

**ANALYSIS OF DOWN SYNDROME CHILDREN'S DIFFICULTIES IN COMPLETING  
BEGINNING WRITING QUESTIONS IN SPECIAL SCHOOLS**

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**ABSTRACT**

*This study aims to analyze the level of difficulty and development of early writing skills in children with Down Syndrome at SLB Negeri X Kudus. The approach used is quantitative descriptive with a single subject, namely an elementary school student with intellectual disabilities due to Down Syndrome. Data collection techniques were carried out through structured observations during six meetings, documentation of student work results, and assessments using a scale of 1–5 on five main indicators, namely the ability to recognize letters, connect letters with sounds, copy writing, writing forms, and independence. Data were analyzed statistically using SPSS software through descriptive statistical tests and paired sample t-tests. The results showed a significant increase in students' writing skills, from a total score of 8 at the first meeting to 20 at the sixth meeting. The t-test showed a significance value of 0.000, which indicated that the difference was statistically significant. This increase was influenced by the use of visual media such as images and videos, a gradual approach (task analysis), and consistent positive reinforcement from the teacher. This study concludes that an adaptive, visual, and responsive learning approach to students' emotional needs is effective in developing early literacy skills in children with Down Syndrome.*

*Keywords: Down's Syndrome; adaptive learning; write the beginning.*

## INTRODUCTION

Education is a basic right that every individual has, including children with special needs such as children with Down Syndrome. Law Number 20 of 2003 concerning the National Education System states that education must be organized democratically, fairly, and non-discriminatory by upholding human rights. This strengthens the state's commitment to ensuring that every child, regardless of their physical, intellectual, social, or emotional condition, has equal access to educational services. Therefore, special education is an inseparable part of the national education system to ensure that the rights of children with special needs are fulfilled in developing their potential optimally. (Octavia & Lenggogeni, 2024).

Down Syndrome is a genetic condition caused by an extra chromosome 21, and affects a child's cognitive, physical, and social-emotional development. Children with Down Syndrome generally experience intellectual developmental delays, speech disorders, and difficulties in managing emotions and fine motor skills. (Arianti & Fitri, 2018). As a result, they often face challenges in following the learning process, especially in the aspect of basic academic skills such as reading and writing. Beginning writing is one of the basic skills that is important to improve, because it is the initial foundation of literacy that will support the next learning process. (Sri Wahyuningsih, 2021).

Early writing itself includes various stages such as recognizing the shape and sound of letters, distinguishing letter symbols, to the ability to coordinate hands to form legible writing. This process requires integration between cognitive, visual, motor, and linguistic abilities which in Down Syndrome children develop more slowly than typical children of the same age. Difficulty in recognizing letter shapes, remembering the order of letters, controlling writing tools, to understanding written commands are real challenges that are often encountered in the field. (Ika Nurzahra et al., 2024).

Research result Rizqi et.al. (2024) also shows that children with Down Syndrome experience difficulties in cognitive, motoric, and sensory integration development aspects that have a direct impact on the learning process, including writing activities. In the context of inclusive education, an adaptive, individual learning approach is needed that pays attention to the unique needs of each child. One form of intervention that has proven effective is the use of sensorimotor stimulation, such as squeezing, cutting, and drawing lines, which can strengthen hand muscles and improve fine motor coordination which is very much needed in writing.

Current technological developments also provide great opportunities in improving the academic skills of children with special needs. According to Fadiah & Trustisari (2024), the use of assistive technology such as augmentative and alternative (AAC) devices can help children with Down Syndrome improve their communication skills, including verbal and written expression. This technology not only supports learning activities in the classroom, but also increases children's confidence and participation in learning. Forms of assistive technology that support the writing process can be adaptive writing tools, visual-based writing learning applications, to text-to-speech software that makes it easier for children to understand written instructions. (Firdaus & Pradipta, 2019).

However, in practice, many teachers still face obstacles in teaching early writing skills to children with Down Syndrome. One of the obstacles that arises is the low level of independence of children when doing writing assignments, as well as high dependence on teacher assistance or visual aids. (Firdaus & Pradipta, 2019). This phenomenon shows the importance of a deeper analysis of the forms of early writing difficulties experienced by children with Down Syndrome. A deeper understanding of these types of difficulties will help teachers design more appropriate, responsive, and contextual learning strategies.

SLB Negeri X Kudus as a special educational institution that handles students with various disabilities, including Down Syndrome, has an important role in supporting the basic abilities of its students. However, until now there has been a lack of academic studies that specifically address the issue of initial writing difficulties in Down Syndrome children in schools. This. In fact, the local context greatly influences learning strategies, because it is directly related to the condition of human resources, facilities and infrastructure, and characteristics of students.

Based on the description, this study is important to analyze in detail the difficulties faced by children with Down Syndrome in completing initial writing questions at SLB Negeri X Kudus. This study is expected to contribute to the development of more inclusive and effective learning strategies, as well as being a reference for teachers and schools in improving the quality of education for children with special needs.

## **RESEARCH METHODS**

This study uses a descriptive quantitative approach with the aim of measuring and describing the level of difficulty of children with Down Syndrome in completing initial writing problems systematically and objectively (Sugiyono, 2019). This approach was chosen because it allows researchers to obtain numerical data on student abilities and conduct statistical analysis to determine the effectiveness of learning and changes that occur during the process. The study was conducted at State Special School X Kudus on April 10 to May 20, 2025, with the research subject being a female student with the initials CE, aged 13, who is in class 3 specifically for children with intellectual disabilities (Down Syndrome). CE shows obstacles in early writing skills, such as recognizing letters, copying, and connecting letters with sounds.

Data collection was carried out using structured instruments, including observation sheets, documentation of student work results, and teacher assessment scales. The observation sheet contains five main indicators, namely the ability to recognize letters, the ability to connect letters and sounds, accuracy in copying writing, quality of lines and writing shapes, and independence in completing tasks. Each indicator is assessed on a Likert scale of 1–5 for six meetings, with a maximum score per meeting of 25 points. All data obtained were analyzed using descriptive statistics with the help of the SPSS version 22. The analysis in this study includes calculating the average score and standard deviation of all meetings, comparing pre-test and post-test scores to see changes in students' initial writing skills, and using a paired sample t-test to determine the significance of the difference between the initial and final scores. The paired sample t-test was chosen because the data analyzed came from two measurements conducted on the same subject, namely before and after treatment. This approach provides a more objective and systematic picture of the development of initial writing skills in children with Down Syndrome.

## **RESULTS AND DISCUSSION**

Based on the results of observations, daily notes, documentation of student work results, and teacher reflections during the initial writing learning process for students with special needs in State Special School X Kudus during six meetings provided an in-depth picture of the dynamics of learning for students with Down Syndrome, especially CE. Observations were conducted systematically with a focus on the development of early writing skills including the ability to recognize letters, connect symbols with sounds, copy writing, and maintain concentration while writing.

### **Learning Development During 6 Meetings**

In the first meeting, CE was introduced to the material of body parts. The teacher used colored picture media to attract attention. CE was able to mention several body parts enthusiastically. This response is an indicator that visual media is able to stimulate students' initial interest in learning. The results of observations showed that CE had quite good receptive abilities when visual stimuli were given.

The second meeting focused on writing activities by thickening the dots of the letters of the names of body parts. CE still seemed slow, finger coordination was not optimal, and often the pencil position was not appropriate. However, with guidance and the use of a pencil grip, CE began to show confidence. The results of the work showed that the letter shape was still unstable, but could be read.

In the third meeting, the teacher introduced the five senses through learning video media and images. CE was asked to mention the functions of the five senses in everyday life. He began to actively respond, although still limited. CE was able to mention the functions of "eyes to see" and "ears to hear". This shows that discriminatory abilities and image-function associations are starting to develop.

The fourth meeting contained the task of writing the functions of the five senses. CE showed higher enthusiasm than before. He began to get used to the pattern of bolding letters and was more confident in completing the task, although not yet completely consistent in the form of letters and layout.

In the fifth meeting, CE was introduced to various means of public transportation through pictures and small group discussions. He actively mentioned names such as "bus", "car", and "train". This activity also increased CE's verbal participation and courage in answering teacher's questions.

The sixth meeting focused on the task of bolding the letters of the names of transportation. CE showed an increase in fine motor skills and visual-motor coordination. CE's writing became more

focused and closer to the standard letter shape. He was also more independent, not asking for help from the teacher as often as in the beginning.

### Student Ability Improvement

To measure the improvement of students' abilities quantitatively, an assessment was conducted at each meeting with a score range of 1-5 for five main indicators, namely the ability to recognize letters, the ability to connect letters with sounds, the accuracy of copying writing, the quality of lines and writing shapes, and independence when working. The scores from each meeting were inputted into SPSS software for descriptive statistical analysis and comparative tests as follows:

**Table 1. Value Per Meeting**

Meeting	Getting to Know the letters	Connect Letters-Sounds	Copy Text	Writing Form	Independence	Total Score
1	2	1	2	2	1	8
2	2	2	2	2	2	10
3	3	2	2	2	3	12
4	3	3	3	2	3	14
5	4	4	3	3	3	17
6	5	4	4	4	3	20

**Table 2. Analysis Descriptive**

Statistics	Mark
N	6
Mean (Average)	13.50
Std. Deviation	4.27
Minimum	8.00
Maximum	20.00

**Table 3. Test Paired Sample Test**

Partner	Mean Difference	t	df	Sig. (2-tailed)
Meeting 1-6	-12.000	-8,944	5	0,000

The results of the Sample Test show that systematic learning that is adjusted to the characteristics of Down Syndrome children is able to encourage an increase in basic literacy skills. This success cannot be separated from the use of visual learning media such as images and videos, as well as positive reinforcement strategies provided by teachers during the process.

Visual media serves as a cognitive bridge, helping students understand letter and word shapes better. As explained Arcivid et.al., (2024) that Visual scaffolding can help activate unstable initial schemas in children with special needs. Meanwhile, positive reinforcement and individual approaches provided by teachers help increase students' self-confidence because small successes that are appreciated have an impact on the next learning motivation (Arcivid & Wafiq, 2022).

Teachers act as facilitators not only in academic aspects, but also emotionally and socially. CE students show sensitive emotional responses to mistakes, but with a warm and patient approach, students are able to show progress, (Ulfa, 2024). Strategies such as task breakdowns and scheduled breaks help manage the limited attention spans that students have.

The SPSS results reinforce the effectiveness of this approach. Of the five indicators, the highest increase occurred in the independence and copywriting ability indicators. If initially students were only able to copy two letters with full assistance, in the sixth meeting students were able to complete a whole word (such as "kereta") with minimal assistance. This tendency shows that picture media helps reduce dependence on teachers, as also mentioned in the study Firdaus & Pradipta (2019) that structured image media can be an independent learning tool for students with mild to moderate

intellectual disabilities, because it allows them to learn from a visual context without always having to wait for direct instructions from the teacher. On the other hand, this approach is also in line with the principles of inclusive and adaptive learning, where teachers not only deliver materials, but also adjust the delivery method according to the learning style and characteristics of students. Visual media acts as an intermediary medium (bridge) between children's cognitive potential and the demands of learning tasks. Teachers as facilitators direct children's understanding through guided visual instruction and repetition-based tasks with familiar themes (Puspitaningtyas & Syndrome, 2024).

Another important aspect emphasized in this association is the role of a supportive learning environment. Puspitaningtyas & Syndrome (2024) emphasizes that a classroom environment that facilitates visual media-based interactions can consistently create a fun and non-burdensome learning atmosphere for children. In learning about CE, a conducive learning atmosphere accompanied by verbal praise and fun interactions has succeeded in reducing students' frustration levels when they encounter difficulties in writing. This supports the emotional aspect which is also observed in the teacher's assessment at each meeting.

Based on the findings above, it can be concluded that CE faces various difficulties in completing initial writing questions that are interrelated between motor, cognitive, visual, and emotional aspects. This finding is in line with research conducted by Rizqi et al. (2024), which states that children with Down Syndrome generally experience delays in fine motor development and have weaknesses in verbal working memory function, which has a direct impact on writing ability.

CE's difficulty in holding a pencil effectively reflects weakness in muscle tone and fine motor coordination, which is also in line with research. Intania et al., (2025) that motoric delays are a common feature in children with Down Syndrome. In this context, regular fine motor training and the use of assistive devices such as pencil grips can be supportive strategies.

The ability to recognize letters and associate sounds with letter symbols that have not fully developed indicates that CE has not mastered the basic concepts of phonology and graphemes. This supports research conducted by Amaliyah et al., (2024), which states that children with Down Syndrome require a multisensory, repetitive, and explicit approach to reading and writing. Visual based approaches, such as picture cards or textured letters, can help reinforce the association between sounds and letters.

This is also in line with research by Zuhairina Firdaus, Siti Aminah, and Arcivid Chorynia Ruby (2025) mentioned that the use of media also increases students' emotional involvement. This is important, considering that students with Down Syndrome tend to experience obstacles in emotional regulation. In practice, CE showed a positive response when given praise for his success in copying writing related to familiar images. This shows that visual media not only functions cognitively, but also plays a role in building a sense of achievement and self-confidence in children.

Short attention span and dependence on teachers indicate that CE requires a task analysis based learning strategy, namely breaking down tasks into small steps that are clear and structured. This is in line with Oelwein's view that emphasizes the importance of consistent structure and individual support in teaching children with special needs, (Intania et al., 2025).

Negative emotional reactions to mistakes show the importance of building self-confidence and a supportive learning environment. Teachers need to place more emphasis on rewarding effort than on results. This is in line with research conducted by Octavia & The Revenge (2024) which states that a positive and responsive approach can help children with Down Syndrome develop emotional resilience and self-confidence in learning.

Overall, the results of this study strengthen previous literature and show that individualized, consistent, and strength-based interventions are essential in supporting early writing skills in children with Down Syndrome. Teachers not only act as teachers, but also as facilitators, observers, and emotional companions during the learning process.

## **CONCLUSIONS**

Based on the results of research conducted on one subject with Down Syndrome with the initials CE in State Special School X Kudus, Initial writing learning conducted for students with Down Syndrome in State Special School X Kudus during six meetings provided a clear picture of the challenges as well as the potential for student development in basic literacy aspects. Based on the results of observation, documentation, and quantitative data analysis using SPSS, it can be seen that a student named CE experienced positive development over time. At the beginning of learning, CE showed obstacles in

early writing skills, ranging from the ability to recognize letters, copy writing, to low independence and concentration. However, through a structured learning approach, the use of image and video media, and consistent emotional support from teachers, students' abilities increased significantly. The total writing ability score, which initially only reached 8, increased to 20 at the end of the sixth meeting. The paired sample t-test statistical test showed that the difference was significant, with a significance value of 0.000. The development of CE in recognizing letters and copying writing shows that visual media greatly assists the learning process of students with special needs. In addition, positive reinforcement given by teachers every time students show an effort, even though it is not perfect, has a big impact on building students' self-confidence and independence. This approach has succeeded in overcoming initial obstacles such as dependence on teachers, limited concentration, and negative emotional reactions when making mistakes. This study has limitations in the number of subjects, which is only one person, and the relatively short duration of the intervention, so the results cannot be generalized widely. However, this research remains relevant and provides practical contributions in the context of direct learning in SLB and can be an initial reference for further research with a broader scope.

### Suggestion

There are several suggestions that can be given to various parties involved in the education of children with special needs, especially children with Down Syndrome.

1. First, for teachers in SLB or inclusive schools, it is important to design learning that not only focuses on academic achievement, but also pays attention to the emotional and social aspects of students. Media images, videos, and other visual aids need to be part of daily learning activities because they have been proven to help students understand abstract concepts more concretely. In addition, teachers need to use a gradual learning strategy or task analysis, so that students can complete tasks more focused and do not feel burdened.
2. Second, for parents, close cooperation with teachers is needed to provide ongoing reinforcement at home. Simple activities such as reading picture books together, reviewing material that has been taught in school, or giving children the opportunity to write freely, will strengthen the learning outcomes obtained in class. A supportive and encouraging home environment will also shape children's confidence in learning.
3. Third, for schools and education providers, it is recommended to provide supporting facilities that are appropriate to the needs of children with special needs, such as writing aids, illustrated whiteboards, or simple educational software. In addition, regular training for teachers in the use of adaptive learning media and psychopedagogical approaches to students with special needs is also very important.
4. Finally, for researchers or academics, it is recommended to conduct further research involving more subjects or expanding the scope of learning to other aspects such as reading and arithmetic. That way, the research results will be more comprehensive and can be a reference in developing curriculum and teaching methods in SLB and inclusive schools.

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