

## THE EFFECTS OF DI FLASHCARDS WITH A DI DISCRIMINATION AND MATCH TO SAMPLE ON LETTER IDENTIFICATION FOR FOUR PRESCHOOL STUDENTS WITH DOCUMENTED DEVELOPMENTAL DELAYS

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**Abstract:** *The purpose of this study was to determine if the use of Direct Instruction (DI) flashcards combined with reinforcement, was effective at teaching a student to identify the letters of the alphabet. When the DI flashcard intervention did not improve student performance, a DI discrimination and match to sample paired with reinforcement were employed to teach our participants to recognize the 26 letters of the alphabet. A multiple baseline across letter sets was used. The study was conducted in a self-contained special education preschool classroom in a public school located in the Pacific Northwest. Low levels of improvement with the use of the DI flashcards, led to the decision to change the intervention to the DI discrimination and a match to sample procedure. Learning was not consistent amongst participants, but they all improved from their baseline performance. This study suggests that the use of DI discrimination and a match to sample method were effective at teaching preschool aged students to identify letters.*

**Keywords:** *preschool students with disabilities, letter names, flashcards, match to sample, discrimination, tangible reinforcers, Direct instruction, model, lead, test, data based decision making*

### Introduction

Children who are documented with having developmental delays tend to do poorer in school than typically developing peers. The term “developmentally delayed” is defined under Part C of the Individuals with Disabilities Education Improvement Act (IDEA) of 2004. Experiencing developmental delays is described “as

measured by appropriate diagnostic instruments and procedures in 1 or more of the areas of cognitive development, physical development, communication development, social or emotional development, and adaptive development; or (ii) has a diagnosed physical or mental condition which has a high probability of resulting in developmental delay” (IDEA 2004, §632(5)(A)) (Shackelford, 2006). In the state of Washington a diagnosis of having developmental delays requires a developmental evaluation by a highly trained professional that shows a 1.5 Standard

Deviation or 25% delay in one or more areas (Shackelford, 2006). A delay in any of the five areas listed in the definition would effect school performance. It has been shown that early intervention through early childhood education for children who have been identified at a young age as having developmental delays, leads to greater outcomes for these children when they enter kindergarten (Bagnio & Salaway, 2008).

Preschool students with documented having in the area of cognitive development and communication development, would benefit greatly from intervention on pre-reading skills because research has shown that early reading abilities are a strong predictor of an individual's long term success in school. (Bagnato & Fevola, 2007; Cunningham & Stanovich, 1997; Shapiro, 2011) The ability to read is so crucial because by the end of the third grade most students are expected to learn academic content through reading. (Adams, 1990) If a student cannot read when they reach this point in school, they will not be able to comprehend the academic content that is crucial for success in academics (Howard, McLaughlin, & Vacha, 1990; Johnston, Anderson, & Holligan, 1996; Rinaldi, Sells, & McLaughlin, 1997; Schnagl, McLaughlin, Derby, & Chaddock, 2010). More children are entering school with insufficient levels of language development for school success (Lonigan & Whitehurst, 1998). Of these students, one-third have significant difficulties with learning to read (Adams, 1990; S. Shaywitz, Escobar, B. Shaywitz, Fletcher, & Makuch, 1992).

Early intervention is crucial for students who struggle with cognitive, and communication skills because studies have shown that children with low reading abilities have a harder time catching up with their peers, who are building upon their existing literacy skills (Browder, Wakeman, Spooner, Ahlgrim-Delzell, & Algozzinc, 2006; Stanovich, 1986). Learning to read is comprised of several pre skills, which include phonological processing, print awareness, and oral language. Print awareness is a broad category that includes the concept of alphabetical knowledge (Johnson et al., 1996; Mason 1980). Alphabet knowledge specifically is one of the best predictors of reading achievement (Adams, 1990; Stevenson & Newman, 1986). Recognition of individual letters has also been identified as a strong indicator of later reading success (Catts, Fey, Zhang, & Tomblin, 2001; Johnston et al., 1996). It has been shown that the act of labeling letters familiarizes children with letters, which allows them to store the information necessary for reading in their long-term memory (Gibson, 1969; Murray & Lee, 1997). The ability to discriminate and match letters is a skill, which leads to letter identification. It too is an important skill for early literacy (Johnson et al., 1999).

### **Review of the Literature**

Several methods of early intervention have shown success in teaching students with developmental delays. Specialized instruction has been shown to be beneficial in teaching pre-skills for reading, and specifically the skill of letter identification (Howard, Williams, & Lepper,

2009). The procedure of using direct instruction flashcards has been successful in teaching academic skills to students with special needs (Bishop, McLaughlin, & Derby, 2011; Crowley, McLaughlin, & Kahn, in press; Hayter, Scott, McLaughlin, & Weber, 2007; Herberg, McLaughlin, Derby, & Williams, 2011; Tan & Nicholson, 1997; Ruwe, McLaughlin, Derby, & Johnson, 2011). Direct instruction flashcards involves using a model, lead, and test procedure to teach children academic skills. The teacher models the correct answer, the student and teacher say the problem and answer together, and finally the card is presented to the student. If the student corrects his error, he moves on to the next flashcard and this error card is placed back three or four cards (Hopewell et al., 2011; Lund, McLaughlin, Neyman, & Everson, 2012). If the student makes another error, the model, lead, and test error correction procedure is repeated. In addition, when a student makes an error, this error card is placed three or four back in the stack, so the student can have frequent practice correcting his or her errors. DI flashcards have been effective teaching such skills as sight words (Romjue, McLaughlin, & Derby, 2011; Ruwe et al., 2011), math facts (Brasch, Williams, & McLaughlin, 2008; Erbey, McLaughlin, Derby, & Everson, 2011; Glover, McLaughlin, Derby, & Gower, 2010; Mann, McLaughlin, Derby, & Everson, 2012), and other discrete skills such as name traffic signs (Ashbaugh, & McLaughlin, 1997).

Discrimination and matching activities using objects is another method of intervention that has shown success with students who have severe to moderate cognitive disabilities (Mackay, Soraci, Carlin, Dennis, & Strawbridge 2002). This procedure has a student respond by making a choice from different items, and then matching that choice to the identical item. In 1971, Sidman (1971) conducted a seminal study with regard to stimulus equivalence. A developmentally disabled individual, able to match spoken words to pictures and name the pictures but could not read printed words aloud or with comprehension, served as his participant. Sidman demonstrated that by teaching the participant to match spoken to printed words, the student could read with comprehension (matching written words to pictures and matching pictures to printed words) and oral reading. This was a remarkable discovery indicated that by teaching only one stimulus-stimulus relation, three additional relations emerged without any further instruction or training. In a systematic replication Sidman and Cresson, (1973) employed two persons with Down syndrome as participants. Both were unable to match printed words to pictures (reading comprehension) during baseline. Their participants first learned to match printed words to printed words (visual discrimination) and to match dictated words to the corresponding picture (auditory comprehension). After being taught to match dictated words to printed words, the participants were then able to read the words orally and with comprehension. Matching to sample has been effective teaching students a wide variety of skills but it typically requires one on one instruction (Cooper, Heron, & Heward, 2007).

The purpose of this study was to determine if the use of DI Flashcards combined with reinforcement, was effective at teaching a student to identify the letters of the alphabet (Hayter, et al. 2007; Tan & Nicholson, 1997). Another purpose of this study was to find out if the use of

DI discrimination and match to sample paired with consequences, would be useful at teaching a student to recognize the 26 letters of the alphabet. This would provide a replication of the work of Mackay, Soraci, Carlin, Dennis, and Strawbridge (2002).

### Methodology

There were four participants in this study. These participants were chosen because they were all moving on to kindergarten at the end of the school year. The teacher was worried about the participants' ability to do well in kindergarten because they were having problems learning the letters of the alphabet, which is a kindergarten readiness skill.

The first participant was a five-year-old female with developmental delays. She attended special education preschool with goals in the area of speech and communication, and preacademic skills. Because of her speech and communication delays many words and sounds that she tried to communicate were unrecognizable. This participant used a picture exchange communication during snack times. She also frequently pointed at picture cues displayed around the room, and items in the room.

The second participant was a five-year-old female with developmental delays. She attended special education preschool with goals in the area of speech and communication, pre-academic, behavior, and social. The second participant often had problems vocalizing identifiable words and sounds, due to her speech delays. During meal time, she used a picture exchange communication.

The third participant was a five-year-old male with developmental delays. He attended special education preschool to work on goals in the areas of pre-academic, behavior, and social. The teacher explained that this was the second year the participant had attended special education preschool, and he still had not learned to identify the letters in the alphabet.

The fourth participant was a five-year-old male with developmental delays. He attended special education preschool with goals in the area of pre-academic, speech, and communication. The fourth participant could vocalize many understandable words. He had difficulty with certain sounds, which made some words harder to understand. This participant also liked to communicate with the least words possible.

The study took place in a self-contained special education preschool classroom in the Pacific Northwest. All of the participants attended this class in the afternoon. There were a total of 11 students in the class at the beginning of the study, for a brief time there were 10, and then at the end of the study there were 11 students. The adults in the classroom consisted of the first author, the classroom teacher, and two instructional assistants. Therapists were in and out of the classroom throughout the class session. The first author worked with each participant

individually, for 10-20 minutes each, at an empty classroom table located away from other students.

## Materials

Several materials were used in this study. First, 5x7 flashcards that had upper-case letters printed in the Handwriting Without Tears font (Olson, 1998) were used. Another material used was plastic upper-case letters. A laminated sheet that had the alphabet in capital letters was used for matching. A timer that recorded seconds was used to make sure students responded within the time limit. Several materials were used for reinforcers. These included: barbeque potato chips, sour cream and onion potato chips, chocolate pieces, M & Ms, animal crackers, and fish crackers. Other items used were paint brushes, and paper for painting time. The first author employed data sheets and a pen to record responses.

## Dependent Variables and Measurement

There was one dependent variable measured in this study. The dependent variable measured was the number of letters correctly identified by each participant. The definition of a correct response was changed and became picking up the correct letter named by the first author, from a group of three letters. The participant also had to match the letter they chose to the correct letter on the alphabet board; by placing it in the square that had the same letter they chose, in order for it to be a correct letter identification. Finally, choosing the letter and matching it to the correct letter on the board had to happen within 10 seconds. If the participant picked the correct letter but did not match it correctly it was considered incorrect. Also, the first author switched out the letters that the participant was choosing from so the two letters that were different from the correct letter were not always the same. The response was also recorded as an incorrect if the participant did not choose the letter and match it within 10 seconds. On a data sheet that included the 26 letters of the alphabet, the first author recorded a + for correct responses, and a - for incorrect responses next to the letter.

## Experimental Design and Conditions

A combination ABACA single case replication design was combined with a multiple baseline design (Barlow, Nock, & Hersen, 2008) across sets of letters. This design was used to evaluate the effectiveness the various interventions. There were seven sets of letters for each participant. These sets of letters were taught to the participants in a staggered fashion. New sets of letters were introduced to the participants based on the individual participant's success with their previous letter sets.

**Baseline 1.** During the first baseline phase, the first author showed each participant the deck of DI Flashcards. The participants were asked “What letter is this?” They were then given five seconds to answer and the first author recorded incorrect and correct responses on the data sheet. During the baseline phase, the first author did not give the participants any positive or negative feedback in relation to their responses. On the other hand, participants were told to put forth their best effort and were given specific and general praise, and tangible reinforcers for participation in the session.

**DI flashcards.** Seven sets of letters were created. Each participant had different sets of letters. The first two sets of letters contained the letters that they most frequently got correct during baseline, and the contained letters that were in their first names’. Letters that they got correct were chosen for the first sets to build confidence. Letters in their name were chosen because the participants need to be able to recognize their names daily in preschool, and they will need to for Kindergarten next year. The remaining sets contained a mix of the remaining unused alphabet letters. Sets one through six contained four letters. Set seven contained the 2 left over letters.

At the beginning of each session, the first author, using a DI method, taught the participant their current set. A model, lead, test format was employed to teach the student their set. After teaching, the first author went through the current set with the participant. The first author made a pile of corrects and a stack for errors. The teacher then performed error correction by utilizing the DI method of model, lead, and test.

At the conclusion of each session, the first author used the DI flashcards to go through all seven sets of letters. The first author administered tangible reinforcement for every correct response on the current set of letters. The first author recorded the number of correct and incorrect responses for each participant. This was performed at the end of each session to record intervention data on the current set, and baseline data on the remaining sets.

**Baselines 2 and 3.** During the second baseline, the first author gave each participant a capital plastic letter and told them to match it go the sample board. They were then given five seconds (5s) to match each letter, and the first author recorded incorrect and correct responses on the data sheet. A third baseline had to be taken. This baseline consisted of the first author giving the participant three letters and then asking where one of the letters was (i.e. “Find the T.”). Then each participant had to match the letter to the sample board. They were then given ten seconds to answer, and the first author kept record of incorrect and correct responses on the data sheet. During these baseline phases, the first author did not give the participants any positive or negative feedback in relation to their responses. On the other hand, participants were told to put forth their best effort and were given specific and general praise, and tangible reinforcers for participation in each session.



**DI Discrimination and match to sample.** The same sets of letters developed for the DI flashcard intervention were used for each participant just as before. At the beginning of each session, the first author, using a DI method, taught the participant their current set. A model, lead, test format was employed to teach the student their set. The first author showed the participants the plastic letter being taught and said, “This letter is \_\_\_.” Then the first author asked each participant to repeat what letter it was. The first author then mixed up the letter shown with two other letters and said “Where is the \_\_\_?” The first author showed the participant how to find the letter and match it on the sample board. After teaching the first author went through the current set with the participant. The first author made a pile of corrects and a pile of incorrects. The teacher then performed error correction by utilizing the DI method of model, lead, and test.

At the end of each session, the first author used DI discrimination method and match to sample with all seven sets of letters. The first author administered tangible reinforcement for every correct response on the current set of letters. The first author recorded the number of correct and incorrect responses for each participant. This was performed at the end of each session to record intervention data on the current set, baseline data on the remaining sets, and maintenance data on previously mastered sets.

### **Data Collection and Inter observer Agreement**

Data were collected by the first author at the end of each five-minute teaching session. Initially data was collected by the first author going through the flashcards with each participant. As the definition of correct and incorrect responses changed, the way correct and errors were recorded changed. With the new definition, the first author would give the participant a choice of 3 letters and tell them to identify one of the letters. Then the participant had to match the letter to the corresponding letter on the letter chart. For baseline no feedback to the responses were provided, during intervention specific praise, general praise, and tangible reinforcers were given for correct responses on the set that was being taught. The first author collected data after each response by marking + for a correct response, and – for an incorrect response on the data sheet next to the letter being tested.

Reliability was taken 6 of the 18 (33%) sessions for Participant 1, on 6 of the 17 (35%) sessions for Participant 2, on 5 of the 13 (38%) sessions for Participant 3, and for 4 of the 13 (31%) for Participant 4. Inter observer agreement data was taken once during baseline for all of the participants. It was taken five times during intervention for Participant 1 and Participant 2, four times for Participant 3, and three times for Participant 4. Either one of the Instructional Aides in the classroom or the master teacher took reliability. They were informed of the data taking procedures and recorded data in the same manner as the first author. Reliability was calculated by dividing the number of agreements by the number of agreements and

disagreements, and then multiplied by 100. Inter observer agreement for Participant 1 was 98%, Participant 2 was 97%, Participant 3 was 98%, and Participant 4 was 100%

### **Findings**

Overall results of this study showed an increase in letter recognition across sets that were taught. The overall results are presented in Figures 1 through 4.

### **Baseline**

During the initial baseline phase, the results of expressive letter recognition were low for all four participants. The first baseline phase consisted of three sessions for all four participants. The letters of the alphabet were divided into seven sets that were presented to each participant in a multiple baseline design across sets. All four participants consistently recognized few letters. For Set 1 Participant 1, Participant 2, and Participant 3 identified a mean of just 1.3 letters. For the remaining sets they identified zero letters. The fourth participant identified an average of one letter during the first set, and zero letters for sets two through seven.

### **DI Flashcards**

The results of the DI flashcards are also shown in Figures 1 through 4. During this initial intervention, the students showed a slight increase in performance for Participant 1, Participant 3, and Participant 4. With the intervention of DI flashcards, Participant 1 was able to recognize an average of 2 letters for Set 1. Participant 2 decreased in performance to a mean of 1 letter identified in Set 1 (See Figure 2). For Set 1, Participant 3 identified an average of 1.5 letters for Set 1 (See Figure 3). A small increase for Participant 4 was found ( $M = 2.5$  letters).

### **Baselines 2 and 3**

The second baseline failed to decrease performance for Participants 1 through 3. Therefore, only one session of this baseline was carried out. With the third baseline, a large decrease in picking the correct letter and successfully matching it were recorded for all participants.

The letters of the alphabet were kept in their previously divided seven sets, which were presented to each participant in a multiple baseline design across sets. The first participant identified an average of 2 letters for Set 1 and Set 2; 0.8 for Set 3; 1.2 for Set 4; 1.3 for Set 5; and .6 for Sets 6 and 7. Participant 2 recognized a mean of 2.5 letters for Set 1; 1.2 for Set 2; 1 for Set 3; 1.1 for Set 4; .9 for Set 5 and 6; and .8 for Set 7. The third participant recognized an average of 1.0 letter for Set 1 and Set 5; .5 for Set 2 and Set 6; 1.5 for Set 3; 1.2 for Set 4; and .7 for Set 7. The last participant recognized a mean of 3 letters for Set 1; 1.5 for Set 2; .7 for Set 3;



.9 for Set 4; 1.1 for Set 5; .1 for Set 6; and .9 for Set 7. During the staggered baseline all participants' levels of letter recognition remained low.

### **DI Discrimination and Match to Sample**

The results of using the DI discrimination technique and match to sample method, across all four participants resulted in an increase level in performance.

For Participant 1 this was carried out with Sets 1-3. Following the implementation of the DI discrimination and match to sample, the first participant was able to recognize an average of 3.8 letters for Sets 1 and Set 2. The two day intervention for Set 3, produced an increase to an average of 2.5 letters identified.

For the second participant, implementation of DI discrimination and match to sample completed for Sets 1 and 2. Following this intervention, Participant 2 was able to recognize a mean of 3.8 letters for Set 1 and 3.4 letters for Set2.

For Participant 3, Sets 1 and 2 were taught using the DI discrimination and match to sample. On Set 1, the participant averaged 3.5 letters correct. For Set 2, only one day of this intervention was carried out and the participant recognized 2 letters.. After using DI discrimination and the match to sample method Participant 4 was able to recognize an average of 3.7 letters for Sets 1 and 2.

### **Conclusion**

Overall, the DI flashcards were not all that effective with our participants. This fails to replicate our previous research with elementary students (Bishop et al., 2011; Hopewell, McLaughlin, & Derby, 2010; Kaufman et al., 2011; Ruwe et al., 2011; Travis et al., 2012), middle and high school students (Hayter et al., 2007; Ruwe et al., 2011) and that of Herberg et al (2011) with preschool students with developmental delays. The present research measured a different skill set than our previous research with DI flashcards. In addition, Herberg et al. study employed an easier (color recognition). However, the failure to replicate merits additional research with preschool students with developmental delays

However the implementation of DI discrimination methodology and match to sample produced large improvements in letter recognition. We terminated the DI flashcard procedure was because it failed to improve the performance of our participants. We decided to add the DI discrimination procedure and match to sample. When student performance improved, we continued with these two intervention procedures. The match to sample outcomes replicate the earlier work of Sidman and colleagues.

Participant 1 had the best attitude about working with the first author, and she increased her amount of letter recognition the most. She had a lot personally going on at home including

her parents going through a divorce, and her grandparents receiving guardianship over her. Although this was occurring, she did not let it effect her attitude. At first she was somewhat hesitant about working with the first author, but then tangible reinforcers were used to get her excited about the activity and she responded well. She enjoyed working for time to paint, and M and M's. She would get tokens for every letter she identified correctly, and when she reached five she received two minutes of paint time. Both of these reinforcers were available at each session so the participant was very happy to participate in each session. She didn't really understand the DI flashcards so her improvement was low during this initial intervention. Even directly after the first author used the model, lead, test procedure, when asked "What letter?" she would often say "Don't know." Once the intervention was changed to match to sample she caught on very quickly and achieved mastery with two sets after six sessions. Finally, the first author thinks her perfect attendance was also a contributing factor in her success.

The second participant did not always want to participate in the sessions. Although this was the case, she still showed improvement on her letter identification. Often when the first author would tell her it was time to participate in the activity she would say, "No." When this occurred, the first author would set a timer for her for three minutes, and tell her that when the timer went off she had to work on her letters. Sometimes after this was done Participant 2 would automatically go work with the first author, and other times she would play for the three minutes. When the timer went off she would go work with the first author, but often she was not initially enthusiastic about it. She would say "alright," or "okay," but then would come and work with the first author. To make her more excited about learning to identify her letters, the first author gave her a tangible reinforcer. She liked barbeque potato chips, and worked very well when she received these. The first author had chips available for this participant at each session so the participant would stay engaged in the activity. During a couple of sessions this participant had to take a break and come back to the session because she could not maintain attention. Once a break was given, she came back willing fully and worked well. She really didn't understand the DI flashcards, and her performance decreased during this time. Once the match to sample intervention was used, she responded very well and increased her letter identification. She only missed one session, which was very helpful because the first author was able to work with her on her letters for several sessions, which contributed to her improvement.

Participant 3 did not like participating in the sessions in the beginning, but as time passed, he was willing to work. He was given tangible reinforcers for correct answers, and for participation. Participant 3 liked to work for barbeque chips, and for M and M's. These were available at each session, which made him more interested in the activity. He learned the least amount of letters. The first author believes that his low attendance contributed to his low levels of improvement. He was often inconsistent; for intervention with the match to sample he would demonstrate mastery and the following day he would not remember one of the letters. This was

a pattern for him for the match to sample intervention period. He never achieved mastery with the first set, but his average letters recognized in the first set did increase.

Participant 4 showed an increase in letter identification, with both the DI flashcards and the discrimination and match to sample technique. Although he showed an increase with the DI flashcards, it still was a low rate of increase in comparison with the discrimination and match to sample. With the match to sample he attained mastery very quickly. This occurred even though he was absent for three of the intervention sessions. He always enjoyed the sessions and worked well when tangible reinforcers were present. His favorite things to work for were pieces of chocolate and animal cookies. The first author made these items available at all sessions. Often the first thing Participant 4 would say once the session began was “Can I have some chocolate?” The first author would reply, “After you do some work.” He then would be very excited to work, and he was a quick responder. The outcomes with participant 4 merit additional research using DI flashcards and DI discrimination training and match to sample procedures.

### **Suggestions and Recommendations**

Although employing match to sample was quite effective, it was somewhat impractical. Without the necessary staff to allow for one to one instruction during the day, this procedure may be difficult to employ. In order to insure accuracy, the teacher or instructional assistant has to monitor the student’s immediate response, which can only be done if they are watching that specific student and response. It is possible that the teacher could have someone work with students in a group, but all of the students would have to have the same letters. It also was very time consuming because the first author had to work with each participant for approximately fifteen minutes over each session. This amount of time may not be efficacious for a classroom teacher to set aside for several students each day.

The materials need for the interventions were easily accessible, and relatively inexpensive. The only materials used included flashcards with letters written on them, data sheets, plastic letters, and a match to sample board. All of these items could be bought at a local store, or could be provided by the school.

The fourth author was very pleased with the second intervention (DI discrimination and match to sample). Anecdotally she noticed an increase in the participants’ awareness of their names. She played a letter game with her class, and several of the participants were able to identify letters, when other classmates could not. She informed the first author that she planned on continuing using this method with the students because she noticed an improvement.

The first author was very pleased with the outcomes of this study. Although the first author was only able to work with the students for eighteen sessions, this method of instruction showed improvement for all of the participants. Letter identification is so crucial to students’ future success in the schooling process (Catts et al., 2001; Johnston et al., 1996). These participants showed an improvement in alphabet knowledge through the use of discrimination

and match to sample techniques. Future research should be done to see if these methods are effective with other students, and if these procedures could be used to teach other pre-reading skills in a typical preschool setting.

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### Figure Captions

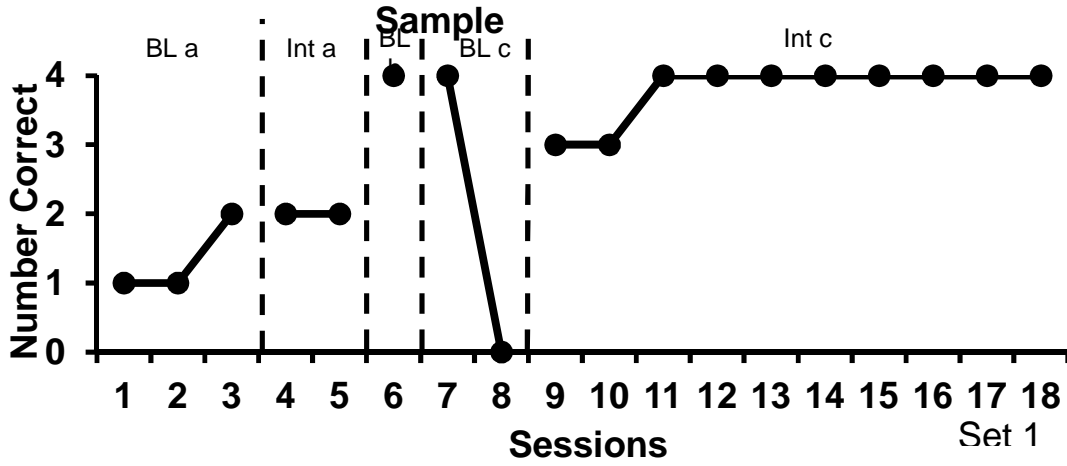
*Figure 1.* The number of letters identified by Participant 1 is shown across seven sets. Sets 1, 2, 3, 4, 5, and 6 had a possible total of four letters each and Set 7 had a possible total of two letters each.

*Figure 2.* The number of letters identified by Participant 2 is shown across seven sets. Sets 1, 2, 3, 4, 5, and 6 had a possible total of four letters each and Set 7 had a possible total of two letters each.

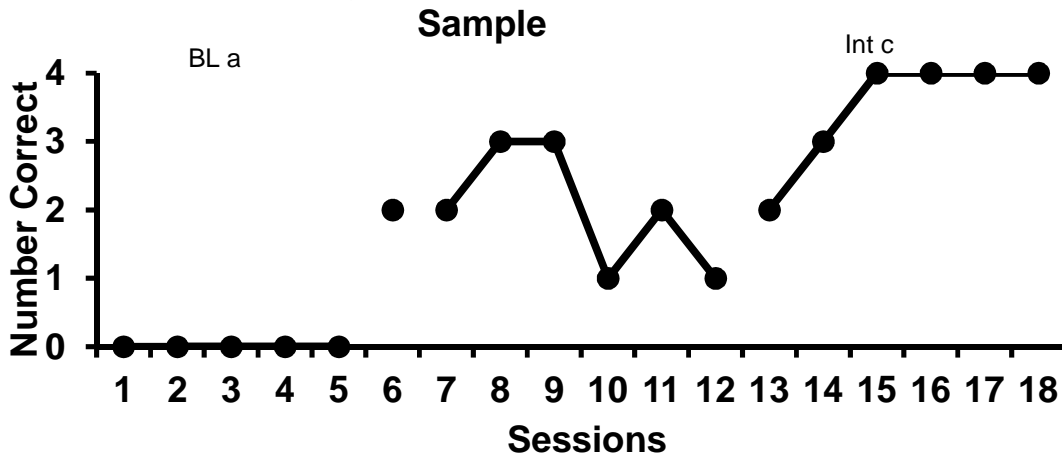
*Figure 3.* The number of letters identified by Participant 3 is shown across seven sets. Sets 1, 2, 3, 4, 5, and 6 had a possible total of four letters each and Set 7 had a possible total of two letters each.

*Figure 4.* The number of letters identified by Participant 4 is presented across seven sets. Sets 1, 2, 3, 4, 5, and 6 had a possible total of four letters each while Set 7 had a possible total of just two letters.

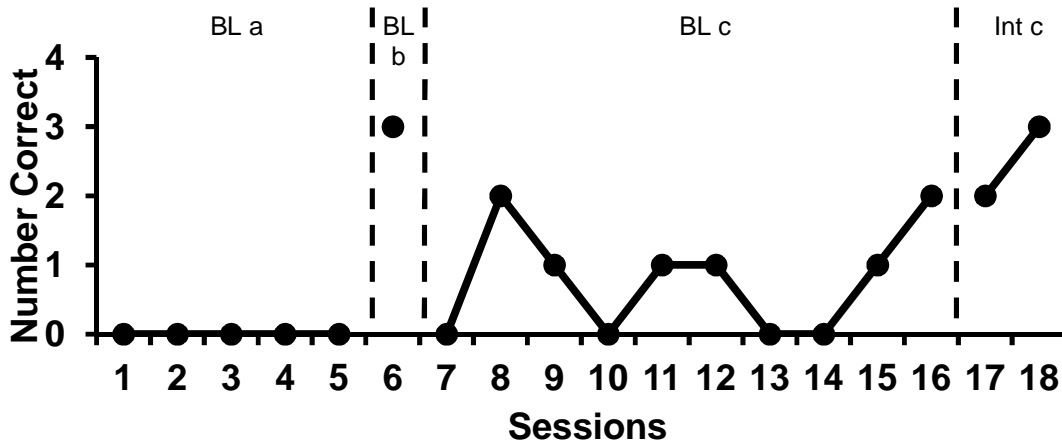
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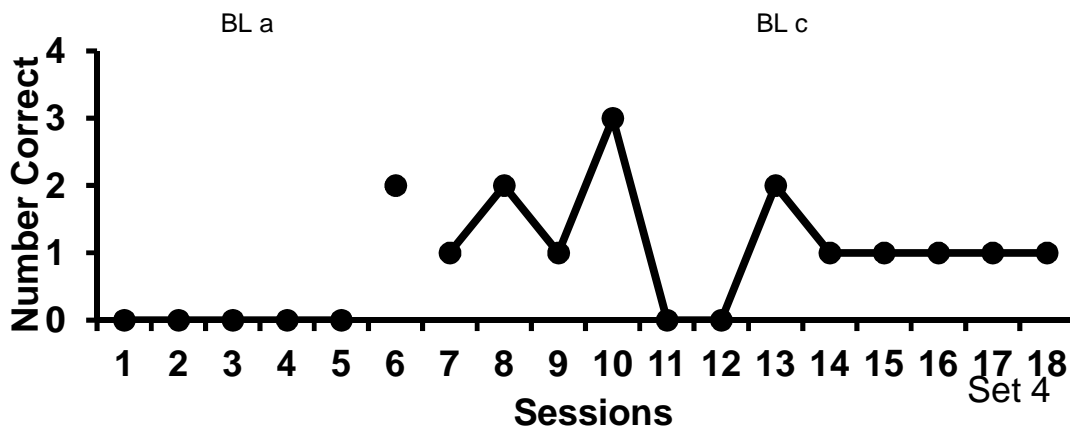
DI Flashcards, Discrimination and Match to



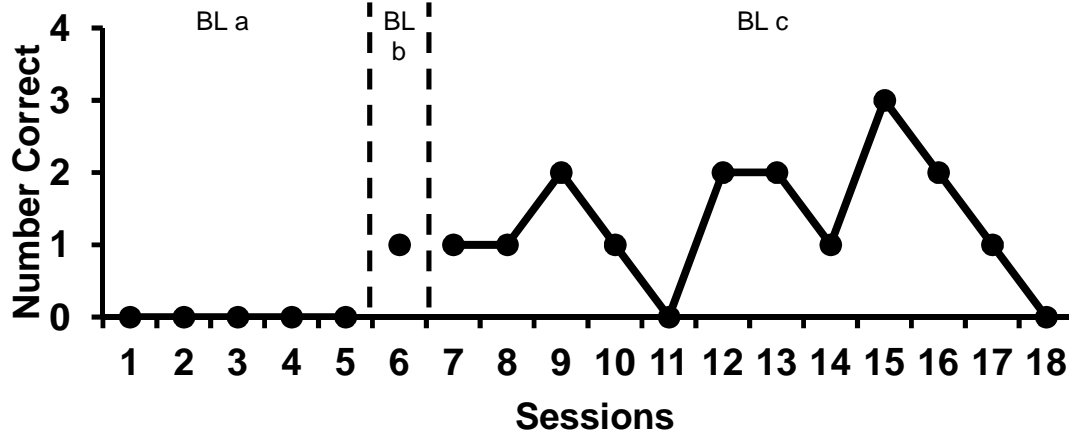
DI Flashcards, Discrimination and Match to Sample



DI Flashcards, Discrimination and Match to Sample



**DI Flashcards, Discrimination and Match to Sample**



**DI Flashcards, Discrimination and Match to Sample**

