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The Effect of Differential Reinforcement of Outher Behavior (DRO) on The Hyperactive Behavior of Students With Intellectual Disabilities in Grade IV of The Bhina Putera Surakarta Special School

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ABSTRAK

Penelitian ini bertujuan untuk mengatahui pengaruh modifikasi perilaku *Differential Reinforcement of Outher Behavior* (DRO) terhadap perilaku hiperakitf pada peserta didik tunagrahita di SLB E Bhina Putera Surakarta. Penelitian ini merupakan penelitian kuantitatif menggunakan metode eksperimen dengan *single subject research* (SSR). Sampel menggunakan satu sampel yaitu salah satu peserta didik kelas IV SLB E Bhina Putera Surakarta. Teknik pengumpulan data melalui observasi dengan menggunakan tiga reter. Teknik uji validitas instrument menggunakan adalah isi dan uji reabilitas instrument menggunakan reabilitas *Intraclass Correlation Ciefficient* (ICC). Data yang diperoleh dianalisis menggunakan teknik analisis visual dalam kondisi antar kondisi. Hasil penelitian ini menunjukkan kondisi pada fase *baseline-1* rata-rata perilaku hiperaktif pada subjek adalah 258,2 detik, kemudian setelah diberikan modifikasi perilaku DRO menunjukkan durasi rata-rata pada fase *baseline-2* adalah 31 detik. Sehingga dapat disimpulkan bahwa modifikasi perilaku DRO berpengaruh terhadap perilaku hiperaktif bagi peserta didik tunagrahita kelas IV di SLB E Bhina Putera Surakarta.
Kata kunci: *Tunagrahita, DRO, Hiperaktif*

ABSTRACT

This study aims to determine the effect of Differential Reinforcement of Outer Behavior (DRO) behavioral modification on hyperactive behavior in mentally retarded students at SLB E Bhina Putera Surakarta. This study is a quantitative study using an experimental method with single subject research (SSR). The sample used one sample, namely one of the fourth grade students at SLB E Bhina Putera Surakarta. The data collection technique was through observation using three reters. The instrument validity test technique used was content and the instrument reliability test used the Intraclass Correlation Ciefficient (ICC) reliability. The data obtained were analyzed using visual analysis techniques in conditions between conditions. The results of this study showed that in the baseline-1 phase, the average hyperactive behavior in the subject was 258.2 seconds, then after being given DRO behavioral modification, the average duration in the baseline-2 phase was 31 seconds. So it can be concluded that DRO behavioral modification has an effect on hyperactive behavior for fourth grade mentally retarded students at SLB E Bhina Putera Surakarta.
Keyword : mentally retarded, DRO, hyperactive

INTRODUCTION

Children with special needs are children who have developmental disabilities, which can be mental, emotional, social, or physical. This is in line with Atmaja's (2017) opinion that children with special needs (ABK) are children who experience physical, mental, intellectual, and emotional disorders that require special learning. Children with special needs are classified into several types, namely the blind, deaf, mentally disabled, physically disabled, emotionally disturbed, autistic, and others. One type of student with special needs is the mentally disabled. intellectual disability is a condition in which individuals experience intellectual impairment. This statement is supported by Rachmayana (2016), who states that intellectual disability or mental retardation is a condition characterized by below-average intelligence and accompanied by a lack of ability to adapt (adaptive behavior) that begins to appear before the age of 18.

The low level of intelligence possessed by students with intellectual disabilities causes them to have limitations in cognitive development and abstract thinking. According to Soemantri (in Engelina, 2019), the intellectual limitations of students with intellectual disabilities affect their ability to learn information and adapt to new problems and situations, learn from past experiences, think abstractly and creatively, evaluate critically, avoid mistakes, overcome challenges, and have the skills to plan for the future. In general, students with intellectual disabilities have difficulty thinking, reasoning, and adapting socially. Social adaptation refers to the adjustment of students with intellectual disabilities to their environment, including how they interact, communicate, and behave in accordance with prevailing norms. Kemis and Rosnawati (2013) state that students with intellectual disabilities have difficulty understanding and interpreting environmental norms. The behavior of students with intellectual disabilities is often considered strange by some people because their actions or behavior may be unusual from a normative perspective or may not be appropriate for their age. Students with intellectual disabilities are often accompanied by deviant behavior, such as hyperactivity.

This is reinforced in a research journal by Debi and Marlina (2018) which states that there are children with intellectual disabilities who exhibit hyperactive behavior. Based on Freida Mangunsong (2011), hyperactive behavior is a neurological disorder characterized by a set of problems in the form of self-control issues, attention span problems, hyperactivity, and impulsivity that cause difficulties in behavior, thinking, and controlling emotions that interfere with daily life. This behavior is characterized by restlessness, inability to concentrate, disruptiveness, and impulsiveness. Hyperactive students can disturb others around them, especially during the learning process.

This is reinforced in a research journal by Astuti (2014), which reveals that a person described as hyperactive exhibits characteristics such as enjoying moving their hands and feet, leaving their seat in class, running around frequently, and talking excessively. Therefore, hyperactive behavior requires behavioral modification to reduce or decrease the hyperactivity.

Hyperactive behavior problems in students with intellectual disabilities can be changed or reduced by using behavior modification. One example of behavior modification is Differential Reinforcement (DR), which is an intervention designed to reduce disruptive behaviors such as aggression, self-injury, tantrums, and stereotypical behaviors (Savage & Team, 2017). One type of DR procedure is Differential Reinforcement of Other Behavior (DRO). According to Miltenberger (2014), DRO is a reinforcement procedure that depends on the presence or absence of problem behavior. Reinforcement is not given after the problem behavior disappears, but reinforcement is given after the problem behavior does not appear within a certain time interval. If problematic behavior appears within a certain interval, reinforcement will be withheld or, in other words, the behavior will be ignored. Reinforcement is only given when students exhibit the target behavior for a specified period of time.

Based on observations conducted at the E Bhina Putera Special School (SLB), it was found that students in grade 4 with AR and single hearing impairment experienced

hyperactive behavior disorders. This can be proven when students in the classroom cannot sit still, often stand up from their seats, and often walk around. As a result, learning activities in the classroom are disrupted and become unconducive, and the teacher's focus is diverted to these students. The teacher has tried to address this hyperactive behavior with verbal reprimands, but this has not been effective in reducing the students' hyperactive behavior.

Based on the above problems, the researcher was interested in using DRO. This led to the title “The Effect of Differential Reinforcement of Other Behavior on the Hyperactive Behavior of Students with Hearing Impairment in Grade IV at SLB E Bhina Putera.”

METHOD

The research was conducted at SLB E Bhina Putera Surakarta, located at Jalan Krakatau Utara, No. 3, Nusukan, Banjarsari District, Surakarta. In conducting research, appropriate methods are needed to ensure that the research objectives are achieved. This research is quantitative research using the experimental method in the form of Single Subject Research (SSR).

The subject used in this study was a student with intellectual disability with the initials AR, who is currently in the fourth grade at SLB E Bhina Putera Surakarta. The data collection technique used was observation. Data analysis is the final stage before drawing conclusions. According to Sugiyono (2019), descriptive statistics are statistics used to analyze collected data as it is without intending to make general conclusions or generalizations. The data analysis used in this study is visual graphic analysis between conditions.

RESULTS AND DISCUSSION

The results of the study show that there is an effect of Differential Reinforcement of Other Behavior modification on hyperactive behavior, particularly leaving one's seat during lessons, in fourth-grade students with intellectual disabilities at SLB E Bhina Putera. This can be seen from the changes that occurred in the subjects from the baseline-1 phase, intervention, to baseline-2. After going through the data collection and analysis process, the results showed a decrease in hyperactive behavior in the subjects compared to the conditions before the intervention was given. This decrease illustrates that the provision of DRO has an effect on hyperactive behavior in subjects.

Based on the data collection results conducted in the baseline-1 phase during three sessions with an interval of 30 minutes between each session, it was found that in the first session, the total duration of hyperactive behavior exhibited by the subjects was 241 seconds. In session 2, the behavior increased with a total duration of 260 seconds, and in session 3, hyperactive behavior increased again to 274 seconds. After obtaining the data and analyzing the subjects' hyperactive behavior in the form of tables and graphs, a visual analysis was performed. In the baseline-1 phase, the average hyperactive behavior in the subjects was 258.2 seconds.

Observations show that hyperactive behavior occurs mainly when subjects are bored or when there are no activities in the learning process. This condition occurs when AR waits for his classmates to complete learning activities. This emptiness causes subjects to become hyperactive due to a lack of stimuli from their surroundings. This is in line with the opinion of Matson, J. L., & Cervantes, P. E. (2020), who stated that behavioral problems, including hyperactivity, are often related to a lack of appropriate

activities or inadequate environmental stimulation. After obtaining initial data on the subjects' hyperactive behavior, an intervention phase was carried out.

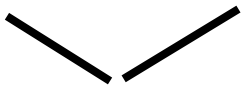
In the intervention phase, the subject was given DRO behavior modification treatment for one hour of learning with 30-minute intervals, with the expectation that hyperactive behavior would decrease after being given DRO behavior modification. During the intervention, the following data was obtained: 25 seconds (session 1), 24 seconds (session 2), 24 seconds (session 3), 25 seconds (session 4), 25 seconds (session 5), 24 seconds (session 6), 24 seconds (session 7), and 23 seconds (session 8). The duration of hyperactive behavior during the intervention phase decreased from the baseline-1 phase. In the first session, hyperactive behavior occurred with a total duration of 25 seconds, followed by a total duration of 24 seconds in the second session. The third session lasted 24 seconds, then sessions 4 and 5 increased again to 25 seconds. Sessions 6, 7, and 8 decreased to 23 seconds.

The average duration of hyperactive behavior occurred for 24.25 seconds during the intervention phase (B). The trend in this phase showed a decrease, which means an improvement. The stability of the data obtained in this phase showed a 100% stability trend, and the level of data change in the condition showed a decrease (-2), which can be interpreted as an improvement in the subject's condition. The change in data level between baseline-1 and intervention shows a decrease of (-249).

The last phase is the baseline-2 phase, which is conducted to evaluate the effect of the DRO intervention on the subject. The data obtained in the first session showed an increase in the duration of hyperactive behavior compared to the last session in the intervention phase, which was 29 seconds. In the second session, hyperactive behavior increased again to 31 seconds, and in the third session, hyperactive behavior increased again to 33 seconds. The average hyperactive behavior exhibited by the subjects was much lower than in the baseline-1 phase, which was 31 seconds.

Based on the data analysis conducted in the baseline-2 phase, it was found that hyperactive behavior had decreased compared to the initial condition after the intervention was given. The trend in the baseline-2 phase showed an increase even though the duration of hyperactive behavior decreased compared to the baseline-1 phase. Stability in this phase shows a 100% stability trend with a range of 29-33. The level of data change shows an increase, which can be interpreted as a deterioration in the subject's condition. The results can be seen in the table below.

Table 1. Results of data analysis between conditions.

Condition	A1/B	B/A2
Number of variables changed.	1	1
Estimation of directional trends.	 (+) (-)	 (-) (+)

Stability Changes and Their Effects.	Stabil ke Stabil	Stabil ke Stabil
Data Level Changes.	274 – 25 (-249)	23 – 29 (+6)
Presentase Overlap.	0%	0%

Referring to the baseline-2 results, the duration of hyperactive behavior cannot be completely eliminated or reduced during the intervention phase. This is because the factors that influence the occurrence of hyperactive behavior itself are the result of the intellectual disability experienced by the subject. This is in line with Emerson, E., & Robertson, J. (2021), who stated that 40% of children with intellectual disabilities have hyperactive behavior, especially if they have additional neurological developmental disorders. Based on the results of the analysis conducted in the three phases, it can be assumed that DRO is effective in handling hyperactive behavior in fourth-grade students with intellectual disabilities at SLB E Bhina Putera Surakarta.

Miltenberger (2023) explains that DRO is a procedure that aims to reinforce the absence of inappropriate or problematic behavior through reinforcement. Reinforcement is given every time the problematic behavior does not appear at a predetermined time interval with the intention that the behavior will decrease on its own.

The factors that supported the implementation of this study were that during the baseline-1, intervention, and baseline-2 phases, the subjects were able to participate fully in the learning process. However, the researcher had limitations in this study, including using only one sample, so the results could not be generalized to other disabilities or problematic behaviors, there was no evaluation of long-term effects due to limited research time, and reprimands during the implementation of the study affected the results. This study is limited in that it provides an overview of the effect of DRO on hyperactive behavior. The limitations of this study are expected to serve as lessons and evaluations for future research.

Based on the analysis of the research data and the discussion that has been carried out, it shows that DRO has an effect on hyperactive behavior. The decrease in the duration of hyperactivity in the baseline-1 phase, the effect of DRO can also be proven through analysis in conditions and between conditions, including mean results, directional trends, stability, and overlap. The average in the baseline-1 phase was 258.2 seconds, the intervention phase was 24.25 seconds, and the baseline-2 phase experienced a decrease compared to baseline-1, which was 24.25 seconds. In addition, the calculations and overlap showed 100% stability with 0% overlap in each phase. Thus, it can be concluded that Differential Reinforcement of Other Behavior has an effect on the hyperactive behavior of grade IV students with intellectual disabilities at SLB E Bhina Putera Surakarta.

CONCLUSION

This study proves the effectiveness of Differential Reinforcement of Other Behavior (DRO) behavioral modification in reducing hyperactive behavior (leaving one's seat) in fourth-grade students with intellectual disabilities at SLB E Bhina Putera. The

results show a significant decrease in the duration of hyperactivity from an average of 258.2 seconds (baseline-1 phase) to 24.25 seconds (intervention phase) and 31 seconds (baseline-2 phase), although there was a slight increase after the intervention was stopped. Visual and statistical analyses confirmed data stability (100% stable, 0% overlap) and a downward trend (-249 level change).

Hyperactive behavior emerged primarily when the subject (AR) was bored or lacked stimulation, consistent with Matson & Cervantes' (2020) theory linking hyperactivity to insufficient activity. DRO works by providing reinforcement when the behavior does not occur (Miltenberger, 2023), supported by similar research by Awaliyana (2020) and Dahlia (2024). Supporting factors include the subject's consistency in following the learning process, despite limitations such as a single sample, limited research time, and potential bias in reprimands.

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