The Concept of Automatic Reinforcement: Implications for Assessment and Intervention

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Overview

- ✸ Discuss what is meant by "automatic reinforcement."

- ✸ Describe the evidence for automatically reinforced problem behavior.

- ✸ Discuss typical treatment logic and why it does not always apply to automatically reinforced behavior.

- ✸ Describe the assessment of automatically reinforced behavior.

- ✸ Describe treatment approaches for automatically reinforced behavior.

- ✸ Discuss new directions.

Historical Usage of the Term

Automatic Reinforcement

- ⊕ Skinner (e.g., 1953, 1957) used the term simply to indicate that the reinforcement maintaining some behavior was not socially mediated.

- ⊕ Vaughn and Michael (1982) concluded that automatic reinforcement refers to situations in which behavior is maintained by operant mechanisms independent of the social environment.
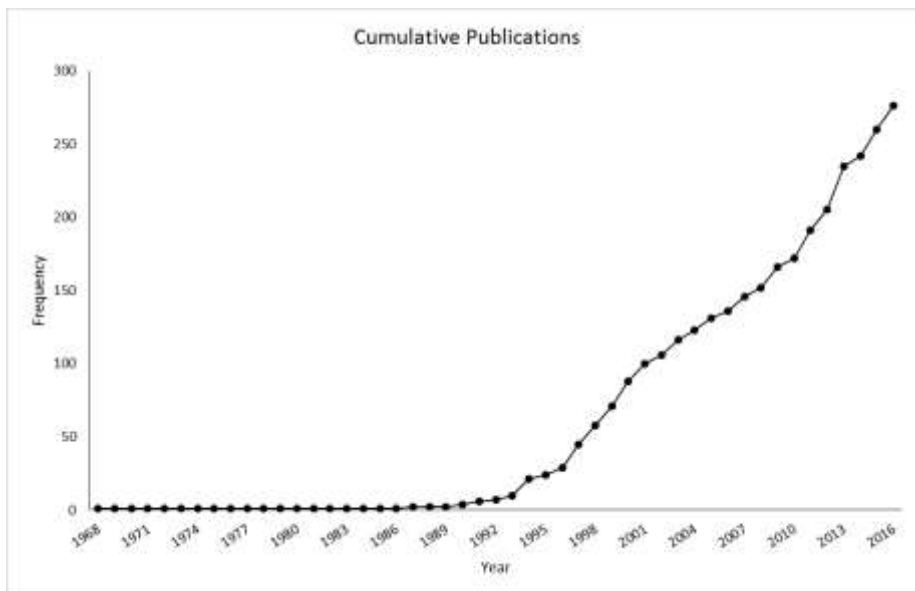
Vaughn & Michael (1982):

"Apparently… (used) in the ordinary sense of not requiring mediation by another person. It is used merely to emphasize the relevance of reinforcement in cases where it might be easily overlooked. That is, it counteracts any tendency to restrict the concept of reinforcement to those occasions upon which it has been deliberately arranged by another person or group…"

Related Points

- Automatic reinforcement does not imply positive or negative reinforcement.

- Automatic reinforcement should not override the usage of the specific source of reinforcement if the specific source is known.

- Both problem behavior and appropriate behavior can be maintained by automatic reinforcement.

- Behavior analytic authors and speakers should avoid usage of "…the behavior is automatic" or "automatically maintained."

Usage in Applied Behavior Analysis

⊕ The first usage in JABA was seen in 1987 (Lovaas, Newsom, & Hickman), though usage with another meaning was presented by Tate (1968) in a technical note to imply automation.

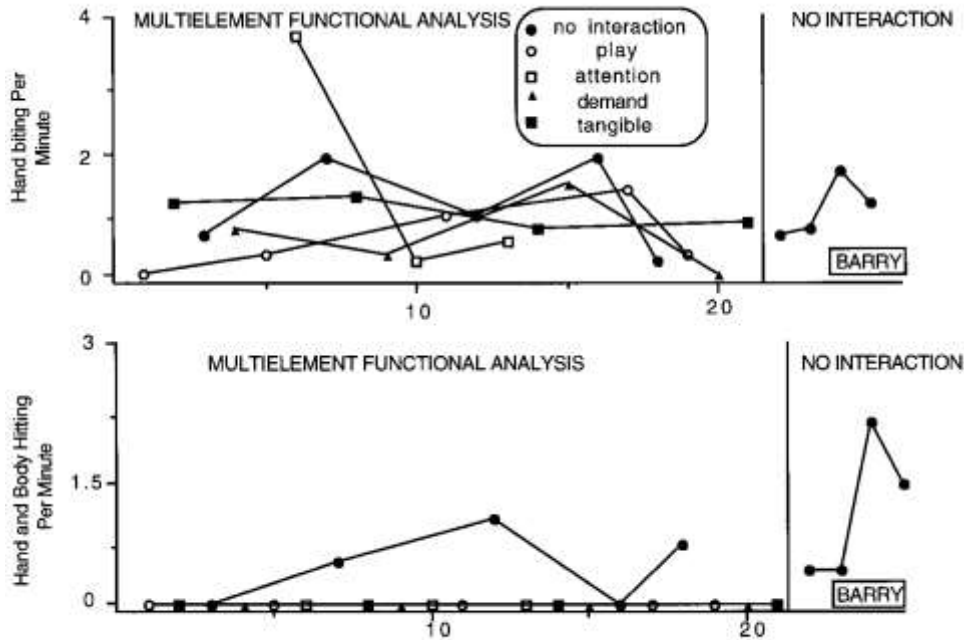⊕ Usage has increased steadily and maintained in recent years.

Cumulative Publications

Evidence that automatic reinforcement maintains some problem behavior

⊕ Persistence of behavior in an "alone" or no consequence condition of a functional analysis.

Evidence that automatic reinforcement maintains some problem behavior

⊕ Persistence of behavior in an "alone" or no consequence condition of a functional analysis.

⊕ The behavior does not go away after repeated sessions or observations without social consequences.

Ringdahl et al., 1997

Evidence of automatically reinforced behavior as *operant behavior*

- Contingent access to the behavior increases other behavior that produces such access.

- The behavior goes away if the stimulus products are sufficiently blocked.

- Many appropriate forms of behavior are known to be maintained by automatic reinforcement.

Subtypes of Auto SIB (Hagopian et al., (2015)

Subtype 1
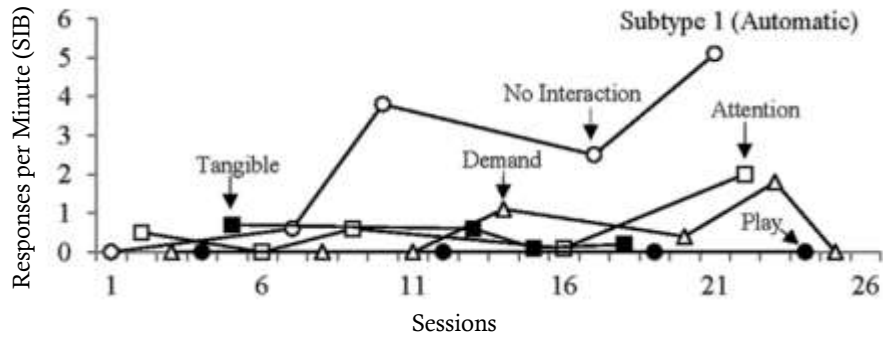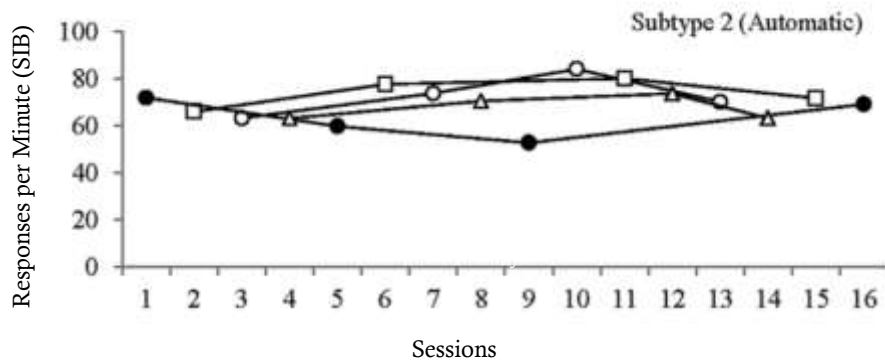- SIB high in alone/no interaction, low in play condition.

Subtype 2
- SIB high across all conditions.

Subtype 3
- Presence of self-restraint.
  - Self-restraint during at least 25% intervals for 3 alone sessions.
  - SIB found to be maintained by automatic SR+ (when self-restraint was blocked).
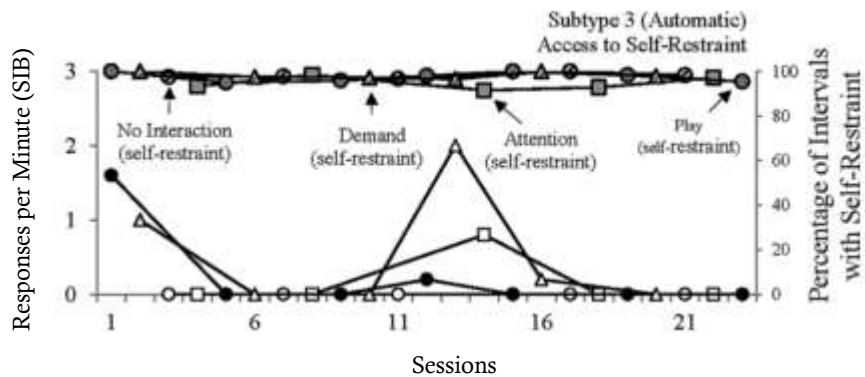
Subtype 1

SIB high in alone/no interaction condition, low in play condition

Subtype 2

SIB high across all conditions

Subtype 3

Self-restraint during 25% of intervals for 3 alone sessions
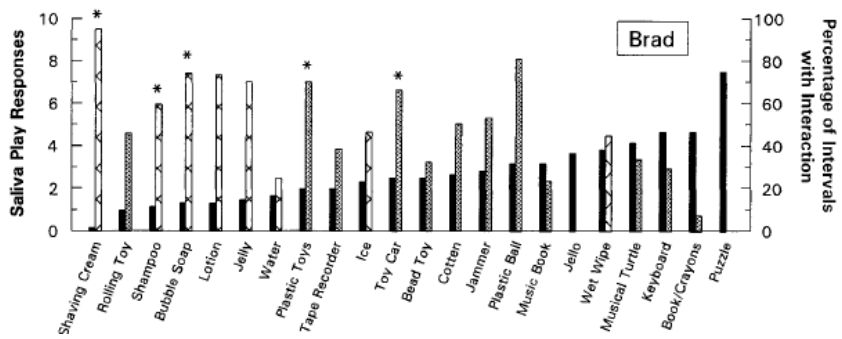
Treatment logic for socially reinforced behavior

⊛ By identifying the reinforcer via FA, the reinforcement of problem behavior can be minimized (ideally extinction).

⊛ And, the reinforcer can be used to either strengthen some alternative behavior (differential reinforcement) or abolish the strength of the motivating operations (noncontingent reinforcement).
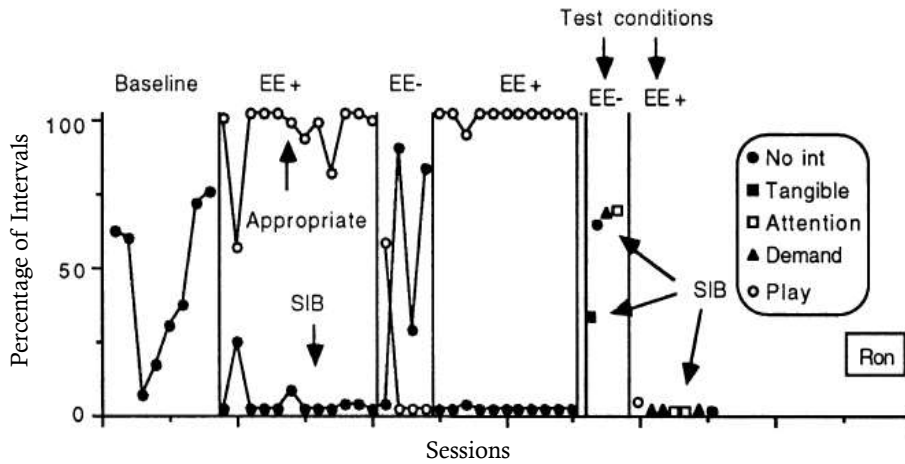
Prognosis

⚙ Treatment of socially reinforced behavior→ good prognosis.

⚙ Treatment of automatically reinforced behavior → not so good.
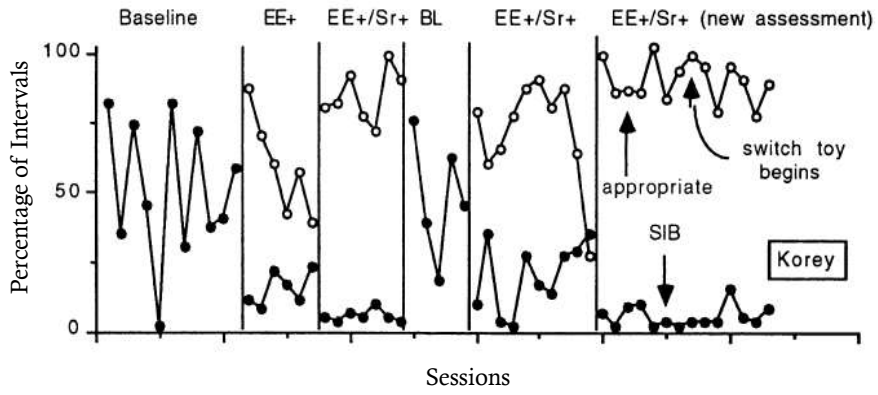
Typical treatment progression

⚙ Environmental enrichment.

⚙ Differential reinforcement.

⚙ Blocking, brief timeout, or mild punishment.

⚙ More extreme punishment or restraint.

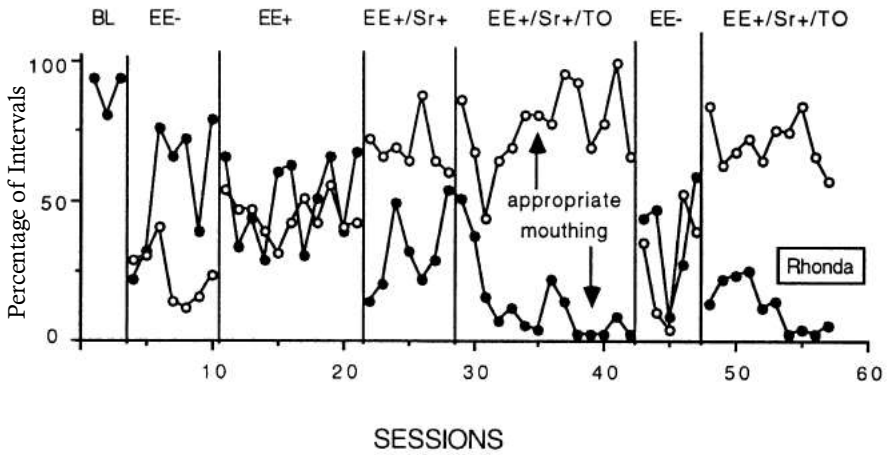⚙ Note: Overall skill development and early intervention is always in the back drop.
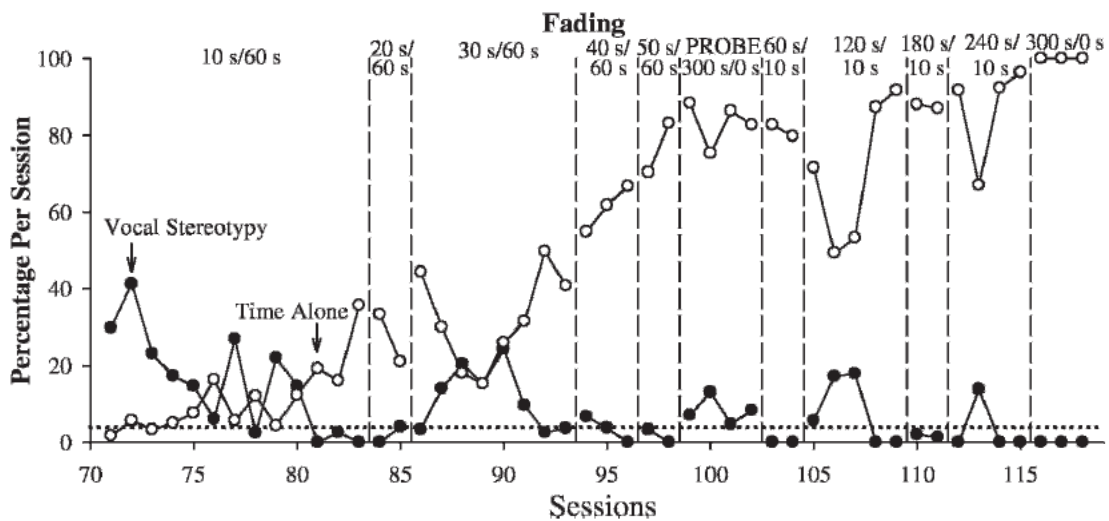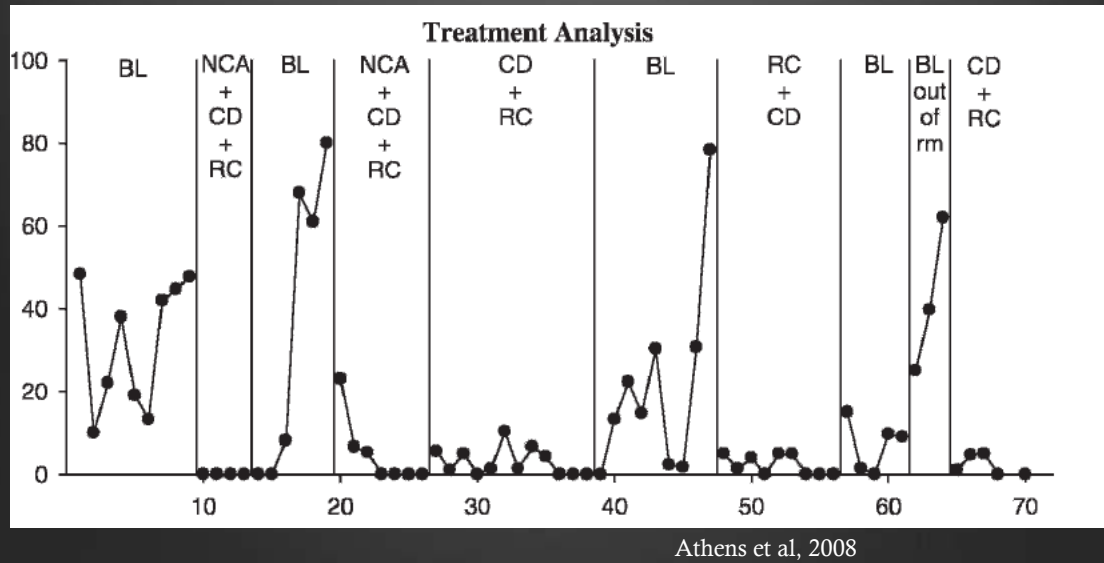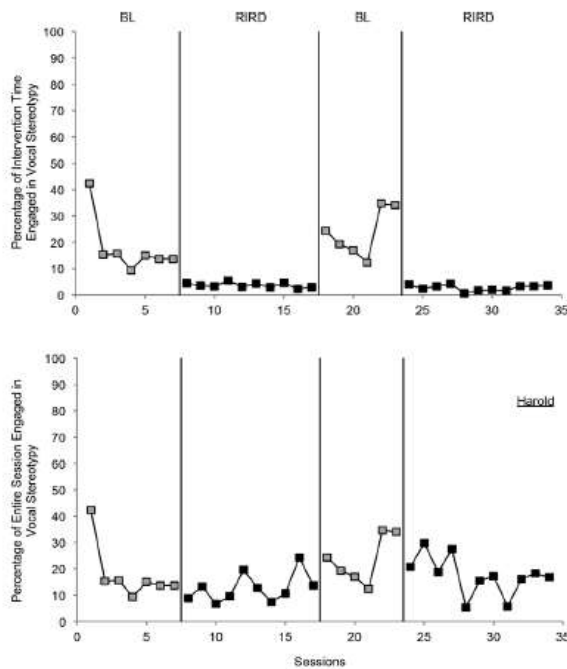
From Piazza et al., 2000

Vollmer et al, 1994
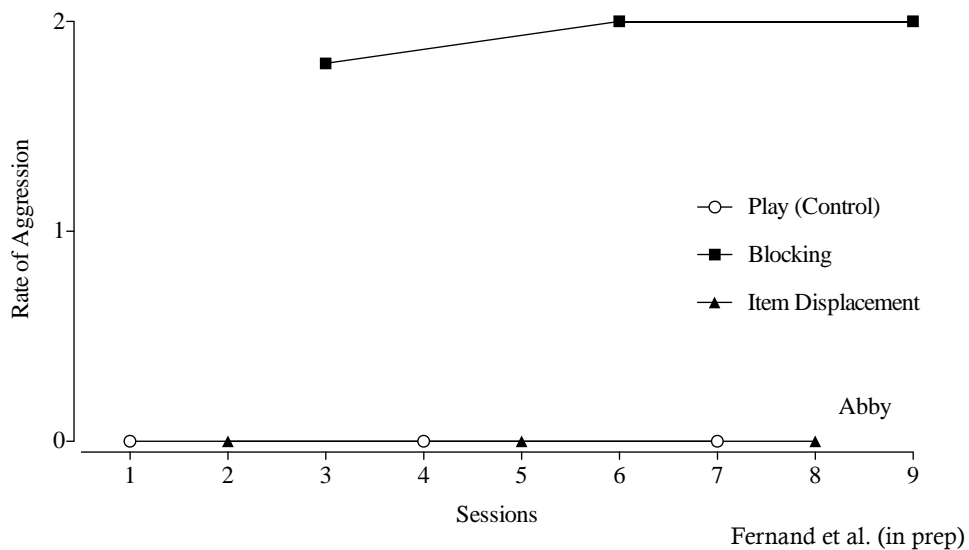
Vollmer et al., 1994

Vollmer et al., 1994

Athens et al, 2008

Athens et al., 2008

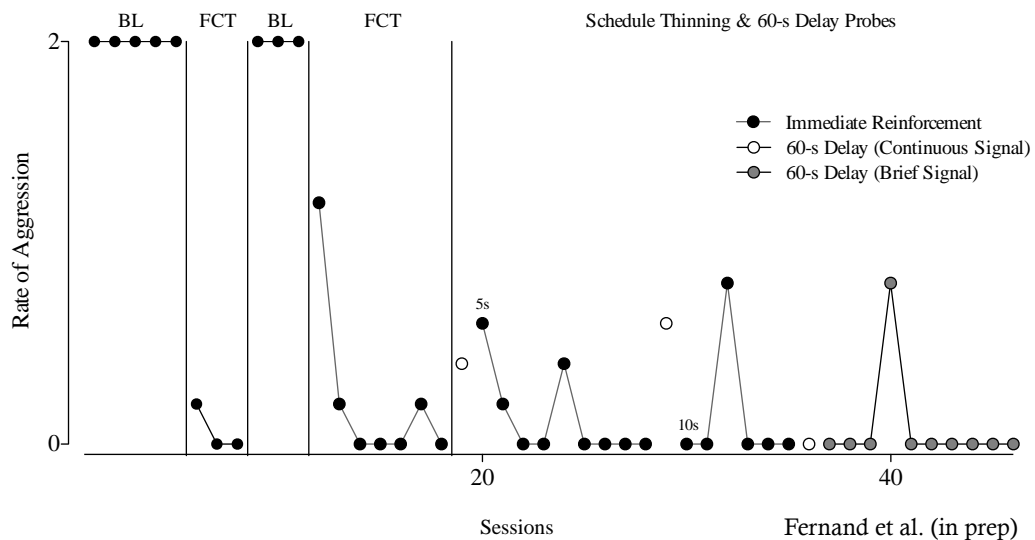False positive during RIRD intervention

Wunderlich & Vollmer, 2014

Possible functions of blocking

- Extinction (Smith et al., 1999).

- Punishment (Lerman & Iwata, 1996).

- Positive reinforcement (Vollmer et al., 1992).

- Neutral.

- Motivating operation (Fernand et al., in prep; Rispoldi et al., 2014).

Overview

- Prior Ritualistic Behavior Literature

- Study 1 – Assessment
  - Method
  - Results

- Study 2 – Treatment Evaluation
  - Method
  - Results

- Discussion & Future Research

Fernand et al. (in prep)

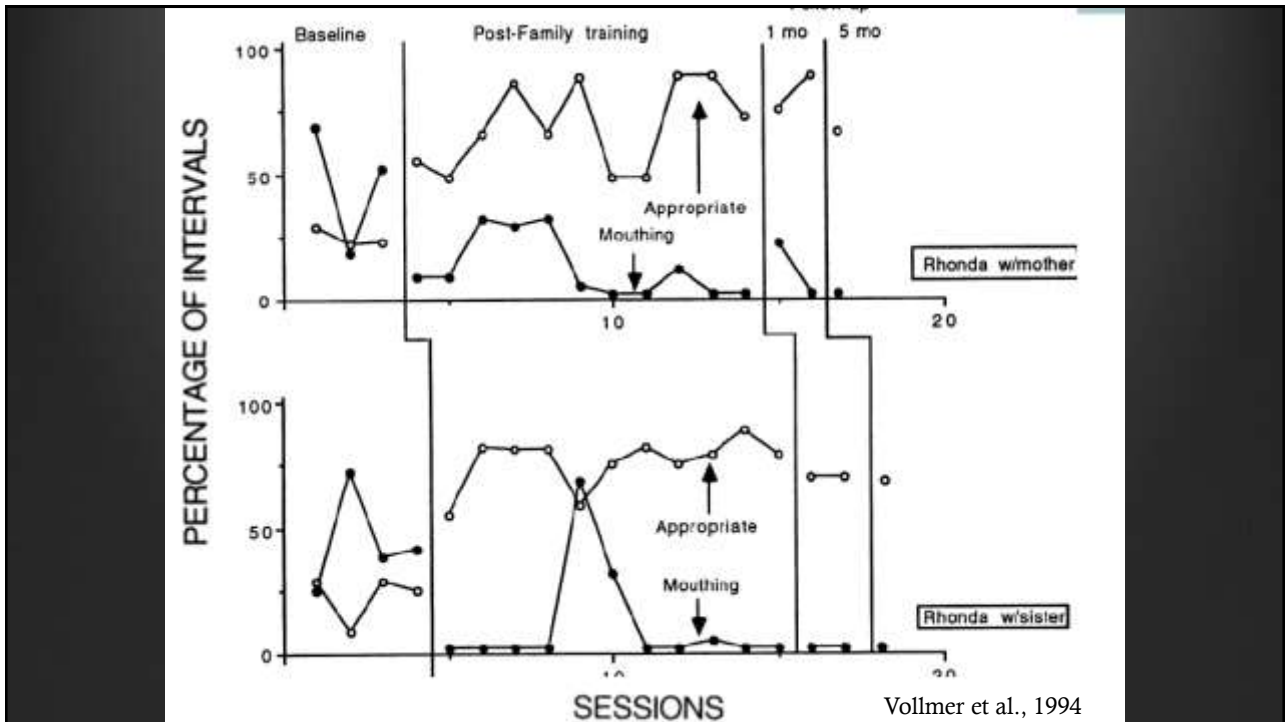Fernand et al. (in prep)

New directions in autism research

- Longitudinal functional analyses.

- Conditions are tested twice (two series) every 6-8 weeks.

- Three conditions are of particular interest for today's discussion: a) alone with toys, and c) play with adult.

- We are evaluating the development of stereotypic and ritualistic behavior, along with automatically reinforced SIB.

Alternative (viable) mechanisms

- Elicited "biting" when the organism experiences aversive stimulation (e.g., Hutchinson, 1977).

- Elicited or schedule-induced aggression (e.g., Azrin, Hutchinson, & Hake, 1966).

- "Damage" to another organism as reinforcement.

- These possible mechanisms need up-to-date research with humans.

Considerations in developing treatment

- Stimulus preference.

- Effects of preferred stimulus on problem behavior.

- Effects of response blocking (see other slide on this topic).

- Skill development.

- Care provider training (using behavioral skills training)

Vollmer et al., 1994

Summary

- ⊛ The prognosis for effective treatment is more favorable for socially reinforced behavior than it is for automatically reinforced behavior.

- ⊛ Automatic reinforcement simply means reinforcement in the absence of social mediation.

- ⊛ Typical interventions involve environmental enrichment, differential reinforcement, and possibly mild punishment such as response blocking.