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Chunking as an Effective Learning Strategy for Children with Special Needs

Titik Nurwiati*[1], Laila Khansa Muzaimah[2]

[1,2] Educational Technology Programs, Faculty of Teacher Training and Education,
Sebelas Maret University
Coresponding Email: tnurwiati@student.uns.ac.id

ABSTRACT

Children with special needs (ABK) have unique characteristics that require a learning approach that is tailored to their needs. One strategy that can be used is the chunking method, which is a method of grouping information into small units that aims to facilitate understanding and storage. This principle was introduced by George A. Miller, explaining that human shortterm memory has a limited capacity, so grouping information can improve more efficient learning. In inclusive education, the application of the chunking strategy can help ABK understand learning materials more effectively. This article discusses the application of the chunking method in learning for ABK, by reviewing the latest literature and studies that support the effectiveness of the chunking strategy.

Keywords: children with special needs, chunking, inclusive education, short-term memory

INTRODUCTION

Inclusive education emphasizes the importance of providing appropriate education services for all students, including children with special needs. Children with special needs require a learning approach that is tailored to their abilities and potential. Appropriate learning strategies can improve social interaction and academic success (Widiastuti et al, 2023). One of the challenges in learning for children with disabilities is their limited short-term memory capacity. Humans can generally store about 7±2 units of information in the short term (George A. Miller, 1956). To overcome this limitation, Miller introduced the concept of chunking, which is the grouping of information into larger and more meaningful units. This method has been shown to be effective in improving comprehension and retention of information in various groups of students, including children with disabilities.

In practice, the application of the chunking method in learning for children with disabilities can be done by presenting material in small parts that are structured and meaningful. For example, in learning to read, long texts can be broken down into short paragraphs with vocabulary that is familiar to students. Teachers use individualized learning strategies and simplify the material to make it easier for students with special needs to understand (Sari & Fernandes, 2022). This is in line with the principle of chunking which emphasizes on grouping information into small meaningful parts. In addition, the chunking strategy can also be applied in learning mathematics for children with disabilities. The use of concrete media, such as real or artificial objects, can improve the understanding of mathematical concepts in students with disabilities (Rahmawati et al, 2021). By presenting the material gradually and using tools that can be touched and seen, students more easily understand abstract concepts in mathematics. This approach supports the principle of chunking by grouping information into parts that are simpler and easier to understand.

The chunking method not only helps in the comprehension aspect of the material, but also increases confidence in students. When information is presented in small chunks, students tend to find it easier to understand and complete tasks. The gradual and segmented arrangement of material can help slow learners reduce academic anxiety and increase student motivation to learn (Supriadi & Lestari, 2021). In addition, the chunking approach also encourages teachers to be more creative in developing learning modules and presenting materials visually and multisensory. Multisensory strategies combined with chunking can increase the concentration and engagement of students with disabilities during learning (Sari & Nugroho, 2021). Thus, this strategy is not only effective from a cognitive perspective, but also improves students' affective aspects in learning.

METHOD

In this research, the method used is literature review. The research process began by searching for relevant articles through Publish or Perish linked to Google Scholar, with a focus on publications published between 2020 and 2025. The keywords used in the search were children with special needs, chunking, inclusive education, and short-term memory and then decided to take the title “Chunking as an Effective Learning Strategy for Children with Special Needs”. From a total of 200 articles collected, the researcher made a selection and found articles that specifically fit the topic discussed. The articles were then reviewed to analyze the chunking technique as a learning strategy for children with special needs.

RESULT AND DISCUSSION

Result

No	Researchers	Title, Journal Name, and Year	Result
1.	Satwika Trianti Ngandoh, Riandi, Adi Rahmat, Muslim, Emilia Candrawati, Muhammad Dirham	Chunking Techniques to Enhance Learning Outcomes in the Human Body System, International Journal of Recent Educational Research, 2025	The chunking technique has been proven effective in improving students' learning process and learning outcomes. Based on research, students who learn with segmented videos understand the material better than those who learn with whole videos. The chunking technique helps the brain process complex information into simpler ones so that students are more focused and easily understand concepts, as well as creating a more participatory learning atmosphere.
2.	Hiis Karlenata, Zalelah Tri Mutiara	Learning with ADHD Children, Educational Journal of Innovation and Publication, 2024	ADHD children have neurodevelopmental disorders, symptoms of inattention, hyperactivity, and clinical characteristics that can make it difficult for them to interact. These symptoms lead to a lack or loss of focus on a condition. This is very bad for ADHD children's learning.
3.	Muthma'innah	Mathematics Learning Difficulties in Dividing Numbers, Islamic Education Journal	Math learning difficulties or dyscalculia are caused by a lack of interest, motivation, and difficulty in understanding number concepts. Overcoming this requires cooperation between teachers and parents in assisting children, as well as the use of more child-friendly methods, including chunking strategies to help break down tasks more lightly.
4.	Indriani, D.	Mnemonic strategy as a solution for vocabulary enrichment of Deaf children in elementary school, Basicedu Journal (2021)	The chunking technique is very helpful for deaf children in the learning process, especially in vocabulary acquisition. By categorizing information into smaller, more meaningful parts, chunking makes it easier for deaf

			children to remember and understand the material given. The chunking method is effective in overcoming language barriers experienced by deaf children, because this approach makes the learning process more structured, simple, and easy to understand.
5.	Yunika, W	Patterns of Indonesian language learning development for children with autism, journal of early childhood education (2023)	Children with autism tend to be more responsive to learning that uses routines and clear structures. A strategy that can be applied is the chunking technique, which involves grouping information into small chunks. This technique helps improve their comprehension. In addition, the integration of technology and the use of visual aids strengthen the effectiveness of learning for children with autism.

Discussion

1. Chunking Technique

Chunking is a cognitive strategy used to help a person manage, understand, and remember information by grouping small data into larger, meaningful units called chunks.This method utilizes the natural limited capacity of human short-term memory. Classic research by George A. Miller in 1956 showed that humans can only hold about 7 ± 2 items of information at a time. By chunking, we can enlarge the unit of information, so that more information can be processed in the mind.

In learning, many students with special needs, such as students with autism, ADHD, or dyslexia, have difficulty processing long or complex information. In addition, there are children with special needs who sometimes experience short-term memory problems, and easily lose focus when doing an activity. Thus, the chunking method can be an effective learning strategy for children with special needs, helping them to manage information, improve memory, make learning feel lighter, and structured.

2. Chunking for ADHD student learning

Students with Attention Deficit Hyperactivity Disorder (ADHD) often face challenges especially in the school environment that impact their learning process. They struggle to maintain attention for long periods of time, are easily distracted and feel overwhelmed by complex tasks.

Therefore, a simpler, more structured and easy-to-follow approach is needed. One effective method is chunking.

The chunking method helps ADHD students cope with learning. This method provides benefits such as reducing students' cognitive load as the information is transformed into smaller pieces that are easier to process than large complex tasks. In addition, chunking helps ADHD students focus on a small section, so they don't feel overwhelmed and are better able to complete the task. There is one important thing that chunking can provide motivation to students, namely a sense of achievement for completing a small successful chunk or mission so that students are motivated to continue the next mission.

An example of the application of chunking to ADHD students is when learning to read can be done by breaking a long text into 2 to 3 paragraphs, then invite students to summarize the important points of each section. When learning to write, it can be done by creating a simple writing outline, for example starting from the title, one opening sentence, then one sentence for the content, and one sentence for the closing. For math learning, it can be done by teaching one type of problem first, such as addition only, then after mastering it, you can move on to subtraction. In addition, in memorization learning, it can be done by dividing the memorization list into small groups, for example memorizing 5 new words each session. These applications can help ADHD students in undergoing the learning process.

The application of chunking becomes more effective by paying attention to several things. The use of visual aids such as mapping, tables, or pictures can make it easier for ADHD students to categorize information. In addition, as educators, we must adjust the chunk size to the ability to focus of each ADHD student. And last but not least, giving appreciation such as praise every time a student completes a chunk so that the child feels appreciated and more motivated.

3. Chungking for learning students with dyscalculia

Students with dyscalculia have specific impairments in understanding numbers, basic math concepts and counting steps. Students with dyscalculia often feel anxious and frustrated when facing math tasks. To help them, a simple, gradual and focused learning approach is needed. Chunking is one method that is very suitable for students with dyscalculia. Chunking really helps students with dyscalculia understand math without feeling overwhelmed by the complexity of numbers or working memory because students only need to focus on one small part at a time. In addition, chunking can increase student understanding by breaking down mathematical concepts into simple parts so that they are easier to understand gradually.

An example of applying chunking to learning for students with dyscalculia is like

teaching small numbers first. For example, focus on numbers one to five, then after that focus on numbers six to ten, so that students build mastery gradually. In addition, such as recognizing patterns and sequences by grouping numbers based on patterns such as odd and even. As for solving story problems, it can be done by breaking the story problem into small, gradual steps. So that students do not feel confused about the meaning of the given problem.

The application of the chunking method for students with dyscalculia becomes more effective by paying attention to several things. The use of visualization such as number blocks, number lines, or real tools makes the concept of numbers more concrete. In addition, simplifying the instruction into one small step at a time rather than all at once and repetition can strengthen the memory and understanding of students with dyscalculia.

The chunking method is a simple yet highly effective strategy to help dyscalculia students overcome challenges in learning math. By organizing information in small structured parts, students can understand concepts better, feel more confident, and slowly build a strong math foundation. Patient support from teachers and parents is essential to ensure this strategy is effective and has a positive impact on student development.

4. Chungking on Deaf students' learning

Deaf students face special challenges in the learning process, especially when it comes to language and communication. One effective approach to help them is the chunking method. Chunking is a strategy of categorizing information into smaller, more meaningful pieces that are easier to understand and remember. Since deaf students often have difficulty accessing spoken language in full, this method is important to make it easier to receive and manage information. The main benefit of chunking for deaf students is to increase working memory capacity. By categorizing information, students do not need to remember too many pieces of information. This is very helpful in learning vocabulary, reading comprehension, and mastering other academic concepts. Chunking allows deaf students to store more information in their minds with less cognitive load.

In addition to strengthening memory, chunking also has the benefit of clarifying relationships between concepts. In learning, deaf students need additional help to understand how one piece of information relates to another. By organizing the material into small parts, students can see the structure within the lesson. This can improve their analytical skills and concept understanding in various subjects. In practice, teachers can use a variety of techniques to teach chunking to deaf students. For example, in language learning teachers use simpler sentences or in teaching vocabulary can group by categories. Visualization can also be an important tool in supporting the chunking process, so that the information conveyed is easier to

understand.

The application of chunking becomes more effective if supported by visual media and technology. The use of tools such as animated videos or interactive learning applications can reinforce the concept of chunking for deaf students. In addition, technology provides a more interesting and interactive learning experience so that learning motivation can increase. In conclusion, the chunking technique is a useful method to improve deaf students' learning. Besides strengthening memory and concept understanding, chunking also makes the learning process more structured and accessible. With the application of the right money strategy as well as visual and technological support, deaf students' learning becomes more optimal.

5. Chunking for Learning Students with Autism

Children with autism often experience challenges in processing complex information, both verbally and visually. They tend to have a lower working memory capacity, making it difficult to remember a lot of information at once. To overcome this, the chunking technique is one effective approach. Chunking is a learning strategy that categorizes information into smaller chunks that are easier for students to understand and remember. The chunking technique helps to increase the working memory capacity of students with autism by reducing the cognitive load when they receive new information. By categorizing material into small, meaningful chunks, students can focus more on one piece of information at a time. This strategy is important for improving concentration skills in learning, as children with autism generally feel more easily overwhelmed by long and complex material.

In language learning, chunking is very useful in improving the understanding and use of language in children with autism. For example, in learning Indonesian, long sentences can be broken down into short and simple phrases. This can help children understand sentence structure and word meaning better. In addition, with chunking, children can build consistent language patterns, thereby improving speaking and communication skills. In practice, the application of the chunking technique can be done in various ways. Teachers can use word cards, sequential pictures, concept maps, or interactive learning apps that break down large concepts into small parts. It is also important for teachers to gradually enlarge the units of information according to the development of the child's ability.

The use of visual media strongly supports the implementation of chunking for students with autism. Visualization helps connect small pieces of information into a more meaningful whole. In addition, technology such as image-based educational applications or interactive games can facilitate the chunking process in an interesting way and in accordance with the learning styles of children with autism who tend to be visual and kinesthetic. It can be concluded

that the chunking technique is very useful in improving the learning effectiveness of students with autism. By dividing information into small parts that are easy to digest, students can better understand and apply their knowledge in everyday life. The application of this strategy, supported by visual media and technology, helps to optimize the learning potential of children with autism and increase their independence in understanding various academic and social concepts.

CONCLUSIONS AND SUGGESTIONS

Chunking is a very effective learning strategy in helping children with special needs understand information in a more structured way. By dividing material into smaller, more meaningful parts, chunking makes it easier for these children to process information that previously seemed overwhelming or confusing. This strategy is instrumental in improving students' working memory capacity, attention focus, and language and communication skills. In its implementation, chunking requires a creative, adaptive approach and a consistent, structured learning method. Teachers need to guide gradually, from the introduction of small chunks of information to the incorporation of more complex concepts. With chunking, children with special needs can learn with more confidence, experience improved academic performance, and develop critical and independent thinking skills. Chunking is not just a learning technique, but an important part of an inclusive education approach that respects the unique needs of each student. With this strategy, education can be truly accessible to all children, including those with learning disabilities, thus realizing the goal of fair, equitable and equal education for all learners.

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