Complex Restricted Repetitive Patterns of Vocal Behavior of Individuals With High Functioning Autism: An Innovative Intervention

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Outline

- Introduction to Higher-Order RRBs
- Theoretical Foundations
- Purpose
- Method
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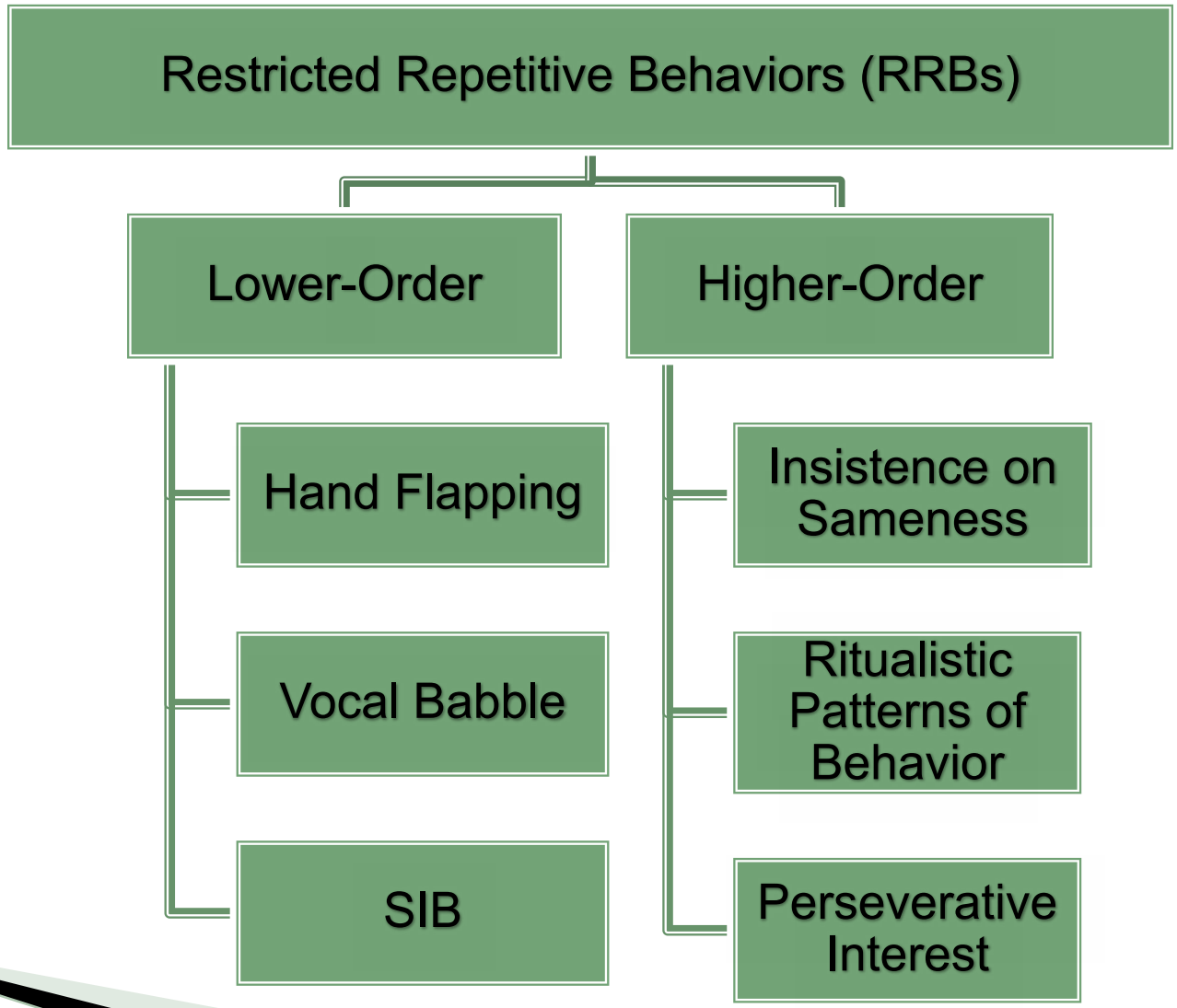
  - Dependent Measures and Data Collection
  - Research Design and Procedures
- Results

Introduction



Interventions for RRBs

- Lower-Order
  - RIRD
    - Response blocking / extinction
    - Redirection
    - DRI; DRO
- Higher-Order
  - Incorporate perseverative interests
  - DRA
  - Cognitive-Behavior

Social Conversation

- Social conversation
  - Visual representation of conversation and video feedback (Koegel et al., 2016-a);
  - Reframing negative statements (Koegel et al., 2016-b)
  - DR (tokens), trial-based teaching, textual prompt (Hood et al., 2016);
  - Priming, modeling, prompting, DRA (Leaf et al., 2006, 2009)

Theoretical Framework

- Hernstein's Matching Law (1970)
  - Response rate dictated by reinforcement rate
- Baer's principle of intra-response class covariation
  - Choice of behavior - functional response class of problem and appropriate behavior
  - Goal is to document inverse relationship

Purpose of the Study

- Repeated verbal speech patterns:
  - Reduce access and opportunity
  - Adversely affect individuals with HFA and families
- Need intervention to:
  - Increase social conversation skill, decrease RRBs
    - Meaningful and mutual relationships
    - Increase opportunities and access to employment

Research Question 1

- Is there a functional relation between instruction in social conversation skills and decrease in repetitive higher-order verbal behavior for persons with HFA?

Research Question 2

- To what extent will decreased rates of higher-order RRBs and increased social conversation skills maintain in naturalistic conversational settings?

Participants

- Four adults in Texas
- Work in a post-secondary technology-based training center
  - IQ = 70 or higher
  - Diagnosis of ASD
  - Age 18-30 years
  - Behavioral prerequisites
    - T-score of 70> in RRB domain of Social Responsiveness Scale(SRS™-2)

Emily

- Female, 26-years
- Asian-American
- IQ = 77
- SSR-2, 72T (other and self-report)
- Comorbidities: Depression
- RRB: Pokémon Go

Ashton

- Male, 25-years
- Caucasian
- IQ = 127
- SSR-2, 75T(other), 77T (self-report)
- Comorbidities: Generalized anxiety disorder, depression
- RRB: Autism, social connections, King Arthur, mental health, and writing

Isaac

- Male, 24-years
- Caucasian
- IQ = 122
- SSR-2, 70T (other and self-report)
- Comorbidities: Generalized anxiety disorder, depression
- RRB: Politics of TV, films, and sports

Shawn

- Male, 23-years
- Asian-American
- IQ = 89
- SSR-2, 80T (other) 75T (self-report)
- Comorbidities: Stuttering
- RRB: Digital art, Pokémon the and Mario paper video games

Setting

- Work; technical training center for adults with HFA (different shifts)
  - Vacant office, devoid of visual stimuli, one desk with a computer, three office style chairs, one small wastebasket
  - Maintenance sessions in individualized naturalistic settings

Dependent Measures

- Higher-order verbal RRBs;
- Social conversation (expand, ask questions, agree, compliment);
- Measurement – occurrence or non-occurrence of behavior per 15-second interval;
  - No opportunity (e.g., writing activity, therapist talking)

Social Validity

- Post intervention participant interviews
  - Purpose was to determine social relevance of intervention
  - An open-ended interview

Data Collection

- All sessions were video recorded;
- Coded by 3 graduate students with ABA training;
- IOA scores:
  - Emily 95.92% (93.33%-100%)
  - Ashton 95.96% (90%-100%)
  - Isaac 98.71% (96.70%-100%)
  - Shawn 98.17% (93.33%-100%)

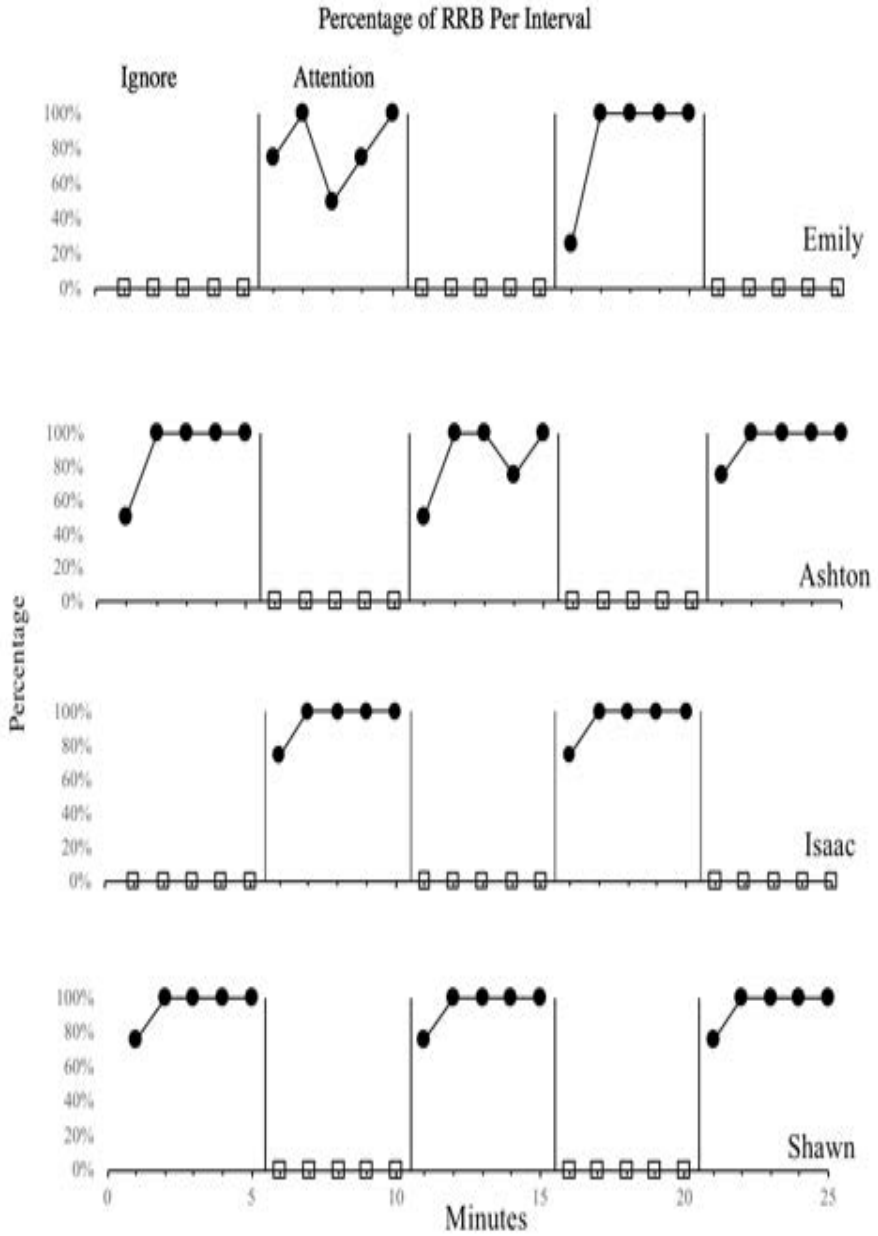
Research Design

- Multiple baseline design across participants;
- Experimental procedures:
  - Functional assessment of behavior interview;
  - FA to isolate maintaining variables (reversals);
  - Collection of baseline data;
  - Implementation of intervention;
  - Maintenance of learned skills

FBA Procedures

- Structured open-ended interview
  - Function: social attention
- Functional analysis
  - ABAB / BABA design (control order effects)
    - Condition (a): contingent access to social attention
    - Condition (b): ignore or no attention (therapist's back to participant attending to computer)

Functional Analysis



Baseline

- Interventionist
  - S^D: “Let’s have a conversation;”
  - Speak on subjects of their choice;
  - If no verbalizations for 60s, prompt, “we can talk about anything;”
  - Responses, attentive, neutral positive statements

Intervention

- Identify and label target skill;
- Present a rationale;
- Describe and demonstrate;
- Teach the skill; practice, practice;
  - Multiple opportunities to practice logic and action;
- Feedback for both RRBs and SC;
  - Interruption and redirection (RRB)
  - Contingent social praise (SC)

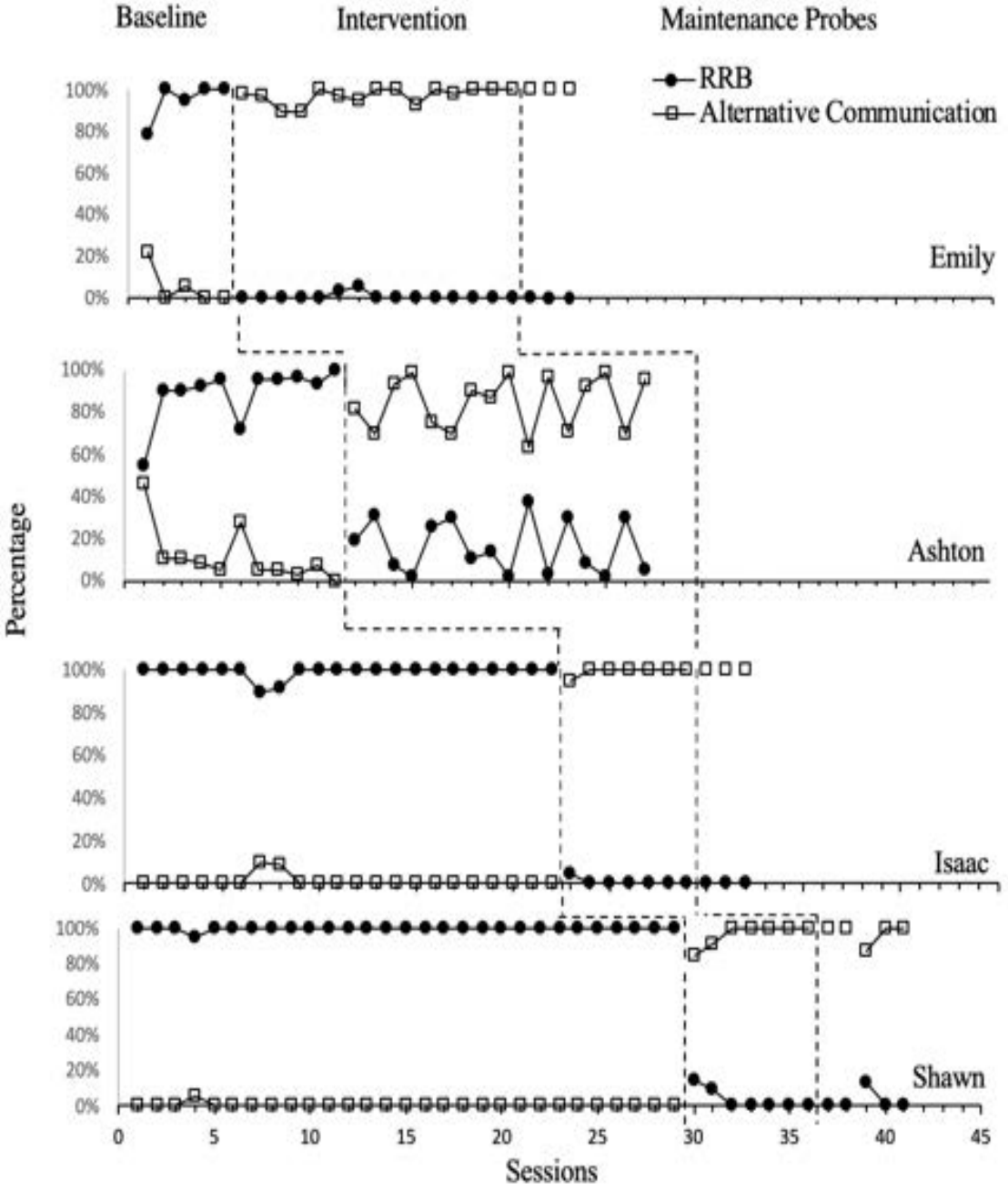
Intervention: Emily

Intervention: Ashton

Procedural Fidelity

- Recorded by independent observer for about 39% across BL and INT;
  - FOI = 100%
  - IOA on FOI:
    - Emily 33% of sessions - 100%
    - Ashton 40% of sessions - 100%
    - Isaac 42.85% of sessions - 100%
    - Shawn 42.85% of sessions - 100%

Results


Baseline
Intervention
Maintenance Probes
RRB
Alternative Communication
Emily
Ashton
Isaac
Shawn
Percentage
100%
80%
60%
40%
20%
0%
0
5
10
15
20
25
30
35
40
45
Sessions

Maintenance Probes

- One-three weeks post intervention
- Opportunity to practice conversations
  - Alternative settings, with a different person, or an alternative context
  - Purpose, evaluate the effects of treatment within individually designed naturalistic conversation context

Maintenance: Emily

- Alternative
  - Setting, site, context and novel partner
    - 0% RRB, 100% AC, 3 of 3 TI skills
  - Setting, site, context and number of partners
    - 0% RRB, 100% AC, 3 of 3 TI skills
  - Setting, context and partners
    - 0% RRB, 100% AC, 3 of 3 TI skills

Maintenance: Ashton

- None

Maintenance: Isaac

- Alternative
  - Setting, context and novel person
    - 0% RRB, 100% AC, 3 of 4 TI skills
  - Setting, context and novel person
    - 0% RRB, 100% AC, 4 of 4 TI skills
  - Setting, context and number of partners
    - 0% RRB, 100% AC, 4 of 4 TI skills

Maintenance Shawn

- Alternative
  - Setting, context and novel partner
    - 0%RRB, 100% AC/SC, 3 of 3 core skills
  - Setting, context and novel partners
    - 0% RRB, 100% AC/SC, 3 of 3 core skills
  - Setting, site and context
    - 13.3% RRB, 86.7% AC/SC
    - INT Booster
      - 0% RRB, 100% AC/SC, 3 of 3 core skills
      - 0% RRB, 100% AC/SC, 3 of 3 core skills

Social Validity Interview: Isaac

Conclusion

- Demonstration of experimental control
  - Decreased complex-restricted RRBs for adults with HFA and inversely increased alternative social communication
  - Intervention effects maintained for the three participants in a variety of meaningful naturalistic settings