



## THE EXAMINATION OF THE EFFECTIVENESS OF THE INSTRUCTIONAL PROGRAM TEACHING BELIEF BASED EMOTIONS TO CHILDREN WITH AUTISM THROUGH FLASH CARDS

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### Abstract

The objective of this research was to scrutinize the effectiveness of a belief based emotions teaching program that was given to two children with autism through flash cards by the implementation of one of the errorless learning methods, constant time delay educational model. The research employed one of the single subject design models namely multiple probe model. The research was conducted in Izmir with two children who was diagnosed with high functional autism by the university hospitals, aged 8 and 12, and their language developmental level were above 6 years old and they were students at mainstreaming classes. During the instruction 60 picture stories which describe belief based situations were used. Each student had one-on-one sessions twice a week. At the end of 34 sessions both subjects acquired belief based happy and sad emotions teaching 100% and constant time delayed educational program was proved to be effective.

**Key Words:** Autism, belief based emotions, constant time delayed instruction

### INTRODUCTION

Autistic spectrum disorders (ASD) are life long disorders in which social interaction problems, communication problems, limited interests and repetitive behaviors take place (DSM-IV-TR, 2000). Several researches were conducted on autistic children's difficulty of recognizing and understanding emotions such as happiness, sadness, anger, fear and surprise etc. For example, studies of Begeer, Rieffe, Terwogt, & Stockmann, (2003), Yirmiya, Sigman, Kasari, & Mundy (1992) showed that people with ASD have some difficulties/inabilities to recognize basic feelings from facial expressions and voice. Some studies, on the other hand, indicated no problems for ASD' understanding of basic feelings but showed the real problem was understanding feelings which express complex feelings and mind states and autistic people also have difficulties in theory of mind (cited in Golan, Baron-Cohen & Golan, 2008; Korkmaz, 2003). Studies showed that children with autism can be taught feelings through errorless learning methods, social stories, puppets, picture stories and thought bubbles effectively (Attwood, 2008; Howlin, Baron-Cohen & Hadvin, 1999; Gray, 2001). However, literature in Turkey (Atasoy & Uylaş, 2005; Girli & Sabırsız, 2008; Tekin, 2010) is limited.

One of the programs for teaching feelings is Howlin et al.'s (1999) "five levels of emotional understanding" in which illustrations and schematic drawings of emotions are used. The present study employed that method too. The first step of the program, teaches the recognition of four basic emotions, namely happy, sad, angry and afraid from the facial expressions displayed in black and white photographs. The second step aims, to teach the recognition of the same four basic emotions from the facial expressions in schematic drawings. In the third step, emotions triggered by the situations such as the ones just before a car accident was about to happen are taught. In this step the child is expected to predict how the character in the schematic drawing shown to him feels. In the fourth step, teaching of emotions upon desire is targeted. In this step the child is expected to describe the feelings of the character in the schematic drawing when his desires are fulfilled and



when unfulfilled. The child is expected to tell the emotional and social context of the situation and predict the emotions of the character. In the fifth and the final step, emotions depending on belief are expected to be learned. These are the emotions that come out when a person thinks after encountering a situation. The child is expected to follow 3 sequential pictures and predict the emotions of the character in the schematic drawings depending on whether his desires were fulfilled or unfulfilled or they believed or not believed.

The objective of this research is to scrutinize the effectiveness of a belief based emotions teaching program that was given to two children with autism through flash cards by the implementation of one of the errorless learning methods, constant time delay educational model.

## **METHODS**

### **Participants**

#### **Subjects**

Two subjects who were diagnosed with autism participated in this study. One of them is an 8 year old girl and the other is a 12 year old boy. Both students attended a mainstreaming class in a state school and received special education support. The girl will be called Ayse and the boy will be named Ali in this study to protect their privacy.

The prerequisite skills of the two subjects are a) that they were diagnosed with autism by the Child Psychiatry Clinics of the University Hospitals b) that they were diagnosed to have above 6 year old language development level after taking the Peabody Picture Vocabulary Test c) that they have completed the first four steps of understanding emotions (understanding photographs, schematic drawings of emotions and situation based, desire based emotions) and to be in the fifth step.

### **Researchers**

The first researcher is an instructor at Special Education Department at Dokuz Eylul University and works on autism, learning disabilities and theory of mind. She worked to ensure the validity of the implementation and data collection process between observers and assessment he data analysis process. The second researcher who implemented the process is a graduate student at the same university and has been working in the education of children with autism for 12 years.

### **Medium and instruments**

#### **Medium**

The emotions teaching program was conducted by the second researcher in the class in the Special Education Center that the subjects were attending in central Izmir. The first researcher watched 40 % of the video recordings of the study to ensure the validity of the implementation and assessment.

### **Instruments**

48 flash cards were prepared by copying the stories and schematic drawings on paper cards that were prepared by Hawlin et al. (1999) for the fifth level of the "five levels of emotional understanding" for the beginning level and instructional sessions. 12 cards basing on stories and schematic drawings were prepared by the researchers for generalization sessions.

### **The research design**

In order to scrutinize the effectiveness of a belief based emotions teaching program that was given to two children with autism through flash cards one of the errorless teaching methods, constant time delay educational model was implemented. The research employed one of the single subject design models namely multiple probe model. The dependent variable of the research is defined as the correct answers given by the autistic subjects at the fifth level. The independent variable of the research is the teaching of the identification skills of happiness and sadness, two of the belief based emotions that come out as a result of a person's thoughts after encountering a situation by the implementation of one of the errorless learning methods, time delay educational model via flash cards.



### The experimental process

The experimental process included multiple probe, instruction, generalization and follow up sessions. All sessions took place twice a week in the special education center that the students were receiving special education support. Each session was held on one-on-one basis. "Well done and bravo" were used as reinforcement for both children. The children were expected to predict the social/emotional context and the emotional expression of the character in each picture story.

Picture stories were organized in terms of four situations; 1) real belief and fulfilled desire and 2) false belief and fulfilled desire for happy and 1) real belief and unfulfilled desire and 2) false belief and unfulfilled desire for sad. The fifth step for teaching happy and sad emotions started with collecting data for probe for both subjects. After receiving stable data during multiple probe sessions the beginning step was concluded and sessions for happy and then for sad were held.

The instructional sessions were held for each subject twice a week and four picture stories were used in each session. During the zero-second- time delay instructional sessions three picture stories through which the beginning step data was collected were used. After that, 5- second- time delay instructional sessions took place. At the beginning of each session each subject was guided to focus on the instruction. During the instruction the first researcher explained the story through pictures and then gave directions (for example, what does the child think?) to the subjects.

The researcher gave the controlling hint to the subject and immediately after that gave the skill direction again during the zero second time delay instructional sessions. When getting the correct answer the researcher reinforced the subject's answer by using verbal reinforcement such as "Well done and bravo". During the 5-second-time delay sessions the researcher waited for 5 seconds and used verbal reinforcement if the subject's answer was correct and if the subject's answer was not correct or he did not give any reaction the researcher modeled the correct answer and asked the question again and waited for the correct answer. When the correct answer was given she asked the following question.

12 picture stories prepared by the researchers were used during the generalization sessions. After the generalization sessions a 2-week-break was given and then the follow up data was collected. The study was conducted as multiple probes 9 sessions, zero- time delay study for 6 sessions, 5 second-time delay study for 18 sessions and generalization sessions for 3 sessions and a follow up session for 1 session after two weeks. 34 sessions took place in a total of 18 weeks.

### Data Analysis

The data recorded at the data recording forms during the beginning of the instruction, during the instruction and generalization and observation sessions was analyzed through graphics, one of the graphical analysis techniques.

### Reliability

The second researcher watched the video recordings (% 40) of the beginning of instruction and the instruction of each skill's for both subjects and recorded them on the data recording forms. In order to ensure the inter observer reliability the data acquired from the recordings of the second researcher and the first researcher who gave the instruction was calculated by the application of the formula "agreement/(agreement+disagreement)x100" (Kircaali-İftar & Tekin, 1997) and inter observer reliability for each skill was calculated. The mean reliability between the second researcher and the first researcher who gave the instruction was found 99 % for the first subject, Ayse and 100 % for the second subject, Ali. Independent variable reliability was calculated by using the Formula "observed instructor behaviors/planned instructor behaviorsx100". The was independent variable reliability found 100 % for both subjects.

In order to control the external factors, the families and the mainstreaming teachers of the subjects as well as all teachers in the special education center were informed about the study and made sure that they would not study the target skills with the subjects until the end of the research. In order to maintain the social validity of the research, interviews conducted with the families and the mainstreaming teachers and their written

evaluations were collected. Both families and the mainstreaming teachers expressed that they observed that the subjects benefitted from the program.

### FINDINGS AND DISCUSSION

This study was conducted to examine the effectiveness of a belief based emotions teaching program (5th step) that was given to two children with autism through flash cards by the implementation of one of the errorless learning methods, time delay educational model. The findings showed that both subjects learned the emotions happy and sad for belief based situations and the program was effective as shown in Figure 1 and 2.

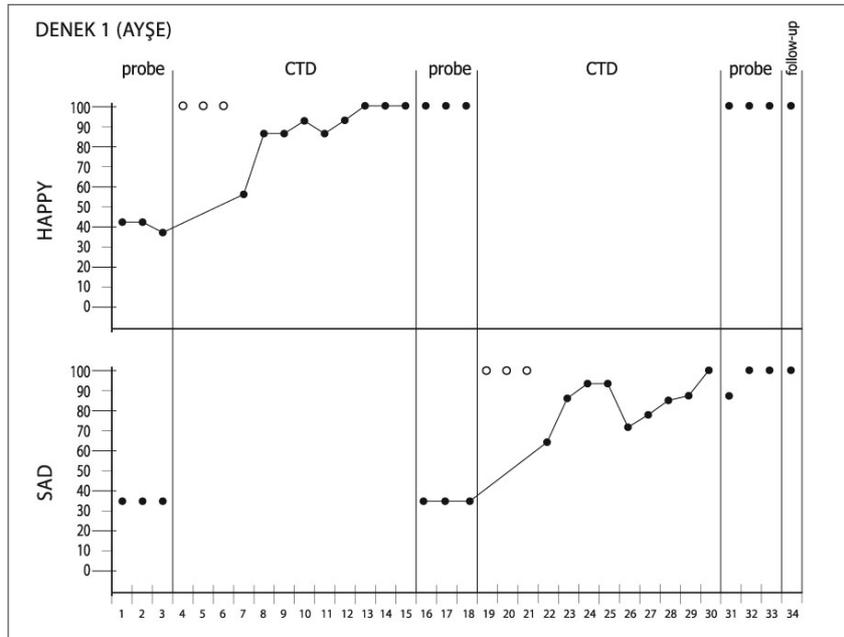


Figure 1: Ayşe' s graphic of the probe, instruction, generalization and follow up sessions

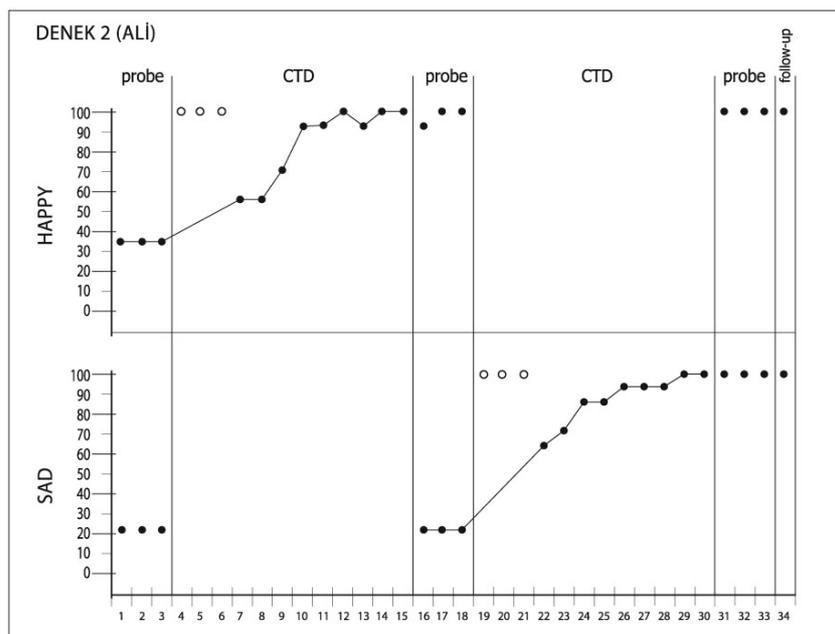


Figure 2: Ali's graphic of the probe, instruction, generalization and follow up sessions



After the study both subjects' rate of correct answers regarding the target emotions came up to the level of 100 %. The results are similar to those found in the studies which employed the same program (Atasoy & Uylaş, 2005; Howlin et. al., 1999; Gray, 2003; Girli & Sabırsız, 2008).

Another study was conducted by Silver and Oakes (2005) by the help of a computer program developed to teach recognition of others' emotional responses and predict them. The program was given to children aged between 12-18 who have Asperger Syndrome or autism and took 10 sessions. The results of the participants were evaluated through the photos of facial expressions, cartoons which express emotions and through unwritten stories. When compared with the control group who have not received the instruction, the subjects who received the instruction was found to have achieved the target skills and the program was found effective.

In one study of Schneir and Goldstein (2010) social stories and pictures were used to teach students social adaptation skills. During the first phase of the study only stories were used and it was observed that the rate of acquired target skills increased when the instruction was supported by the pictures. Similar to this study, other studies (ex: Yılmaz, Birkan, Konukman & Erkman, 2005; Yılmaz, Yanardağ, Birkan & Bumin, 2004) also indicated that time delay instructional programs can be used as an effective method to teach skills for individuals with autism. It was found necessary that the number of studies that employ this method to teach skills to individuals with autism should be increased. Also the increase in the number of studies that employ different methods to teach emotions and the identification of the effective methods will guide instructors and contribute the education of individuals with autism.

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