special
Special and Inclusive Education Journal
OPEN ACCESS

Handwriting Skills: Optimization of Receptive and Expressive Language Skills of Children with Autism

Muchamad Irvan*, Wiwik Dwi Hastuti, Adinda Shalsabilla, Anggita Hemaylia Putri, Muthya Firagil Restuti
Corresponding Author: muchamad.irvan.fip@um.ac.id
Universitas Negeri Malang, Indonesia

ABSTRACT

The limited receptive and expressive language skills of children with autism are a problem that affects their daily lives. The discrete trial training technique was chosen to optimize children's receptive and expressive language skills. This research aims to describe the initial condition of receptive and expressive language skills, the process of optimizing receptive and expressive language skills using the DTT, and the receptive and expressive language skills of children with autism after being given the DTT. This research used experiment research with single-subject research (SSR) and used reversal design A-B-A. This research used 18 sessions, consisting of 5 sessions for the baseline-1 phase, eight intervention sessions, and 5 baseline-2 sessions. Data analysis used in this research is analysis visual in the conditions and between the conditions. The data results showed a percentage of overlap in this study, a value of 0%, which means using the DTT technique has a positive effect on the receptive and expressive language skills of children with autism. Based on the results, using the DTT can optimize receptive and expressive language skills in children with autism at Omah Terapi Autis Malang. However, the effectiveness value is still low. The increase in the subject's expressive language skills is not significant.

Keywords: Children With Autism, Receptive Language, Expressive Language, Discrete Trial Training

INTRODUCTION

Children with autism have social, communication and behavioural disorders. This idea is in line with the opinion of Junaidi et al. that children with autism are characterized by having limitations in behavioural problems, such as repetitive behaviour and limited interest, and social problems, such as social interaction and communication (Junaidi et al., 2021). Children with autism are pervasive developmental disorders, indicated by difficulties in communication interaction and repetitive and restricted behaviours (Irvan & Jauhari, 2019). The presence of these three complex disorders will have an impact on their social life, especially on their communication skills. Communication delays can be seen in the failure of children to understand instructions, delays, and use of language that is difficult to understand or only imitated in speaking. Communication delays can occur due to developmental disorders in the brain, so children are unable to express both their feelings and desires appropriately. As we know, communication is closely related to language skills. Language is the main communication component for humans because language represents feelings, ideas, and desires to be expressed.

Receptive and expressive language are essential in language development, but children with autism delay receptive and expressive language development (Vehkavuori et al., 2021). Receptive language is the skills to understand the meanings and words conveyed by others (Ismillah, 2020). This idea is in line with what Ersan said that recognizing and understanding words need the skill of receptive language. Receptive language delays in children with autism are shown by difficulty in understanding the meaning of words or sentences conveyed by others. Expressive language includes the ability to ask and answer questions, narrate, and express ideas and feelings orally or in writing (Husna & Eliza, 2021). This opinion is in line with Kania's opinion that expressive language is the language that expresses children. Children can ask and answer questions and can express children's thoughts (Kania & Damri, 2019). The expressive language delay is shown as difficulty in expressing their feelings, lack of facial and body expressions, and unclear pronunciation of words and articulation.

Discrete Trial Training (DTT) is one of the techniques of the ABA method. DTT is a systematic method of instruction that has three components: a stimulus (instruction) given by the therapist, a response from the child, and a consequence based on the response (reinforcement positive or negative) given by the therapist (Leaf et al., 2019). The teaching method in DTT is repeated and based on ABA principles so that the approach is carried out in a one-to-one approach, firm, without violence, and the use of prompts and reinforcement (Alfaridzi & Damri, 2021; Hikmawati et al., 2019).

Based on the observations, we found delays in receptive and expressive language skills on the subject, so it is necessary to handle these problems. DTT techniques are expected to improve language skills in children. Researchers will conduct research titled "Optimization of Receptive and Expressive Language Skills of Children with Autism through Discrete Trial Training (DTT) Technique at Omah Terapi Autis Malang".

METHOD

This research is quantitative research using an experimental method. The experiment method in this research is to optimize the receptive and expressive language skills of children with autism using the DTT technique. The design is a Single Subject Research (SSR) using reversal design A-B-A, where according to Neuman, the target behaviour is measured repeatedly for 3 phases, namely baseline-1(A1), intervention phase (B) and baseline-2(A2) (Prahmana, 2021). This research used data collection instruments in the form of receptive and expressive language ability tests. The instruments in this study were developed from the book "Teaching developmentally disabled children: The Me Book." by Lovaas (1981). This receptive and expressive language skills test instrument was used to collect data and record the results of the language skills process. Data analysis used in this research is analysis visual in the conditions and between the conditions. The subjects of this study were children with autism at Omah Terapi Autis Malang with the initials AAM.

RESULT

This research begins with finding the initial condition of the subject's receptive and expressive language skills as measured by observation before being given the DTT technique at baseline-1 (A1). Data collection for 5 sessions was conducted in the Omah Terapi Autis classroom. The result of baseline-1 observation is to see receptive and expressive language skills by looking at the subject's response to instructions given by the researcher.

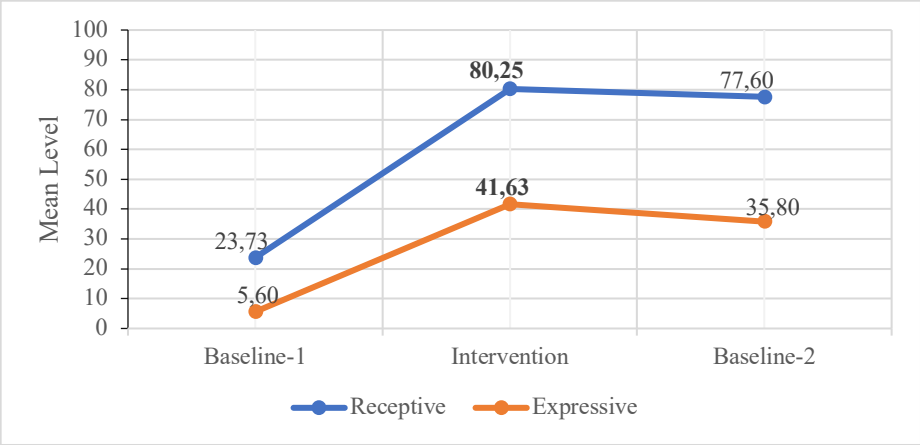

Figure 1. Mean Level of Receptive and Expressive Language

Based on Figure 1 above, there is an increase in the mean level of receptive language skills in the subject after the intervention. The mean level in the baseline-1 phase was 23.73, the intervention phase was 89.25, and the baseline-2 phase was 77.60. The mean level of expressive language has increased after the intervention. The mean level in the baseline-1 phase was 5.60, the intervention phase was 41.63, and in the baseline-2 phase was 35.80.

Analysis in Conditions

There are six components of in-condition analysis, namely the length of the condition, directional trend estimation, stability trend, data trace, level stability and range, and change level (Sunanto et al., 2005). A summary of the results of the visual analysis in condition can be seen in table 1 and 2 below**:**

Table 1. Results of Visual Analysis in Conditions Receptive Language

Condition	**A1**	**B**	**A2**
Condition Length	5	8	5
Directional Trend Estimation	(+)	(+)	(+)
Stability Trends	Variable (60%)	Stable (87%)	Stable (100%)
Data Trace	(+)	(+)	(+)
Level Stability and Range	Variable (22,67–25,33)	Stable (74,00-86,67)	Stable (75,33-79,33)
Change level	30,00-17,33 (12,67)	84,67-71,33 (13,33)	78,67-77,33 (1,33)

This research used the A-B-A design, which consists of three phases. Baseline-1 phase (A1) was designed into 5 sessions, intervention phase (B) was designed into 8 sessions, and baseline-2 phase (A2) was designed into 5 sessions. The directional trend and data trace baseline-1 (A1) phase in receptive language shows an increasing (+) and unstable direction

trend. The intervention phase (B) shows an increasing (+) and unstable directional trend. The final phase, baseline-2 (A2), shows an increasing (+) and unstable directional trend. The stability trends of receptive language in baseline-1is variable, intervention is stable, and baseline-2 is stable. Level stability and range of receptive language in baseline-1 are variable (22,67–25,33). The intervention was stable (74,00-86,67) and baseline-2 (75,33-79,33). The change level in expressive language at all phases was (+) increase.

Table 2. Results of Visual Analysis in Conditions Expressive Language

Condition	**A1**	**B**	**A2**
Condition Length	5	8	5
Directional Trend Estimation	(+)	(+)	(+)
Stability Trends	Variable (40%)	Variable (50%)	Stable (80%)
Data Trace	(+)	(+)	(+)
Level Stability and Range	Variable (5,67 – 6,00)	Variable (40,67-44,33)	Stable (36,00-37,67)
Change Level	+4,67	+13,00	+5,33

Condition length baseline-1 phase (A1) is divided into 5 sessions, intervention phase (B) is designed into 8 sessions, and baseline-2 phase (A2) is designed into 5 sessions. The directional trend and data trace baseline-1 (A1) phase in receptive language shows an increasing (+) and unstable direction trend. The intervention phase (B) shows an increasing (+) and unstable directional trend. The final phase, baseline-2 (A2), shows an increasing (+) and unstable directional trend. The stability trends of receptive language in baseline-1 are variable, intervention is variable, and baseline-2 is stable. Level stability and range of receptive language in baseline-1 are variable (5,67 – 6,00). The intervention was variable (40,67-44,33), and baseline-2 was stable (36,00-37,67). The change level in expressive language at all phases was (+) increase.

Analysis between Conditions

There are five components of between-condition analysis, namely changed condition, change of trend direction and effect, change of stability trend, change of level, and overlap (Sunanto et al., 2005). A summary of the results of the visual analysis between conditions can be seen in table 4 and 5 below**:**

Table 4. Results of Visual Analysis between Conditions Receptive Language

Condition Compare	A1/B		A1/A2	
Changed variable	1		1	
Change of Trend Direction and Effect	(+)	(+)	(+)	(+)

Change of Stability Trend	Variable to stable	Variable to stable
Change of Level	+41,33	+48,67
Overlap	0%	0%

The number of variables from the baseline-1 to the intervention was 1, and from the baseline-1 to baseline-2 was 1. The change in directional trend from the baseline-1 (A1) to the intervention (B) phase increases in the positive direction between sessions. The change in directional trend from the baseline-1 (A1) phase to the baseline-2 phase (A2) is an increase in the positive direction between sessions. The change of stability trend between the baseline-1 (A1) and intervention (B) phases is variable to stable. The change in stability trend between the baseline-1 (A1) and baseline-2 (A2) phases is variable to stable. Receptive language from the baseline-1 (A1) phase to the intervention phase (B) increased +41.33, and in the baseline-1 (A1) to baseline-2 (A2) phase increased +48.67. The percentage overlap in receptive language skills at baseline-1 and intervention was 0%, and at baseline-1 and 2, it was 0%. The smaller the percentage of overlap, the better the effect of the intervention in a study on the target behaviour (Sunanto et al., 2005).

Table 5. Results of Visual Analysis between Conditions Expressive Language

Condition Compare	A1/B		A1/A2	
Changed variable	1		1	
Change of Trend Direction and Effect	(+)	(+)	(+)	(+)
Change of Stability Trend	Variable to variable		Variable to stable	
Change of Level	+24,67		+29,33	
Overlap	0%		0%	

The changed variable in the baseline-1 phase to the intervention phase was 1, and from the baseline-1 phase to the baseline-2 phase was 1. The change in directional trend from the baseline-1 (A1) to the intervention (B) phase increases in the positive direction between sessions. The change in directional trend from the baseline-1 (A1) phase to the baseline-2 phase (A2) is an increase in the positive direction between sessions. The change of stability trend between the baseline-1 (A1) and intervention (B) phases is variable to variable. The change in stability trend between the baseline-1 (A1) and baseline-2 (A2) phases is variable to stable. Receptive language from the baseline-1 (A1) phase to the intervention phase (B) increased +24,67, and in the baseline-1 (A1) to baseline-2 (A2) phase increased +29,33. The percentage overlap in receptive language skills at baseline-1 and intervention was 0%, and at baseline-1 and 2, it was 0%. The smaller the percentage of overlap, the better the effect of the intervention in a study on the target behaviour (Sunanto et al., 2005).

Based on the results of the visual analysis, there was an increase in receptive and expressive language skills after receiving intervention using the DTT technique. The DTT technique trains skills from simple to more complex. In this research, receptive and

expressive language skills are represented by children's ability to recognize the location and names of body parts separated into the smallest units. In addition, learning is given repeatedly because it can increase children's understanding of mastering skills.

The DTT technique, part of the ABA approach, is considered a reasonable approach by providing prompts and reinforcement that stimulate children to leave bad behaviour and maintain good behaviour so that skills will continue to develop (Isna, 2019). Prompting is given to avoid incorrect responses. Fading is given after the child has received the prompt in order for the child to complete the instruction independently. Most-to-least prompting or providing prompts from complete to least, the prompts are gradually reduced until the child responds correctly without any prompting (Lerman dkk., 2016). The child's response after receiving the reward (positive reinforcement) looked happy, and the child was more enthusiastic in responding to the instructions. This finding aligns with (Anwar et al., 2022) that giving rewards is a positive reinforcement to children when showing responses following the directions. Whereas if the child responds incorrectly, then the researcher provides negative reinforcement in the form of the word "No!" so that children can know the difference between the wrong and correct responses given. In the optimization process, there is a high enough increase; each step of DTT given makes the response closer to the target behaviour. One of them is reinforcing the last step so children can repeat positive behaviour.

CONCLUSION

Based on the results of the research and discussion, The initial condition of the subject's receptive and expressive language is deficient. This is indicated by the results of baseline-1 (A1) measurements on receptive language, which obtained a mean level of 23.73, and expressive language ability, which obtained a mean level of 5.60. During the process of providing the DTT technique, there was an increase in responding to the instructions, so in this phase, the child's receptive and expressive language skills increased. This is indicated by the results of the intervention measurement (B) on receptive language, which obtained a mean level of 80.25, and expressive language ability obtained a mean level of 41.63. Receptive and expressive language skills of children with autism after being given the DTT become optimal. According to the results of baseline-2 (A2) in receptive language, the initial ability before the DTT technique was applied, the mean level was originally 23.73 to 77.60. In comparison, the mean level of expressive language skills increased from 5.60 to 35.80 after applying the DTT. Based on these data, it can be concluded that the application of DTT can optimize receptive language skills while expressive language skills cannot be optimized significantly in children with autism at Omah Terapi Autis Malang.

REFERENCES

Alfaridzi, S., & Damri, D. (2021). Pelaksanaan metode Applied Behaviour Analysis (ABA) bagi anak autisme di SLB Autisma YPPA Padang. Journal of Basic Education Studies, 4(1), 2290–2303. https://ejurnalunsam.id/index.php/jbes/article/view/3735/2499

Anwar, A., Sutadi, R., & Miranda, C. (2022). Development of Discrete Trial Training (DTT) Procedure in Smart Applied Behavior Analysis (Smart ABA) for Autism. Journal of Psychology and Behavior Studies, 2(1), 63–44. https://doi.org/10.32996/jpbs.2022.2.1.7

Hikmawati, Y., Patriantoro, P., & Syahrani, A. (2019). Pemerolehan bahasa pada anak autis: kajian psikolinguistik. Jurnal Pendidikan Dan Pembelajaran Khatulistiwa (JPPK), 7(9).

Husna, A., & Eliza, D. (2021). Strategi Perkembangan dan Indikator Pencapaian Bahasa Reseptif dan Bahasa Ekspresif pada Anak Usia Dini. Jurnal Family Education, 1(4), 38–46. https://doi.org/10.24036/jfe.v1i4.21

Irvan, M., & Jauhari. (2019). Early Intervention For Children With Autism Spectrum Disorder Using Planning Matrix. The 9th International Conference on Educational Technology of Adi Buana (ICETA 9), 140–144. https://academic.oup.com/pch/article-lookup/doi/10.1093/pch/9.4.267

Ismillah, D. (2020). Penerapan Applied Behavior Analysis Verbal Behavior (ABA VB) Terhadap Komunikasi Ekspresif Anak Spektrum Dengan Autis. Jurnal Psikologi Unesa, 2(1), 1–7.

Isna, A. (2019). Perkembangan Bahasa Anak Usia Dini. STAINU Purworejo: Jurnal Al-Athfal, 2(2), 62–69.

Junaidi, A. R., Dewantoro, A., Yuwono, J., Irvan, M., Nuriyah, L., & Pramesti, Y. (2021). Social Skill Profile in Children with Low Function Autism Spectrum Disorder: Descriptive Analysis of Communication Levels, Understanding of Shopping Activity. Atlantis-Press.Com, 589(Iccoet), 42–46. https://www.atlantis-press.com/article/125962276.pdf

Kania, Y. R., & Damri, D. (2019). Efektivitas Pendekatan ABA/VB dalam Meningkatkan Kemampuan Bahasa Ekspresif (Intraverbal) Anak Autisme di SDIK Makkah. PAKAR Pendidikan, 17(2), 81–93. https://doi.org/10.24036/pakar.v17i2.121

Leaf, J. B., Aljohani, W. A., Milne, C. M., Ferguson, J. L., Cihon, J. H., Oppenheim-Leaf, M. L., McEachin, J., & Leaf, R. (2019). Training Behavior Change Agents and Parents to Implement Discrete Trial Teaching: a Literature Review. Review Journal of Autism and Developmental Disorders, 6(1), 26–39. https://doi.org/10.1007/s40489-018-0152-6

Lerman, D. C., Valentino, A. L., & LeBlanc, L. A. (2016). Discrete Trial Training. In Early Intervention for Young Children with Autism Spectrum Disorder. Evidence-Based Practices in Behavioral Health. (pp. 47–83). Springer, Cham. https://doi.org/10.1007/978-3-319-30925-5_3

Prahmana, R. C. I. (2021). Singel Subject Research Teori dan Implementasinya: Suatu Pengantar. In UAD PRESS. https://doi.org/10.1088/1751-8113/44/8/085201

Sunanto, J., Takeuchi, K., & Nakata, H. (2005). Pengantar Penelitian Dengan Subyek Tunggal. CRICED University of Tsukuba, 1–150.

Vehkavuori, S. M., Kämäräinen, M., & Stolt, S. (2021). Early receptive and expressive lexicons and language and pre-literacy skills at 5;0 years – A longitudinal study. Early Human Development, 156, 0–8. https://doi.org/10.1016/j.earlhumdev.2021.105345