

5-1-2013

THE EFFECT OF CONDITONAL DISCRIMINATION TRAINING ON CHOICE MAKING IN CHILDREN DURING 'PRE- GAMBLING' ACTIVITIES

Leigha S. Shoup

Southern Illinois University Carbondale, lk356705@gmail.com

Follow this and additional works at: <http://opensiuc.lib.siu.edu/theses>

Recommended Citation

Shoup, Leigha S., "THE EFFECT OF CONDITONAL DISCRIMINATION TRAINING ON CHOICE MAKING IN CHILDREN DURING 'PRE-GAMBLING' ACTIVITIES" (2013). *Theses*. Paper 1159.

This Open Access Thesis is brought to you for free and open access by the Theses and Dissertations at OpenSIUC. It has been accepted for inclusion in Theses by an authorized administrator of OpenSIUC. For more information, please contact opensiuc@lib.siu.edu.

THE EFFECT OF CONDITIONAL DISCRIMINATION TRAINING ON CHOICE MAKING
IN CHILDREN DURING 'PRE-GAMBLING' ACTIVITIES

by

Leigha S.Shoup

B.S., Ohio University, 2009

College of Health and Human Services: Hearing, Speech, and Language Sciences

A Thesis

Submitted in Partial Fulfillment of the Requirements for the Master of Science in Applied
Behavior Analysis

Department of Rehabilitation

in the Graduate School

Southern Illinois University Carbondale

May 2013

THESIS APPROVAL

THE EFFECT OF CONDITIONAL DISCRIMINATION TRAINING ON CHOICE MAKING
IN CHILDREN DURING 'PRE-GAMBLING' ACTIVITIES

By

Leigha S. Shoup

A Thesis

Submitted in Partial Fulfillment of the Requirements for the Degree of the
Master of Science in Behavior Analysis and Therapy
Southern Illinois University Carbondale
May 2013

Approved by:

Dr. Mark R. Dixon, Chair

Dr. Jonathan C. Baker

Dr. Joel Ringdahl

Graduate School
Southern Illinois University Carbondale
April 3, 2013

AN ABSTRACT OF THE THESIS OF

Leigha S. Shoup, for the Master of Science degree in Behavior Analysis and Therapy , presented on April 3, 2013, at Southern Illinois University Carbondale.

TITLE: THE EFFECT OF CONDITIONAL DISCRIMINATION TRAINING ON CHOICE MAKING IN CHILDREN DURING ‘PRE-GAMBLING’ ACTIVITIES

MAJOR PROFESSOR: Dr. Mark R. Dixon

Past research has shown conditional discrimination training of a stimulus to change its function by manipulating variables within the contingencies (e.g., Johnson & Dixon, 2009), and the present study attempted to extend this research. Experimenters exposed 3 children (ages 6-9 years) to a computer program that trained participant to discriminate between two contextual cues (blue and yellow) representing more than and less than. All three participants will demonstrate an increased preference toward the color that had been paired with more than during both conditional discrimination training phases.

TABLE OF CONTENTS

ABSTRACT.....	i
LIST OF FIGURES.....	iii
CHAPTERS	
CHAPTER 1-Introduction.....	1
CHAPTER 2-Methods.....	7
CHAPTER 3-Results.....	12
CHAPTER 4-Discussion.....	15
CHAPTER 5-Limitations.....	20
REFERENCES.....	30
VITA.....	32

LIST OF FIGURES

<u>FIGURE</u>	<u>PAGE</u>
Figure 1.....	22
Figure 2.....	23
Figure 3.....	24
Figure 4.....	25
Figure 5.....	26
Figure 6.....	27
Figure 7.....	28
Figure 8.....	29

CHAPTER 1

INTRODUCTION

Gambling has been on the rise for individuals and families across America in the last decade. In America alone, 86% of the population has recorded gambling at some point in their lives, and 68% of Americans have reported gambling within the year 2009 (The National Gambling Impact Study Commission, 2009). These gambling behaviors can place a great strain on families and as well as personal relationships. Individuals who exhibit gambling behaviors will likely experience some form of consequence including, but not limited to, severing ties with friends and families, financial hardships, and criminal acts to fund their behavior (Gupta & Derevensky, 1997).

Key among these gambling issues in America is pre-gambling behaviors in children and young adults. Pre-gambling behaviors of children is a topic of great discussion among people in the United States. Pathological gambling is on the rise among people who are exposed to gambling in their life as children. Gambling and gambling problems are being looked into more closely by the public, and more people are expressing concerns about gambling and how it affects the children of America (The National Gambling Impact Study Commission, 2009).

When discussing pre-gambling behaviors in children, it is important to take the child's surroundings into account. Children are more likely to increase wagers and bets when engaging in gambling types of behavior when in a group setting rather than playing individually. Peer pressure encourages children to keep playing and keep winning (Hardoon & Derevensky, 2001). This peer pressure and group mentality leads the children to assume gambling is a socially acceptable behavior. When engaging in pre-gambling behaviors in group settings, children often

increase the amount bet over time (Hardoon & Derevensky, 2001). This may explain why gambling type games in public locations are grouped together and are meant to be played side by side. Thus, overtime with many children playing side by side, the children would gamble more and more heavily. The games in many establishments are all side by side and have multiple games of a similar type for multiple people to play near and around each other.

For example: Children in a public setting where games that accept tokens are offered can become very excited and at times over stimulated. They may be anxious to have their parents give them tokens to play the games. Parental roles in the children's gambling may also increase the likelihood of the child maintaining gambling behaviors (Shead, Derevensky, & Meerkamper, 2011). Children might be running to the gaming area and placing tokens into the machines to play a very short game to win tickets. Kids might collect all of their tickets and turn them in for prizes, usually worth less than the money spent to play the games. This addresses the question: what keeps the children going back to the gaming machines over and over again? Possible reasons for the children to keep returning to the game play area might be the flashing lights of the games, the color simulation, noises/music the machine makes, or the tickets won at the machine. Some machines provide extra flashing lights and noises signaling a win so other children and individuals are aware of the specific child's win. This will engage excitement out of all of the children, which would keep them returning to the game to experience that euphoric sensation of winning. Part of the euphoric sensation experienced from the win of the child may also be the social attention given to the child and winning machine during a big payout. The child winning many tickets would experience high levels of attention and praise. Children might huddle around the winner and the winning machine to see how many tickets would be won and to see if they could play the same game and win. Game play in groups could encourage higher

frequency of game play in general for children. The above examples could be powerful lures to keep children returning to games.

Establishments like the one in the above example have been accused of creating an atmosphere for children to engage in gambling behaviors. The concept of using tokens to play games to win tickets for prizes is what causes some to perceive this as pre-gambling and gambling behaviors. Many parents have taken children to establishments to play games and to win as many tickets as possible for as many prizes as possible. Parents are innocently taking their children to 'have fun' not realizing what they might be exposing their children to and what detrimental effects these pre-gambling behaviors can have over time.

Another leading factor in pre-gambling behaviors in children and young adults is the gambling behaviors of the children's parents or adult figures in their lives. Correlations have been made in previous research between children engaging in pre-gambling behaviors if the parents of those children engage in gambling behaviors (Vitaro & Wanner, 2011). Studies have heightened the awareness of children engaging in pre-gambling behaviors possibly leading to pathological gambling in adulthood. Environmental factors have been deemed relevant when looking at children engaging in pre-gambling behaviors. Children have a higher risk of becoming a pathological gambler if they are parents are gamblers because those parents may indulge their children's pre-gambling behaviors and encourage them to be more competitive. These children have a higher pre-disposition to gambling in their adulthood, which causes them to engage in high risk taking behaviors (Vitaro & Wanner, 2011). Children are vulnerable and impressionable to behaviors that their parents engage in and may imitate similar behaviors believing that the way their parents act are the correct ways to act.

Since pre-gambling behaviors among children is a growing issue in our country, it is important to gather more research regarding this topic. When gathering research in pre-gambling behaviors of children in situational scenarios, Visual Basic has proven to be a valuable tool to replicate gambling-like situations in a controlled environment. Visual Basic may also be used to control stimuli presentations during a testing selection. Visual Basic is able to control all of the stimuli presented in a study from the pictures used in the program to visual and auditory feedback stimuli. Pictures and stimuli can be used in computer programs to expose children to contextual cues that can condition children to understand the concept of ‘more than’ and ‘less than’.

In Johnson & Dixon’s (2009) study, children exposed to contextual cues that were conditioned for ‘more than’ favored a specific color when making a selection for the simulated game through a Visual Basic program. Games created in the Visual Basic program can be colorful and contain multiple sets of stimuli to engage participants and make the game more appealing and realistic. These colorful Visual Basic forms are important for the understanding of why children/participants are drawn to the games and want to play over and over again. This exposes why children engage in pre-gambling game play.

Along with the use of Visual Basic, the design of a study on pre-gambling behavior in children is of particular importance. Past research has shown a design with the use of a pre-test/post-test using contextual cues to test the understanding of ‘more than’ and ‘less than’ (Hoon et al, 2008). This is relevant because a pre-test/post-test design can assist researchers in gaining instant results based on the comparison from the pre-test. This allows researchers to see if their training is immediately effective with participants.

Some researchers believe a pre-test/post-test design to be too simple of a design. Thus a contingency reversal can be added to a pre-test/post-test design to test for further and more complete comprehension of what is being tested in specific studies. The use of a contingency reversal has also proven to test the true understandings of participant's selections of contextual cues through the use of Visual Basic (Nastally et al, 2010). Contextual cues are powerful stimuli used to teach the meaning of something. For example, the use of colors to teach a certain meaning. Research has shown the use of contextual cues to teach the understanding of 'more than' and 'less than' or higher and lower to be very effective. Contextual cues have been used with colors to understand betting behavior through game play and other gambling behaviors in children.

When selecting colored contextual cues to be used in an experiment, certain details need to be considered. It is crucial to use two very different colors in the presentation of each color. The use of primary colors is equally as important to provide specific differences between the two stimuli. The color selection is important to the design to limit the amount of confusion by the participants during the Visual Basic program. The use of primary colors are important so that all participants involved in the study can clearly identify the color and start to make connections during the Visual Basic program.

The current study uses the understandings from past research to extend the knowledge in the area of using contextual cues to test for 'more than' and 'less than'. Johnson & Dixon (2009) were able to use simulated game play to train for 'more than' and 'less than'. Through the use of contextual cues the contingency was able to be implemented with the participants. The purpose of this study is to further the research of Johnson & Dixon (2009) explaining that children can be

conditioned through a contextual cue to understand the one cue can equal 'more than' and another can equal 'less than'.

CHAPTER 2

METHODS

Participants

The participants in this study were three female children: Laura 6 years old, Anna 8 years old, and Sarah 9 years old. All participants were selected based upon appropriate age (under 12), consent, and availability. The proposed study took place on the weekend as not to interfere with the school day.

Setting and Materials

The study was conducted at the Findlay, Ohio Stevie B's Pizza Buffet location at 7535 Patriot Dr. in Findlay. Portions of the experiment were conducted in the experimenter's vehicle to promote attending and minimize distractions associated with a busy restaurant. Other portions of the study were conducted with-in the Stevie B's facility using the provided games, tokens, and tickets.

The participants used video games and other recreational games and machines located at and provided by Stevie B's Pizza Buffet. Tokens and tickets were provided to the participants by the researcher. During the conditional discrimination training phases, participants used a standard ASUS PC Netbook with a Microsoft® Visual Basic 6.0 program installed on it to control the presentation of stimuli and collect data.

Data Collection and Interobserver Agreement

The dependent measures in the study were recorded by the researcher observing which color bag the child selected within the facility. The accuracy of the data collection was

confirmed by having the one independent observer record with paper and pencil on a graph that allowed the researcher to easily and accurately mark whether the participant selected blue or yellow bags. The measures used during the experiment were as follows:

During the gaming phase for each trial, the colored bag selection was recorded and the number of tickets won per token. During the conditional discrimination training phases the measures were the number of correct responses per trial block. The number of tickets were counted and recorded per colored bag. The computer program collected data on the number of trails correct for the conditional discrimination trainings along with researchers collecting data through the use of paper and pencil to tally how many trails were correct. All data collection during the intervention portion of the experiment was collected via the computer program. The accuracy of the data collection by the computer program was confirmed by having one researcher compare paper and pencil recorded responses to the data collected by the Visual Basic. The computer program was written to record correct and incorrect responses from the participants which were sent to an output file to be reviewed at the conclusion of the forms of the Visual Basic program.

Design

The design used in the experiment was a pre-test/post-test design with a contingency reversal of the baseline discrimination. The study was set up in five different phases. Phase 1: pre-test, Phase 2: conditional discrimination training 1, Phase 3: post-test 1, Phase 4: Conditional discrimination training 2 and Phase 5: post-test 2. Each participant had a total number of 30 trails during phases 1, 3, and 5. The number of trails per phase was assigned as following: 10, 10, and 10 for the pre-test, post-test #1, and post-test #2 respectively.

Depending on what colors were preferred as more than to the participants then the opposite color was used during the conditional discrimination training phase. The opposite contingency was trained depending on what the participants initially selected. The design controls for certain factors of internal validity better than a simple pre-test/post-test design. The reversal design allowed for testing and understanding of the contingencies being conditioned.

Procedure

There was 160 visual basic forms total throughout the conditional discrimination training phases. This accounts for 80 forms within the two conditional discrimination training phases. Within the two conditional discrimination training phases they had 20 forms to train the ‘more than’/‘less than’ color and each also included 40 mixed ‘more than’/‘less than’ forms. While participants were exposed to the 2 conditional discrimination training phases, they were conditioned to view one of two colors to be ‘more than’ and in the second conditional discrimination training for the opposite color to be viewed as ‘more than’.

Pre-test. During the pre-test, the participants went into Stevie B’s and were given a select number of tokens depending on the assignment of sequence of tokens to each participant. The participants played games that disperse tickets at their own will. They independently picked the games and data was collected on the color bag they selected the token from. The participants were shown two colored bags in which to pick tokens from each time. One bag was blue and one bag was yellow. Each participant chose which bag they wanted to pull tokens from and this signaled the start of each trail. One trial consisted of playing one game once and for consistency purposes, the participants were instructed to only select from games that cost one token as

opposed to more than that. The participants were instructed to take their token and go play one game and return with all tickets won at that single game with that specific token.

Conditional Discrimination Training #1 and #2. During this phase, participants interacted with a computer program in a quiet area outside Stevie B's, the experimenter's vehicle, to eliminate distractions. Participants in this study played a game programmed using Visual Basic in the form of a conditional discrimination training procedure in which they learned to select a certain picture based on the presence of a specific color. The use of two background colors, blue and yellow, was selected for the conditional discriminative stimuli.

For the conditional discrimination training #1, the participant's favored color selection determined what color was trained as 'more than' first. This was either blue or yellow. The use of randomly selected stimuli was used in the computer program to teach participants the value of more or less (see Figure 5). The color serving as the conditional discriminative stimulus appeared as the background of the screen (see Figure 7 and 8). Stimuli presented in this study were a picture of legos, lollipops, beach balls, and crayons. The computer screen had minimal button keys to select to reduce confusions on the part of the participants.

The participants were taught to select the stimulus representing the relation of 'more' or 'less' based on the color of the background (i.e. in this CDT #1 when the color is blue, selection of the 'more' picture was reinforced and when the background color is yellow, selection of the 'less' picture was reinforced. This depended upon the participants favoring selection. CDT #1 and #2 started with different colors depending upon the participant's selections.) During each trial, if the participants were correct, they saw a smiley face icon and heard a ding sound clip immediately following the correctly clicked icon. If the participants selected the incorrect

stimulus they received feedback that their answer was incorrect by seeing a sad face icon and hearing a buzzer sound clip immediately following the incorrectly clicked icon. Participants were instructed with the following statement:

‘You will see two sets of pictures on the screen. Your job is to click one of them. If you select the correct one you will see a yellow smiley face picture and hear a ding sound. If you are incorrect you will see a sad face picture and hear a buzzer sound.’

Post-test #1 and #2. At the end of the experiment, after all of the tickets were counted and recorded, the participants were then given their tickets back to redeem for prizes. There were two post-tests conducted in this experiment. Each post-test was conducted immediately following each of the conditional discrimination training phases. The participants completed two post-test phases to determine the degree to which they adhered to the relations formed between the colors and the concepts of ‘more’ and ‘less’ during the conditional discrimination training phases.

CHAPTER 3

RESULTS

During the pretest (phase 1), where the participants selected coins from the colored bags, no preference was shown for either color. The participants selected each color almost equally. There was one participant (participant 'S', see Figure 1) that showed a slight preference towards the yellow bag color over the blue bag on one trial. The other participants selected each color the same amount of times.

During phase 2: conditional discrimination training 1, participant 'L' had the following results:

Blue slides (greater than): 14/20 correct

Yellow slides (less than): 16/20 correct

Mixed blue and yellow (greater than and less than): 20/40 correct

Participant 'A' had the following results:

Blue slides (greater than): 16/20 correct

Yellow slides (less than): 13/20 correct

Mixed blue and yellow (greater than and less than): 26/40 correct

Participant 'S' had the following results:

Blue slides (greater than): 12/20 correct

Yellow slides (less than): 6/20 correct

Mixed blue and yellow (greater than and less than): 11/40 correct

During phase 3: post test 1, participant 'L' selected seven times out of the blue bag and three times out of the yellow bag. Participant 'L' was given the computer program that conditioned the color blue to equal 'greater than' for phase 2, since no color preference was determined in the pre-test. Participant 'A' selected seven times out of the blue bag and three times out of the yellow bag. Participant 'A' was given the computer program that conditioned the color blue to equal 'greater than' for phase 2, since no color preference was determined in the pre-test. Participant 'S' selected five times out of the blue bag and five times out of the yellow. Participant 'S' was given the computer program that conditioned the color blue to equal 'greater than' for phase 2, since a slight preference towards yellow was shown during the pre-test phase.

During phase 4: conditional discrimination training 2, participant 'L' had the following results:

Yellow slides (greater than): 9/20 correct

Blue slides (less than): 10/20 correct

Mixed yellow and blue (greater than and less than): 18/40 correct

Participant 'A' had the following results:

Yellow slides (greater than): 14/20 correct

Blue slides (less than): 12/20 correct

Mixed yellow and blue (greater than and less than): 24/40 correct

Participant 'S' had the following results:

Yellow slides (greater than): 11/20 correct

Blue slides (less than): 14/20 correct

Mixed yellow and blue (greater than and less than): 21/40 correct

During phase 5: post-test 2, participant 'L' selected four times out of the yellow bag and selected six times out of the blue bag. Participant 'L' was given the computer program that conditioned the color yellow to equal 'more than' which is the reverse of phase 2 because the participant showed a preference for blue in phase 2. Participant 'A' selected seven times out of the yellow bag and selected three times out of the blue bag. Participant 'A' was given the computer program that conditioned the color yellow to equal 'more than' which is the reverse of phase 2 because the participant showed a preference for blue in phase 2. Participant 'S' selected six times out of the yellow bag and selected four times out of the blue bag. Participant 'S' was given the computer program that conditioned the color yellow to equal 'more than' which is the reverse of phase 2 because the participant showed no preference in phase 2.

CHAPTER 4

DISCUSSION

This study builds upon research from previous studies (e.g. Johnson & Dixon (2009) that used contextual cues to condition participants to make selections based on contextual cues for ‘more than’ and ‘less than’. During the pre-test portion of the study, participants generally did not show a preference toward either colored bag. This could be because the participants favored both colors or preferred to pick tokens from each bag. During the conditional discrimination training 1, when blue equaled ‘more than’, the computer program provided feedback to the participants when they selected the correct and incorrect answers. This feedback was a visual and auditory feedback to signal correct or incorrect (see Figure 6). Based on the results from the program in phase 2, some participants showed trends towards the desired conditioning (see Figure 1).

Test results from the conditional discrimination training 1 and 2 for participant ‘L’ were interesting because in the pre-test, the participant showed no preference for a specific color, meaning the participant selected from each bag equally. For the post-test 1, participant ‘L’ selected more times out of the blue bag (see Figure 1), but did not show that conditional discrimination training 1 was successful because the participant only selected the blue bag a few more times than the yellow. Also, when comparing the conditional discrimination training results to the color of bag selected, there is not a significant correlation between correct answers and the color of bag selected (see Figure 2). The results for post-test 2 show that the participant selected more times out of the blue bag rather than the yellow bag which was the opposite of the desired training (See Figure 2). When reviewing the results collected from the training, it is

difficult to draw concrete conclusions as to whether or not the conditional discrimination training had an effect on the overall choices the participant made regarding their selections from the colored bags. Based on the data, the conditional discrimination training 1 showed to have the desired effect on the selections from the colored bags for participant 'L' made during post-test 1. However, after conditional discrimination training 2 the participant still showed a tendency to make selections from the blue bag, which is not the desired outcome.

This could have occurred for a number of reasons. Participant 'L' could possibly have a pre-disposition towards the color blue regardless of the conditional discrimination training. This would cause the participant to be drawn towards selecting from the blue bag regardless of any testing. Also, the participant could have received a high number of tickets from a machine after selecting previously from the blue bag. This could have caused the participant to associate the high ticket reward with a specific bag color. The opposite of this could also be true. If the participant received a low number of tickets after selecting from the yellow bag, this could cause them to draw from the blue bag in hopes of a better outcome. The participant may have also selected blue more frequently because she simply liked the color blue. This would explain why participant 'L' showed a tendency to select from the blue bag during both post-test 1 and post-test 2 as well.

As with participant 'L', participant 'A' also showed no preference for a specific color during the pretest, meaning the participant selected from each bag equally. For the post-test 1, participant 'A' selected more times out of the blue bag (see Figure 1), which showed a strong correlation towards the conditional discrimination training 1 because the participant scored well during the training (see Figure 3). For post-test 2 the participant selected more times out of the yellow bag (see Figure 1), which also showed a strong correlation towards the conditional

discrimination training 2 because the participant scored well during this portion of the training too (See Figure 3). These were the desired results from both phases of the conditional discrimination training.

Based on the data results for participant 'A', conditional discrimination training 1 and 2 showed to be very effective. Participant 'A' showed the researcher's desired outcome effect from the colored bag selection in relation to the amount of correct answers from both conditional discrimination training 1 and 2. Results showed that participant 'A' was affected most by both conditional discrimination training 1 and 2 of all of the participants, showing the results desired from the training.

After reviewing the data, Participant 'S' showed a slight tendency towards selecting from the yellow bag during the pretest. Therefore the conditional discrimination training 1 was selected as blue equaling 'more than' and yellow equaling 'less than'. For the post-test 1, the participant selections showed no correlation towards the conditional discrimination training 1. The participant selected equally from both bags during post-test 1 (see Figure 1) and also did not show a high number of correct answers from the condition discrimination training 1 (see Figure 4). For the post-test 2, the participant selected more times out of the yellow bag (see Figure 1), but did not show a strong correlation towards the conditional discrimination training 2 because the participant did not score well on the training (See Figure 4).

According to the data results, participant 'S' selected equally out of the 2 colored bags after the conditional discrimination training 1. This could be because the participant was not attending to the forms or the cues on each form. Participant 'S' was very eager to click through the forms during the conditional discrimination training. This could have been caused due to

over stimulations with the games and tickets won during the pre-test and post-test 1. The participant did select more times out of the yellow bag after the conditional discrimination training 2, however it was not a significant correlation (see Figure 4). As with participant 'L', participants 'S' might have selected more times out of the yellow bag because of the tickets won during the game play. The participant might have had a pre-disposition to the color yellow in that moment during the experiment as well, causing them to make more selections from the yellow bag than the blue bag.

Overall, the results from this study were significant for a number of reasons. As stated before, participants 'L' and 'A' showed no color selection preference during the pre-test. But, when looking at the data from the results of the post-test 1 and post-test 2 both participants showed signs of the conditional discrimination training effecting the selections. In particular with participant A, the conditional discrimination training may have been effective for a few reasons. One reason this might have occurred is because the participant may have been paying closer attention to the contextual cue of the conditional discrimination training. Another reason could be that the participant took time to look at each picture during the trainings and did not show signs of being distracted by the games and tickets waiting inside the building. Other participants were observed going through each form of the Visual Basic program very quickly, even if they were getting forms incorrect, in the assumption that they would get to play more games when they finished. Participant 'A' was observed attending closely to every form and every picture on each form of the Visual Basic program and seemed to enjoy playing the Visual Basic game.

The data showed that the conditional discrimination training 1 and 2 showed to be most effective with participant 'A'. However, the conditional discrimination training 1 also showed to

be effective with participant 'L'. During the conditional discrimination training 1, participant L was observed paying close attention to each Visual Basic form, much the same way as participant 'A'. It is possible that during the conditional discrimination training 2, the participant was over stimulated with games and tickets. This in turn could have caused them to rush through the second conditional discrimination training in an attempt to get back to earning tickets faster. Neither trainings seemed to have an effect on participant 'S' selections from the colored bags. Although there is no exact reason as to why the condition discriminations trainings had seemingly no effect for this participant, this could have happened for a very wide variety of reasons.

Overall, the data results from selections from the colored bags were in a positive correlation with conditional discrimination training 1 and 2. Two out of three participants showed changes in the selections they made due to the trainings. The results as a whole, when considering the size of the participant pool, were very positive. However, due to the small pool of participants, it is hard to draw any generalized conclusions from the testing. Using a larger sample of participants might allow for more concrete conclusions. These same results spaced over a much larger sample of participants would show a significant positive trend with regards to the outcome.

In the limitations section, researchers explain possible reasons for why the conditional discrimination training was not effective for all the participants.

CHAPTER 5

LIMITATIONS

Some limitations of this study were the use of a small pool of participants. The three participants used were all female and under the age of 12. Further research would need to look at a larger subject pool of a higher age. This would allow future results to be more generalized. Another limitation of this study was the length of the computer program. While conducting the experiment, participants seemed to be excited about playing the games and seemed to be rushing through some of the computer program forms. Future research would benefit from creating a computer program that would take a shorter amount of time to complete. Another limitation of this study was the outside distractions for the study. The location of the study was a public restaurant and therefore other people were constantly around the participants and researchers. Researchers did select a time to conduct the study that the restaurant would be the least busy, but other patrons of the restaurant were still at the location. Future researchers may want to rent out a space where they would be the only ones using the location to limit the amount of distractions.

Another limitation of this study was the use of a small set of examples of stimuli. The participants saw a set of four child friendly pictures during the Visual Basic program. Future studies would benefit from using a larger set of child friendly stimuli. More exemplars would benefit the participant's further understanding of the conditional discrimination training. The final limitation of this study was that the researcher did not use a criterion based program for the conditional discrimination training phases. If the researcher would have used a criterion based program for the conditional discrimination training instead of a length based program, the participants would had to have scored a certain score to move on to the next phase of the

experiment. Future studies may want to use a specific criterion for the conditional discrimination training so participants would have a complete understanding of the training before moving onto other phases of the experiment.

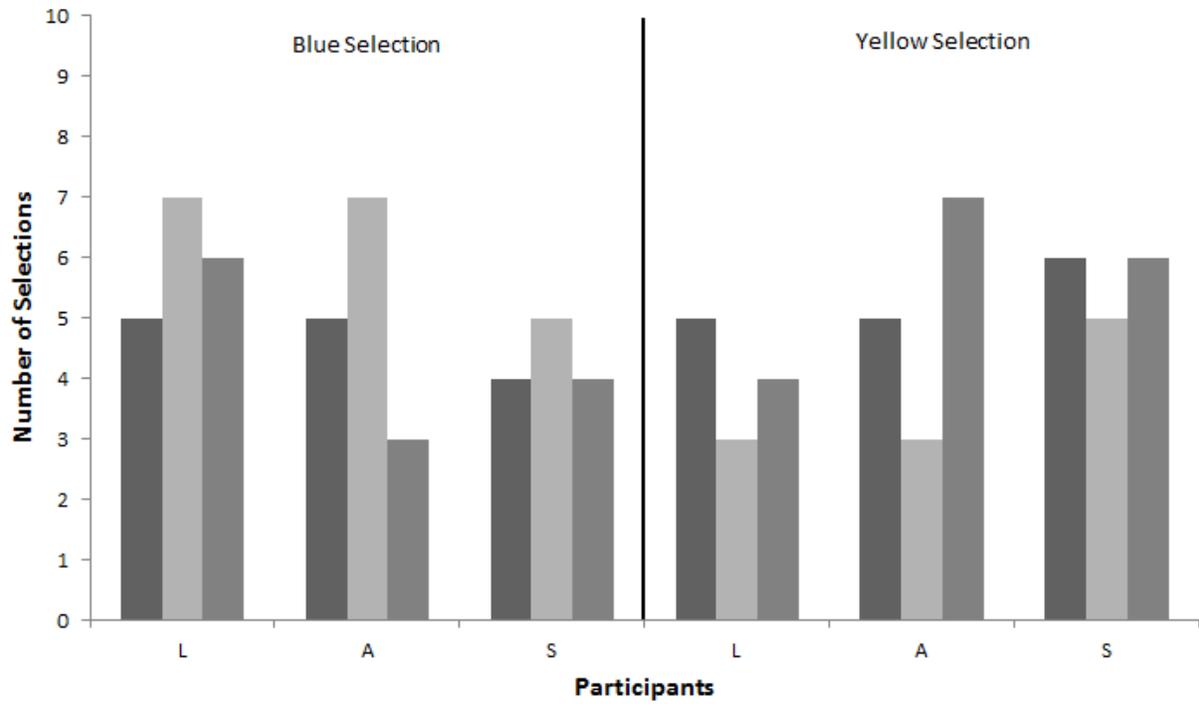


Figure 1: Color Bag Selections (bars from left to right in order of: Pretest, Post Test 1, & Post Test 2) This graph shows how many selections each participant made from each bag during Pretest, Post Test 1, & Post Test 2.

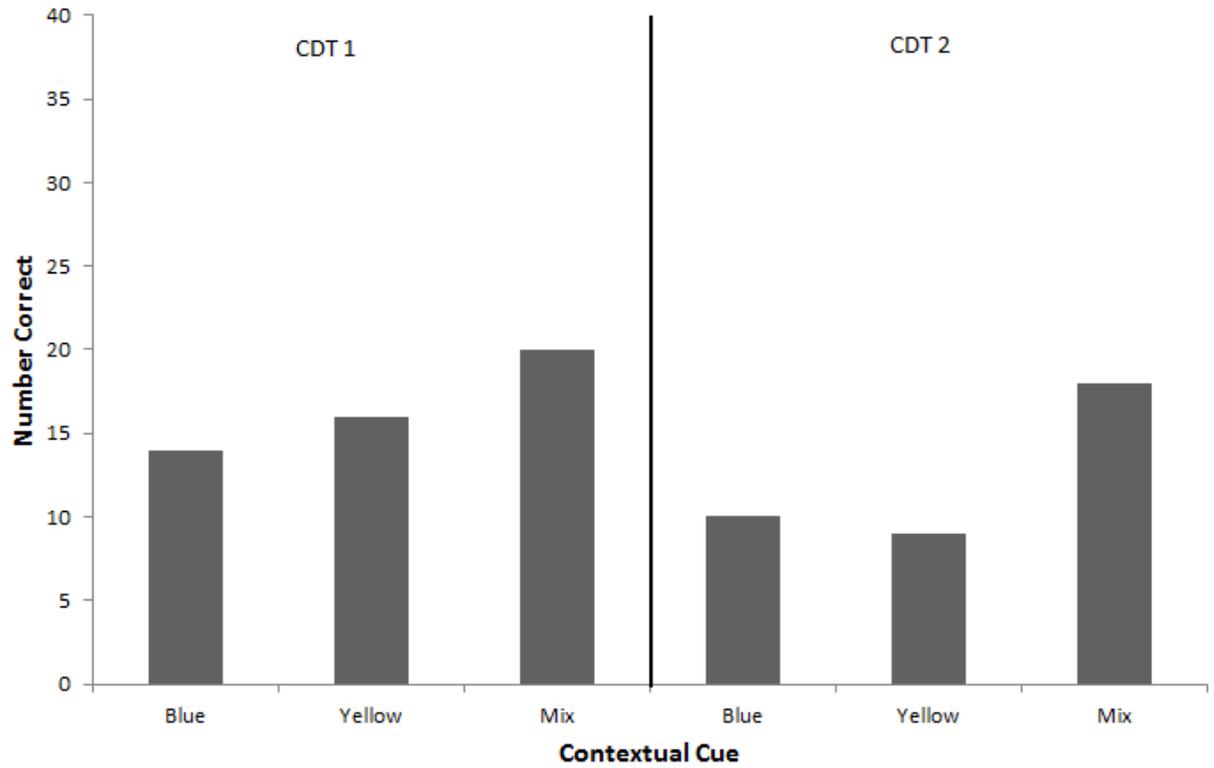


Figure 2: Results from CDT - Participant 'L' (Blue /yellow forms maximum of 20 correct/mixed forms maximum of 40 correct)

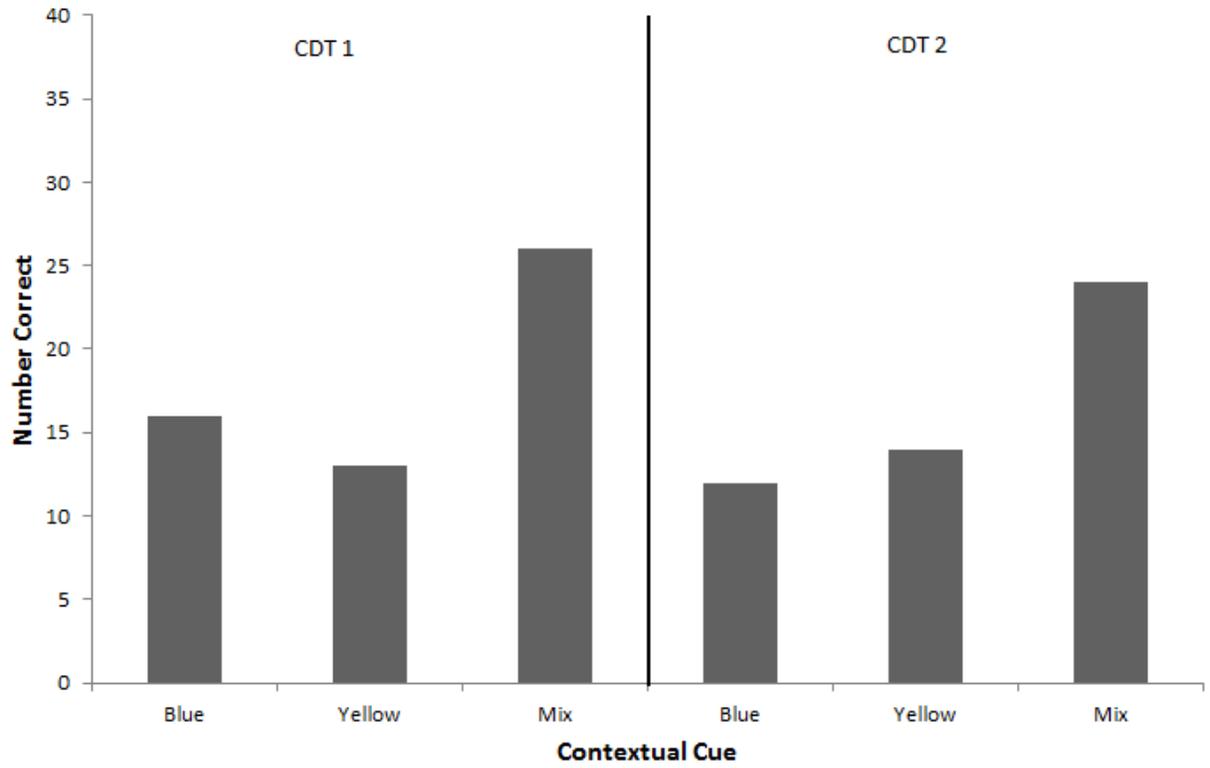


Figure 3: Results from CDT - Participant 'A' (Blue /yellow forms maximum of 20 correct/mixed forms maximum of 40 correct)

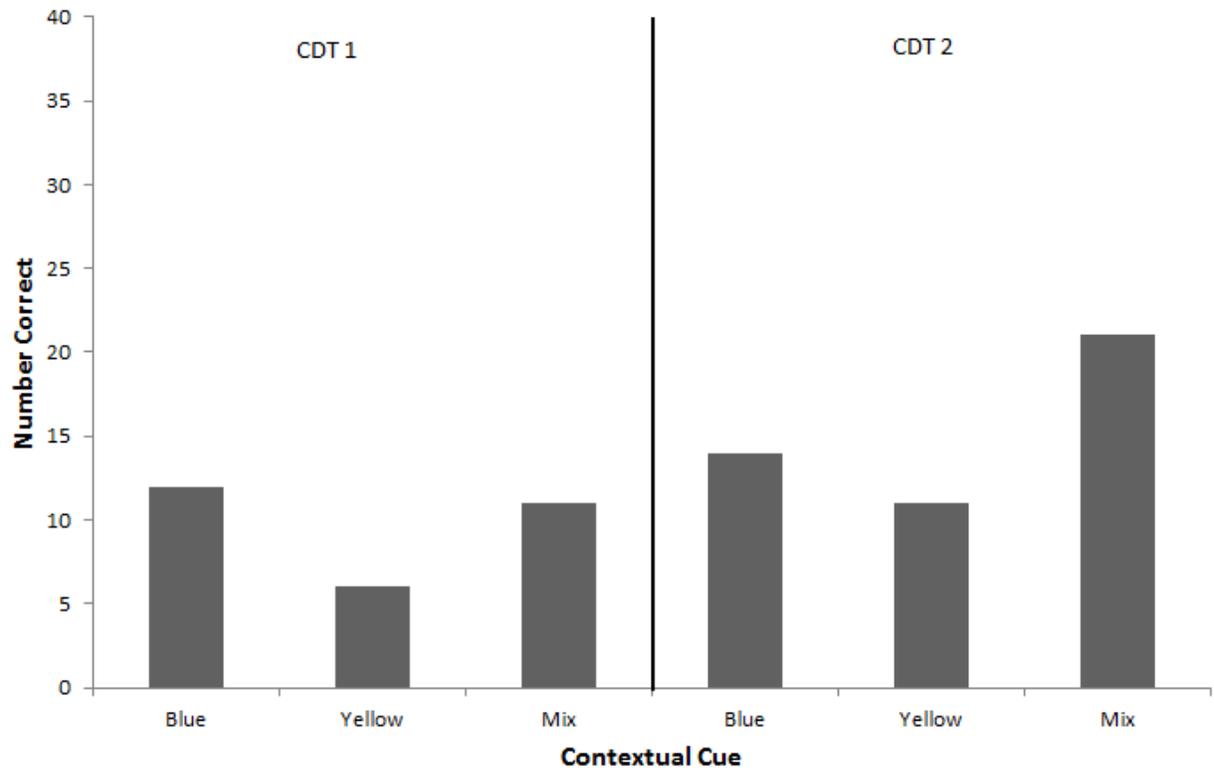


Figure 4: Results from CDT - Participant 'S' (Blue /yellow forms maximum of 20 correct/mixed forms maximum of 40 correct)



Figure 5: Stimuli Images used in conditional discrimination training.



Figure 6: Feedback Stimuli used in conditional discrimination training.

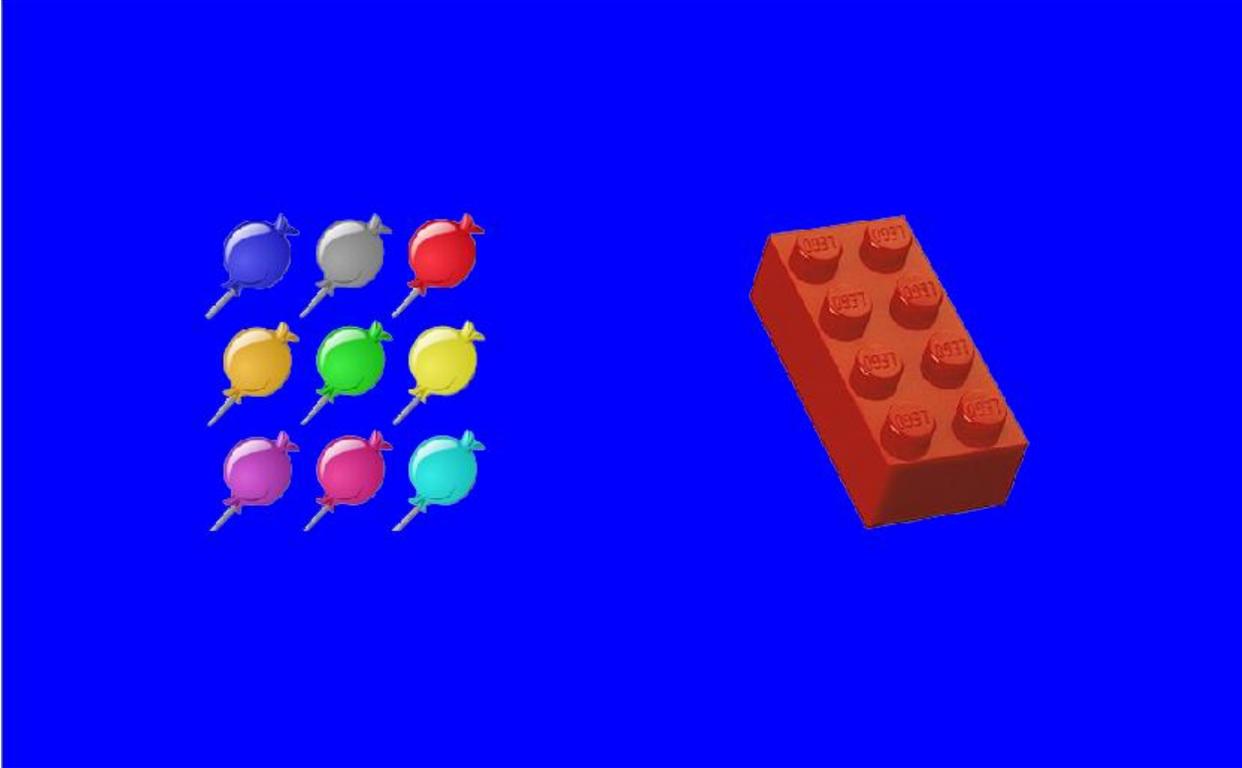


Figure 7: Screenshot from conditional discrimination training – Blue Form.

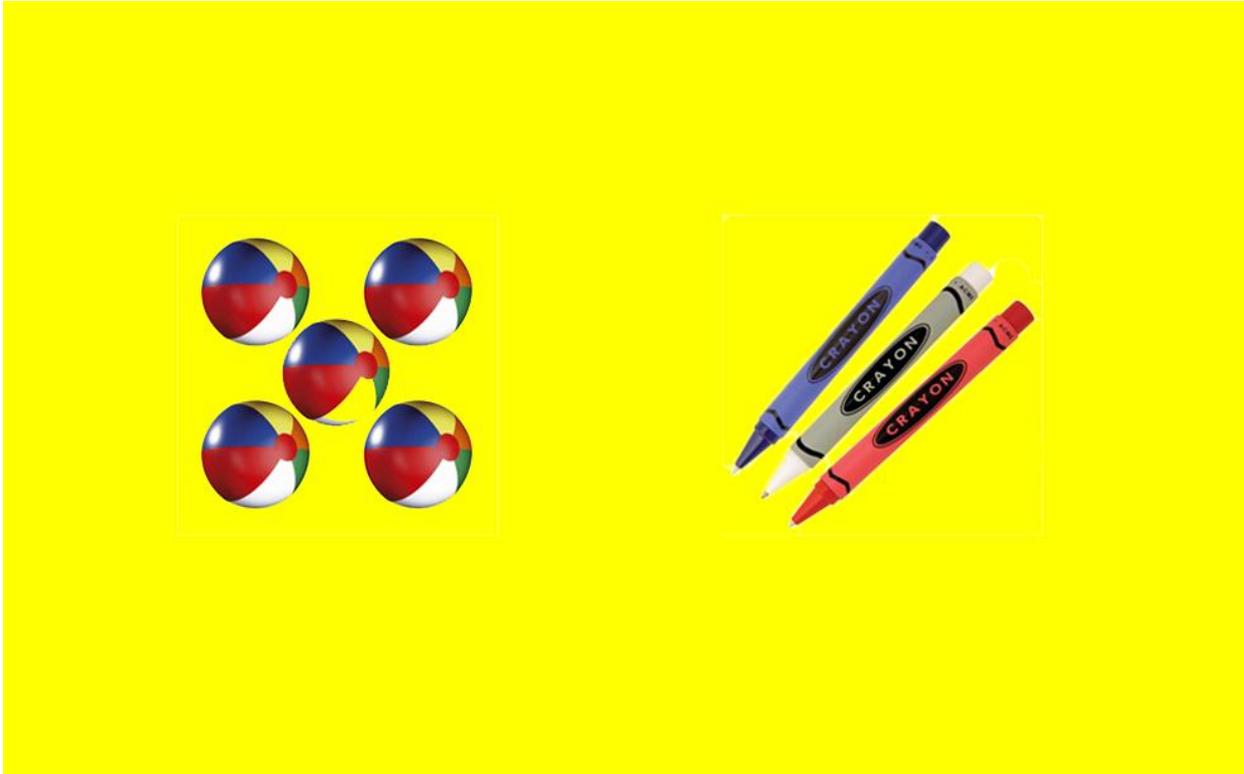


Figure 7: Screenshot from conditional discrimination training – Yellow Form.

References

- Borrell, J. (2001). Youth and problem gambling. *VLGA Gambling Research Newsletter*, 2(1), 6-9.
- Dell, L.J., Ruzicka, M. F., & Palisi, A.T. (1981). Personality and other factors associated with the gambling addiction. *Substance Use & Misuse*, 16, 149-156.
- Govoni, R., Rupcick, N., & Frisch, G.R. (1996). Gambling behavior of adolescent gamblers. *Journal of Gambling Behavior*, 12, 305-317.
- Gupta, R., & Derevensky, J.L. (1997). Familial and social influences on juvenile gambling behavior. *Journal of Gambling Studies*, 13 (3), 179-192.
- Hardoon, K.K., & Derevensky, J.L. (2001). Social influences involved in children's gambling behavior. *Journal of Gambling Studies*, 17, 191-215.
- Hoon, A., Dymond, S., Dixon, M.R., & Jackson, J.W. (2008). Contextual control of slot machine gambling: Replication and extension. *Journal of Applied Behavior Analysis*, 41, 467-470.
- Hyder, A.A., & Juul, N.H. (2008). Games, gambling, and children: Applying the precautionary principle for child health. *Journal of Child and Adolescent Psychiatric Nursing*, 21, 202-204.
- Johnson, T.E., & Dixon, M.R. (2009). Influencing children's pregambling game playing via conditional discrimination training. *Journal of Applied Behavior Analysis*, 42, 73-81.
- Kearny, C.A., & Drabman, R.S. (1992). Risk taking/gambling-like behavior in preschool children. *Journal of Gambling Studies*, 8, 287-297.
- Knapp, T.J., & Crossman, E.W. (2006). Pathways to betting: Childhood, adolescent, and underage gambling. In P.M. Ghezzi, C.A. Lyons, M.R. Dixon, G. R. Wilson (eds.), *Gambling: Behavior theory, research, and application* (pp. 207-230). Reno, NV: Context Press.
- Ladouceur, R., Dube, D., & Bujold, A. (1994). Gambling among primary school students. *Journal of Gambling Studies*, 10, 363-371.
- Nastally, B.L., Dixon, M.R., & Jackson, J.W. (2010). Manipulating slot machines preference in problem gamblers through contextual control. *Journal of Applied Behavior Analysis*, 43, 125-129.
- The National Gambling Impact Study Commission. (2009). *National Gambling Impact Study Commission Final Report*. Retrieved on March 25, 2013.
http://archive.org/details/gambling_impact_0905_librivox

Petry, N.M. (2005). *Pathological gambling: Etiology, Comorbidity, and Treatment*. Washington, DC: American Psychological Association.

Shead, W.N., Derevensky, J.L., & Meerkamper, E. (2011). Your mother should know: A comparison of maternal and paternal attitudes and behaviors related to gambling among their adolescent children. *International Journal of Mental Health & Addiction*, 9, 264-275.

Vitaro, F. & Wanner, Brigitte. (2011). Predicting early gambling in children, *Psychology of Addictive Behaviors*, 25, 118-126.

Zlomke, K.R., & Dixon, M.R. (2006). Modification of slot machine preferences through the use of a conditional discrimination paradigm. *Journal of Applied Behavior Analysis*, 39, 351-361.

VITA

Graduate School
Southern Illinois University

Leigha S. Shoup

Lk356705@Gmail.com

Ohio University

Bachelor of Science, Hearing, Speech, and Language Science, December 2009

Thesis Title:

The Effect of Conditional Discrimination Training on Choice Making in Children during
'Pre-Gambling' Activities

Major Professor: Dr. Mark R. Dixon