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The Impact of Ethnoscience Learning in Maintaining the Learning Concentration of Slow Learners in Elementary School

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ABSTRACT
The background of this study stems from the fact that slow learners have slow information processing speeds, short attention spans, and are easily distracted, thus requiring learning strategies tailored to their needs. This study aims to analyze ethoscience learning strategies in maintaining the learning concentration of slow learners in an inclusive elementary school. This study employs a qualitative approach and a case study design. Data collection techniques include observation, interviews, and documentation involving classroom teachers, shadow teachers, and slow-learning students in Class VB at SD Muhammadiyah Alam Surya Mentari in Surakarta. Data analysis was conducted in three stages: data reduction, data presentation, and drawing conclusions. The results of the study indicate that students with learning difficulties in ethoscience learning: (1) initially establish attention and regain focus despite being distracted, (2) maintain stable focus, show enthusiasm, and actively engage in each stage of learning, (3) follow simple instructions gradually, (4) answer worksheets with accurate concepts despite limited writing skills, (5) have difficulty expressing opinions and require teacher assistance when communicating. The conclusion of this study indicates that slow-learning students are able to maintain concentration and engage in learning, although they still require support and assistance from the teacher or a shadow teacher.
Keywords: *Ethnoscience; Slow Learner; Learning Concentration*

ABSTRAK
Latar belakang penelitian ini bermula dari peserta didik slow learner memiliki kecepatan pemrosesan informasi yang lambat, rentang konsentrasi yang pendek, dan mudah untuk terdistraksi sehingga memerlukan strategi pembelajaran sesuai dengan kebutuhan peserta didik slow learner. Penelitian ini bertujuan menganalisis strategi pembelajaran etnosains dalam menjaga konsentrasi belajar peserta didik slow learner di sekolah dasar inklusif. Penelitian ini menggunakan jenis kualitatif dan desain studi kasus. Teknik pengumpulan data melalui observasi, wawancara, dan dokumentasi yang melibatkan guru kelas, shadow teacher, dan peserta didik slow learner kelas VB di SD Muhammadiyah Alam Surya Mentari Surakarta. Analisis data dilakukan melalui 3 tahap yaitu reduksi data, penyajian data, dan penarikan kesimpulan. Hasil penelitian menunjukkan bahwa peserta didik slow learner dalam pembelajaran etnosains (1) perhatian awal terbentuk dan kembali fokus meskipun sempat terdistraksi, (2) fokus mulai stabil, antusias, dan melibatkan diri dalam setiap tahapan pembelajaran, (3) mengikuti instruksi sederhana secara bertahap, (4) menjawab LKPD dengan konsep yang tepat meskipun masih terbatas dalam kemampuan kepenulisan, (5) Kesulitan berpendapat, berbantuan guru saat berkomunikasi. Simpulan penelitian ini menunjukkan bahwa peserta didik slow learner mampu mempertahankan konsentrasi dan

terlibat dalam pembelajaran meskipun masih memerlukan dukungan serta bantuan dari guru atau shadow teacher.

Kata Kunci: Etnosains; Slow Learner; Konsentrasi Belajar

INTRODUCTION

Concentration is an important factor in education, as students' ability to maintain focus greatly influences their understanding of concepts and learning outcomes (Fatchuroji et al., 2023). Many students find it difficult to maintain concentration during learning, especially when the material is abstract or overly theoretical. Slow learners are more vulnerable to these concentration challenges.

The American Association on Intellectual and Developmental Disabilities (AAIDD), in (Dagnan et al., 2023; Saragih et al., 2024) , emphasizes that individuals with intellectual disabilities are defined as those with an IQ score below 70. Slow learners with limited intellectual abilities (borderline intellectual functioning/BIF) are characterized by slow information processing, difficulty understanding abstract concepts, the need for repetition of material, and a tendency to be easily distracted (Lee & Cheon, 2024; Fitriana et al., 2024). However, slow learners are not physically different from normal learners, so identification cannot be done physically, but requires further identification (Minsih, Darwanti, et al., 2024; Mulyati et al., 2025).

Ideally, learning should be implemented contextually so that students do not only memorize concepts, but also understand their application in real life (Putri et al., 2025). Approaches that involve media and interactive learning models can increase slow learners' interest in the material (Silviana et al., 2024). However, in practice, many schools still face difficulties in adjusting learning strategies to the individual needs of students, especially slow learners (Atika & Andriati, 2023). This condition emphasizes the need for adaptive and meaningful learning strategies for students with special needs, especially slow learners who require concrete stimuli, clear steps, and a supportive environment to focus on learning.

One supporting strategy is ethnoscience, which is the transformation between original science of the community and scientific science (Nelmi & Amini, 2023). This approach links learning with local culture and the surrounding environment so that learning becomes more real (Lestari & Nabila, 2024). Environment-based learning provides students with the opportunity to learn outside the classroom (Eli & Fajari, 2020). And in line with the concrete development stages of elementary school children (Nuralita, 2020) . Through its connection to everyday reality, ethnoscience helps students understand material that was previously abstract (Alfiana & Fathoni, 2020).

The flexibility of the Merdeka Curriculum provides space for teachers to design interactive learning that is tailored to the characteristics of students (Minsih, Igirisa, et al., 2024). This principle is in line with learning objectives that emphasize not only theoretical aspects, but also the connection between knowledge and real life (Hidayati & Julianto, 2024) . For slow learners, contextual adjustments, responsive learning, and the use of interesting media can help strengthen their focus and understanding (Sriwidiastuty et al., 2025).

This context is evident at SD Muhammadiyah Alam Surya Mentari, an inclusive nature-based school. Based on initial interviews, classroom teachers revealed that slow learners tend to have difficulty concentrating and are easily distracted. This is an important point for

teachers to pay more attention to the characteristics of students in the class, which will be taken into consideration in choosing the right learning strategy (Minsih, Rusnilawati, et al., 2024). The role of teachers and schools is important in creating an equitable and supportive learning environment for all students to achieve learning objectives (Prastiwi & Abduh, 2024).

Despite numerous studies on ethnoscience and inclusive education, empirical evidence on its role in sustaining learning concentration among slow learners in inclusive elementary schools remains limited. Previous research at SD Muhammadiyah Alam Surya Mentari focused more on the implementation of ethnoscience in science learning in general, without specifically analyzing its impact on concentration indicators of slow learners in the learning process.

The context of nature-based inclusive schools is relevant because they provide a learning environment that naturally supports the application of ethnoscience through direct experience. However, there has been no systematic study observing how ethnoscience learning in this context relates to concentration indicators for slow learners.

Based on this gap, this study aims to analyze the impact of ethnoscience learning on the learning concentration of slow learner students by reviewing the following indicators: (1) students' ability to respond to learning, (2) acceptance of or attention to learning materials, (3) ability to follow instructions, and (4) ability to remember information, apply and analyze the knowledge gained. Thus, this study positions concentration as a variable that is observed directly in the context of ethnoscience learning in nature-based inclusive elementary schools.

METHODS

Type and Design

This research is qualitative in type and case study in design. It is qualitative because it uses data collection through interviews, observation, and documentation. The data consists of information that has been described. The research design is a case study because the issue being studied is rarely examined. This research is an in-depth analysis of the ethnoscience learning process and the dynamics of concentration of slow learners in the context of a natural classroom, with a focus on interactions and behavior during learning.

Data and Data Sources

The research data includes information from interviews, observation activities, and information from documentation studies of ethnoscience learning in maintaining the concentration of slow learner students. The subjects of this study were slow learner students in class VB who were selected based on teacher recommendations. The data sources in this study include primary and secondary data. Primary data were obtained through observation of the ethnoscience learning process, in-depth interviews with classroom teachers, shadow teachers who assist slow learner students, and slow learner students themselves, as well as documentation of learning activities. Secondary data were obtained from the analysis of learning documents such as student worksheets and scientific literature.

Data collection technique

The data collection techniques used in this study included observation, interviews, and documentation. Data collection through observation and interviews was used to gather information on ethnoscience learning in maintaining the concentration of slow learner students based on concentration indicators. The observation method with a structured observation

sheet was used to determine the actual situation in class VB of SD Muhammadiyah Alam Surya Mentari. Meanwhile, semi-structured interviews were used to explore the responses, experiences, and views of classroom teachers and shadow teachers on learning that can support student concentration. The interview informants were classroom teachers, shadow teachers, and slow learner students. The documentation study consisted of the results of the ABK (Slow Learner) ethnoscience learning worksheets.

Data analysis

Data analysis in this study was in accordance with Milles et al.'s theory of " " ((2014)), which consists of three main stages: data reduction, data display, and conclusion. In the data reduction stage, the data collected consisted of information on ethnoscience learning and the concentration of slow learners from the classroom teacher, shadow teacher, and slow learners through observation, interviews, and documentation. Data presentation was carried out by compiling the data in an easy-to-understand form, consisting of two tables, namely interview and observation tables. Data presentation was also displayed using descriptive narratives. Conclusions were drawn after the data were thoroughly analyzed to reveal the answers to the research objectives.

RESULTS AND DISCUSSION

Research Results

The research results are based on field findings of ethnoscience learning through the activity of making a natural drink called wedang sinden, based on the learning concentration indicators according to Engkoswara in (Eva & Setiyaningsih, 2024), which states that students are able to respond to learning, show acceptance or attention to learning materials, follow instructions and remember information, and apply and analyze the knowledge they have acquired. Based on these indicators, the research results show that ethnoscience learning has an impact on student responses, namely (1) initial attention is formed and refocused even after distraction, (2) stable focus, enthusiasm, and the ability to engage in each stage of learning, (3) following simple instructions gradually, (4) being able to answer worksheets with the correct concepts despite still being limited in their writing skills, (5) slow learners are not yet able to express their opinions, are not yet actively communicating, and are still dependent on the teacher's instructions. The research results were obtained from the data listed in the observation results table and reinforced by the following interview results.

Table 2. Observation Results

No.	Indicator	Findings
1	The presence of acceptance or attention in learning	Students showed initial attention by following the teacher's instructions and paying attention to learning activities. Although their concentration was distracted at times, they were able to refocus easily. Their acceptance of learning was evident from their nonverbal responses, which showed enthusiasm as they moved closer to the source of activity.
1.	Response to learning	Slow learners showed stable focus by paying attention to the materials, tools, and each stage of the activity. Enthusiasm and curiosity were evident in their earnestness in observing, trying,

		repeating the process to get it right, and engaging in the learning process with their peers.
3.	Ability to follow instructions and remember information	Students are able to follow simple instructions step by step. They tend to observe their peers when experiencing difficulties without stopping their involvement in learning. They are able to remember materials and work steps to a limited extent and explain them back in simple language with the help of repetition from the teacher.
4.	Applying and analyzing acquired knowledge	Students are able to apply their knowledge by answering questions on the worksheet using simple sentences and appropriate concepts, although there are still errors in their writing.
5.	Expressing ideas/opinions	Slow learners are not yet able to express their opinions in front of their peers. They only follow simple instructions from the classroom teacher and shadow teacher, do not dare to ask questions when they encounter difficulties, and tend to focus on their personal tasks without building social communication with their friends.

The research results are reinforced by interviews with classroom teachers, shadow teachers, and slow learner students, exploring in-depth information about ethnoscience learning and its impact on maintaining the concentration of slow learners in learning.

No.	Aspect	Interview
1.	Overview of the Application of Ethnoscience Learning	Class Teacher: "SD Muhammadiyah Alam Surya Mentari is an inclusive elementary school that applies the principle of " " (learning from oneself) starting from oneself and then the immediate environment, especially nature, with 40% of activities taking place in nature or the environment and 60% in the classroom. Ethnoscience is related to local culture or environment. In terms of the principle of application, it has been implemented, especially in science learning."
2.	Implementation of Ethnoscience Learning Strategies	Class Teacher: "Activities that integrate ethnoscience learning include visiting a keris museum, making hand sanitizer from natural ingredients, making tape, making wedang sinden, cultivating oyster mushrooms, and batik. Teachers prepare lesson plans according to the needs of students and conduct evaluations together with shadow teachers."
3.	Profile of Slow--Learner Students and Learning	Shadow Teacher: "The student appears to be like other children his age, but has difficulty understanding the lessons. His concentration lasts only about 5-10 minutes and he is easily distracted. He often scribbles in his book or complains of being tired.

	Concentration Patterns	
4.	Responses and Engagement of Slow Learners in Ethnoscience Learning	Class Teacher: "Slow learners generally show better learning outcomes when learning involves concrete and real objects compared to when they have to imagine things." Shadow Teacher: "Slow learners have difficulty understanding long passages, but are enthusiastic about learning based on the principles of ethnoscience. These students are able to follow simple instructions with the help of a teacher, still need assistance with remembering and writing, and are able to answer simple questions when the learning is interesting and their concentration is maintained." Slow Learner: Slow learners expressed interest and full engagement in learning through ethnoscience learning practices by saying "I like it" and "yes, until it's finished." Students also expressed a desire to learn about the surrounding culture directly by saying "yes, I want more."

Discussion

Ethnoscience learning in this study serves as a contextual approach that shows an increase in the affect of slow learner students. The implementation of the principles of ethnoscience learning is integrated into SD Muhammadiyah Alam Surya Mentari through an approach of learning about, through, and together with nature. The implementation of ethnoscience learning is multisensory, manifested through various activities based on local wisdom, such as cultural exploration (visiting museums), practice (making tape, hand sanitizer, wedang sinden), and productive activities (mushroom cultivation, batik making). In line with the opinion of , it is stated that science learning plays an important role in developing human thinking in solving problems through the universe related to daily life, thus becoming a vehicle for students to understand themselves, the surrounding nature, and apply real life. In line with the opinion (Soraya & Sutapa, 2025) emphasizes the importance of physical activity as a strategy to support the learning process of slow learners, particularly in improving attention, concentration, and student engagement during learning activities.

Slow learners exhibit characteristics such as slower information processing speed, distractibility, and difficulty understanding long and complex instructions, which manifest in off-task behavior as a response to cognitive demands that exceed their processing capacity. These findings are consistent with the characteristics of slow learners in the study " , which found that slow learners have lower learning concentration capacity and information processing speed compared to their peers. It is also in line with the findings of , which states that slow learners have difficulty completing complex tasks, tend to feel confused and frustrated, and need more time to complete tasks. The responses of slow learners in ethnoscience learning through direct acknowledgment from participants ("like," "want to learn more") reinforce that ethnoscience creates emotional engagement, which, according to Fredrickson in (Ramírez et al., 2024), can extend attention span through positive emotions.

Based on the learning concentration indicators according to Engkoswara in (Eva & Setiyaningsih, 2024), the findings show that (1) initial attention is formed and able to refocus even after being distracted. This is in line with (Nengsi et al., 2021), which shows that slow learners need a long time to build initial attention to learning and require special strategies from teachers. (2) Stable focus, enthusiasm, and the ability to engage in the learning process. This aligns with the opinion (Idhayani et al., 2023) supporting that practice-based and locally-rooted learning can strengthen focus by providing a context close to children's experiences. (3) Following simple instructions step by step. This finding aligns with the opinion (Khasanah & Kurniasar, 2025) , which states that slow learners find it easier to remember material when instructions are given step by step and accompanied by repetition or reinforcement in recalling information. It is also in line with (Fitriana et al., 2024) with the opinion that slow learners have average intelligence, they often have difficulty organizing their thoughts and remembering information that has been learned previously. (4) Answering LKPD with the right concepts even though they are still limited in their writing skills. This finding is in line with the opinion (Mandagani et al., 2022) that slow learners have difficulty writing letters and often give incorrect answers when asked questions verbally. (5) Slow learners are not yet able to express their opinions, are not yet active in communicating, and are still dependent on teacher instructions. This is in line with the opinion (Misky et al., 2021) that slow learners are students who cannot read, are not fluent in communication, or have limited vocabulary, low comprehension, or are slow in receiving material delivered by teachers.

However, the findings of this study need to be interpreted with consideration of methodological limitations. The study was conducted on a limited number of subjects and focused on one class in an educational unit. Based on these limitations, further research involving a wider range of subjects and a comparative design with non-ethnoscience learning groups is recommended to strengthen the validity of the findings. Further research could also use a mixed methods approach to obtain a quantitative picture of the increase in concentration. In practical terms, the results of this study imply the importance of contextual, multisensory, and gradual learning designs in supporting the concentration and learning engagement of slow learners in inclusive elementary schools.

CONCLUSION

This study concludes that ethnoscience learning supports slow learners in maintaining their concentration with the help of teachers and shadow teachers. Based on the ethnoscience learning activities implemented, the responses of slow learner students showed positive initial attention, relatively maintained focus, and the ability to refocus after being distracted. They were able to follow simple instructions gradually and answer the worksheets with the correct concepts, despite their limited writing skills. However, they were not yet able to actively express their opinions and still depended on the teacher's guidance.

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