

Running Head: Positive Reinforcement

THE EFFECTS OF POSITVITVE REINFORCMENT ON NON-COMPLIANT
BEHAVIOR

By

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ABSTRACT

This study was conducted to test the impact of positive reinforcement on non-compliant behavior. The subject was a seven year old boy on the autism spectrum, in a self-contained classroom setting. Frequency data was taken for one month, when the behavior was ignored, and the following month when positive reinforcements were implemented. A t-test was generated and showed a significant difference in the student's behavior between the first and second month. This concludes that positive reinforcement did minimize this student's non-compliant behavior. It is recommended that further studies are conducted in other grade and age levels, as well as in a whole group setting.

INTRODUCTION

Background, Issues and Concerns

Working with students who exhibit behavioral challenges can be difficult for educators. It is important to not only understand the function of the behavior, but ways to extinguish it. Although aggressive behaviors, as well as elopement can be the most severe and dangerous, compliance is a behavior that can occur most commonly, especially when working with students on the autism spectrum. It is important for educators to gain compliance from students through a means that is positive, and not punitive. Educators must shape the behavior of non-compliance and teach students to be compliant for the positive aspects of it, and not because a punishment will ensue. A concern that can arise when dealing with non-compliant behavior is if the behavior is addressed in a punitive way, or not addressed at all. The proper implementation of positive reinforcement is something that can be faded over time, which allows the student to learn to be compliant for the sake of being compliant. When a punitive action is paired with non-compliance, it is difficult to fade, and more difficult for a student to learn compliance for an internal purpose, and not just for the sake of staying out of trouble.

Practice under Investigation

The practice under investigation will include the study of one particular student. It will compare his compliance behavior when no positive reinforcements are in place, and the difference in compliant behavior, if any, once positive reinforcements are introduced and implemented throughout an extended period of time.

School Policy to be Informed by Study

In a school designed to meet the needs of students with significant behaviors, we have adopted The Big “3” as a school wide expectation. They are as follows:

Be Safe

Be a Worker

Follow Directions

The student being studied for this case is required to abide by The Big “3” each day.

Compliance directly relates to Follow Directions.

Conceptual Underpinning

Positive reinforcement as a concept was introduced by the behaviorist B.F. Skinner, in his acclaimed text *Operant Behaviour and Operant Conditioning*. Skinner's idea was that if a person was rewarded for acting in a positive way, they would come to see that behavior as the most natural and advantageous way to act. Positive reinforcement is any type encouragement that follows a desired behavior, and is implemented to emphasize the positivity of the action. As a result, the student feels compelled to repeat the desired behavior that earned the praise in the first place.

Educators use positive reinforcement to increase the likelihood that a desired behavior will reoccur again and again. Positive reinforcement increases student’s self-awareness, and provokes confidence as the student understands what they are expected to do. When teachers use specific praise, it helps the student to understand exactly what they have done correctly. Finally, continued encouragement for positive actions can have long-standing effects on students, especially those on the autism spectrum.

Statement of the Problem

If positive reinforcement can extinguish non-compliant behavior, special education teachers, as well as general education teachers need to be able to properly understand and implement positive reinforcement to extinguish non-compliant behavior.

Purpose of the Study

The purpose of the study is to compare the difference between compliant behavior when positive reinforcements are in place, and when they are absent. The information from the study will help educators working with behavior to understand how to work with non-compliant students and if positive reinforcement provides desired results.

Research Question

RQ #1- Is there a difference in complaint behavior when positive reinforcements are in place, as opposed to when they are absent?

Null Hypothesis

H₀- There is no difference in complaint behavior when positive reinforcements are in place, as opposed to when they are absent.

Anticipated Benefits of the Study

The results of this study will provide educators with the knowledge and understanding of positive reinforcement and the effect on behaviors, such as compliance.

It will allow an in depth look into how the right type of support(s) can assist in changing behaviors.

Definition of Terms

ASD- Autism Spectrum Disorder

The Autism Society of America defines autism as a complex developmental disability that typically appears during the first 3 years of life. The result of a neurological disorder that affects the functioning of the brain, autism impacts the normal development of the brain in the areas of social interaction and communication skills

Discrete Trail Training- a method of teaching simplified and structured steps, instead of teaching an entire skill. The skill is broken down into smaller steps using discrete trials that teach each step one at a time. This is a widely used practice when teaching students on with ASD

FBA- Functional Behavior Assessment

Functional assessment of behavior is a process for identifying clear, predictive relationships between events in the child's environment and the occurrences of a target behavior

PECS- Picture Exchange Communication System

A form of alternative and augmentative communication that uses pictures instead of words to help children communicate. PECS was designed especially for children with autism who have delays in speech development

Positive Reinforcement- the addition of a stimulus to increase or maintain frequency of a behavior

SPED- Special Education

Education for students (such as the physically or mentally disabled) with special needs

Summary

A study was conducted to test if the use of positive reinforcement, and highly rewarding reinforcers would extinguish non-compliant behavior. A student was observed for two months and data was collected on non-compliant behavior with and without the use of reinforcements. It is important to note that not only were the use of positive reinforcement absent, but negative reinforcement was absent as well. The student's self-motivation to comply was observed without any type of supports. After an extended period of time, and a measureable amount of data was collected, positive reinforcements were introduced. The student was highly reinforced by teacher praise, peer approval, a visual token economy board, and tangible items such as an iPad.

REVIEW OF LITERATURE

Positive reinforcement as a concept was introduced by the behaviorist B.F. Skinner, in his acclaimed text *Operant Behaviour and Operant Conditioning*. Skinner's idea was that if a person was rewarded for acting in a positive way, they would come to see that behavior as the most natural and advantageous way to act. As such, positive reinforcement can help to encourage good behavior in young learners from an early age. Positive reinforcement can either be a reward for good behavior, or simply positive communication in the form of praise or encouragement. (McCarthy, 2010)

Reinforcement is designed to increase the probability that a desired behavior will occur with the delivery of an item immediately after the behavior is exhibited. The use of reinforcement procedures have been used with both typical and atypical developing children, teenagers, elderly persons, animals, and different psychological disorders. (Sadowski, 2012) It is important to understand that there are two types of reinforcement: positive and negative. Positive reinforcement is a very powerful and effective tool to help shape and change behavior. Positive reinforcement works by presenting a motivating item to the person after the desired behavior is exhibited, making the behavior more likely to happen in the future. (Sadowski, 2012) An example of positive reinforcement is a child receiving \$1.00 each time she cleans her room. Negative reinforcement is when a certain stimulus/item is removed after a particular behavior is exhibited. The likelihood of the particular behavior occurring again in the future is increased because of removing/avoiding the negative stimuli. (Sadowski, 2012) Negative reinforcement can be seen as doing something to avoid punishment. An example is stopping at a red light to avoid a ticket. Negative reinforcement is often confused with punishment. To summarize

these two strategies, positive reinforcement is the act of adding something positive in order to increase a desired response. Negative reinforcement is taking something negative away in order to increase the desired response. Positive reinforcement was more effective than negative reinforcement in promoting compliance and reducing escape-maintained problem behavior for a child with autism. (Deleon, 2001)

There are a variety of positive supports being used in an attempt to change behavior. An article written by Odom (2003) outlines the most effective practices, as well as those that are emerging. Two types of interventions were considered “well established” in that nine or more studies were conducted, and they were proven effective. The first is adult prompting, also known as adult directed interventions. With decades of research supporting this practice, it is a vital piece of Discrete Trial Training.

The second well established practice is differential reinforcement of desired behavior. This is the practice of providing reinforcement for desired behaviors, while inappropriate behaviors are ignored. Reinforcement can be given when the student is not engaging in the interfering behavior, when the student is engaging in a specific desired behavior other than the inappropriate behavior, or when the learner is engaging in a behavior that is physically impossible to do while exhibiting the inappropriate behavior.

The theory behind differentiated reinforcement is by reinforcing behaviors that are more functional than the interfering behavior or that are incompatible with the interfering behavior, the functional behavior will increase, and the interfering behavior will decrease. (Bogin & Sullivan, 2009) Adult prompting and differentiated reinforcement can be systematically withdrawn after children acquire desired behavior or learn the desired skill. (Odom, 2003)

Techniques that are supported by four to six studies are considered to have an emerging level of support. These supports have already become an important feature of many school programs. Peer modeling focuses on designing features that teach peers and provide support for them to engage in interactions with children with autism independent of teacher involvement. (Odom, 2003) This provides students with ASD a more naturalistic social environment.

A second technique that is categorized as emerging is visual supports. Visual schedules, task strips, consequence maps and Picture Exchange Communication Systems (PECS) have been proven highly effective when teaching students with ASD. A common saying when working with students with autism is “Talk Less- Show More”. Many times too many verbal exchanges and/or directives can be confusing to a person with ASD. When a message is conveyed visually, the student may have a better understanding of what is being communicated. (Odom, 2003)

Behaviors are messages. When a student demonstrates an undesired behavior, they are communicating a want or need. Non-compliance can be a difficult behavior to determine the message. Recent studies have demonstrated that positive reinforcement for task compliance can increase compliance and decrease escape maintained problem behavior even when problem behavior continues to result in escape. (Deleon, 2001)

When implementing positive reinforcement, it is vital that educators understand the importance of reinforcing continuously and immediately. (Deleon, 2001) conducted an experiment using a ten year old female on the autism spectrum. Fixed interval reinforcement was compared to immediately reinforcement. Each time the student complied with a directive, she was immediately reinforced using a highly preferred item,

which in this case as an edible. The student was more likely to comply when the edible was immediately given after compliance, as opposed to receiving the edible at a set time during instruction.

Positive communication is an important tool of positive reinforcement. Using positive communication helps build self-esteem which, in turn, is the basis of self-confidence and independence. At this point, it may be useful to know that individual's self-esteem is greatly influenced by the quality of interaction and the kind of relationship they share at home and in the workplace. (McCarthy, 2010) Communication is a known area of deficit for students with ASD. Communication should be direct and precise. Sarcasm is rarely understood, as students with autism are generally very literal. To receive maximum results in behavior training, educators should specifically state the good behavior that the student has demonstrated.

Motivation is another factor that highly impacts the use of positive reinforcement. Motivation affects all aspects of living. Being positively motivated in life is essential for growth, success and the overall well-being of a person. Finding highly motivating reinforcements is the key to shaping behaviors.

There are many advantages to using positive reinforcements. Most notably is that it can be successfully used to increase the frequency of a wide range of behaviors, and can be used to produce new behaviors. It can be effectively used in the classroom to help students identify their strengths and put them to best possible use to accomplish tasks and follow directions. This type of reinforcement is generally seen as more effective than punishing a child for bad behavior, as it has the added effect of improving confidence and self-esteem. Punishment tends to get good results at the time, but poor returns in the long-

term as the child begins to see bad behavior as the best way of getting the teacher's attention. Positive reinforcement should not be seen as a form of bribery, with incentives promised for good behavior. This approach can lead to the child seeing behavior as a means to an end, whereas reinforcement techniques encourage good behavior as the most natural course of action. (McCarthy, 2010)

RESEARCH METHODS

Research Design

Frequency data was taken on a daily basis for 2 months total. During the first month (4 weeks) all non-compliant behavior was ignored. During the second month (5 weeks) positive supports were implemented. The study intended to measure how many non-compliant episodes one student had on a daily basis with, and without the support of positive reinforcements. The independent variable is this study is the pre and post intervention data, while the dependent variable is the number of non-compliant behaviors.

Study Group Description

The participating student is a seven year old Caucasian male, with a diagnosis of ASD. He is functioning on a first grade level, and currently receives his education in a self-contained classroom in a separate day treatment facility, which is not his home school.

Data Collection and Instrumentation

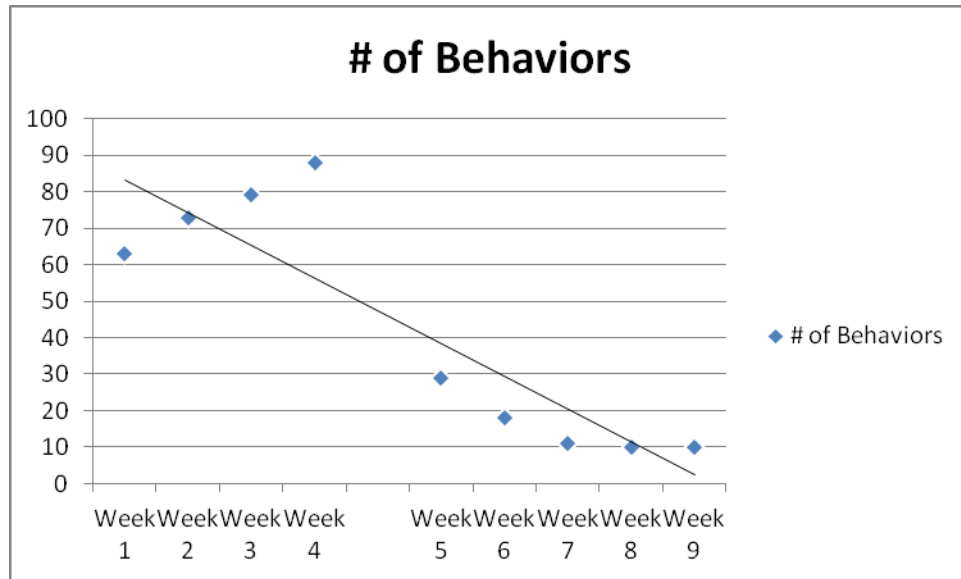
Frequency data was taken on a daily basis for 2 months total. During the first month (4 weeks) all non-compliant behavior was ignored. During the second month (5 weeks) positive supports were implemented. In addition to this, duration data was taken on the on-set of a tantrum, immediately following a non-compliant episode. Duration data will not be needed for this study, but is taken on most students in a self-contained classroom in a separate day treatment facility.

Statistical Analysis Methods

A t-test was conducted to find if there was a significant difference in compliance when positive supports are implemented. The test was broken into two categories: positive supports vs. no supports. The mean, mean D, t-test, df, and p-value were concluded from this test. The Alpha level was set at 0.25 to test the null hypothesis: There is no difference in complaint behavior when positive reinforcements are in place, as opposed to when they are absent.

FINDINGS

The table below demonstrates the number of non-compliant incidents before positive reinforcements were used, and the numbers of non-compliant incidents after positive reinforcements were used.



As the above graph shows, the student demonstrated non-compliant behaviors an average of 63 times per day in the first week, an average of 73 times per day during the second week, and average of 79 times per day in the third week, and the highest recorded number of non-compliant behaviors the fourth week, at an average of 88 per day. Positive reinforcement was introduced on the first day of week 5. As the chart illustrates, the student's non-compliant behavior dramatically decreased. During week 5, the student demonstrated an average of 29 non-compliant behaviors a day, an average of 18 per day in week 6, an average of 11 per day during week 7, and the lowest recorded average of non-compliant behaviors during week 8 and 9 with 10 per week.

Table 1- t-test results

Source	Mean	Mean D	<i>t</i> -test	df	<i>p</i> -value
Pre-Intervention (n=19)	79.80				
Post-Intervention (n=21)	16.00	6.38	1.75	3.8	8.8E-20

Note: Significant when $p \leq 0.25$

A t-test was conducted, and the findings are illustrated on the chart above. The source consists of 19 pre-intervention data points and 21 post-intervention data points. The mean or average number of non-compliant behaviors during the pre-intervention weeks were 79.80. The average number of non-compliant behaviors during the post-intervention weeks were 16.00. The t-test result was 1.75 and the df was 3.8.

The null hypothesis states there is no difference in complaint behavior when positive reinforcements are in place, as opposed to when they are absent. The P-value is 8.8E-20, so when compared to the alpha level of 0.25, the null must be rejected. The P-value is significantly lower than the alpha level; meaning there is a difference in non-compliant behavior when positive reinforcements are used. This concludes that positive reinforcement significantly reduced the number of non-compliant behaviors when implemented, as opposed to when they were absent.

CONCLUSIONS AND RECOMMENDATIONS

The outcome from this study shows the use of positive reinforcement can change behavior. As the t-test demonstrates, there is a significant difference between the P-value and the alpha level. The P-value is 8.8E-20, which is dramatically lower than the 0.25 alpha level. This is reason enough to reject the null hypothesis, and show a change in non-compliant behavior when positive reinforcements are implemented. B.F. Skinner's idea states that if a person was rewarded for acting in a positive way, they would come to see that behavior as the most natural and advantageous way to act. As a result, the student feels compelled to repeat the desired behavior that earned the praise in the first place. This study is supported by B.F. Skinner's idea of positive reinforcement. The student's non-compliant behavior changed when positive reinforcement was implemented.

In this case, a student with ASD became compliant with the use of appropriate positive supports that were reinforcing to him. When non-compliant behaviors were ignored by his teacher, he would attempt other behaviors that eventually led to teacher intervention. When using positive reinforcements the student not only complied with adult directions, but did not resort to other inappropriate behaviors. The most effective way to use positive and differentiated reinforcement is to follow a specific plan of action. An educator must begin by identifying the function of the behavior. This can be done by completing a competing pathways chart, followed by running a functional behavior assessment (FBA). First, the target behavior must be selected and defined in detail, making sure the behavior is observable and measurable. Next, an educator must understand the cycle of the behavior. Questions to consider are "What happens right before the behavior occurs?" This is otherwise known as the antecedent. "What does the

behavior look like?” (Definition of the behavior) and “What is the environmental response?” (What the teacher does directly after the behavior occurs). Once these questions are answered and the FBA is complete, positive interventions can begin.

Positive reinforcement can, and should, look different for every student. It is vital to understand what is the most reinforcing for the student, and use that to change and maintain behavior. Educators should invest the time to find more than one way to reinforce a student, and change the reinforcer frequently to avoid satiation. No matter what type of reinforcer is being used, it is important to pair the reinforcement with specific verbal praise. Instead of telling a student “Good job!” say “Good job picking up your folder!” This increases the student’s awareness of his compliance, which increases the likelihood of the desired behavior happening again. Positive behaviors supports are a reinforcement system that can be faded over time, to the point of extinction. However, some supports may never fade completely, which should not be seen as a failure of the system.

Continuing education of positive reinforcement for special education and general education teachers is very important. It is crucial to not only understand how to reinforce students, but to conduct proper research as to why the behavior is occurring. If a positive reinforcement system is not implemented properly, it will not work. As a message of confusion, frustration or rebellion the student may demonstrate different behaviors than originally targeted.

Further studies on positive reinforcement would be beneficial. It would be interesting to see the impact that positive reinforcement has on other age or grade levels. A study should be conducted on the use of positive reinforcement in the general

education setting, both on individual students, and a class as a whole. This particular study showed such a significant change in behavior of one student, it would be valuable to attempt the same type of intervention with other students. Co-teaching, Class within a Class (CWC) observation and professional development are ways for educators to collaborate, share information, and gain a more real understanding of student's behaviors.

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