

historical biographies, and several folkloric versions of chronotopes; and (4) *architectonic dialogism*, defined as the interanimation of Kantian cognitive discourse with more aesthetic and ethical societal discourses.

A future direction for OST is to formulate how multiple dialogisms interact. Such a move could fulfill Boulding and Pondy's dream of an OST beyond Level-4 complexity. Just how that is to be theorized and researched and how it affects practice has yet to be worked out. One direction would be to reformulate Boulding's orders of complexity using Bakhtin's dialogisms: polyphonic and stylistic dialogisms take us beyond Levels 4 (OST) and 5 (organic sign regimes) to Level 6 (image complexity). Organizations no longer mimic cells (Level 4) or plants (Level 5), because humans manage images in multistylistic modes of expression.

Chronotopic dialogism is hypothesized to be consistent with Boulding's Level 7 focuses on history, symbol, and self-reflection. One chronotope does not constitute dialogism. Even enactment or retrospective sensemaking, when it interacts with just one other chronotope, remains just a dichotomy. A dialogic example would be chronotopes of cyclic adventure, or reversal of focus on the present or past, to enact a more concrete version of the future.

Social networks (Level 8) seem relevant to architectonics of societal discourses. However, perhaps Emery and Trist's social ecology is more than just OST; at least it is more than Katz and Kahn's egocentric OST. Social ecology seems to relate to ethical and aesthetic values that populations of organizations, as well as communities, can advocate in order to change the turbulence.

Finally, it could be that transcendental (Level 9) is a reentry of spirituality and religiosity into modernity. There is certainly increased interest in spirituality and religiosity (e.g., *Journal of Management, Spirituality & Religion*), represented in part by an interest group focusing on these themes in the American Academy of Management. Different cultures, with their own distinct religious and spiritual values, may change what properties are considered systemic.

For organization studies to move beyond OST will require continued conceptualization and inquiry into

the role of multiple languages, stories, narratives, and symbols. OST may be left behind or reimaged with a more complex model than that of a monolanguage, such as those of dialogism. It may be that Bakhtin's dialogism can contribute to moving beyond monological formulations of OST.

—David M. Boje

See also Discourse Analysis; Language and Organizations; Storytelling; Strategic Discourse

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OPERANT CONDITIONING

Operant conditioning (OC) is a form of learning defined by the relationship between behavior and stimuli that follow behavior. Consequences may affect behavior by increasing it (reinforcement) or by decreasing it (punishment). Thus, OC is characterized by an increase or decrease in behavior that is attributable to past consequences of that behavior. Unlike classical conditioning, in which stimuli are presented independently of behavior, OC is defined by the fact that the learner must perform a specific behavior before some stimulus change occurs.

Conceptual Overview

Edward L. Thorndike initiated the study of instrumental conditioning, a variant of OC, at the end of the 19th century. To investigate how animals learn new behaviors, Thorndike placed a cat in a locked puzzle box. If the cat performed the correct response (e.g., pulling a rope), the door opened and the cat would get access to food located outside the cage. In initial trials, it took a long time for the cat to emit the correct response, and the response seemed to occur by chance. However, as the cat gained experience, it would make the correct response more quickly; eventually, the correct response was emitted in a matter of seconds when the animal was placed in the cage. Based on these observations, Thorndike developed the principle of the *law of effect*. This law states that a behavior that is followed by pleasant consequences will be associated with the situation and will thus be more likely to occur in the future when the animal is again located in the same situation. The law of effect has a second part, that behaviors that are followed by unpleasant consequences will be weakened.

Thorndike's law of effect focused on the assumed pleasure or displeasure to explain how behavioral consequences affect future behavior. In the 1930s, B. F. Skinner reformulated this understanding; he also coined the term *operant conditioning*. Skinner pointed out that Thorndike's interpretation of the cat's learning was mentalistic in that it referred to assumed feelings on the part of the cat, and Skinner insisted that studies of OC should focus on *functional relationships* between behavior and its consequences. Also, in contrast to Thorndike, Skinner based his studies on responding in situations that allowed for free repetition of the required response (*free-operant*). For example, a rat could press a bar and receive food pellets for pressing. In this way, operant responding could be studied as a continuous process, without the intervention of the experimenter during sessions. Thus, Skinner focused on the flow of behavior in interaction with environmental events. He formulated a number of principles to describe such behavior-environment relationships, all of which have been supported by later research.

Critical Commentary and Future Directions

Reinforcement

Skinner measured strength of behavior in terms of frequency of responding. Rate can change in two ways; it can increase or decrease. If rate of responding increases as a function of the organism's interacting with its environment, the process is called *reinforcement*. Decrease of responding is called *punishment* or *reduction*. These terms are purely descriptive of observed processes, and they do not refer, as Thorndike's law of effect did, to pleasure or discomfort. It is important to note that reinforcement was defined in functional terms. An event that increases frequency of responding because it typically follows a response is called a (positive) *reinforcer*. This distinguishes the terms *reinforcer* and *reward*. Rewards are events that are intended to strengthen behavior, but reinforcers are events that actually strengthen behavior. Often, rewards function as reinforcers, but there may be exceptions. For example, if a student enjoys working with mathematics, rewarding that activity may actually reduce rather than strengthen that behavior (*overjustification*). Reinforcers include biological events such as food, drink, and sex; money and possessions; and social events such as attention and praise. Such events can strengthen many forms of behaviors, both desirable and undesirable. For example, one important determinant of aggressive behavior may be the immediate and positive consequences of acting aggressively.

Reinforcement is a powerful controlling mechanism for increasing behaviors. Reinforcement may be administered on a response that already occurs but at a low frequency. For example, if a competent person participates in discussions at a low frequency, social reinforcers may increase the frequency. But reinforcement can also affect the quality of behavior, as when a trainee's behavior is initially reinforced for good attempts at participating in discussions, later for even better attempts, and finally for competent participation. The latter process is called *shaping* because reinforcement shapes behavior gradually in the direction of a desired behavior.

If reinforcers are presented following a response to strengthen that response, the process is called *positive*

reinforcement. However, the removal of a stimulus following behavior can also reinforce. For example, smoking may be controlled both by positive reinforcement ("pleasurable" stimuli resulting from smoking) and by *negative reinforcement* (reduction of withdrawal symptoms). Negative reinforcement is important in at least two ways. In some situations, negative reinforcement occurs when an individual *escapes* from an aversive situation; in other situations, the individual may do something to *avoid* the aversive situation. For example, the habitual smoker may have a cigarette before the nicotine level in the blood gets too low, thus avoiding withdrawal symptoms. The smoker may also smoke the cigarette after withdrawal symptoms have occurred, thus escaping the aversive situation. In both cases, smoking is reinforced.

There is some controversy as to whether OC in humans may occur independently of consciousness. A cognitive view states that conditioning will occur only if the person is consciously aware of the learning contingency. In contrast, an associationistic view holds that reinforcement is an automatic process that is not dependent on conscious appraisal. This issue is still under debate. Research also indicates that verbal control of responding in OC is an important issue. Thus, unless measures are taken to control the involvement of verbal control, OC with humans will often be strongly influenced by rules and hypotheses generated by the subject, resulting in unpredictable performance.

Reinforcers may occur on every occasion that the required response occurs (*continuous reinforcement*), or they may occur only occasionally (*intermittent* or *partial reinforcement*). Rate of responding under different reinforcement schedules is different and species dependent. Thus, in animal studies, partial reinforcement is associated with overall higher response rates, compared with lower rates under continuous reinforcement; in human studies, however, partial reinforcement is often associated with lower response rates compared with continuous reinforcement.

Research has also documented that the actual pattern of reinforcement (*reinforcement schedule*) may generate characteristic patterns of responding. For example, if reinforcers occur according to a ratio schedule, such as every 15th response, a stop-and-go

behavioral pattern will emerge. If reinforcers follow responses according to a time schedule, such as every minute, responding will be quite slow early in the interval but increase gradually as the time for reinforcer presentation approaches.

Reinforcers may also be distributed by variable criteria, either number or time. When reinforcers occur according to a variable time criterion, the first response following a variable time interval, such as on the average of 1 minute, is reinforced. Similarly, a variable ratio criterion may specify that reinforcement will occur following 100 responses on average. Clearly, under these circumstances, reinforcement is less predictable than under the fixed ratio and time schedules, and responding is associated with steady response rates without any characteristic patterns. Responding under variable ratio schedules is typically rapid, with few pauses. This is the kind of responding often observed in gamblers dropping coins into the slot machine at a high rate, hoping for the big reinforcer. In contrast, responding under variable interval schedules tends to be slower.

An important aspect of reinforcement relates to the generality of what is being learned and under what circumstances this behavior is demonstrated. In some cases, it is important that learned behavior be demonstrated only under certain circumstances (it is highly discriminative), whereas in other cases it may be important that it generalize to many situations. Training can ensure that some learned behavior is highly discriminative, as when the air traffic controller states "clear for takeoff" only under strictly defined circumstances. On the other hand, some operant behaviors should be less discriminative, as when we teach a child to exhibit positive social skills. For example, if the skill "asking for help" is trained in class, it should generalize so that the child also will ask for help in a variety of situations outside class, and training must be arranged accordingly.

Extinction

When a previously learned operant response is no longer reinforced, it will diminish in frequency and finally extinguish. This process is called *extinction*. Extinction is not forgetting, but rather a form of

relearning: The response no longer will produce the expected outcome. One main focus of research on extinction has been to identify the determinants of the speed at which extinction occurs. Early research by Skinner demonstrated that intermittent reinforcement slows the extinction process. Thus, if a response has been reinforced occasionally, it will—paradoxically—be more resistant to extinction than a response that has been reinforced continuously during the learning phase. This effect, the *partial reinforcement extinction effect* (PRE), is observed in both free-operant and discrete-trial situations and is well documented in animal as well as human studies.

Theoretical interpretations of PRE emphasize that continuous and partial reinforcement represent different forms of learning: In partial reinforcement, the individual sometimes experiences the absence of reinforcement and thus learns that the absence of reinforcement in some trials actually signals that reinforcement will occur again in later trials. In contrast, a continuous schedule will not provide this kind of learning. When extinction conditions are introduced, these differences result in increased persistence if the individual has been exposed to partial reinforcement during learning and in lower persistence for individuals that have received the continuous reinforcement schedule.

Although the PRE is very general, there has been some controversy as to whether the effect is observed in situations with a mixture of continuous and partial reinforcement schedules, such as when an individual is exposed to both schedule types during learning. Under these circumstances, a reversed PRE is sometimes observed, that is, responding associated with the continuous reinforcement schedule during learning may actually demonstrate higher extinction than responding associated with the partial schedule.

Punishment

By the most common definition, punishment is the opposite of reinforcement: Responding is reduced in frequency by its consequences. The stimulus involved in punishment is, of course, often aversive, but the important issue here is again the functional definition:

A *punisher* is a stimulus that actually has the effect of reducing behavior. Punishment, as reinforcement, may be *positive*, as when a stimulus that is presented contingent on a response reduces the response, or *negative*, as when a stimulus that is terminated contingent on a response reduces the response. Positive punishment procedures are widely used in our societies; examples include fines administered for traffic violations and imprisonment for crimes. Negative punishment, also called *omission*, is the removal of a positive stimulus or privileges if some undesirable behavior occurs.

Research has demonstrated that positive punishment may be an effective way of reducing unwanted behaviors, but such procedures have major disadvantages, and ethical considerations must be carefully addressed. Among the disadvantages are that punishment may generate aggressive behaviors and negative emotions, and often punishment suppresses behavior under some circumstances (e.g., at home but not at school). Punishment also tells the individual what *not* to do and thus should be accompanied by positive reinforcement of alternative behaviors. For these and other reasons, many psychologists very reluctantly use punishment procedures and do so only if no alternative positive procedures are available.

Application of OC

In a general sense, the principles of reward and punishment are widely used. However, the principles of OC are much more refined, and knowledge of them can be very useful, even for nonpsychologists. Thus, parents and teachers may use operant techniques to strengthen appropriate behaviors, ensure that they generalize to some situations but not to others, and so on. One of the strengths of operant principles is that they can be applied successfully in even complex settings; furthermore, they cost little and require little expertise.

Professional application of operant principles is known as *behavior analysis* and *behavior therapy*. OC, often in combination with principles from classical conditioning and cognitive behavior therapy, represents a powerful instrument in treating and alleviating a variety of behavioral problems. For example, people with mental retardation can have their quality

of life significantly improved by use of operant principles in establishing skills needed to perform basic tasks of daily life. Youths with behavioral problems, such as lack of aggression control, may be greatly helped by interventions based on operant principles to replace aggressive behavior with alternative, nonaggressive behaviors. In general, operant principles are of potential interest in situations that involve continuous interaction between people.

—Frode Svartdal

See also Behaviorism; Learning

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OPPORTUNISTIC BEHAVIOR

Opportunism is defined as self-interest seeking with guile. It includes blatant forms, such as lying, stealing, and cheating, as well as subtle forms of deceit, mostly the incomplete or distorted disclosure of information. It is responsible for real or contrived forms of information asymmetry. A major implication of the notion of opportunism is that human agents cannot be regarded as fully trustworthy. As a result, fear of opportunism may deter parties from relying on one another as much as they should for efficiency. Thus, transactions, which are subject to opportunism, will benefit if appropriate safeguards can be put in place to prevent human agents from behaving opportunistically.

Conceptual Overview

Self-interest and the maximization of individual outcomes is a major assumption of neoclassical microeconomics, which has been around since about 1870. The assumption of opportunistic behavior, which, together with bounded rationality, represents the central assumption in the argument of transaction cost economics, aggravates the concept of individual

utility maximization. Williamson, one of the leading figures of the transaction cost perspective, argues that individuals are not only utility maximizers but do so with guile and deliberately mislead, disguise, obfuscate, and confuse if this is in their interest.

There are two forms of opportunism: *ex ante* and *ex post*. *Ex ante* opportunism is also called *adverse selection*, which implies the inability of agents to assess the characteristics of other agents and the unwillingness of these other agents to disclose their true characteristics. *Ex ante* opportunism results from precontractual information asymmetries. *Ex post* opportunism, or *moral hazard*, includes self-interested misbehavior by agents to the detriment of others when the agents do not bear the full consequences. *Ex post* opportunism in the case of transactions involving transaction-specific investments is also called a *hold-up* problem. *Asset specificity* is the degree to which an asset can be redeployed to alternative uses and by alternative users without sacrifice of value. High asset specificity implies high vulnerability of the party that makes the investment because there is a danger that the second party will try to change the terms of the transaction in its favor once the first party has committed itself. For example, if a firm has incurred sunk costs in developing equipment that is specifically designed for a particular client, the client might try to negotiate a lower price, knowing that the supplier has invested in a specific asset with no alternative use.

Williamson stresses that assuming opportunistic behavior does not imply that all human agents are continually given to opportunism. Rather, it is assumed that some individuals are opportunistic some of the time and that it is costly to ascertain the trustworthiness of individuals *ex ante*. Thus, human agents have to be aware of the existing danger of opportunistic behavior and have to make *ex ante* screening efforts and put in place *ex post* safeguards, such as laws, contractual agreements, and specific governance instruments in order to prevent opportunistic behavior. Otherwise, those who are more opportunistic will be able to exploit those who are less opportunistic. The function of safeguards is to increase the costs of opportunistic behavior and as a result to make it less profitable for human agents. Reputation represents one such safeguard. In a world of costly and incomplete