
Testing the Effects of Multiple Exemplar Instruction on the Induction of Joint Incidental Bidirectional Naming in Children Diagnosed with Autism

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Hawkins, E., Gautreaux, G. & Chiesa, M. (2018).
Deconstructing the phenomenon of common
bidirectional naming: a proposed classification
framework. *The Analysis of Verbal Behavior*,
34, 1-18.

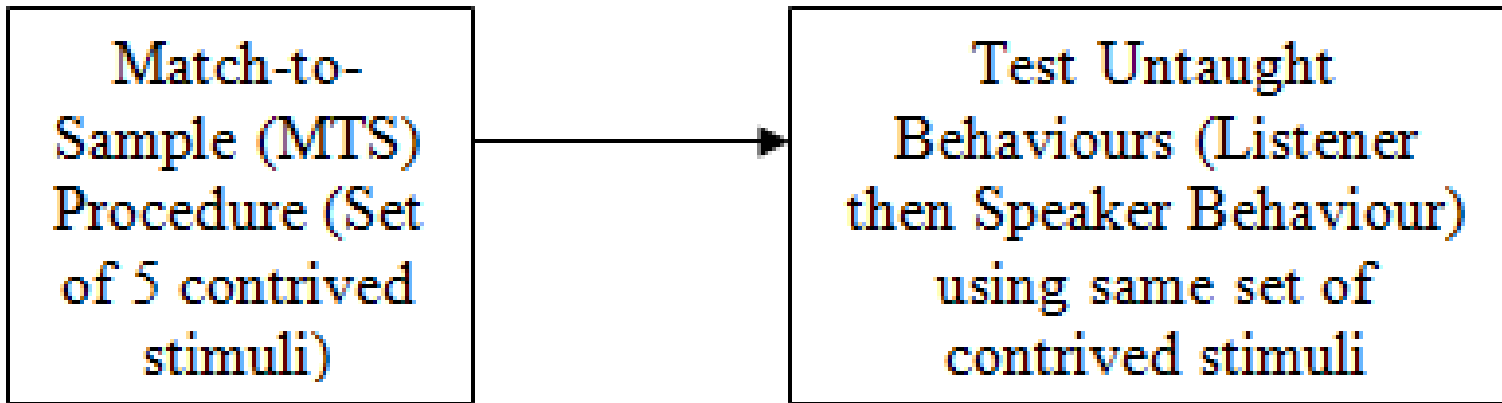


Joint Incidental Bidirectional Naming

- AKA **Full Naming** (Greer & Ross, 2008), **Component 2 of Naming** (Horne & Lowe, 1996), **Feature 2 of Naming** (Catania, 1998)



Test for Joint Incidental Bidirectional Naming



Multiple Exemplar Instruction (MEI)

- Random rotation of different responses:
 - Match
 - Point to
 - Tact
 - Impure Tact/Intraverbal Tact
- Counter-balanced

Example of a MEI sequence for a training set

Teaching Sequence	First Presentation	Second Presentation	Third Presentation	Fourth Presentation
1	Match desh	Point to fip	Match kozz	Impure tact mag
2	Tact jed	Impure tact desh	Point to jed	Tact kozz
3	Match fip	Point to mag	Impure tact kozz	Point to desh
4	Tact fip	Impure tact jed	Match mag	Tact desh
5	Point to kozz	Impure tact fip	Match jed	Tact mag

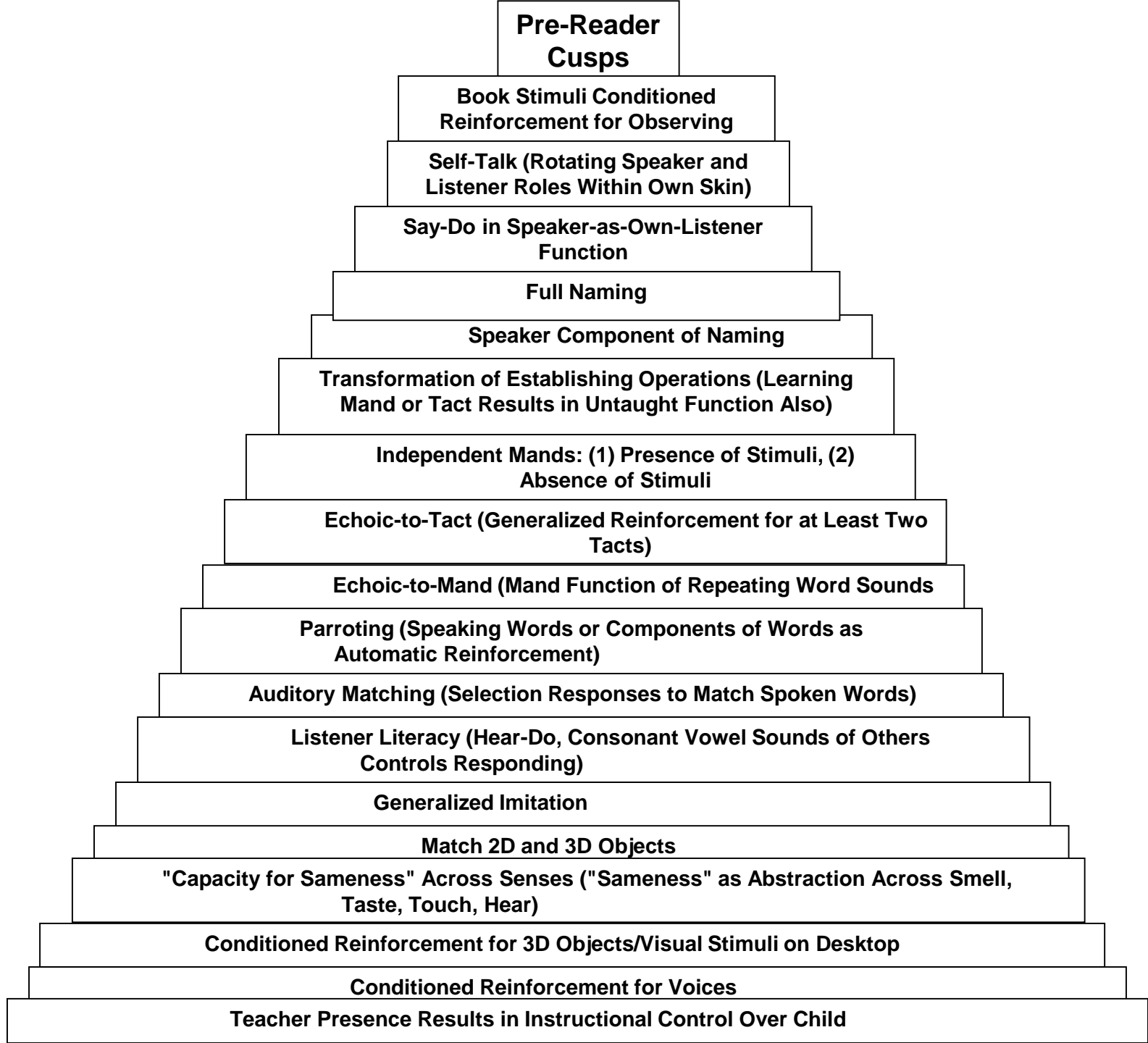
Published research on MEI & JIBN

Summary of studies on MEI and JIBN

Author(s) & Year	Number of Participants	Age of Participants	Diagnosis of Participants
Greer, Stolfi, Chavez-Brown, & Rivera-Valdes (2005)	3	2.5-4 years	Language or developmental delays
Greer, Stolfi, & Pistoljevic (2007)	8	3-5 years	Speech delay or Pervasive Developmental Disorder or language and cognitive delays
Gilic & Greer (2011)	8	2 years	Neuro-typical (from upper middle class professional families)
Greer, Corwin, & Buttigieg (2011)	Experiment 2 (Part 1) 4	2-6 years	2 children with Autism & 2 neuro-typical children

The Verbal Behaviour Development Theory

- REFERENCE



**Pre-Reader
Cusps**

**Book Stimuli Conditioned
Reinforcement for Observing**

**Self-Talk (Rotating Speaker and
Listener Roles Within Own Skin)**

**Say-Do in Speaker-as-Own-Listener
Function**

Full Naming

Speaker Component of Naming

**Transformation of Establishing Operations (Learning
Mand or Tact Results in Untaught Function Also)**

**Independent Mand: (1) Presence of Stimuli, (2)
Absence of Stimuli**

**Echoic-to-Tact (Generalized Reinforcement for at Least Two
Tacts)**

Echoic-to-Mand (Mand Function of Repeating Word Sounds

**Parroting (Speaking Words or Components of Words as
Automatic Reinforcement)**

Auditory Matching (Selection Responses to Match Spoken Words)

**Listener Literacy (Hear-Do, Consonant Vowel Sounds of Others
Controls Responding)**

Generalized Imitation

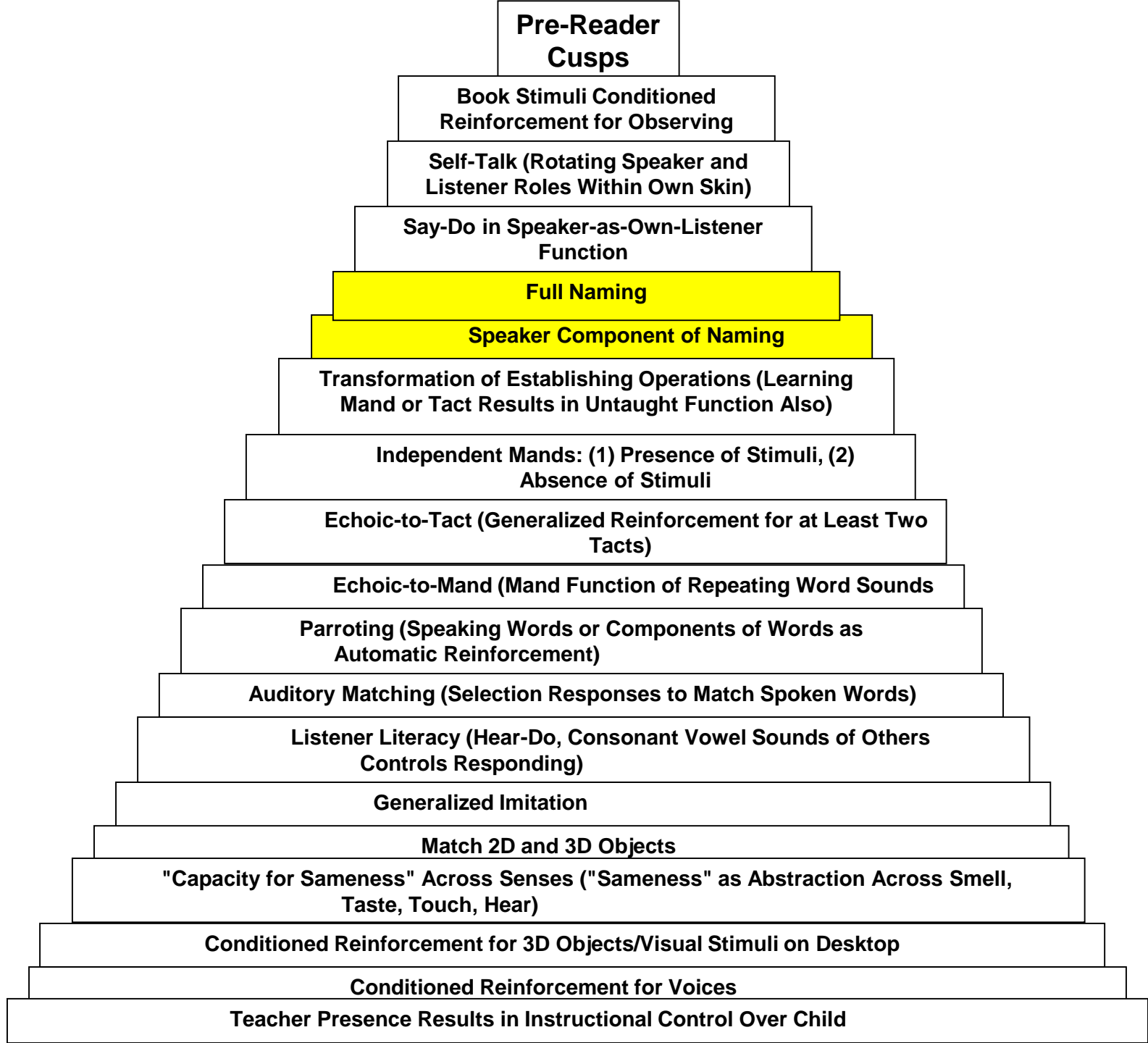
Match 2D and 3D Objects

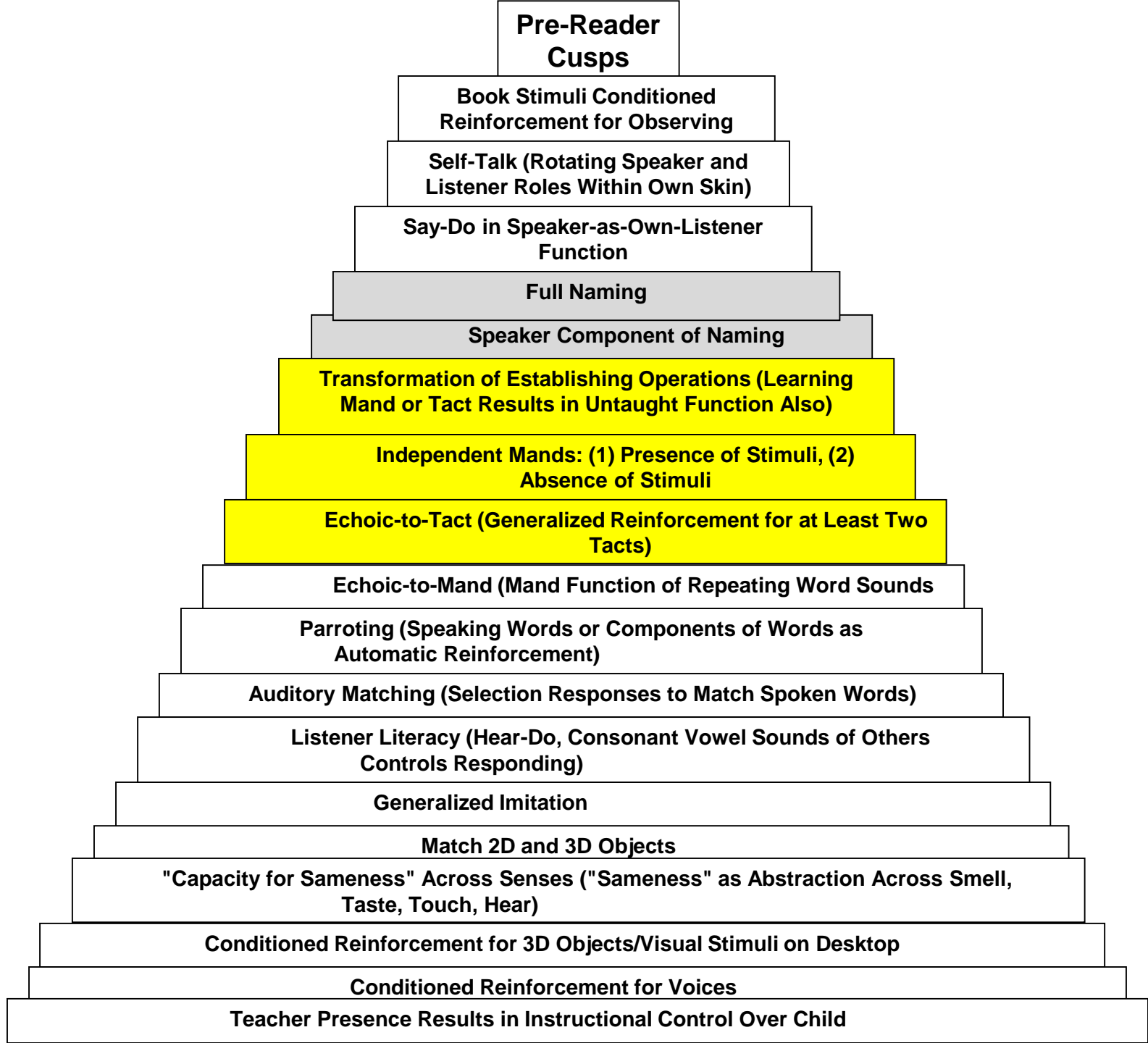
**"Capacity for Sameness" Across Senses ("Sameness" as Abstraction Across Smell,
Taste, Touch, Hear)**

Conditioned Reinforcement for 3D Objects/Visual Stimuli on Desktop

Conditioned Reinforcement for Voices

Teacher Presence Results in Instructional Control Over Child





**Joint Incidental
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**Speaker Incidental
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(Learning Mand or Tact Results in Untaught Function Also)

Independent Mands (1) Presence (2) Absence Stimuli

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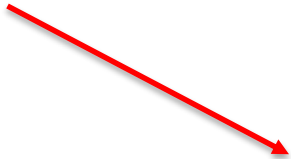
**Listener Unidirectional
Naming**

Transformation of Establishing Operations
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Independent Mands (1) Presence (2) Absence Stimuli

Echoic-to-Tact (Generalized Reinforcement for at Least Two Tacts)

Additional
Prerequisite?



Purpose of Experiment

- The purpose of this experiment was to test the effects of MEI on the acquisition of JIBN in older children and young adults diagnosed with autism who met the mastery criteria for joint bidirectional naming.
- In addition, an adjustment was made to the test for JIBN where an additional MTS procedure was conducted prior to each test for JIBN throughout the entire experiment.

Participants

- 1 female and 9 male participants.
- Diagnosis of autism and a learning disability.
- Ages ranged from 6-18 years.
- All met the VBDT prerequisite behavioural cusps: all participants met the mastery criteria for echoic-to-tact, independent mands and transformation of establishing operations across mands and tacts.
- Participants were selected based on meeting the mastery criteria for joint bidirectional naming.

Materials

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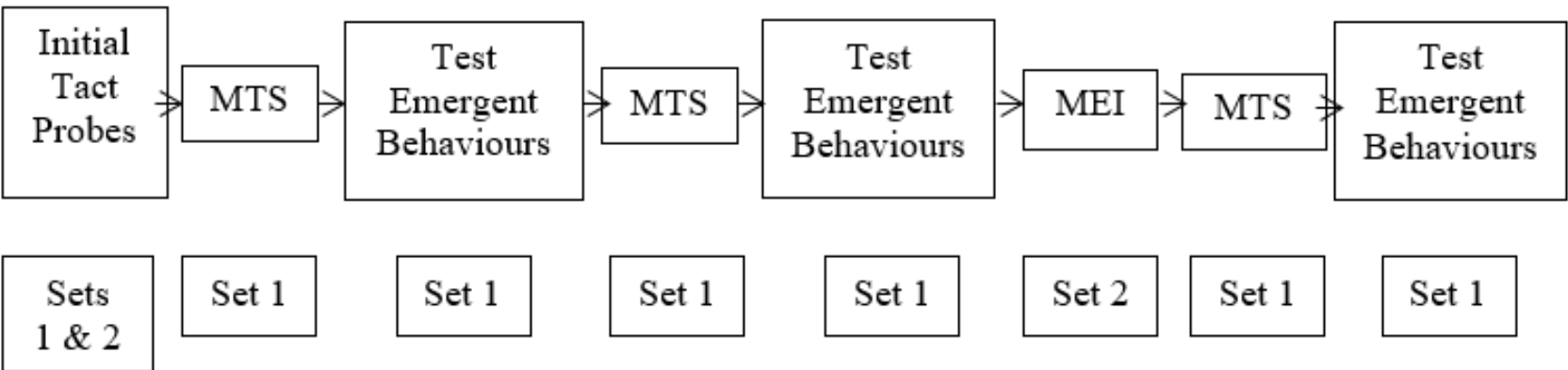
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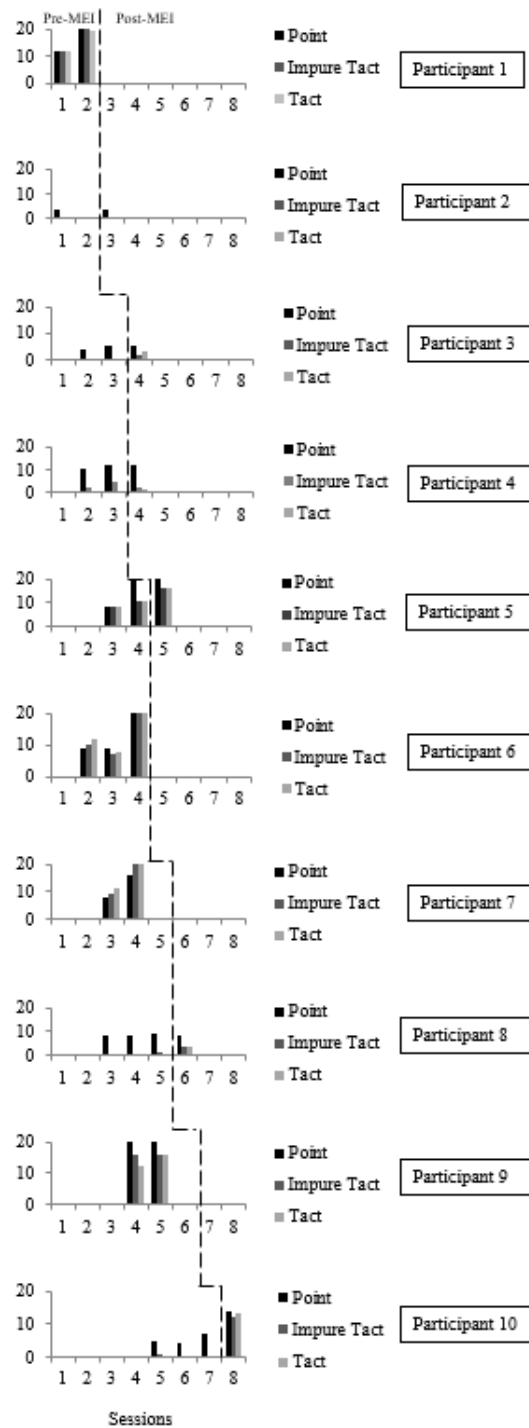
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Procedure

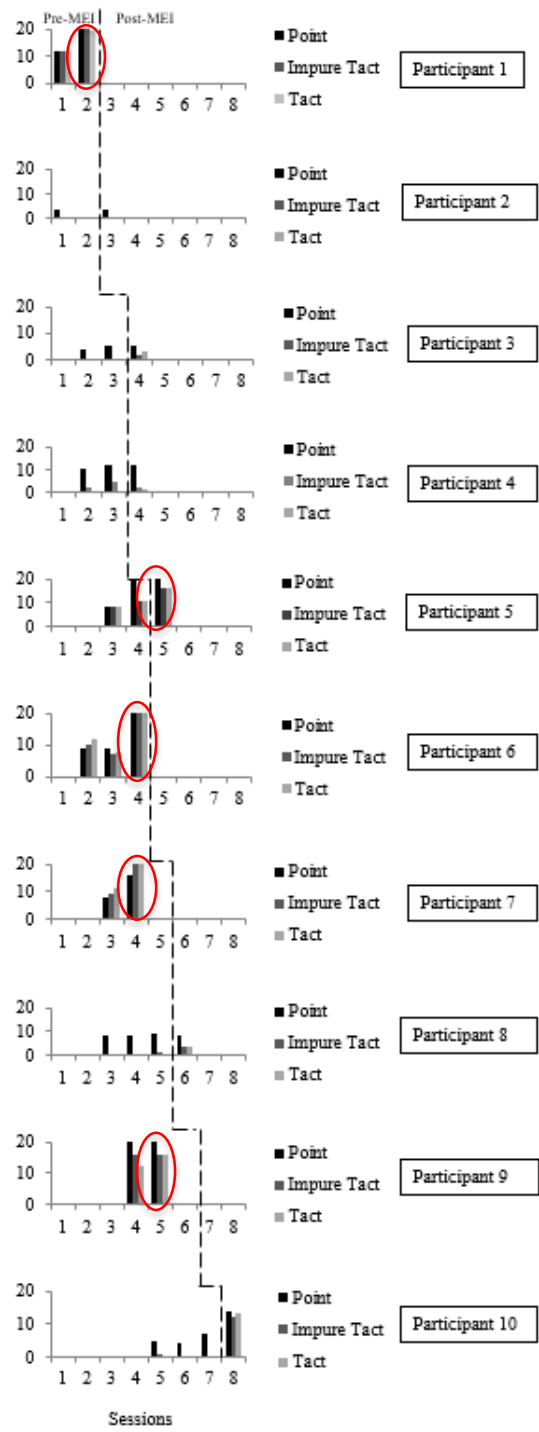


Results

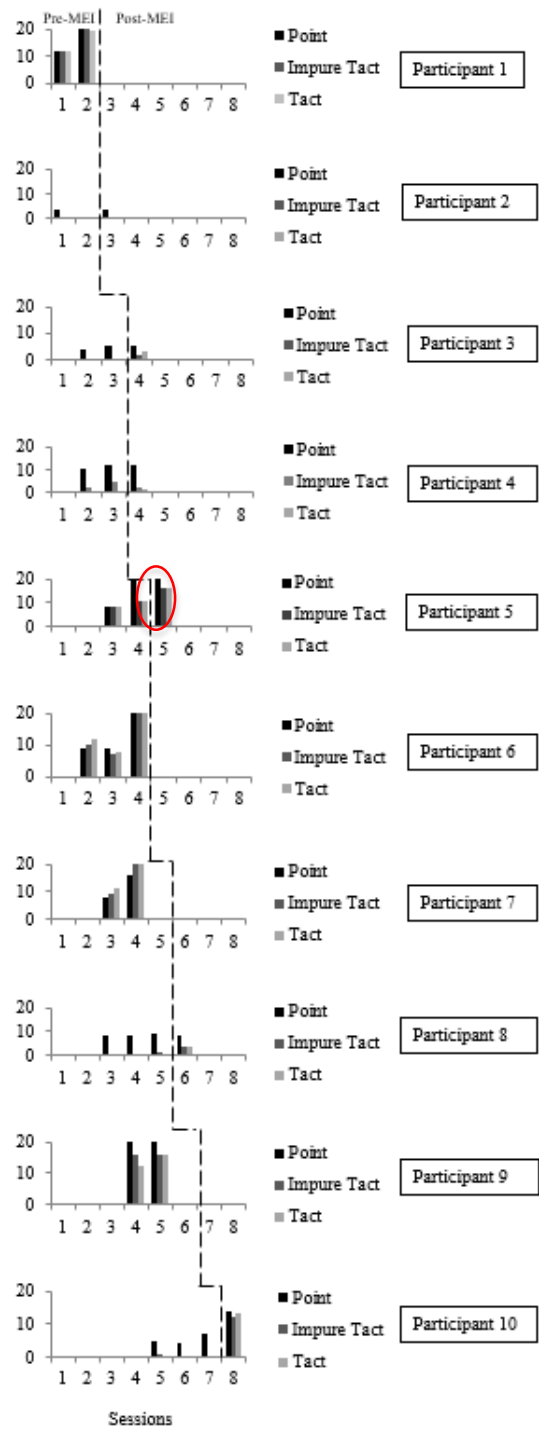
Number of correct responses for untaught listener and speaker behaviours



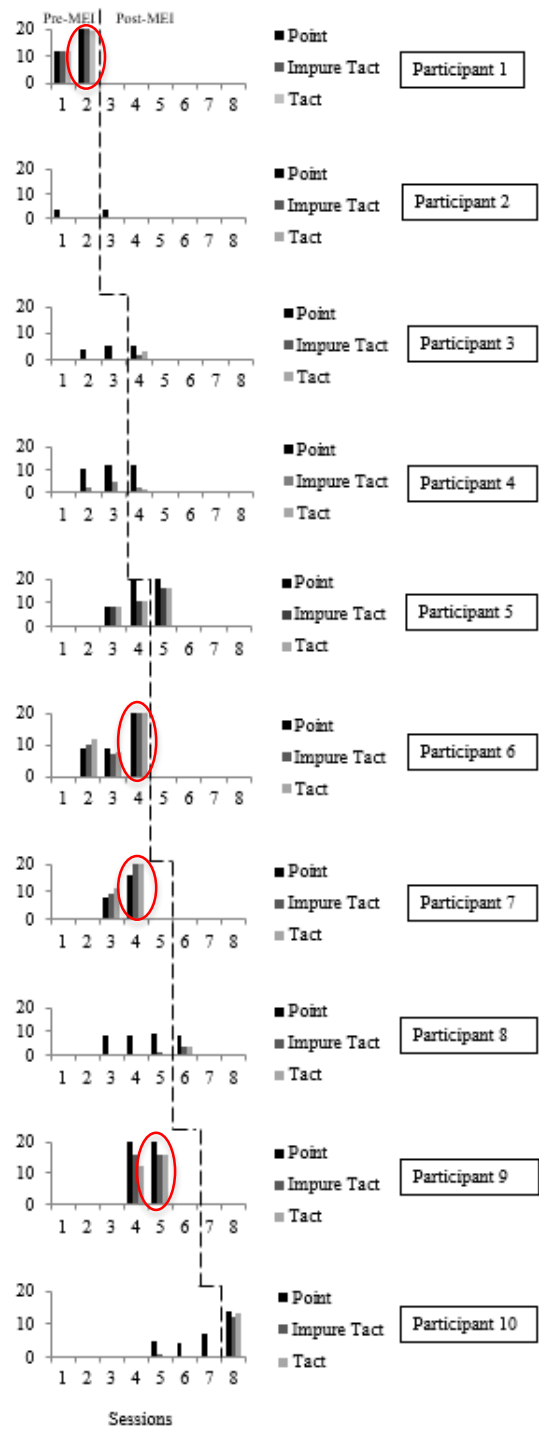
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Sessions

Discussion

- Considerations for the VBDT
- Investigation of extraneous variables within this experiment
- Procedural recommendations for future research

Considerations for the VBDDT

- Parametric specification of the listed prerequisites for JIBN & MEI
- Suggested additional prerequisites for JIBN & MEI

VBDT Pre-requisite Behavioural Cusps

- Echoic-to-tact
- Independent mands
- Transformation of establishing operations across mands and tacts

- Consideration for providing specific details for each of the behavioural cusps on the VBDT pre-reader pyramid is advisable.

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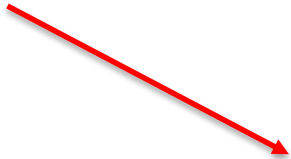
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Investigation of extraneous variables within this experiment

- Effects of multiple MTS procedures and unintended effects of testing procedures
- Age or instructional history and diagnoses of participants
- Sensitivity of data collection
- Criteria level
- Use of unsequenced trials

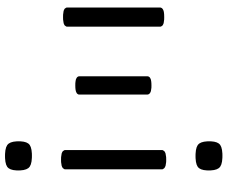
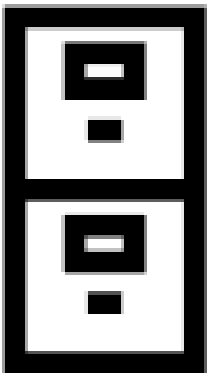
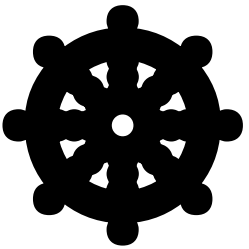
Effects of multiple MTS procedures and unintended effects of testing procedures

- We did see evidence of emergent behaviour for a number of participants.
- This emergent behaviour was demonstrated possibly due to the repeated testing procedures with an additional MTS procedure prior to each test for JIBN.
- It is possible that these repeated procedures may have served as a relevant language experience sufficient for the induction of JIBN.

Age or instructional history and diagnoses of participants

- The differences in the instructional histories of the participants may account for the outcomes from the current experiment differing from the outcomes of previously published research on MEI to induce JIBN.
- The contrived stimuli unintentionally contained some features that were actually structurally similar to common items (e.g. car, cupboard, letters of the alphabet).

Age or instructional history and diagnoses of participants



Age or instructional history and diagnoses of participants

- To minimise these effects it may be desirable to discard stimuli during the initial tact probes if participants attempted to provide a name to the item that did have an association with the physical properties

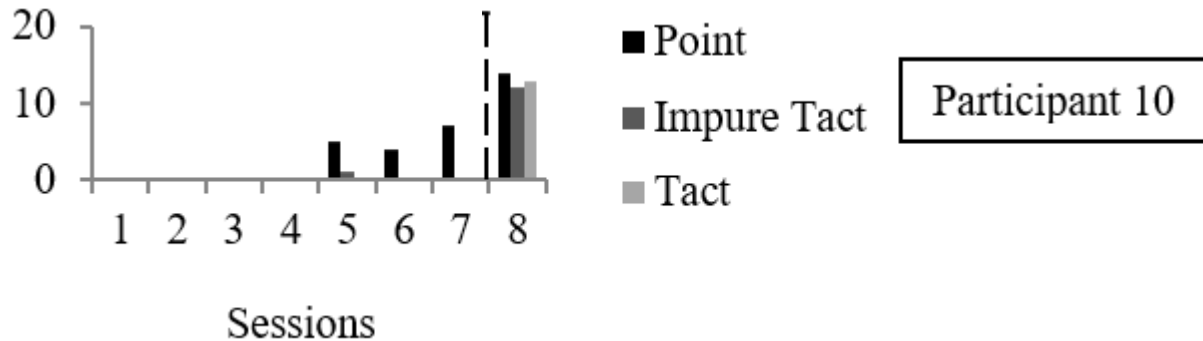
Sensitivity of data collection

- There were large variations in the types of incorrect responses of the participants.
- A number of incorrect responses shared overlapping properties with the correct responses, e.g. saying “moot” for “moop.”
- Some participants responded with “bozz” or another term without any overlapping properties with the correct response.
- For the purposes of data collection both of these types of responses were scored as incorrect.
- The operational definitions of correct responses did not allow for reporting data that showed successive approximations towards the target response.

Sensitivity of data collection

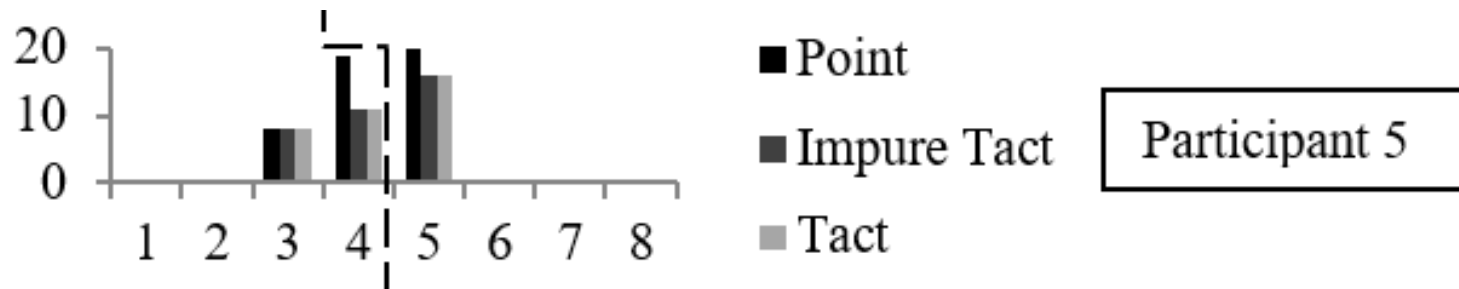
- We recommend a data collection option to establish an acceptable range of correct responses, e.g. “Mup” or “mop” is also accepted for “moop,” such that the incorrect responses are scored based on the shared properties of the correct responses.
- This adjustment may allow the data collected to be more sensitive to the participants’ verbal behaviour at any point in time.
- E.g. if the correct response is “moop” then score as follows: 5/5 for “moop;” 4/5 for “moo_” or “m_p;” 3/5 for “_oop;” 2/5 for “m” or “oo” or “p;” 1/5 for an attempted response; 0/5 for a non-response.

Criteria level



- Participant 10 scored considerably higher scores post-MEI compared to pre-MEI, but he did not meet the mastery criteria for JIBN.

Criteria level

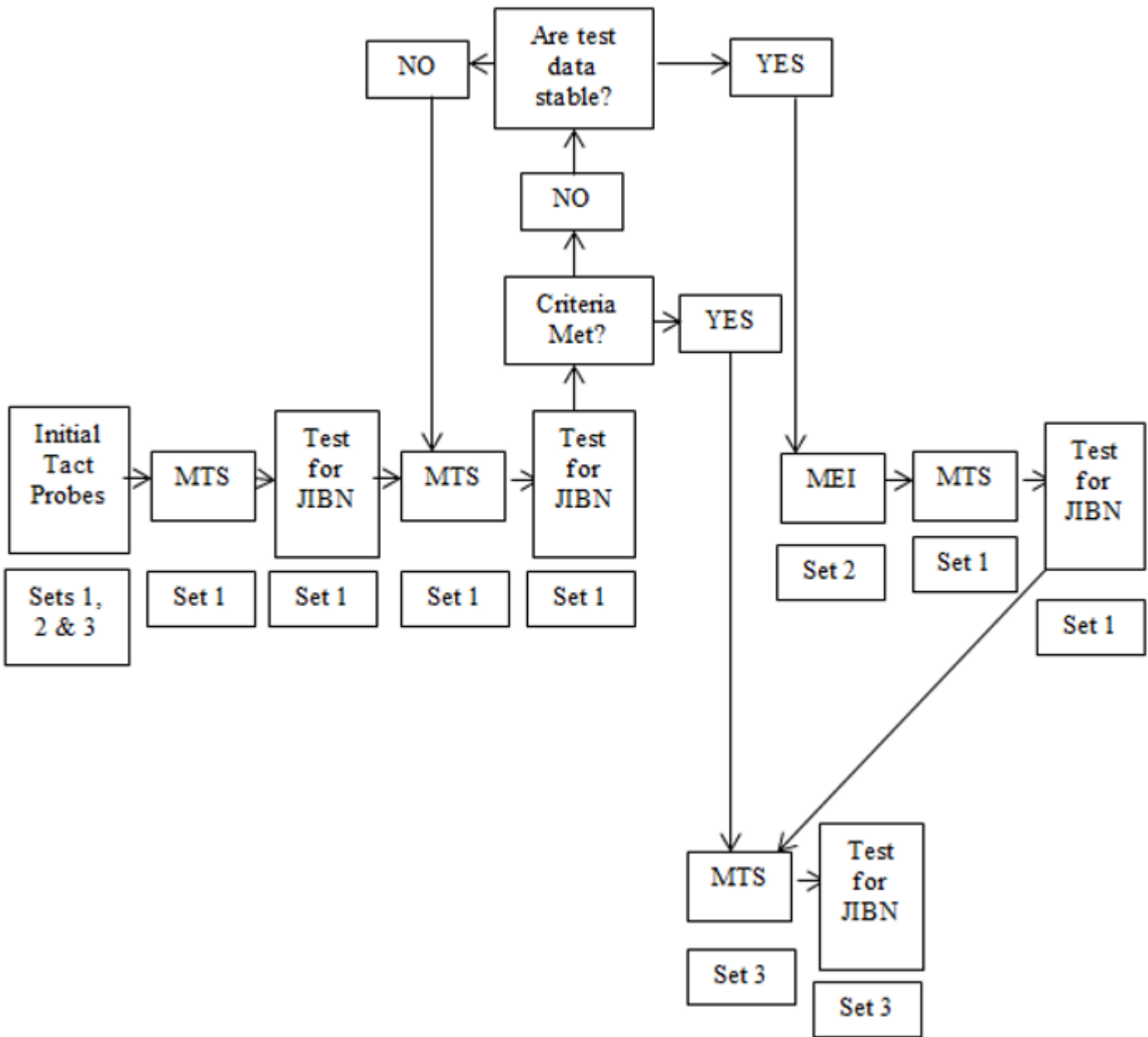


- Closer inspection of Participant 5's data showed that the difference pre-MEI compared to post-MEI is less than the difference pre- and post-MEI for Participant 10.
- An adjustment to the criteria levels or an analysis of the difference between scores pre-MEI compared to post-MEI may have generated a more accurate account of levels of emergent behaviour.

Use of unsequenced trials

- Unsequenced trials = emergent behaviour extinguished?
- Participant 8: 8/20 correct responses for emergent listener behaviour
- More in-depth analysis: first 5 responses by the participant were all correct.
- Test for JIBN to be restricted to responding to the different stimuli only once?
- Or: consider reinforcing correct responses so that they are not extinguished?

Procedural Recommendations



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