Shaping
Definition: Modification of response topography through differential reinforcement of successive approximations to a target behavior

Shaping is useful when:
- R is unlikely to occur (R is not in individual’s repertoire)
- R is not responsive to instructions or modeling

Processes involved:
- Differential reinforcement: Selective reinforcement of a particular R (intermediate R topographies)
- Extinction: Cessation of reinforcement for a previously reinforced response (previous topographies)

Procedures:
- Define target R
- Determine if shaping is needed (vs. differential Sr+ for existing R or instructions/prompting for new R)
- Define initial R and intermediate topographies
- Select reinforcer
- Reinforce only closer approximations to target R

A Case of Inadvertent Shaping

A parent takes 3-yr old child grocery shopping

Elements of the contingency:
- EO: Child has not received candy for several hours
- SD: Sight of candy/snacks in grocery store
- R: Horrible temper tantrum
- Sr+: Parent delivers candy contingent on tantrum

Responses of child:
- Initial R: “I want candy”
- Intermediate #1: “I want candy PLEASE!”
- Intermediate #2: “I’m HUNGRY!”
- Intermediate #3: Screams “YOU NEVER FEED ME!”
- Terminal: Screams repeatedly, tries to get out of shopping cart, rolls on floor, knocks over food displays
Smeets, Lancioni, Ball, & Ovila (1985)

General Focus: To demonstrate the use of behavioral procedures for skill acquisition in infants
Specific aim: To shape self-initiated toileting in children less < 1 year of age

Participants: 4 babies (3 F, 1 M), 3.1, 6.3, 6.6, 5.4 mo
Apparatus: Portable potty
DV: Urinate/Defecate (on potty vs. accident)
   Body signals: grimace, flush face, body unrest, etc.
   Reach/grab potty: actual contact w/ potty

Reliability:
   U/D accidents and body signals: Pretraining only
   Reach/grab: Phases 2 and 3 only
   U/D on potty?
   Proportion of Rs?
   Calculation?

Pretraining (BL): Recorded U/D accidents and signals
Phase 1 (Signals → U/D):
   Potty close
   Signal → Prompted to look at potty → Put on potty
   R on potty → Attention
   No R on potty (3 min) → Return baby to chair or pen
   Accident → Impersonal clothes change
   Terminated after 18 D+ or 8/10 days no D-
Phase 2 (Reach/grab → U/D):
   Signal → Prompted to grab potty → Put on potty
   Reach/grab → Put on potty
   No R → Prompted to grab and put on after feeding and nap
   Consequences?
   Terminated after 4-6 days 50% independent reach/grab
Phase 3:
   Babies wore pants, distance to potty increased, Prompts reduced
   Reach/grab → Put on potty
   Consequences?
   Terminated after 15/18 days no accidents, 1 prompt/day, 80% elimination following reach/grab

Experimental design: ?

Results
   All babies successfully trained (?) before they could walk
   Duration of training?
   Data generally showed:
      Δ- U/D accidents
      Δ+ U/D on potty
      Δ+ body signals (later Δ-)
      Δ+ in reach/grab

Problems in data:
   Fig 1: Delay in Δ+ body signals and reach/grab
   Fig 2: Delay in Δ+ reach/grab
Implications and Extensions

Major contribution:
Provides data indicating that environmental factors are a major determinant in infant development
Suggests that normative data on development are not indicative of “readiness”

Limitations:
Limited reliability data and information
Terminal skills unclear
No formal experimental design
Confounding variable: ?
Extremely labor intensive

Extensions:
To other areas of child development (e.g., language)