our seatbelts to eliminate the sound of a buzzer; we go to the kitchen to get a bottle of milk to feed a crying baby; we stumble out of bed to turn off an irritating alarm clock; we take antacid to ease stomach discomfort; and we complete a weekly report to silence a nagging supervisor. Advertising that emphasizes the removal of aversive stimuli try to capitalize on escape contingencies.[19]

Escape contingencies motivate us to act, but only a minimal response to terminate the aversive condition. When employees are demoted or placed on probation for poor performance, for example, they will improve their performance just enough to be promoted or removed from probation. Unless other reinforcers are present, they will not be motivated to achieve outstanding performance, instead they will be content with minimally acceptable performance.

Avoidance Contingencies. An avoidance contingency consists of making a response to avoid an aversive consequence. In animal studies, for example, a light would indicate that within a matter of seconds the animal would receive an unpleasant electrical shock unless it responded by pressing a lever.

Some illustrations of avoidance contingencies are taking an umbrella to avoid getting drenched, studying late at night to avoid failing an exam, completing a report to avoid being humiliated by a supervisor, and paying your phone bill to avoid having your phone service cut off. Like an escape contingency, avoidance contingencies are based on a motive of avoiding failure or pain, rather than seeking success and rewards. Therefore, even though avoidance contingencies tend to increase the probability of a response, the response tends to be the least possible effort needed to avoid the unpleasant consequence.

Extinction Contingency. An extinction contingency consists of not reinforcing a response. When the response is made, the individual receives no reinforcement either positive or negative. This contingency is based on the premise that people do what they are reinforced for doing. Behaviors that are not reinforced will be extinguished, in other words, not displayed any more. In animal studies, extinction contingencies are created by discontinuing any form of reinforcement and observing how long the animal continues to perform without any form of reinforcement. Some responses are much more persistent than others, depending on the schedules of reinforcement. In time, non-reinforced responses are terminated.

Examples of extinction contingencies include ignoring students who talk without raising their hands, failing to notice good performance from employees who have attempted to do a good job, and not responding to written reports. An extinction contingency tends to decrease the probability of responding. If written reports are continually ignored, before long they will no longer be prepared.

These five reinforcement contingencies, summarized in exhibit 7.3, describe the major approaches to changing behavior. They indicate the kinds of consequences that should follow behavior to increase or decrease the probability of a response in the future.

Exhibit 7.3 Summary of Reinforcement Contingencies

Label	Effect on Behavior	Nature of the Contingency
1. Positive	increases	Correct response is followed by a positive reinforcing stimulus.
2. Punishment	decreases	Behavior is followed by an aversive stimulus.
3. Escape	increases	An aversive stimulus is present and the correct response terminates it.
4. Avoidance	increases	An aversive event will occur unless the correct response is made.
5. Extinction	decreases	The behavior is ignored. No reinforcement is associated with the response.

Reward Schedules

The timing of the reinforcement also influences behavior. Reinforcers are most effective when they occur immediately after a response, but not necessarily after each response. Delayed reinforcement tends to lose its reinforcing effect. If reinforcement is delayed too long it might be associated with some other response and lose its effect all together. Immediate reinforcement is especially important for learning new behaviors. New behavior can be learned faster if the learner receives immediate performance feedback and reinforcement. After the response has been learned, however, every response does not have to be reinforced. In fact, intermittent schedules of reinforcement are often more effective in maintaining high levels of responding.[20] The three major reinforcement schedules are continuous, intermittent, and interval.

Continuous Reward Schedule. A continuous reinforcement schedule reinforces each correct response. Most of our day to day behavior is maintained on a continuous reinforcement schedule. Every time we push the knob on the drinking fountain, we get a drink; when we push the horn, it honks; if we twist the knob, the door opens; when we turn the key, the car starts; when we pick up the phone, we get a dial tone.

Continuous reinforcement schedules tend to produce a steady rate of performance as long as reinforcement continues to follow every response. However, a high frequency of reinforcement may lead to early satiation. In animal studies, for example, pigeons would develop a fairly consistent rate of response when each response was reinforced; but after many reinforcements the response declined because the pigeon was apparently no longer hungry.

When reinforcement is terminated, behaviors that have been maintained on a continuous schedule tend to extinguish rapidly. If you twist the knob on the drinking fountain and nothing comes out, you will probably conclude that the water has been turned off and leave until you think the water has been turned on again.

In training programs, continuous reinforcement schedules are ideal during the early training periods when learners are attempting to acquire a new response. Continuous reward schedules provide immediate feedback on performance to help the learners evaluate their performance and correct their mistakes.

Intermittent Reward Schedules. An intermittent reinforcement schedule occurs when only a portion of the correct responses are reinforced. Only every nth response is reinforced, which explains why they are also called partial reward schedules. However, n can be either a fixed or a variable number.

If n is a fixed number the reinforcement schedule is called a ***fixed ratio schedule.*** Here a fixed number of responses must be made before a reinforcement occurs. Fixed ratio schedules are easy to construct in animal studies by requiring the pigeon to peck at a disk five times before being reinforced. In organizational life, however, fixed ratio schedules are rarely observed. Some piece-rate incentive plans and commission sales programs are fixed ratio schedules where 12 units must be produced and submitted by the dozen, or three subscriptions must be sold before the order forms can be submitted.

Fixed ratio schedules tend to produce a vigorous and steady rate of response that is typically a little higher than continuous reward schedules. Since the number of responses being reinforced is less, the individuals tend to perform at a higher rate to obtain higher levels of reinforcement. Like a continuous reinforcement schedule, fixed ratio schedules tend to extinguish quite rapidly when reinforcement is terminated.

If *n* is a variable number, the reinforcement schedule is called a ***variable ratio schedule***. Here a varying or random number of responses must be made before reinforcement occurs. Most social reinforcers are administered on a variable ratio schedule. Employees never know for certain whether their outstanding

performance will be recognized, but they have learned from past experience that occasionally it will be. Sales also tend to occur on a random basis, so that sales representatives are reinforced on a variable ratio schedule in making sales.[21]

Variable ratio schedules tend to produce a very high rate of response that is vigorous, steady, and resistant to extinction. Variable ratio schedules are especially effective in maintaining behavior long after the reinforcement has been terminated. Games of chance such as bingo and slot machines are excellent illustrations of variable ratio reinforcement schedules. For example, people play slot machines for long periods of time even though they are infrequently reinforced. In fact, most people who play slot machines know they will go broke if they play long enough. To comprehend the power of variable ratio schedules, remember that playing slot machines is a very repetitive (i.e. boring) activity according to industrial engineering standards. Nevertheless, many people pay to play them in an atmosphere where the noise and air pollution might not meet acceptable industrial requirements.

Interval Schedules. In some situations, the timing of a reinforcer is based on an interval of time which can be either a fixed or variable length.

With a ***fixed interval schedule***, the first response after a fixed period of time is reinforced. In animal studies, for example, a pigeon may be required to wait for a period of time, such as one minute, before any responses are reinforced. Responses made before the one minute ends are ignored. The most popular example of a fixed interval schedule is a weekly or monthly paycheck. However, this illustration has to be treated somewhat cautiously because even though the pay only comes after a specified interval of time, employees are expected to perform during that period. A failure to perform might result in being fired. Therefore a weekly salary only partially illustrates a fixed interval schedule.

Fixed interval schedules tend to produce an uneven response pattern that varies from a very slow lethargic response rate immediately after being reinforced to a very fast vigorous response rate immediately preceding reinforcement. This pattern of responding can be illustrated by a monthly board of directors meeting. The reinforcements to managers occur on a fixed interval schedule once each month. Prior to each board meeting, managers are frantically gathering data, preparing reports, and supervising their staffs as they work ten and twelve hours per day. After the board meeting, however, their rate of activity declines precipitously and they only work two or three hours each day to answer their mail. The same response pattern is observed in the study habits of students. Much more reading occurs just before each exam.

When the interval varies in length of time, the reinforcement schedule is called a ***variable interval schedule.*** Again, responses made during the interval of time are ignored and only the first correct response after the end of the variable interval is reinforced. Conceptually, variable interval schedules are different than variable ratio schedules, but to the person being reinforced they are essentially the same. Reinforcements, such as promotions, are delivered on an irregular and unpredictable schedule – new college graduates are often told that after a year or two they will probably be promoted, but it is uncertain.

Like a variable ratio schedule, variable interval schedules are capable of producing a very high rate of response that is vigorous, steady, and resistant to extinction. Individuals who have been maintained on a variable interval schedule tend to persist in their performance long after the reinforcement has been terminated. Gamblers will tend to continue playing slot machines long after they have quit paying off. Sales representatives continue to make sales calls long after the product has stopped selling. Managers

continue to operate outdated companies and produce obsolete products even though they are consistently losing money. The effects of these reinforcement schedules on behavior are illustrated in exhibit 7.4.

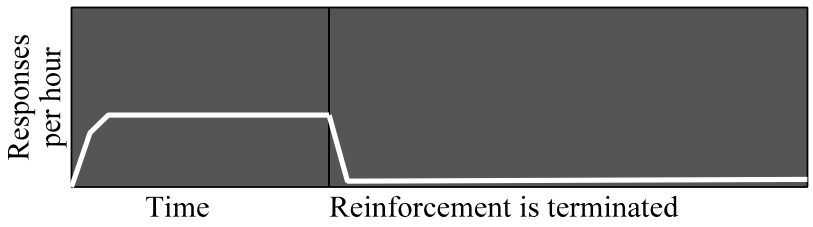
Behavior Modification

One of the earliest applications of reinforcement theories to individual behavior was called behavior modification. Through behavior modification, the behavior of individuals is modified by analyzing the antecedents (environmental cues) and consequences of behavior and changing them as necessary. Individuals are assisted in acquiring desirable behaviors by creating positive rewards for good behavior and by designing appropriate reward contingencies. For example, a high school student was so shy and self-conscious that she had difficulty developing friends. She requested help from a school counselor who developed a behavior modification program that taught her three simple responses: smiling and nodding her head, introducing herself by telling her name, and asking the question "what do you like most about school?" The girl wore a simple counter on her wrist that looked like a watch which she used to record how many times she made a response each day. The reinforcement came first from the counselor's praise, then from the counter recording her new behavior, and eventually from the acceptance of her new friends. Simple behavior modification programs such as this have proved to be very effective at helping individuals change their behavior and make the kinds of responses they want to make.

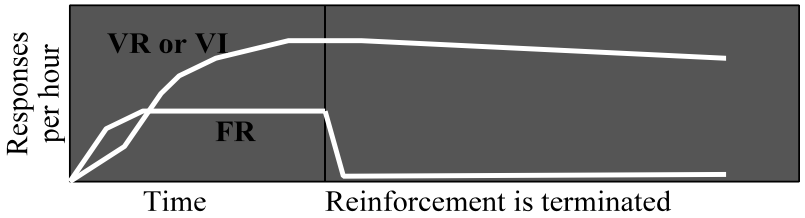
Using behavior modification in organizations is called ***organizational behavior modification*** or OB Mod. Principles of reinforcement are applied within organizations to change and direct the behavior of members toward the attainment of organizational and societal objectives.[22]

Exhibit 7.4 Schedules of Reinforcement and Their Effects on Behavior

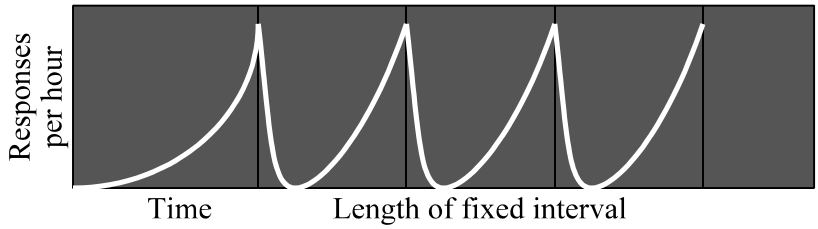
1. *Continuous reinforcement schedule.* Reinforcement follows every correct response.
   • Produces a steady rate of performance as long as reinforcement continues to follow every response.
   • High frequency of reinforcement may lead to early satiation.
   • Behavior extinguishes rapidly when reinforcement is terminated.
   • Best schedule for teaching new behavior.



2. *Fixed ratio (FR)* A fixed number of responses must be made before a reinforcement occurs.
   • Tends to produce a vigorous and steady rate of response that is higher than continuous reinforcement.
   • Tends to extinguish rapidly when reinforcement is terminated.
3. *Variable ratio (VR)* A varying or random number of responses must be made before reinforcement occurs.
   • Capable of producing a very high rate of response that is vigorous, steady, and resistant to extinction.
4. *Variable interval (VI)* The first correct response after a varying or random interval of time is reinforced.
   • Capable of producing a very high rate of response that is vigorous, steady, and resistant to extinction.



5. *Fixed interval (FI)* The first response after a fixed period of time is reinforced.
   • Produces an uneven response pattern that varies from a very slow, lethargic response rate immediately following reinforcement to a fast, vigorous response rate immediately preceding reinforcement.



OB Mod focuses on observable and measurable behaviors instead of needs, attitudes, or even general organizational goals. OB Mod separates performance problems into three levels of analysis that vary along a continuum from specific actions, to intermediate outcomes, to general outcomes:

1 Behavioral events are the specific acts people perform in the course of working.
2 Performance refers to behaviors that contribute to the intermediate goals of the organization.
3 Organizational consequences are measures of organizational effectiveness associated with the long range survival and success of an organization.

An illustration of a behavioral event is cleaning up an oil spill on the shop floor. At the performance level, cleaning up oil spills improves safety, and the organizational consequence is a reduction in accidents. Another behavioral event is punching-in on time and being at the work station by 8 a.m. These events result in dependable attendance at the performance level, and the organizational consequence is reduced absenteeism and tardiness.

The identification of behavioral events is important in OB Mod because these are the specific acts that are measured and reinforced. Desirable organizational consequences are pursued through a strategy of obtaining the desired behavioral events that create them. The process of implementing OB Mod, called behavioral contingency management, consists of a five step process for solving performance problems:

1. **Identify performance related events.** The first step consists of identifying the specific behaviors that contribute to effective performance. These behaviors must be observable and countable. For example, if the performance problem is late reports, the behavioral events might be the number of reports submitted by a specified date.

2. **Measure the frequency of response.** Before trying to change a behavior, a baseline measure of its frequency must be established. In measuring the frequency of a response, all responses can be counted if they are infrequent, such as absenteeism and tardiness. But if the responses are frequent, only samples of behavior need to be counted, such as the number of correct strokes of a data entry operator during a five minute sample every two hours.

3. **Identify existing contingencies through a functional analysis.** A functional analysis refers to an examination of the antecedents and consequences of behavior. The antecedents consist of the environmental conditions surrounding the behavior and any actions that occurred immediately prior to the behavior. The consequences consist of all the outcomes associated with the behavior both positive and negative. Since human behavior is so complex, identifying all of the antecedents and consequences is extremely difficult, but very important.

4. **Intervention strategies.** The first three steps provide a foundation for altering behavior by changing the reinforcement contingencies. The success of OB Mod depends on selecting and implementing an appropriate intervention strategy. The basic strategies involve the use of positive reinforcement, punishment, escape, avoidance, and extinction contingencies or a combination of these. The goal of the intervention is to change the frequency of the identified behavior. Once the strategy is applied, the results are monitored and charted.

5. **Evaluate.** The final step is to assess whether behavior has changed and is contributing to improved organizational consequences. Several successful applications of OB Mod have been reported in various organizations including industry, government, and military.

Although studies show that OB Mod has been highly successful in increasing productivity and helping organizations function more effectively, it has been criticized for threatening individual freedom. Because behavior modification programs have been so successful in changing behavior, their success has raised questions about the morality of changing another person's behavior. Does OB Mod cause people to lose their individuality and force them to behave differently?

OB Mod programs are not necessarily unethical simply because they change individual behavior. Like other social influence processes the determination of whether they are unethical depends on a variety of circumstances, particularly on how they are developed and implemented. An OB Mod program is not

considered unethical in these situations: (1) when it helps individuals pursue their own personal and social ideals, (2) when it uses positive rather than negative techniques, (3) when the participants are fully aware of the methods and goals used in the program, (4) when there is a clearly established need for it and widespread agreement that change is necessary, or (5) when those who design the program have ample opportunity to discuss the consequences of the program and its potential side effects. There is a dramatic difference in the ethical implications of an OB Mod program designed to force employees to behave in ways they consider immoral or illegal versus an OB Mod program designed to help employees to succeed in an organization or pursue their own personal goals. While one program is viewed as an invidious form of manipulation, the other is viewed as constructive assistance.

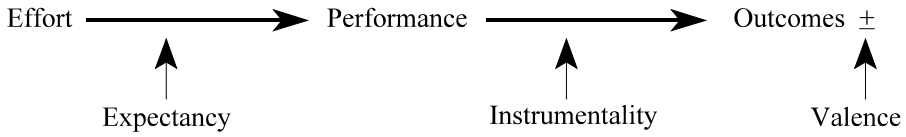
Cognitive Motivation Theories

Some theories of motivation depend on what people think and how they reason. These theories are called cognitive theories of motivation and they include expectancy theory, equity theory, and goal setting theory.

Expectancy Theory

Expectancy theory is a decision-making model of motivation that explains how individuals decide what to do by evaluating the outcomes of their behavior and the probabilities associated with them. Several disciplines have contributed to the development of expectancy theory, including economics, decision theory, and psychology.[23] Consequently, many different models of expectancy theory have been presented in the literature and it has also been called expectancy/valence theory, instrumentality theory, and valence-instrumentality-expectancy (VIE) theory.

The determinants of effort. The basic idea of expectancy theory is that motivation is determined by the outcomes people expect to occur as a result of their actions. These elements are outlined in the diagram below: the amount of effort an individual is willing to exert depends on (1) the perceived relationship between effort and performance (expectancy), (2) the perceived relationship between performance and the outcomes (instrumentality), and (3) the value of the outcomes (valence).



Expectancy refers to the probability that effort will lead to performance. "If I really try hard, can I do this job?" "If I exert enough effort, can I perform well?" This relationship is viewed as a probability, and in research on expectancy theory, individuals are asked to estimate the perceived probability that a certain level of effort will achieve a particular level of performance. Workers who are highly skilled and have direct control over their work normally report a high expectancy since they know they can perform well if they try. Expectancies are much lower on jobs where employees see little relationship between their effort and performance, such as sales jobs where sales depend more on the customer's needs than the efforts of the sales representatives.

Instrumentality refers to the relationship between performance and outcomes. "If I perform well, will I be rewarded?" "What are the consequences for performing well?" Most situations produce a variety of consequences and some are more likely than others. Since several outcomes are possible, individuals subjectively calculate several instrumentalities to decide what to do – one for each outcome. Instrumentalities are typically viewed as a correlation coefficient showing the relationship between two variables. An instrumentality of +1.0 implies a direct relationship between performance and outcomes, such as piece-rate incentives. Individuals who are paid a fixed salary regardless of their performance, however, would report an instrumentality close to 0, indicating no relationship between pay and performance. Instrumentalities can also be negative. For example, leisure time would probably be negatively associated with performance since employees are forced to relinquish some of their leisure time to increase their performance.

Valence refers to the value of the outcomes and the extent to which they are attractive or unattractive to the individual. Some rewards are almost universally valued, such as praise, recognition, and compliments by others, while other outcomes may only appeal to certain employees, such as promotions and opportunities to work overtime. Research studies measuring expectancy theory typically use an arbitrary scale, such as one that ranges from +10 to -10, to measure the valence of various outcomes. Pay increases, feelings of pride in craftsmanship, and feelings of being service to others typically have positive valences, while being fired, being criticized by your supervisor, and feeling fatigue typically have negative valences.

Effort or force is the combination of expectancy, instrumentality, and valence. Individuals who expect to receive highly valued outcomes if they perform well, and who expect to perform well if they exert sufficient effort, should be highly motivated employees. The components of expectancy theory – expectancy, instrumentality, and valence – can be multiplied together to measure individual effort. Because the components are multiplied together, expectancy theory is sometimes described as a multiplicative model.[24] The formula for measuring effort is expectancy multiplied by the sum of the products of instrumentality times valence for all relevant outcomes.

$$\text{Effort} = \text{Exp}\ 3\ (\text{I} \times \text{V})$$

Although expectancy theory appears rather complex, the central ideas underlying it can be simply stated in a way that is easily understood. People are motivated to exert effort if by doing so they can perform well and attain desired outcomes. It is important to remember that expectancy theory is based on personal perceptions. Two workers placed in an identical situation may not exert equal effort because they perceive different expectancies, instrumentalities, or valences. These perceptions are influenced by past experiences, observations of the rewards others receive, and future anticipations.

Some descriptions of expectancy theory discuss two levels of outcomes: first-level outcomes and second-level outcomes. First-level outcomes usually refer to performance variables, such as quantity and quality of productivity and attendance, while second-level outcomes usually refer to all the consequences of performance, such as pay, promotion, fatigue, and a sense of accomplishment.[25]

Extensive research has examined expectancy theory, and most studies have produced positive results in spite of some difficult methodological problems. Although various modifications have been proposed, the basic concepts have remained unchanged: effort is determined by the combination of expectancy, instrumentality, and valence. The correlations between the levels of effort predicted by expectancy

theory and actual job performance have generally ranged between .20 and .70. These correlations are quite encouraging, since performance is determined by other variables than just individual effort.

Applying Expectancy Theory. Expectancy theory provides a convenient and practical model for diagnosing performance problems and motivating employees. When supervisors describe poor performance, they often use phrases like "lack initiative," "insufficient dedication," "no commitment," or "bad attitude." Unfortunately, these explanation do not help supervisors know what to do differently to obtain greater motivation.

Rather than attributing motivation problems to a lack of initiative or other personality traits, expectancy theory provides specific recommendations for improving motivation. Motivation problems are solved by altering the components of expectancy theory: expectancy, instrumentality, and valence.

1. Examine the effort-performance relationships. Employees are not willing to put forth much effort if they think their efforts are unproductive. They need to see a strong relationship between their efforts and how well they perform. Low expectancies are usually an indication that supervisors need to provide job training to help employees make their efforts more productive.

2. Examine the performance-reward relationships. Since people do what they are reinforced for doing, the performance-reward relationships should be revised to ensure that significant rewards that are closely tied to performance.

3. Use highly valued rewards to reinforce good performance. The consequences of good performance should possess a high positive valence. Money is a positive reward for most employees, but it is not the only valuable reward. Intrinsic rewards, such as achievement and feelings of pride in craftsmanship, also can reinforce outstanding performance.

Equity Theory

Equity theory comes from the field of social psychology and is based on a series of studies examining social comparison processes. According to social comparison theory, people evaluate their social relationships in much the same way economists describe economic exchanges in the marketplace.

Comparison processes. According to equity theory, people evaluate their inputs to the job relative to the outputs they receive, and then they compare them to the inputs and outputs of others.[26] "Did I get as much from my inputs as my co-workers received for theirs?" Inputs refer to all the relevant factors individuals bring to the exchange, such as effort, performance, education, skills, time, and opportunity costs. Outcomes include all of the rewards individuals receive from the exchange. Although pay is the most obvious organizational outcome, many other positive and negative outcomes may also be viewed as relevant, such as working conditions, social interactions, stress, and fatigue. It is important to note that the value attached to both inputs and outcomes is based upon the person's *perception* of its value, rather than its objective worth

The basic comparisons of equity theory can be illustrated by the following formula comparing the input-output ratios of a person relative to the input-output ratios of others.

$$\frac{O_p}{I_p} \; ? \; = \; \frac{O_o}{I_o}$$

O = Outputs I = Inputs o = others p = person

In this formula, O_p divided by I_p refers to the ratio of a person's outcomes to inputs while the O_o divided by I_o refers to the outcomes-to-inputs ratio of others. A state of equity exists when the two ratios are essentially equal. But this state of equity can be destroyed by changing any of the four values. For example, you could feel underpaid because your outcomes were decreased ("My shift differential was eliminated"), because your inputs were increased ("I have to travel further to get to the workplace"), because the outcomes of the others were increased ("Sam got a production bonus"), or because the inputs of others were decreased ("Sam's new machine is easier to operate than mine.")

A state of inequity exists whenever the two ratios are unequal and it can be caused by either ratio being greater than the other. In other words, inequity can exist because people are either overpaid or underpaid. The available research suggests that people are more easily upset by underpayment than by overpayment. Therefore, people are more willing to accept overpayment in a social exchange than underpayment. Nevertheless, according to equity theory, both conditions of inequity motivate individuals to establish a more equitable exchange.

Equity theory explains why employee performance is often less than expected. Employees typically have inflated perceptions of a "fair wage" because high wages are mentioned more frequently in the popular literature. Since the actual wages employees receive are generally less than the fair wages, workers supply a corresponding fraction of their normal effort.[27]

Equity theory is a general theory, believed to apply to most people in most situations. The importance of equity, however, is not universally accepted by everyone. Research has shown that the norm of equity is an individual characteristic, somewhat linked to gender, wherein some individuals, especially men, are more prone than women to distribute outcomes to other individuals in direct proportion to their inputs. This is not to say that men are more concerned than women with being fair in allocating rewards. Rather, men are more apt to use a norm of equity, whereas women are more apt to adopt an equality norm in which outcomes are distributed equally regardless of inputs.[28]

Consequences of inequity. When a perceived state of equity exists, individuals tend to feel satisfied and report that the conditions are fair. When a perceived condition of over reward exists, however, individuals tend to feel guilty and dissatisfied and they are motivated to correct the imbalance. Likewise, when a perceived state of under reward exists, individuals tend to feel dissatisfied and angry, and again they are motivated to do something about it. According to equity theory, a perceived state of inequity creates tension within individuals and the tension is proportionate to the magnitude of the inequity.

Six methods have been proposed to explain how individuals attempt to reduce inequity.[29]

1. People may alter their inputs. Underpaid workers could reduce their level of effort while overpaid workers could increase theirs.

2. People may alter their outcomes. Individuals who feel over rewarded can share their rewards with others (although they usually don't), while under rewarded people will try to obtain greater rewards by increasing prices, requesting a raise, or joining a union.

3. People may cognitively distort their inputs and outcomes. Individuals who are under rewarded may cognitively distort both their inputs ("I don't really work that hard, after all"), or their outcomes ("Besides, I get a lot of satisfaction living in this community"). Cognitive distortion is especially likely for over rewarded people who may distort either their inputs ("I bring with me a lot of experience and leadership from my earlier jobs") or their outcomes ("Even though I get more money, I pay more taxes").
4. People may distort the inputs or outcomes of others. It is just as easy for individuals to distort their perceptions of others' outcomes and inputs as it is to distort their own.
5. People may change objects of comparison. Sometimes the easiest adjustment is to adopt a different comparison group. For example, if a group of executive secretaries received a substantial pay increase, an easy way to rationalize it is to think of themselves more as executives and less as secretaries.
6. People may leave the field. If they can't change the actual inputs or outcomes, and cognitive distortion becomes too difficult or painful, individuals may choose to leave the situation by transferring to another job or quitting.

The object of these methods is to reestablish a condition of equity and reduce the tension created by the former inequitable state. Since equity theory is a cognitive theory of motivation, it is frequently rather difficult to predict which method of tension reduction an individual may adopt. Over time it is likely that individuals use them all.

Research on equity theory. Equity theory has generated a substantial body of research to assess the validity of the theory. Most of this research has focused on equity theory's predictions of how employees react to pay. These studies focused on two types of pay inequity, overpayment and underpayment, and two methods of compensation – hourly pay and piece-rate pay. The results of several studies generally support these conclusions:[30]

1. When individuals are underpaid on a piece-rate system, they tend to increase the quantity of their work while the quality declines. Since they get paid only for what they produce, they try to correct for their underpayment by producing more units while allowing the quality to decline.

2. Individuals who are underpaid on an hourly rate tend to respond by reducing their effort and allowing both the quantity and quality of their work to decline. Since they can't change their hourly rate of pay, their outcomes are fixed. Therefore, they attempt to correct the underpayment by reducing their inputs of effort.

3. Individuals who are overpaid on a piece-rate system tend to reduce the quantity of their work and increase their quality. Since overpayment is created by more outputs than inputs, they tend to reduce their pay by producing fewer units, but invest significantly greater effort, thereby raising the quality.

4. Individuals who are overpaid on an hourly rate tend to increase both the quantity and quality of their performance. Since their outcomes are set at a fixed hourly rate they can correct the imbalance only by increasing their inputs. Consequently, by exerting greater effort they increase both the quantity and quality of their work.

Studies on the effects of overpayment have sometimes been clouded by weak results and competing explanations. Part of this difficulty comes from how perceptions of overpayment were created: the

subjects' qualifications for their jobs were challenged in order to make them feel overpaid relative to their qualifications. Making people feel unqualified, however, influences more than their perceptions of pay equity. It also threatens their self-esteem.

Applying Equity Theory. The most significant implication of equity theory for managers is that perceived underpayment will have a variety of negative consequences for the organization such as low productivity, turnover, grievances, absenteeism, and dissatisfaction. When evaluating and rewarding employees, managers need to remember that the objective reality of how much individuals are paid is not as important as the subjective perceptions of equity. Rewarding one individual is not an isolated event. While a sizable bonus awarded to one employee may cause that individual to feel rewarded, it may create intense dissatisfaction among many others because of their perceived state of inequity.

According to equity theory, individuals should increase the quantity and quality of their performance when they feel overpaid. Overpayment can be created by actually paying employees more than they are worth, or by manipulating them to believe they receive more than they are worth, such as by down-grading the quality of their inputs. Overpayment is not really an effective long-term strategy to increase productivity, however, since feelings of overpayment appear to be extremely temporary. Individuals have the ability to cognitively change their perceptions very rapidly. Rather than continuing to feel overpaid and working harder, they very quickly come to believe their efforts are worth what they receive.

Goal Setting

Individuals perform significantly better when they are attempting to achieve a specific goal such as: complete a project before noon, increase productivity by 5 percent, work for the next hour without making a mistake, maintain 100 percent attendance, and get a research paper submitted on time.

Goal Setting Theory. In 1968 Edwin A. Locke first presented a theory of goal setting and a series of studies showing the effects of goal setting on performance. Continuing research in both laboratory and field studies supports Locke's theory.[31] Reinforcement theory explains why goal setting has such a powerful influence on behavior.[32]

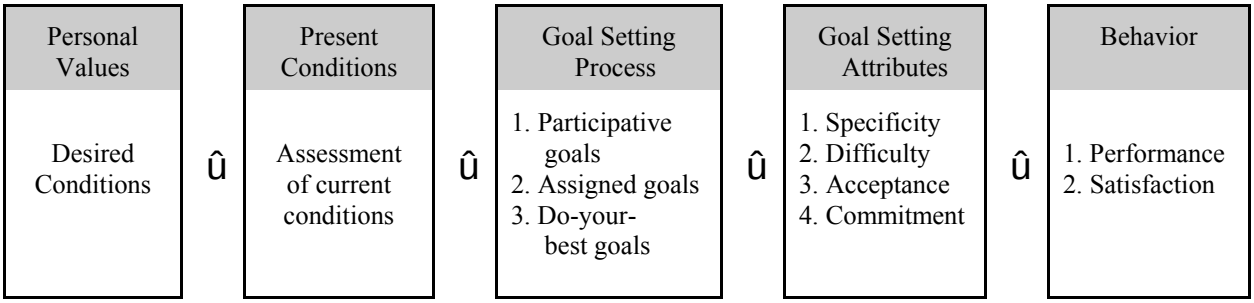
A goal is simply a standard of performance an individual is trying to achieve. For example, completing a project before noon or increasing productivity by 5 percent describe specific actions individuals must perform in a specified period of time. Some of the earliest work on goal setting was performed by Frederick W. Taylor in his work on scientific management. Taylor attempted to identify appropriate goals for workers using time and motion studies and a careful task analysis. The methods and procedures by which employees were to perform their assigned tasks, such as tools, pacing, and physical movement were specified in great detail. Rather than referring to them as goals derived from a goal setting process however, Taylor referred to them as standards derived from a time and motion study.

The basic elements of goal setting theory are illustrated in Exhibit 7.6. The goals we seek are determined by our values. After examining our present circumstances, we compare our actual conditions with our desired conditions. If we are achieving success, we feel satisfied and follow the same course. But if there is a discrepancy, we go through a goal setting process.

Students go through the goal setting model frequently during their educational program. Based upon their personal values, students have an idea of what they want, such as graduating from college, going on to graduate school, or securing an attractive job. As they assess their present conditions, however, they

often discover that their test scores are low, their class attendance is down, and their term papers are behind schedule. These discrepancies between their desired and actual conditions frequently cause students to initiate a goal setting process. They establish such goals as raising my next test score from a C+ to an A-, attending every lecture, and having a first draft of my term paper written within the next two weeks.

Exhibit 7.6 Goal Setting Model



Goal setting occurs in three ways. *Participative goals* allow employees to participate in the process of setting goals by providing information and contributing to the goal selection. If they believe the goals are too high or too low, they can express their opinions and try to influence the goal statements. *Assigned goals* are determined by management and simply assigned to the employees. In scientific management, the standards of performance are determined by industrial engineers with almost no input from the employees. *Do-your-best-goals* allow employees to control their own goals; management simply asks the employees to do their best without getting involved in approving or vetoing their goals.

Applying Goal Setting Theory. The effects of goal setting on behavior are influenced by four major goal setting attributes: goal specificity, goal difficulty, goal acceptance, and goal commitment.

1 **Goal Specificity.** Numerous studies have found a direct relationship between goal specificity and increased performance. When employees are working toward specific goals they consistently perform at higher levels than when they are simply told to do their best or are allowed to work at their own rate with no instructions at all. Since "Do your best" goals are only loose guidelines rather than specific goals, they have approximately the same effect on performance as no goals at all. Studies indicate that when workers are simply told to do their best, this instruction is considered equivalent to not having goals. A review by Locke and his associates of field experiments using a wide variety of different jobs found that 99 out of the 110 studies they reviewed found that specific goals led to better performance than vague goals.[33]

2 **Goal difficulty.** Studies on the effects of goal difficulty have found a direct linear relationship showing that an increase in goal difficulty is associated with an increase in task performance. In other words, higher goals lead to higher performance. These results have been observed for brief one-time tasks lasting as little as one minute, and for ongoing tasks lasting as long as seven years.[34] Again these studies investigated a wide variety of different jobs with participants ranging in age from four years to adulthood.[35] The relationship between goal difficulty and task performance however, does not hold for unreasonably difficult goals. When the goals are so high that they become unreasonably difficult or impossible, individuals tend to ignore the goals and

performance may be only slightly better than no goals at all. When a goal is perceived as so difficult that it is virtually impossible to attain, the result is often frustration rather than achievement. Dreaming the impossible dream does not improve performance as much as a difficult but realistic goal. Research on the effects of various probabilities of success suggest that the optimum levels of motivation occur when the probability of success is .5. Here the probability of success is equal to the probability of failure and according to a formula by Atkinson, the highest levels of motivation occur when the probability of success is equal to the probability of failure.[36] Therefore, to obtain high performance levels goals should be difficult and challenging, but the difficulty should not be so great that individuals believe their chances of succeeding through a dedicated effort are less than 50/50.

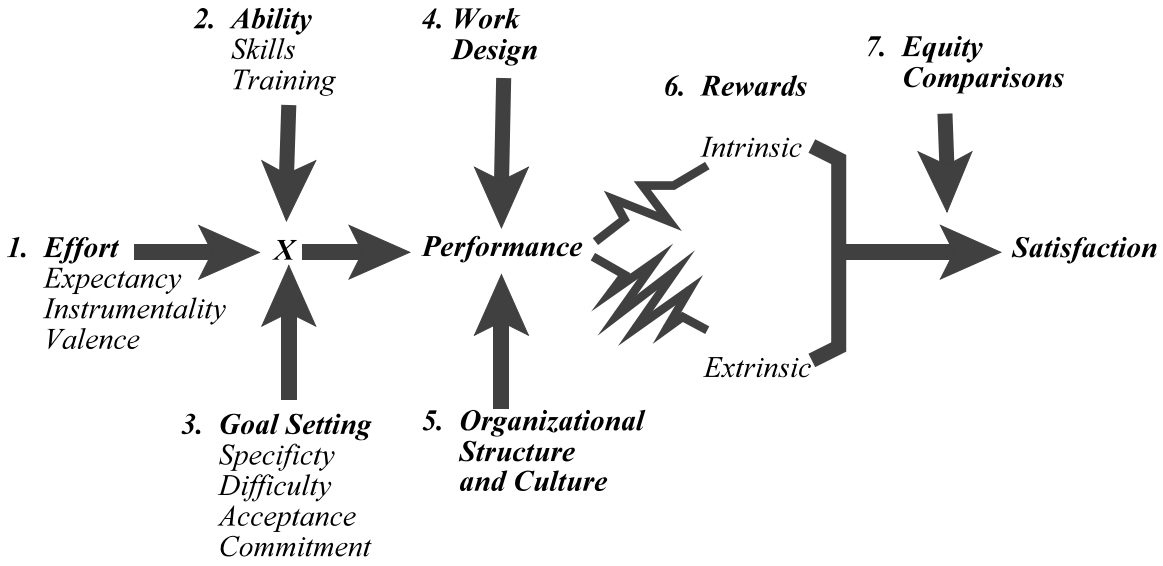
3 **Goal acceptance.** Goal acceptance refers to the degree to which individuals accept the goal as their own. Individuals need to feel that the goal belongs to them. "This is my goal." Goals are typically resisted or ignored when they are too difficult and out of reach. However, goals can also be rejected for a variety of other reasons, such as the employees distrust management, they feel they are being exploited by the organization, the goals are not fair and consistent, or the activity is meaningless and irrelevant.[37] Unrealistically high goals are not always entirely rejected. There is some indication that unreachable goals are reinterpreted by employees rather than rejected altogether.[38] For example, if a music student has only been practicing 15 minutes a day, and then is told that he should be practicing four hours daily, rather than totally disregard the four hour goal, he may adopt a compromise position and practice two hours per day.

4 **Goal commitment**. Goal commitment is determined by both situational variables (goal origin and public announcement) and personal variables (need for achievement and locus of control). The evidence suggests that commitment to difficult goals is higher when (1) goals are self-set rather than assigned, (2) goals are made public rather than private, (3) the person has an internal locus of control, and (4) the person has a high need for achievement.[39] High levels of goal commitment can also be expected regarding goals associated with one's self-esteem. To the extent that individuals become ego-invested in achieving a goal, their level of goal commitment can be expected to be very high.[40]

Motivating Employees

Motivation is a complex issue and each theory contributes to our understanding of how to motivate employees. A model summarizing how the various theories of motivation contribute to the practical problems of motivating employees is shown in Exhibit 7.7. According to this model, managers need to examine seven issues to create high levels of motivation.

Exhibit 7.7 Summary Motivation Model



1 *Are employees motivated to produce high levels of effort*? According to expectancy theory, effort is produced by expectancy, instrumentality, and valence.

2 *Do employees have the ability to perform their jobs*? Ability includes both the physical and intellectual skills needed to do their work, which is largely a selection issue, as well as the knowledge they require, which is primarily a training issue.

3 *Do employees have clear job expectations that come from carefully established goals*? Goal setting theory suggests that goals should be specific, challenging, and acceptable.

4 *Is the work designed efficiently so that the efforts of employees are not wasted on unproductive activities*? Poorly designed jobs can prevent employees from being productive regardless of their efforts.

5 *Does the organizational environment contribute to a productive work setting*? Uncooperative work groups and inefficient structures can destroy productive efficiency as much as poorly designed work.

6 *Are meaningful rewards contingent on performance*? Are the reinforcement contingencies and reward schedules designed to reward people for high performance? People are motivated by many possible reinforcers, but some are much more effective than others, especially intrinsic rewards that serve as internalized values.

7 *Are the rewards fair*? Whether they are fair is primarily a subjective decision that is based on equity comparisons relative to what others receive. Equity theory explains how these comparison are made and the consequences of inequity.

This model suggests that effort, ability, and goal setting attributes combine in a multiplicative fashion to produce performance. A multiplicative model means that if any of the three factors is zero or missing,

there is no performance. This idea ought to seem quite reasonable since zero effort should produce zero performance regardless of the person's ability. Similarly, nothing will be produced if the person has no ability or does not understand what to do. Likewise, it suggests that work design and the organizational environment influence performance since people cannot perform well if their jobs or the organization prevent them from translating their efforts into productive outcomes. Later chapters will examine work design and the kinds of organizational environments that contribute to outstanding motivation.

Rewards should be based on performance. The wavy lines between performance and rewards are intended to suggest that the relationship for intrinsic rewards is more direct than for extrinsic rewards since people administer their own intrinsic rewards while extrinsic rewards depend on uncertain organizational practices. Job satisfaction is determined largely by the kinds of rewards people receive from their work; however, their perceptions of whether their rewards are fair and equitable are important considerations.

Discussion Questions

1 What are the differences between positive reinforcement, punishment, escape, and avoidance contingencies? What are some examples of each that might be found in organizations?

2 If variable ratio schedules are so effective in maintaining a high and steady rate of responding, why are they not used more frequently in organizations. Identify some illustrations of variable ratio schedules and explain how they could be used to reward employee performance.

3 Describe the components of the Expectancy Theory. If you were a supervisor, explain how you would use each component of Expectancy Theory to motivate the employees you supervise.

4 What are the principles of goal setting theory? Identify a goal you would like to achieve and describe how you could apply these principles to your challenge.

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