Schedules of Reinforcement or Punishment: Interval Schedules

Ratio Schedules

- Focus on the number of responses required before reinforcement is given

Interval Schedules

- Specific amount of time elapses before a single response produces reinforcement or punishment
- Two issues:
  - A specific time period must pass before reinforcement or punishment can become available
  - Reinforcement is contingent on the first response that occurs during the required time period

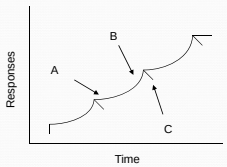
Fixed Interval (FI) Schedules

- Fixed Interval (FI)
  - Provides reinforcement for the first correct response following a fixed period of time.
  - Elapse of time alone is not sufficient for reinforcer delivery.
    - Example:
      - Fixed Interval 2 min (FI 2) – Reinforcement is delivered for the first response after the 2 minutes have elapsed.

Characteristics

- Tend to produce a slow to moderate rate of responding
- Typically produces a postreinforcement pause
  - Generally, the larger the fixed interval requirement, the longer the postreinforcement pause
- Usually see accelerating rate of response toward the end of the interval
- Called an FI scallop

Fixed Interval (FI) Schedule Effects



A = Postreinforcement pause

B = increase in response rates as interval progresses and reinforcer becomes available

C = reinforcer delivered contingent on first correct responses after interval

Schedule Effects:

FI schedules generate slow to moderate rates of responding with a pause in responding following reinforcement. Responding begins to accelerate toward the end of the interval.

Variable Interval (VI) Schedules

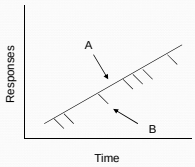
- Provides reinforcement for the first correct response following a variable amount of time when reinforcement can become available
- "Average" amount of time
- Variable Interval - 3 minute schedule. Reinforcement becomes available on an average every three minutes. Reinforcement occurs after the first response during the interval

Characteristics

- Tends to produce low to moderate rate of response.
- Tends to produce a constant, stable rate of response.
- Typically produces few hesitations between responses.
- The larger the average interval, the lower the overall rate of response

Basic Schedules of Reinforcement

- Variable Interval (VI) Schedule Effects



A = Steady response rate; few, if any, postreinforcement pauses

B = Reinforcer delivered

Schedule Effects:

A VI schedule generates a slow to moderate response that is constant and stable. There are few, if any, postreinforcement pauses with VI schedules

Points to Note About Interval Schedules

- In general, the longer the schedule the lower the rate of responding
  - FI-1 minute vs. FI-10 minute schedule
  - Need to begin with FI- 1 and gradually thin the schedule.
- Want to keep the schedule short
- May not be the best choice to keep kids on task
- Alternative – Use a Limited Hold (LH)
  - Participants must respond within a brief period of time when the interval begins

Thinning

- Gradually increasing the amount of time between availability of reinforcers
- Can provide instructions such as rules, directions or prompts to communicate the schedule of reinforcement.

Conclusions

- Interval schedules provide lower rates of responding than ratio schedules
- Variable schedules provide good resistance to extinction
- Can be combined with other schedules