

Implementation of TEACCH in Learning for Students with Autism Spectrum Disorders in Special School

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Abstract

In education for children with autism spectrum disorders or ASD, appropriate learning methods are needed in order to develop their abilities and overcome difficulties due to their limitations. TEACCH (Treatment and Education of Autistic and Related Communication-handicapped Children) is one of the effective methods used in intervention for children with autism spectrum disorders. This study aims to describe the application of the TEACCH method in the learning of students with autism spectrum disorders at the primary education level in special schools. The research was conducted using a qualitative approach through case studies. Data was collected by observation, interviews, and documentation. Data analysis used the Miles & Huberman model. The research findings show that the process of implementing TEACCH in special schools goes through the stages of planning, implementation and evaluation. Planning includes: building a teacher's mindset, providing education to educators, forming an acceleration team (program coordinator, curriculum coordinator, and teachers), creating a support system and continuous evaluation. The implementation of TEACCH is shown from its structured teaching activities, namely: clear and coherent activities through a work system, clear and predictable activities through the use of activity schedules, structuring the physical structure of the learning environment, and the use of visual aids. Evaluation was conducted to assess the development of student learning outcomes and teacher performance in teaching.

Keywords: ASD; Learning; TEACCH

Abstrak

Dalam pendidikan bagi anak dengan gangguan spektrum autisme atau ASD diperlukan metode pembelajaran yang tepat agar dapat mengembangkan kemampuan mereka dan mengatasi kesulitan akibat keterbatasan yang mereka miliki. TEACCH (Treatment and Education of Autistic and Related Communication-handicapped Children) merupakan salah satu metode yang efektif digunakan dalam intervensi terhadap anak dengan gangguan spektrum autisme. Penelitian ini bertujuan untuk mendeskripsikan penerapan metode TEACCH dalam pembelajaran siswa dengan gangguan spektrum autisme pada jenjang pendidikan dasar di sekolah khusus. Penelitian dilakukan dengan menggunakan pendekatan kualitatif melalui studi kasus. Pengumpulan data dilakukan dengan observasi, wawancara, dan dokumentasi. Analisis data menggunakan model Miles & Huberman. Temuan penelitian menunjukkan bahwa proses penerapan TEACCH di sekolah khusus melalui tahapan perencanaan, pelaksanaan dan evaluasi. Perencanaan meliputi: membangun mindset guru, pemberian edukasi kepada tenaga pendidik, membentuk tim percepatan (koordinator program, koordinator kurikulum, dan guru), membuat support system dan evaluasi berkelanjutan. Pelaksanaan penerapan TEACCH ditunjukkan dari kegiatan pengajarannya yang terstruktur, yaitu: kegiatan yang jelas dan runtut melalui adanya sistem kerja, kegiatan yang jelas dan terprediksi melalui digunakannya jadwal kegiatan, dilakukannya penataan struktur fisik lingkungan belajar, dan penggunaan alat bantu visual. Evaluasi dilakukan untuk menilai perkembangan hasil belajar siswa dan kinerja guru dalam mengajar.

Kata kunci: ASD; Pembelajaran; TEACCH

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INTRODUCTION

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder. ASD children have barriers to communication and social interaction in various situations. In addition, ASD children also have a pattern of restricted interest behavior (restrictive) and repetitive activities (Association, 2013). ASD symptoms can be observed in childhood when they are before three years old (YPAC, 2000). Even though children with ASD have the same symptoms, the impact on the behavior of each autistic child will be different from the others, this is because autism spectrum disorders have a range that varies from mild to severe (Junaidi et al., 2020).

Problems of communication, interaction and behavior in ASD children have an impact on the independence of children in their daily activities, including learning activities at school. These problems can be seen in the difficulty in expressing wishes, understanding other people's words, carrying out the instructions given by the teacher appropriately. This is due to the limitations of ASD children in communication skills and their low ability to process information auditory (Mesibov & Shea, 2010). Autistic children also have difficulty understanding and expressing their emotions (Dawson in Junaidi et al., 2021) and developing, maintaining and understanding social relationships with others due to their limitations in social interaction (Junaidi et al., 2020). Besides, autistic children usually tend to stick to things that have become their routines, so that if there are changes to their routines they will have difficulty or be unable to cope with the changes that occur around them properly, and this can cause autistic children to experience conditions of depression, stress, and anxiety. and anxious about these changes (Lord & Jones, 2012) which can then lead to tantrums.

In the learning process at school, ASD children also experience difficulties. Changing learning places, moving learning situations, organizing learning materials, and completing a series of activities assigned by the teacher become a challenge in itself because of the difficulties and limitations they experience (Carnahan et al, 2009). This is because autistic children have obstacles in behaving properly when experiencing changes from one situation to another (Junaidi et al., 2020). Students with special needs such as autism need a special approach to be able to develop their abilities and build themselves into individuals and social beings who are able to live independently in society (Efendi, 2006).

One of the effective methods used for children with autism is to use the TEACCH (Treatment and Education of Autistic and Related Communication-handicapped Children) method. TEACCH is an intervention method that focuses on understanding the "autism culture" and seeks to modify and organize the environment around children in such a way that it can accommodate the strengths and weaknesses of children with autism so that they can achieve independence in their lives (Sanz-Cervera et al., 2018). TEACCH uses structured teaching (structured teaching) as an educational strategy and its main intervention in dealing with children with autism, where structured teaching is a set of intervention strategies and teaching principles based on an understanding of the characteristics of the needs and learning styles of ASD children (Mesibov et al, 2005).

According to Schopler in Panerai et al (2002) TEACCH is specifically designed for autistic children by taking into account the various characteristics of the barriers that children have in an effort to minimize the difficulties they experience by using structured and sustainable interventions, environmental adaptation and communication training. alternative. Such as utilizing the strengths of autistic children in the aspect of visual information processing skills (Mesibov & Shea, 2010) by using visual aids to overcome their limitations in processing auditory information and verbal communication (Hodgdon, 1995 in Dettmer et al, 2000). So that it allows autistic children to be able to understand the information they receive and express their desires even though their verbal communication skills are low. Besides that, ASD children tend to be able to learn or engage in an activity better when they are in a structured environment compared to an unstructured environment (Panerai in Kusmierski & Henckel, 2002), so using TEACCH which includes structured teaching it can facilitate students with autism in learning and activities.

In fact, there are still not many schools that use the TEACCH method as an intervention service in the education of ASD children. Even though there have been many studies that have proven the effectiveness of the TEACCH method in the treatment of ASD children. Among them are Welterlin's research on the implementation of the "Home TEACCHing" program for parents who have ASD children at an early age, the results of his research indicate an increase in independence and visual receptive skills, an increase in fine motor skills, a reduction in maladaptive behavior and a decrease in stress in parents after implementing the TEACCH program (Welterlin et al, 2011). Then Cervera's research that examined the effectiveness of the TEACCH intervention in autistic children showed that there were significant changes in the development of autistic children after being given an intervention using the TEACCH method (Sanz-Cervera et al, 2018). Then Kusmierski & Henckel's research showed the effectiveness of the TEACCH program in reducing maladaptive behavior and increasing independence in completing functional activities in ASD children.

There are many special schools that serve ASD children in the Malang City area. However, the one who consistently applies the TEACCH method is River Kids Autisme Special School Malang. Based on a preliminary study conducted, the use of the TEACCH method in the school has succeeded in improving the communication skills and independence of autistic students. The positive influence is also felt by teachers who are directly involved in the learning of autistic students. Teachers are easier to understand and communicate with ASD students, as well as condition them during learning activities. This study aims to find out more about how to apply the TEACCH method in learning for ASD students at River Kids Autisme Special School Malang.

METHOD

This research was conducted using a qualitative approach. A qualitative approach was used to obtain in-depth, detailed and comprehensive data (Moleong, 2005; Margono, 2006). The type of

research used is a case study, namely research that examines in depth regarding and the results obtained provide a broad and in-depth picture regarding a particular social unit (Danim, 2002). This study examines in detail and depth about certain social units which include individuals, groups or community institutions, in this case the River Kids Autisme Special School Malang related to the application of the TEACCH method in the learning of ASD students.

The data sources in this study consisted of 2 types, namely (a) primary data obtained in the form of verbal and behavioral from informants regarding the application of TEACCH in learning for autistic students, (b) secondary data obtained in the form of writing, recordings, pictures or photos as complementary to primary data (Moleong, 2005). The sample who became the informant as the data source were the principal, curriculum coordinator, class teacher and autism students.

The process of collecting data in research uses data collection techniques of observation, interviews and documentation (Sugiyono, 2013). Observation is an observation activity by recording the symptoms studied systematically (Hardani. et al, 2020), this technique is used to determine the condition of the institution or object being studied, the researcher uses non-participatory observation. Interviews aim to obtain more specific information. The documents collected are in the form of archives in the form of written documents as well as pictures and videos.

The data analysis process in this study uses a data analysis model by Miles & Huberman in Sugiyono (2013), namely (a) data reduction, (b) data presentation, (c) data verification or drawing conclusions. Data reduction is the process of sorting out important and necessary data from the data obtained. Then proceed with the presentation of the data, the data is presented in the form of a narrative text that describes the interpretation of the research results. Then ends with drawing conclusions and verification of the data presented. Test the validity of the data in this study using triangulation and member check.

RESULTS AND DISCUSSION

The process of implementing TEACCH in the learning of autistic students in schools includes planning, implementation and evaluation. In the planning stage of implementation, TEACCH in schools begins with building the mindset of teachers, providing education to teachers, forming an acceleration team consisting of curriculum coordinators, program coordinators and teachers, and creating a support system to support the implementation of TEACCH.

Making a support system includes structuring classes from unstructured to structured ones, making various visual supports, making curriculum & student learning programs as well as collaboration with parents. The curriculum and learning programs created by the school are specifically designed according to TEACCH and the characteristics of the needs, strengths, and weaknesses of each autistic student obtained through the results of the assessment. The student learning program provided is not always the same between one autistic student and another autistic student.

Then the implementation stage of TEACCH implementation. The implementation of TEACCH at River Kids Autisme Special School Malang is shown from its structured activities, namely the work system, the existence of a clear schedule of activities, the arrangement of the structure of the physical environment, and the use of visual instructions.

First, the activities are clear and coherent through the existence of a work system. For example, in independent work system activities, the teacher prepares the type of task, the place of work, the form of presenting information, and the flow of implementation. The types of IWS assignments given to students vary from one autistic student to another, according to the ability level of the autistic student. The teacher only provides guidance to autistic students at the beginning of the introduction, after which the assistance is reduced then students work on the entire series of IWS activities independently without the help of the teacher. In addition to IWS activities, the work system is also used in other learning activities such as learning skills and self-development.

Second, clear and predictable activities through the use of activity schedules. There are two activity schedules used at River Kids Autism Special School, namely the activity schedule board and time table. The form of presentation and activity information contained in the activity schedule is not always the same between one autistic student and another. For autistic students who have not been able to read and understand writing, the schedule of activities is presented using pictures. Then for autistic students who are able to read but do not understand writing, the activity schedule is presented using pictures and writing. While autistic students who are able to read and understand writing, the schedule of activities is presented in written form only. The activity information on the activity schedule is designed by the teacher in accordance with the learning activities that will be carried out by each autistic student in that one day at school contained in the RPP/PPI.

Third, the arrangement of the physical structure of the learner's learning environment. Each study room and area in the school is organized according to the function of the room structure and the needs of autistic students who will use the room or study area. In organizing the physical structure of the learning environment, schools also use various visuals such as writing, pictures, symbols, and colors as information clues.

Fourth, the use of visual aids. Visual aids are used in presenting information on the arrangement of physical structures and organizing tasks to be done by autistic students, such as writing, pictures, colors, and symbols. In addition, it is also used by teachers and students with autism when communicating, especially for autistic students who cannot communicate verbally such as communication boards, choice boards, and social stories. Making and providing visual aids to autistic students is adjusted to the results of the assessment and the needs of each autistic student.

Next is the evaluation stage. Evaluation is carried out once a week to assess the progress of student learning outcomes carried out by the teacher together with the program coordinator. In addition,

teacher performance assessments were also carried out in teaching through supervision carried out by program coordinators and school principals.

Kendala yang muncul dalam penerapan TEACCH di sekolah diantaranya siswa autis yang mengalami tantrum atau menolak untuk belajar, guru yang kurang konsisten ataupun memiliki pemahaman yang kurang dalam mengajar, memerlukan waktu yang lebih banyak dalam membuat support system, dan orang tua yang belum berkerja sama dengan baik dengan pihak sekolah.

The school's efforts to deal with these obstacles are to analyze the tantrum behavior or self-rejection of autistic students and find solutions or techniques to overcome them, evaluate teacher performance and provide routine training, minimize the number of students handled by each program coordinator to be more efficient, and approach parents and create a program for parents of students.

Discussion

Based on the results of the study, it was shown that the process of applying TEACCH in the learning of autistic students at River Kids Autisme Special School Malang went through three stages, namely: the preparation stage for the application of TEACCH, the implementation stage of the application of TEACCH, and evaluation. The preparation stage for implementing TEACCH in schools begins with building the mindset of teachers to make changes (implementing TEACCH). Then provide education related to TEACCH to educators and education staff at schools. Then form an acceleration team consisting of a curriculum coordinator, program coordinator, and teachers. Besides that, it also creates a support system which includes structuring class structures, making visual aids, making curriculum & student learning programs, providing education & training to teachers, and collaborating with parents. As well as continuous evaluation.

The preparation carried out by the school is slightly different from Bourgondien & Coonrod (2013) who stated that the initial step taken from the process of implementing structured teaching (TEACCH) was to use information about the characteristics of strengths, interests, needs, and learning styles possessed by each individual with autism. to design intervention programs or goals to be achieved that meet the most pressing needs of the individual and his or her family. Even so, River Kids Autism Special School in implementing TEACCH in schools also uses information about students obtained from the assessment results. Information related to students is used as a reference in designing programs or learning targets for students at school. This is contained in the creation of a support system in a series of school preparation efforts for the implementation of TEACCH.

Tahap pelaksanaan penerapan TEACCH dalam pembelajaran siswa autis di SLB Autisme River Kids ditunjukkan dari kegiatan pembelajarannya yang bersifat terstruktur dalam berbagai hal. Hal ini sesuai dengan pemaparan Mesibov dkk (2005) yang menjelaskan bahwa metode intervensi utama dalam TEACCH ialah pengajaran terstruktur (structured teaching), yang mana pengajaran terstruktur merupakan sekumpulan strategi intervensi dan prinsip mengajar yang didasarkan pada pemahaman terhadap budaya individu autisme seperti karakteristik kebutuhan, kemampuan, minat, dan preferensi

setiap individu dengan ASD. The form of structured learning activities can be seen in various ways, including the existence of a work system, a clear schedule of activities, the arrangement of the structure of the physical environment, and the use of visual instructions.

Clear and coherent activities through the existence of a work system. Through the work system, autistic students become more helpful in carrying out an activity, knowing what to do, how to do it and staying focused on the activity being carried out. This is in line with the explanation of Mesibov et al (2005) regarding the work system where the work system aims to organize tasks and activities in a way that is easily understood by students with autism so that it can help them in starting and completing various tasks or activities. The use of the work system in schools, for example IWS activities, such as the form of presentation of assignments and the types of assignments that will be carried out by students, are designed by the teacher by adjusting to the level of ability and development of each autistic student. So that every autistic student does not always get similar work system activities. As stated by Bourgondien & Coonrod (2013) that the work system is designed individually according to the level of development, strengths and weaknesses of the individual.

Clear and predictable activities through a schedule of activities. Through the use of an activity schedule, autistic students can predict when an activity will be carried out and where the activity will be carried out. The activity schedule contains information that is presented visually related to a series or sequence of various types of activities that will be carried out by autistic students from the first activity to the end of the day during learning at school. As stated by Krants et al (1993) in (Bourgondien & Coonrod, 2013) which through a visually presented schedule of activities it can help autistic students to stay focused and organized in the activities they are doing, besides allowing autistic students to be able to predict what activities will be carried out next, and understand when certain activities will be carried out, so that it can reduce anxiety and stress related to unknown things in autistic individuals. The form of presentation of the activity schedule made by the teacher is adjusted to the level of ability of autistic students in reading and understanding writing and the level of resilience of autistic students in carrying out an activity. So that the schedule of activities for autistic students is not always be same.

Structuring the physical structure of the learner's learning environment. The area of the student learning environment in the school is organized in such a way that it is clearly accompanied by visual, consistent, comfortable and neat instructions for autistic students. As stated by Bourgondien & Coonrod (2013) that physical structure relates to the way in which the environment and physical space are organized or organized in order to provide a clearer context and meaning and to accommodate the special needs of individuals with autism. So that through the arrangement of the physical structure of the learning environment area accompanied by the use of visual instructions, it can make it easier for autistic students to understand and place themselves in a particular activity or area. Like autistic students can know where he should sit, where he should stand, and where he should pick up and put an object.

The process of organizing the physical structure is carried out by the school by adjusting the structural function needs of each room and the needs of autistic students who will use the room.

Use of visual aids. Various visual aids are used in each learning activity, such as when the teacher delivers learning materials, as a tool for autistic students to communicate, as well as information instructions in structuring the physical structure and organizing tasks/activities carried out by autistic students. The use of visual aids is based on the difficulty of autistic children in understanding, remembering and using verbal information (Hodgdon, 1995 in Dettmer et al, 2000) and their strength in processing visual stimuli which are much better than auditory stimuli (Quill, 1995 in Dettmer et al, 2000). ; Mesibov et al, 2005; Mesibov & Shea, 2010). So that visual aids (visual support) are used in autistic individual intervention services as a tool for students with autism in understanding the information presented to them, keeping their attention focused on carrying out an activity, as well as in sorting and organizing their environment (Hodgdon , 1995 in Dettmer et al, 2000). The use of visual aids makes it easier for autistic students to understand the information conveyed by the teacher and express their wishes or feelings even though their verbal communication skills are low, and make it easier for them to do a series of activities from the tasks given by the teacher. In making and providing visual aids to autistic students cannot be equated between one student and another, because each autistic student has different characteristics of abilities, developments and needs. So that the teacher in making and providing visual aids to autistic students also makes adjustments to the results of the assessment and the needs of each autistic student.

The explanation regarding the form of structured learning activities above is in line with the structured teaching components proposed by Howley (2015), where the main components of structured teaching consist of: (a) Physical structure; (b) Schedule of activities; (c) work system; (d) Structure and visual information. Likewise with that proposed by Mesibov & Shea (2010), where the structural components in TEACCH are (a) the physical structure; (b) organizing a series of activities through a schedule; (c) the use of visuals in organizing tasks; (d) work system. And Lal & Shahane (2011) who suggested that structured teaching consists of several elements, namely (a) Physical Structure (b) Schedule (c) Work System and (d) Visual Structure.

Evaluation is carried out regularly once a week. Evaluation is carried out jointly between teachers who teach students in class and the program coordinator who is responsible for monitoring student progress. In the evaluation, the teacher together with the program coordinator evaluates together the development of student learning outcomes against the individual learning program that has been carried out by the teacher through learning activities for 1 week.

River Kids Autisme Special School Malang also evaluates the performance of teachers in teaching through the implementation of supervision. Through the implementation of supervision, teachers receive feedback in the form of assessments related to their performance in teaching as well as input and guidance from program coordinators relating to the provision of teaching to students that teachers

must do, so that the quality of teacher performance in teaching can increase and their abilities can develop. As stated by Sergiovanni in the Ministry of National Education (2008) that the implementation of teacher supervision has several objectives, namely: to assist teachers in developing their professional abilities, to supervise teaching and learning activities carried out by teachers, and to motivate teachers.

The obstacles that arise in the application of TEACCH at River Kids Autisme Special School Malang come from various aspects, namely: (1) Students who experience tantrums or show self-refusal behavior to learn, so that learning activities are hampered; (2) Human Resources (Teachers), such as inconsistent performance or low understanding of teachers in teaching autistic students with TEACCH; (3) Technical Implementation, where the existence of a support system in the implementation of TEACCH is very necessary and in providing the support system requires more time; (4) Parents, where there are still parents who have not been able to collaborate well with the school, even though parental involvement plays an important role in supporting the smoothness and success of the intervention program given to students.

The school's efforts to overcome the obstacles that arise in the application of TEACCH to the learning of autistic students at school are by analyzing the causes of tantrum behavior or self-rejection in children and techniques to overcome them. Then regarding the HR aspect (teachers), schools supervise and provide regular training, so teachers can know what needs to be improved and teachers' insights and skills in teaching can develop. Then the school strengthens the program coordinator side by minimizing the number of students handled by each coordinator, so that their performance in monitoring progress and the ongoing student program can be more focused and efficient. Then regarding the parental aspect, schools approach through the principal and program coordinator so that parents can collaborate more actively and well with the school. In addition, it also provides various programs for parents such as training and visit programs to guide parents regarding TEACCH, so parents can also apply TEACCH at home in order to obtain optimal results from the child intervention program that is being carried out.

CONCLUSION

It can be concluded that the application of the TEACCH method in the learning of ASD students at the River Kids Autisme Special School Malang is carried out through the stages of planning, implementation and evaluation. Planning includes: building a teacher's mindset, providing education to educators, forming an acceleration team (program coordinator, curriculum coordinator, and teachers), creating a support system and continuous evaluation. The implementation of TEACCH is shown from its structured teaching activities, namely: clear and coherent activities through a work system, clear and predictable activities through the use of activity schedules, structuring the physical structure of the learning environment, and the use of visual aids. Evaluation was conducted to assess the development of student learning outcomes and teacher performance in teaching. In its implementation, several

obstacles emerged such as student tantrums, teachers who were less consistent and lacked understanding, required a lot of time, and parents who had not cooperated well. The school's efforts to overcome these obstacles include evaluating performance and providing training to teachers, procuring programs for parents, and analyzing student tantrum behavior.

REFERENCES

- Association, A. P. (2013). *Diagnostic and statistical manual of mental disorder-DSM V*. <https://doi.org/10.1017/CBO9781107415324.004>
- Bourgondien, M. E. V., & Coonrod, E. (2013). TEACCH: An intervention approach for children and adults with autism spectrum disorders and their families. In S. Goldstein & J. A. Naglieri (Eds.), *Interventions for Autism Spectrum Disorders* (pp. 75–105). *Springer Science + Business Media*.
- Carnahan, C. R., Hume, E. K., Clarke, E. L., & Borders, E. C. (2009). Using structured work systems to promote independence and engagement for students with autism spectrum disorders. *Teaching Exceptional Children*, 41(4), 6–14.
- Danim, S. (2002). *Menjadi peneliti kualitatif*. CV Pustaka Setia.
- Depdiknas. (2008). *Supervisi Akademik dalam Peningkatan Profesionalisme Guru*. Direktorat Tenaga Kependidikan Ditjen PMPTK Depdiknas.
- Dettmer, S., Simpson, R. L., Myles, B. S., & Ganz, J. B. (2000). The Use of Visual Supports to Facilitate Transitions of Students with Autism. *Focus on Autism and Other Developmental Disabilities*, 15(3), 163–169. <https://doi.org/10.1177/108835760001500307>
- Efendi, M. (2006). *Pengantar psikopedagogik anak berkelainan*. PT Bumi Aksara.
- Hardani., & Dkk. (2020). *Metode penelitian kualitatif & kuantitatif*. CV Pustaka Ilmu Group.
- Howley, M. (2015). Outcomes of structured teaching for children on the autism spectrum: Does the research evidence neglect the bigger picture? *Journal of Research in Special Educational Needs*, 15(2), 106–119. <https://doi.org/10.1111/1471-3802.12040>
- Junaidi, A. R., Alamsyah, Y., Hidayah, O., & Mulyawati, N. W. (2020). Development of Virtual Reality Content to Improve Social Skills in Children with Low Function Autism. *2020 6th International Conference on Education and Technology (ICET)*, 115–119.
- Junaidi, A. R., Dewantoro, D. A., Yuwono, J., Irvan, M., Alamsyah, Y., & Mulyawati, N. W. (2021). The Acceptance Level of Low Fuctioning Autism while Using Virtual Reality Head-Mounted Display. *2021 7th International Conference on Education and Technology (ICET)*, 199–203.
- Kusmierski, S., & Henckel, K. (2002). Effect of the TEACCH Program on Maladaptive and Functional Behaviors of Children with Autism. 475–491.
- Lal, R., & Shahane, A. (2011). TEACCH Intervention for Autism. In T. Williams (Ed.), *Autism Spectrum Disorders - From Genes to Environment* (pp. 169–190). InTech. <https://doi.org/10.5772/17564>
- Lord, C. ., & Jones, R. M. (2012). Re-thinking the classification of autism spectrum disorders. *Journal Child Psychol Psychiatry*, 23(1), 1–7.
- Margono, S. (2006). *Metode penelitian pendidikan*. Rineka Cipta.

- Mesibov, G. B., & Shea, V. (2010). The TEACCH program in the era of evidence-based practice. *Journal of Autism and Developmental Disorders*, 40(5), 570–579. <https://doi.org/10.1007/s10803-009-0901-6>
- Mesibov, G., Shea, V., & Schopler, E. (2005). *The TEACCH Approach to Autism Spectrum Disorders*. Springer Science + Business Media.
- Moleong, L. J. (2005). *Metode penelitian kualitatif*. PT Remaja Rosda Karya.
- Panerai, S., Ferrante, L., & Zingale, M. (2002). Benefits of the Treatment and Education of Austistic and Communication Handicapped Children (TEACCH) programme as compared with a non-specific approach. *Journal of Intellectual Disability Research*, 46(4), 318–327. <https://doi.org/10.1046/j.1365-2788.2002.00388.x>
- Sanz-Cervera, P., Fernández-Andrés, M. I., Pastor-Cerezuela, G., & Tárraga-Mínguez, R. (2018). The effectiveness of teach intervention in autism spectrum disorder: A review study. *Papeles Del Psicologo*, 39(1), 40–49. <https://doi.org/10.23923/pap.psicol2018.2851>
- Sugiyono. (2013). *Metode Penelitian Kuantitatif Kualitatif Dan R & D*. Alfabeta.
- Welterlin, A., Turner-Brown, L. M., Harris, S., Mesibov, G., & Delmolino, L. (2012). The home TEACCHing program for toddlers with autism. *Journal of autism and developmental disorders*, 42(9), 1827-1835.