

A Replication of Using Peer-Yoked Contingencies to Induce Observational Learning Repertoires in School-Aged Children with Developmental Delays

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PARTICIPANTS

There were 3 participants in this study: a 12 year-old boy with ASD, a 13 year-old girl with multiple disabilities and a 5-year old boy with ASD.

| Participant | Age | Diagnosis |
|-------------|-----|---|
| A | 12 | ASD |
| B | 13 | ASD + Intellectual Disability + Down's Syndrome |
| C | 5 | ASD |

SETTING

Each child received instruction in their home. Instruction occurred during their ABA sessions. Sessions occurred between 2-4 times per week, for at least 2 hours in duration.

LITERATURE REVIEW

Observational learning is defined as learning that results from the observation of responses emitted by other individuals, and the consequences following those responses (Catania, 2007). In order for students to learn in inclusive and/or less restrictive educational settings, individuals must have observational learning repertoires in place (Hallenbeck & Kauffman, 1995). Taylor, B. A., DeQuinzio, J. A., & Stine, J. (2012) investigated whether students could acquire novel sight words through an observational learning intervention. The participants were able to acquire novel sight words, however the research did not conclude whether or not the students acquired these words through observing a vocal imitative response of the word, or a matching response of the word. Davies-Lackey (2004) found that utilizing a peer-yoked contingency was an effective intervention for acquiring observational learning in order to emit new operants. The participants of the study were school-aged children, that were aged 5-10 years old. Stolfi (2005) conducted a replication of Davies-Lackey (2004) research, with students that were preschool aged with developmental delays. Stolfi (2005) concluded that using peer-yoked contingencies resulted in an increase in observational learning across all participants.

REFERENCES

- Catania, A.C., (2007). *Learning* (interim 4th ed.). Cornwall-on-Hudson, NY: Sloan.
- Bertsch, K. M. (2003). A comparison of one-to-one and small group instruction for young children with autism: Focus on effective teaching and behavior management. *Dissertations Abstracts International*, 64, 401.
- Davies-Lackey, A.J. (2004). *Yoked contingencies and the acquisition of observational learning repertoires*. Unpublished Dissertation, Columbia University.
- Greer, R.D., Singer, J., & Gautreaux, G. (2006). Observational learning. *International Journal of Psychology*, 41, 6, 486-499.
- Hallenbeck, B.A., & Kauffman, J.M. (1995). How does observational learning affect the behavior of students with emotional or behavioral disorders? A review of research. *The Journal of Special Education*, 29, 45-71.
- Schoen, S.F. (1989). Teaching students with handicaps to learn through observation. *Teaching Exceptional Children*, 18-21.
- Stolfi, L. (2005). *The induction of observational learning repertoires in preschool children with developmental disabilities as a function of peer-yoked contingencies*. (Publication No. 3174899). [Doctoral dissertation, Columbia University]. Proquest Dissertations and Theses Database.
- Taylor, B. A., DeQuinzio, J. A., & Stine, J. (2012). Increasing observational learning of children with autism: a preliminary analysis. *Journal of Applied Behavior Analysis*, 45, 4, 815-820.

ABSTRACT

Observational learning is a critical skill in educational settings (Hallenbeck & Kauffman, 1995). The repertoire may be necessary in order to be a successful learner, particularly for students with disabilities (Schoen, 1989). Most educational settings offer limited opportunities for individualized instruction, resulting in students being required to learn information through the observation of others. When students have observational learning in repertoire, group instruction was more efficient and more effective than one-to-one instruction (Bertsch, 2003). The current study tested the effects of peer-yoked contingencies on the observational learning repertoires of school-aged children with developmental disabilities. Each participant was taught to play a game with a peer, in which the only way to win the game was to observe the peer's responses. Whether or not the participant and peer gained access to a preferred item was contingent upon both of the students performances. The utilization of the peer-yoked contingencies was found to increase the number of correct tact responses acquired across all participants.

VARIABLES

Dependent Variable: The dependent variable for this study was the emittance of pure tact responses that were learned as a function of observation.

Independent Variable: The independent variable in this study was the use of a peer-yoked contingency gameboard. Access to reinforcement was contingent upon winning a "game" in which the participants were required to observe peer responses in order to obtain the correct "answer".

BASELINE AND POST-INTERVENTION PROBES

A set of 2D stimuli with 5 unknown pictures, each with 4 exemplars was utilized. The target learner and a confederate were seated next to each other at a table, while the instructor sat across from them. The target learner was told at the start of the procedure "watch them learn", or something similar. 5 tact instructional trials were delivered to the confederate (one trial per stimulus), providing reinforcement following correct responses and a correction following incorrect responses. Next, 5 tact probe trial opportunities were given to the target learner. If the target learner responded correctly, a plus was recorded, but no reinforcement was provided. If the target learner responded incorrectly, a minus was recorded, but no corrective feedback was given. These steps were repeated until a total of 20 probe trial opportunities were given to the target learner. Intermittent praise for cooperation with the learning task, i.e., sitting in their seat, paying attention, etc., was given to the learner in order to maintain attention.

PROCEDURE

Instructional sessions were conducted in the exact same manner, with 5 novel (unknown stimuli), represented across 4 exemplars. For instructional sessions, the independent variable of a gameboard was implemented as an instructional tactic. The gameboard consisted of multiple characters for selection, and two vertical Velcro strips that reached the top of the board. The target student and confederate were told that they were on a team and the instructor provided options of known reinforcers that the "team" could win if they won the game by beating their opponent (the instructor) to the top of the board. The target student and their confederate were told if they won the game, they receive their prize/reward, however if their instructor won, then their instructor received access to the reward instead. The target learner sat next to a confederate and 5 instructional trials were delivered to the confederate. The instructor delivered praise for correct responses, and provided the correct answer for incorrect responses. For incorrect responses the instructor did not deliver praise and required the student to emit an independent response/correction. After, the same set of 5 stimuli were presented to the target student in a randomized order. If the student got an answer correct, the teacher stated "Your team is moving up", or something similar, in a neutral tone, and moved the student's game piece up the board. If there was an incorrect response, the instructor stated in a neutral tone "I get to move up", or something similar. This procedure was repeated until the peer and target student had received instruction for all 20 stimuli. At the end of the game, if the instructor beat the student's team to the top of the board, the instructor received brief access to the reward. If the student's team beat the instructor, then the student's received access to their pre-selected reward.

DISCUSSION

The results of this study demonstrated that utilizing a peer-yoked contingency was an effective intervention to induce observational learning in the acquisition of novel tact responses. Previous research had focused on individuals that are 3-10 years of age. The current study demonstrated that observational learning can be induced for emittance of novel tact responses, across ages, including older school-aged children, and in the case of Participant B, when there are additional comorbidities (Down's Syndrome/Intellectual Disability). Further research should be done to analyze the maintenance of this skill over time. Additionally, further research should determine if observational learning of novel tact responses can generalize to emittance of other operants, i.e., acquiring novel intraverbal responses, conditional discriminations, problem solving skills etc.

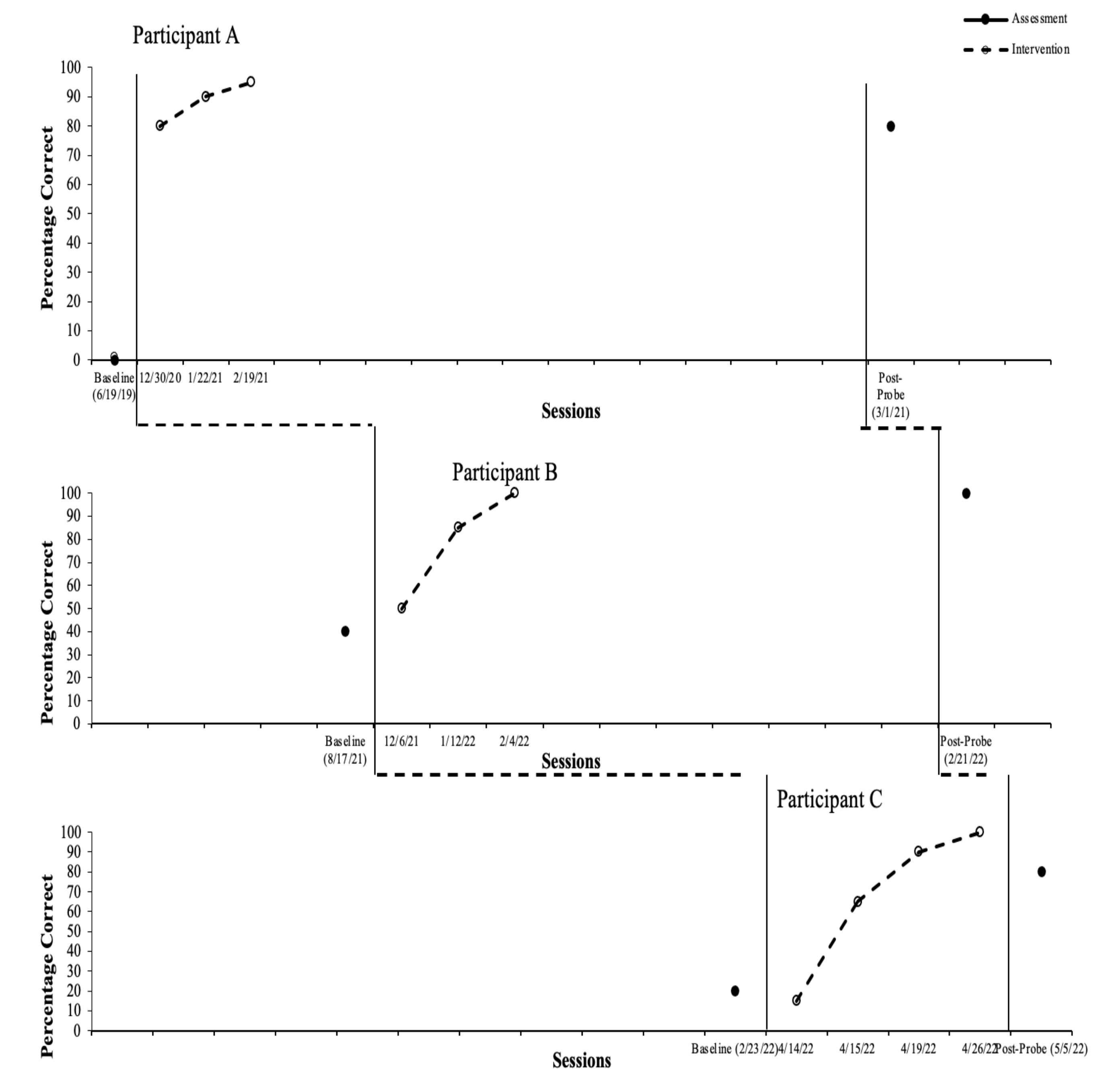
RESULTS

The study was conducted using a time lagged multiple probe design.

Participant A's baseline score was 0% accuracy. Their post-assessment score was 80% accuracy.

Participant B's baseline score was 40% accuracy. Their post-assessment score was 100% accuracy.

Participant C's baseline score was 20% accuracy. Their post-assessment score was 80% accuracy.



Citations

Stolfi article

Schoen, 1989

Bertsch, 2003