Token Economy

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Token Economy

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Synonyms

Token reinforcement program; Token reinforcement system

Definition

A system of behavior modification based on operant conditioning that utilizes systematic reinforcement of a target behavior. "Tokens" are given contingent on performance of the desired behavior, which then can be exchanged for reinforcers within a predetermined economy system.

Introduction

The token economy is a behavior modification technique that is based upon the principles of operant conditioning. Historically, systems of behavior reinforcement and incentives have been widespread for centuries. Currency exchange systems, in which goods and behaviors are exchanged for tokens that have secondary value, are a prime example. Incentive programs have also long been in place to reward military training and educational achievements. However, the formal experimental and theoretical basis for understanding the role of consequences on behavior was not begun until the late 1890s, with Thorndike's experiments with puzzle boxes. His research was followed by the work of Pavlov and later in the 1930s by Watson and Skinner (Kazdin 1977). Skinner's work in behaviorism further refined the theories of operant conditioning with which the token economy is now understood (Skinner 1938).

Early laboratory research on token economy systems began as early as the 1930s, with emphasis on its use in modifying animal and human behavior as well as the reinforcement value of tokens (Kazdin 1977). The use of the token economy as a clinical intervention began in the 1950s and 1960s, although the first instance of its use in a therapeutic context is disputed (Matson and Boisjoli 2009). Seminal research included that of Ayllon and Azrin (1968), which focused on the application of the token economy with individuals with severe developmental disabilities in psychiatric hospitals, and that of Becker (1973), on the token economy's application in classroom settings. Over the years, the token economy has evolved to include a wide range of techniques and variations. Contemporary implementation

and research are situated within the field of applied behavior analysis.

Components

The major components of a token economy are (1) specific target behavior(s), (2) tokens or points that the individual receives for exhibiting the target behavior(s), and (3) reinforcers that the individual receives access to by exchanging tokens that he or she has earned (Kazdin 1977). These tokens function as conditioned reinforcers that assist in delaying access to preferred items or activities.

Procedure

Designing a token economy involves the following suggested steps (Cooper et al. 2007; Kazdin 1977):

1. Identify target behavior(s) and rules. Target behavior(s) should be observable and measurable, and the criteria for successful task completion (i.e., how many tokens must be earned in order to receive the reinforcer) should be specified for the individual.
2. Select tokens. Tokens should be tangible symbols that are given immediately to the individual as a consequence of exhibiting the target behavior(s). Frequently used tokens include checkers and tally marks.
3. Select a variety of reinforcers. The individual should be provided with several possible reinforcers to work toward earning. Reinforcers are typically preferred activities, items, and events.
4. Create procedures for earning tokens and exchanging for reinforcers. The contingency for earning tokens and when they may be exchanged for the reinforcer should be explicitly stated to the individual. If response cost is incorporated into the token system, then the loss contingencies should also be defined.
5. Establish a ratio of exchange. It is suggested that the initial ratio of exchange be small in order to provide the individual with more

frequent access to the reinforcer. The exchange ratio can then be adjusted to maintain the individual's engagement in the learning program.

Effectiveness

Token economy systems have generally been found to be effective at modifying behavior (Doll et al. 2013; Kazdin 1977). As stated by Kazdin (1977), the effectiveness of reinforcement depends on the delay between the exhibition of a target behavior and the delivery of the reinforcer, the amount and quality of the reinforcer, and the reinforcement schedule. Because tokens are given immediately after the target behavior occurs and are associated with later delivery of reinforcement, token economies act as a bridge between the occurrence of a target behavior and the delivery of the reinforcer as well as between the setting of the target behavior and delivery of the reinforcer. This system maintains the occurrence of the target behavior(s) and the effectiveness of the reinforcer despite time delays between the two.

In contrast, a token economy may not be effective due to several variables. Such factors include the relationship between the individuals earning and delivering tokens, their social interactions, and their expectations (Cooper et al. 2007). Additional factors include the individual's current level of motivation and satiation on the reinforcer (Ayllon and Azrin 1968). Thus, it is important to design a token economy system that takes into account the individual's current preferences.

Applications

The token economy has been applied across a wide range of settings and populations. The majority of research literature has focused on its use in psychiatric hospitals (Gripp and Magaro 1974). Token economy programs for psychiatric patients generally fall under three categories: promoting self-care and adjustment to life events (e.g., hospital living, attendance, job performance), targeting symptomatic behaviors, and increasing pro-social behaviors. Similar programs

are also used in community-based and outpatient treatment facilities.

Techniques incorporating token economies have also been widely applied to school settings, with typically developing children as well as those with behavioral difficulties and learning difficulties. General classroom management interventions focused on reducing disruptive behavior and increasing attentive behavior may involve individual contingencies or group contingencies (Kazdin 2012). Individual token reinforcement programs are used to alter disruptive behavior and inattentiveness in addition to teaching academic skills such as reading, arithmetic, handwriting, etc. (Kazdin 2012). The "good behavior game," a group contingency program, divides students into teams that compete to have the lowest number of tokens given for disruptive behavior to obtain a reinforcer (Harris and Sherman 1973). Such interventions have also been used at a school-wide level to increase positive behaviors.

Additionally, token economies have been successfully applied toward a wide array of behaviors in individuals with developmental disabilities. Token economy systems for individuals with intellectual disability (ID) are found to be successful at promoting adaptive behaviors, academic behaviors, pro-social behavior, and language acquisition (Ayllon and Azrin 1968; Matson and Boisjoli 2009). With this population, token economies facilitate learning in a variety of contexts, including inpatient, community-based, and classroom-based settings. Individuals with autism spectrum disorder (ASD) may also greatly benefit from the use of token economies (Matson and Boisjoli 2009). Token economies have been found to be effective for individuals with high-functioning ASD as well as individuals with ASD and comorbid ID.

Token reinforcement programs have also been found to be effective at reducing hallucinations and delusional talk among individuals with schizophrenia and psychosis. They have been shown to be effective at reducing depressive symptoms through behavioral activation. Other clinical applications include use in substance-dependency rehabilitation programs.

Conclusion

The token economy, in its various forms, is used for a variety of populations, behaviors, settings, and purposes. Based on the principles of operant conditioning, the token economy reinforces specified target behaviors through a system of exchange. It has been shown to be effective at increasing target behaviors and decreasing problem behaviors.

Cross-References

▶ Behavior Modification
▶ Operant Conditioning
▶ Punishment
▶ Reinforcement
▶ Reinforcement Value

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