Ch 16: USING ADVANCED REINFORCEMENT PROCEDURES TO INCREASE A BEHAVIOR

Token Reinforcement Systems:

Tokens as Conditioned Reinforcers

- Poker chips, stars, stamps attached to a chart, check marks in a table, data entries in logs, or specially printed paper money, which can be exchanged for back up reinforcements
- Tokens are not originally reinforcing for the person, they come to function as reinforcers through learning, where originally neutral token becomes the conditioned stimulus

Pros and Cons of Using Token Reinforcers

- PROS
  - tokens last and can be accumulated, usually enabling us to exchange them for better backup reinforcers
  - tokens can be given immediately after a desirable behavior to bridge the delay between performing the behavior and getting the tangible, consumable, or activity reinforcer that has been earned
  - token reinforcers can be applied more easily than other rewards with groups of individuals
- CONS
  - system is complex, staff members need extra training and must keep track of more details than with most other types of reinforcers
  - tokens need to have certain practical characteristics: They should not be hazardous, should be durable, convenient to store and handle, easy to carry around and dispense, and difficult to steal or counterfeit
  - young children or those who have poor cognitive abilities may not be able to understand or keep track of tokens and their connection to backup reinforcers

Setting Up and Administering Token Systems

- Must identify whether each target behavior is a behavioral deficit or an excess
- Conduct a functional assessment to identify existing antecedents and consequences of each behavior
- Staff members who will implement the system must receive training so that they will know when a target behavior has or has not occurred and how to administer the consequences
- Choosing the Tokens:
  - the larger the variety of reinforcers available for exchange in the token system, the greater the chance that the tokens will maintain their effectiveness and provide strong reinforcement
  - token reinforcement is more effective when target individuals can select their reinforcers from an array of items rather than having items assigned
- Backup Consequences:
  - response cost: The person pays fines in tokens
  - findings suggest that punishment by losing tokens is at
  - least as effective in changing behavior as receiving tokens as rewards
  - punishment methods can create negative feelings in clients, and token systems can be effective without including response cost
- Phasing Out the Token Program:
  - switch to natural reinforcers
  - delay opportunities to redeem tokens

- decrease the number of tokens a target behavior earns or increase the number of tokens required to buy backup reinforcers

Lottery and Group Contingency Systems

Lotteries

- All eligible individuals are entered in a drawing to determine one or more prizewinners on the basis of chance
- Eligibility to enter lotteries is based on behavior, and the lottery can apply to an individual or a group of people
- Lotteries are useful to thin reinforcement schedules or when constraints make it difficult to provide attractive rewards
- Potential problem with lotteries is that the likelihood of winning a reinforcer may be set too low, causing performance to suffer

Group Contingencies

- Whether members of a group receive consequences depends on the performance of all or some of the members
  - ex. restaurant workers who use a group contingency to share in pooled tips
- 3 types:
  1. Independent, which provides reinforcement only to the members who meet a behavioral criterion
  2. Dependent, in which rewards given to the entire group depend on performance of one or some members
  3. Interdependent, which requires that the group as a whole or each and every member meet a criterion before rewards are given to all of them
- Advantages
  - Group contingencies are easier to administer, simpler to monitor and keep records on behavior and to dispense reinforcers for a group as a whole than to carry out individually
  - By relying on one another for reward it builds in incentives to prevent members of the group from reinforcing one another's inappropriate responses,.
  - often promote desirable side effects in the social behaviors of the group members
- Disadvantages
  - contingencies that use the overall group's performance to determine consequences need to take into account the few individuals accounting for almost all of the group's score and individuals receiving rewards while performing very poorly
  - can sometimes have negative effects by leading to negative peer-pressure tactics, such as threats or scolding

Using Intermittent Positive Reinforcement

- Once a target behavior is learned and well established under a continuous reinforcement, we can introduce procedures for thinning
- Thinning schedule of programmed reinforcement is to reduce the percentage or ratio of correct

responses that receive rewards
- Decreasing the rate of reinforcement is a flexible process that can progress at different speeds and follow different strategies

Intermittent Reinforcement Schedules
- Ratio Schedule
  - fixed-ratio (FR) schedule of reinforcement
    - the criterion for the individual's receiving each instance of reinforcement is performance of a constant number of correct responses
    - Reinforcer is given immediately after the individual makes the last response in the fixed criterion.
  - variable-ratio (VR) schedule
    - when reinforcement will be given requires an unspecified and changing number of correct responses for each instance of the reward.
    - reinforcer is given immediately after the individual makes the last response in the varying criterion
    - keep the person guessing about whether or when a payoff will happen, as a result, people usually respond at high rates for VR reinforcement
- Interval Schedules
  - fixed-interval (FI) schedule
    - makes reinforcement unavailable for a constant amount of time after each instance of reinforcement
    - the first correct response the individual makes after that time has elapsed is reinforced immediately, and the next interval begins
    - the time period is fixed, so they usually can learn to predict fairly accurately when reinforcement will be available again, so they act accordingly
      - no response early in the interval then increase response at end of interval
  - variable-interval (VI) schedule
    - period when reinforcer will not be available involves an unspecified and changing amount of elapsed time after each instance of the reward.
    - reinforcer is given immediately after the individual makes a single correct response after reinforcement is again available, and the next interval begins.
    - make instances of reinforcement unpredictable and keep the person guessing

Effects of Intermittent Reinforcement
- Effects of Ratio Schedules
  - ratio schedules produce very high rates of responding, response rates are often higher under VR than FR reinforcement schedules
  - increasing the number of responses required for each instance of reinforcement increases people's response rates, up to a certain limit
  - ratio strain: ratio of responses to reinforcement has become so large that the behavior isn't reinforced enough to be maintained
- Effects of Interval Schedules

- produce moderately high response rates that are stronger and more constant with VI than with FI schedules.
- FI causes response pauses where individuals learn the interval and respond very little early in the interval then increase response at end of interval because they know the interval is ending

- Overall, studies have found that behaviors reinforced on variable schedules rather than on their fixed counterparts appear to be especially resistant to extinction

Other Reinforcement Schedules

- Duration schedules
  - Require that the person engage in the target behavior for certain amounts of time before being reinforced
  - Being paid an hourly wage is an example because work behavior is required during each hour
- Additional Requirement:
  - "Limited Hold"
    - Person must respond within a certain amount of time after reinforcement becomes available or lose the chance
    - ex. train that has a regular, FI schedule. The ‘‘limited hold’’ aspect of the rule is that the train will wait at the station for only a limited amount of time