



The Profile of Affective Abilities at Elementary School Students in Natural Science Learning Based on Learning Styles

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Abstract: The background of this research is the importance of knowing the profile of students' affective ability during learning so that the teaching and learning process can be successful. This study aims to describe the profile of the affective abilities of elementary school students in natural science learning in terms of their learning styles. This research uses a qualitative approach with a phenomenological type, with data collection techniques through observation and interviews. The subjects in this study were six students, namely two students with a visual learning style, two with an auditory learning style, and two with a kinesthetic learning style. The result showed that 1) The profile of affective ability of students with visual learning style is two indicators of affective ability, namely indicators of receiving and appreciating, 2) The profile of students' affective ability with auditory learning styles is three indicators of abilities, namely indicators of receiving, responding and organizing, 3) The profile of affective ability of students with kinesthetic learning style is that no affective ability indicators are met. The conclusion of this research is to know the profile of the affective ability of elementary school students in science learning in terms of different learning styles.

Keywords: affective abilities, learning style, natural science learning, elementary school

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INTRODUCTION

Affective ability is an essential ability for students in teaching and learning activities or outside of teaching and learning activities, where the affective abilities of the students themselves will be seen in the attitudes and interests of students in learning (Anas & Sartika, 2021; Valente et al., 2020). Changes in student attitudes come from the learning process, which includes cognitive, affective, and psychomotor abilities. However, the fact is that educators assess learning outcomes and student achievement based on cognitive and psychomotor abilities only, while the affective abilities of students are less considered (Dalkiran et al., 2020; Syafi'i et al., 2018). The affective ability of learners is divided into five levels, namely accepting, responding, assessing, organizing, and value-based characteristics (Budiarti & Solviana, 2021; Mohzana et al., 2021). The importance of these affective abilities is also stipulated in implementing the education system in Indonesia (Afandi et al., 2019; Sukmayadi & Yahya, 2020). The education system in Indonesia is making changes to the education curriculum so that education in Indonesia is progressing and developing for the better (Akib et al., 2020; Rahmah, 2022). The Indonesian government established a new curriculum, the 2013 curriculum, to form students with good attitudes and interests during the learning process (Akib et al., 2020; Fajar et al., 2021). The uniqueness of the character possessed by each learner makes it quite difficult for teachers to determine a learning style (Mustafa, 2022; Anas & Sartika, 2021). Teachers should use various methods so that students can understand what is conveyed by the teacher so that the learning process can be successful. The teacher must be able to understand the characteristics of the learning styles of students (Cecilia & Nursalim, 2019; Mayangsari & Sartika, 2021). Learning Style is a way of learning that is unique to students, where each difference in how students learn shows the best way to receive information from outside themselves (Shamsuddin & Kaur, 2020; Rais & Aryani, 2017). With the existence of a learning style, students will find it easier to obtain the information provided. Therefore, the style must be considered by the teacher in educating or teaching. Learning styles are divided into five: visual style, auditory style, kinesthetic style, olfactory style, and gustatory style. However, of the five learning styles, the learning style that students more often use is only three kinds of learning styles, namely visual learning style, auditory learning style, and kinesthetic learning style (Nabila et al., 2020; Suryatri et al., 2019). The learning style has different characteristics; by knowing the characteristics of each learning style, the teacher will understand the learners' ability first, namely by assessing their affective abilities (Amrianto & Fazlan, 2021; Wahab & Nuraeni, 2020). The learning style of students can be seen when the science learning process occurs in class (Rizaldi et al., 2021; Susilo & Sustianingsih, 2021).

Science learning allows students to get information and experience directly to understand the material well (Hanif, 2020; Novelasari et al., 2020). The success of the teaching and learning process activities can occur

in the learning style of the students themselves because the learning style of students affects the process of teaching and learning activities, especially in student achievement (Amriadi & Fadly, 2022; Maison et al., 2021). The attitude is divided into two types, namely, the attitude of acceptance and rejection. The attitude of students in learning science at school can be shown by the reaction of the students themselves during the learning process, so the teacher should not only focus on the cognitive ability aspects of students but also focus on the affective ability aspects of students (Ha, 2021; Musengimana et al., 2021). Students' learning style is one of the factors that result in students being able to accept science learning (Dewantara et al., 2020; Munna & Kalam, 2021). The affective abilities of these students have been carried out by several previous researchers, as follows: Apsari and Sastiawati (2021) state that there is a significant effect the results of the study show that there was a significant effect on the cognitive and psychomotor abilities of students in science learning, while in affective abilities the results showed that there was no significant difference between the control class and the experimental class, namely where there was no improvement in affective abilities (Apsari & Sastiawati, 2021). Anas and Sartika (2021) state that students with visual learning styles have achieved all affective ability indicators, students with kinesthetic learning styles only achieved one affective ability indicator and students with auditory learning styles achieved two affective ability indicators only (Anas & Sartika, 2021). Paino and Desmawan (2020) state that there is a significant effect the results present that during science learning, students show social interaction and cooperation, but some students still do not have a bad social attitude and still do not have interest in motivation for science learning (Paino & Desmawan, 2020). Yusup et al. (2023) demonstrates that learning attitudes significantly impact learning success; the better the learning attitude of students, the more successful the learning process (Yusup et al., 2023).

Based on the results of observations, the science learning process activities of the teacher explaining science material were observed to be good, and the attitude and interest of students during the learning process were observed to be good. During the learning process in the classroom, students look quiet and pay attention, but it seems that they are not concentrating; some students note things explained by the teacher, and some are just silent and listen. Students do their assignments on time, some do not do their assignments but only disturb their friends, and when the teacher asks questions, some students look attentive but cannot answer, while students who are actively moving to disturb their friends are actively asking or can answer questions from the teacher, and students come on time. Based on the observations made, the researchers are interested in revealing the profile of the affective abilities of elementary school students in terms of learning styles. This study was conducted to determine the profile of affective abilities of elementary school students in science learning when viewed from their learning style.

METHODS

This study used a qualitative research method. Qualitative research aims to analyze phenomena naturally and what happens to research subjects. It also prepares this research in the form of descriptions in the form of words. This study aims to analyze the profile of the affective abilities of elementary school students in science learning in terms of learning styles. This research was conducted in Sidoarjo city. The subjects of this study were six fifth-grade students, namely two students with visual learning styles, two with auditory learning styles, and two with kinesthetic learning styles. The selection of subjects in this study used a learning style questionnaire, which, from the result of the questionnaire, the researcher could determine the research subjects.

This research used data collection in the form of observation and interviews. This data collection technique was used to obtain valid data. In this research, the data collection process used is observation and interviews. The observation carried out by researchers is in direct observation at SDN Sumpit in class V, where researchers observe events that occur, namely in the form of observing students' affective abilities. The observation sheet used had two answer options, namely yes or no, by giving a check mark (✓) on one of the existing answers. The interview is a data collection by asking questions and giving answers to respondents. This research used tools in the form of interview guidelines that are asked directly to respondents. Qualitative analysis was used in this study. According to Miles and Huberman (1992: 16), the data analysis techniques used in this research were data reduction, data display, and verification. 1) Data reduction is a process of summarizing or analyzing data on essential things, making it easier for researchers to have a picture of the research results through observation, documentation, and interviews. 2) Data display is the process of compiling data from the results of research that has been done so that it is easy to understand. 3) Verification is a process of summarizing the results that have been written down, thus finding new facts from the action process that has been carried out.

RESULT AND DISCUSSION

The results of the research that has been conducted in the form of observation results and interviews about the profile of affective abilities of elementary school students in terms of learning styles, where the source is from six students, namely two students with visual learning styles, two students with auditory learning styles,

and two students with kinesthetic learning styles. The results of observations that have been made in class V for three meetings with two students who have a visual learning style are as follows:

Table 1. Observation Results

Indicators	Subject Observation Results (√)		Description
	1	2	
Receive	√	√	Observed
Respond	√	-	Not Observed
Appreciate	√	√	Observed
Organize	√	-	Not Observed
Characteristics Based on Value	-	-	Not Observed

Table 1 shows that students with affective abilities and visual learning styles can follow the learning process well and accept and appreciate learning activities in class. The results of interviews conducted in class V with two students who have a visual learning style are as follows:

Table 2. Interview Results

Indicator	Question	Answer (Subject 1)	Answer (Subject 2)	Description
Receive	What is your habit when you are paying attention or listening to the teacher's explanation when giving lessons?	Listen and pay attention to the teacher's explanation only	I listen to what my teacher explains	Both students can accept the science material delivered by the teacher well, and students consistently pay attention.
	Do you often ask about phenomena related to the material presented by the teacher?	Yes, I asked about the material presented by the teacher, but I also did not ask questions.	Do not ask too often, but do ask questions	
	Do you understand the material that the teacher has delivered?	Yes, Understanding	Yes, I can understand what the teacher explains	
	Do you often pay attention to the teacher's explanation?	Yes, always pay attention to the teacher's explanation	Yes, I pay attention	
Respond	How did you feel during the learning process?	Happy to follow the learning process in class	I like it when I am in class because I can learn together	Both students are less able to respond to what is given by the teacher, namely students are not active in learning.
	Do you often have discussions with friends in class?	Not often, but I have had discussions with my peers	Not too often	
	Do you often actively ask questions during class?	Do not often ask questions, but do ask when there are difficulties	I do not ask my teacher, but ask my friends	
	Are you able to answer questions given by the teacher?	Sometimes it works, sometimes it doesn't	I am not asked questions by my teacher	
Appreciate	Do you complete your tasks promptly?	Yes, complete the task on time	Only sometimes, but I have finished on time.	Both students can appreciate the explanation from the teacher well, namely

Indicator	Question	Answer (Subject 1)	Answer (Subject 2)	Description
	Are you disciplined and honest when completing tasks?	Yes, being good in class	Yes	by being disciplined and doing the tasks given.
	Do you carefully follow the delivery of science material given by the teacher?	Yes, always follow the teacher's explanation	Yes, following	
	Do you ever feel bored during the learning process?	Yes, I have	Yes	
Organize	Do you always take notes on the material the teacher gives you?	I do not always take notes, but I usually take notes at home or during lessons.	Not often, but if the teacher asks me to make notes, I make them, and I only answer the questions given by the teacher.	Both students do not often organize during the learning process, such as not often taking notes.
	Have you ever connected science material with natural phenomena around you?	Never	Never	
	Do you ever coordinate discussions with friends to make it easier to do the assigned tasks?	Never, I usually only follow if my friends are discussing, so I join in.	I never discuss this with my friends when doing assignments.	
	Do you always do the evaluation tasks as instructed by the teacher?	Yes, working on assignments given by the teacher	Yes, but I always do not finish it, so I am late submitting the assignment.	
Characteristics Based on Value	How do you behave when you do not understand the material presented by the teacher?	Ask friends, if to the teacher ever but not often	Whether I read it again or not, I will ask my friends, but not often	Both students were less active in participating in the learning process, so the indicator of characteristics based on value was not met
	Do you study independently first to understand the material to be learned?	Yes, I read the book first	I do not study very often, but I usually study at home	
	Have you ever proven a natural phenomenon your teacher told you about when you got home?	Never	Never	
	Do you always involve yourself in expressing opinions when drawing conclusions about the science material learned?	Yes, I draw conclusions together, but I do not often get involved	Never	

Table 2 shows that students with visual learning styles can follow the learning process in class well; students can receive learning materials, listen to the teacher when explaining, and behave well, so the affective abilities of these students look good. Also, students with visual learning styles are less active in asking questions and responding during learning. From the observations and interviews, it is concluded that the profile of affective abilities of students with visual learning styles is that there are only two indicators of affective abilities, namely the acceptance and appreciation indicators. The affective ability of students with visual learning styles is that these students follow the learning process well and are quite active in class. However, they rarely ask questions while in class, accept the material presented by the teacher, pay attention to the teacher's explanation, behave well during the learning process, do assignments according to the teacher's instructions, and follow the teacher's explanation. This is proven by the results of observations and interviews, which show that students with a visual learning style can be observed during the learning process, with almost all aspects observed, although some aspects are not observed. The success of science learning activities in the classroom can be seen through attitudes, interests, talents, and learning styles (Zebua, 2022). Students' attitudes and learning styles can determine success (Albeta et al., 2021). The affective abilities of students with visual learning styles can be observed, evidenced by the emergence of all aspects in the five indicators, since affective abilities in the learning process are critical. Visual learning styles have good results during classroom learning activities (Irawati et al., 2021). The results of observations that have been made in class V for three meetings with two students who have an auditory learning style are as follows:

Table 3. Observation Result

Indikator	Subject Observation Results (√)		Description
	1	2	
Receive	√	√	Observed
Respond	√	√	Observed
Appreciate	√	-	Not Observed
Organize	√	√	Observed
Characteristics Based on Value	-	-	Not Observed

Table 3 shows that students are active during the learning process in the classroom, such as answering, listening, and working on tasks given by the teacher. Students also like to discuss and follow the learning process very well, where the three indicators of affective ability were observed during science learning activities in the classroom. The results of interviews conducted in class V with two students who have an auditory learning style are as follows:

Table 4. Interview Results

Indicator	Question	Answer (Subject 1)	Answer (Subject 2)	Description
Receive	What is your habit when you are paying attention or listening to the teacher's explanation when giving lessons?	I only listen to the teacher's explanation, but I do not often write while listening.	Paying attention to what the teacher is explaining, and I also listen well	Both students can receive material explanations from the teacher
	Do you often ask about phenomena related to the material presented by the teacher?	Yes, I often ask questions during class.	Yes, I have asked questions, but not often because the teacher asks questions.	
	Do you understand the material that the teacher has delivered?	Yes, understanding the material explained by the teacher	Yes, I understand it; if I do not understand it, I will ask at the teacher's desk	
	Do you often pay attention to the teacher's explanation?	Yes, I pay attention to the teacher's explanation	Yes, I pay attention to the teacher when explaining	

Indicator	Question	Answer (Subject 1)	Answer (Subject 2)	Description
Respond	How did you feel during the learning process?	I really like it when I am in class, I can ask the teacher and friends questions.	I am very happy because I can learn and listen to the teacher's explanations in class.	Both students called the teacher during the learning process in the classroom.
	Do you often have discussions with friends in class?	Often, usual discussions with friends	Once, I discussed this with a friend when doing schoolwork	
	Do you often actively ask questions during class?	Yes, I like to ask if there is something I do not understand	Yes, I ask questions if I cannot do the assignment or when the teacher explains	
	Are you able to answer questions given by the teacher?	Not everything I can answer, but I can answer it.	I can answer, but once, my answer was wrong.	
Appreciate	Do you complete your tasks promptly?	Sometimes, I usually chat with my friends first.	Not always, because I chat more with my friends, so the assignments are not completed on time	both students lacked respect, such as not completing assignments on time and getting bored quickly during learning
	Are you disciplined and honest when completing tasks?	Sometimes, too, but not often	Yes, but I have seen answers from my friends	
	Do you carefully follow the delivery of science material given by the teacher?	Yes, I followed the delivery of thematic material	Yes	
	Do you ever feel bored during the learning process?	Yes, I have	Never, I feel happy when I study at school	
Organize	Do you always take notes on the material the teacher gives you?	Yes, I take notes, but sometimes I don't take notes.	No, I rarely take notes because I like to listen more	Both students can organize during the learning process in the classroom
	Have you ever connected science material with natural phenomena around you?	Yes, I have	Yes, I have	
	Do you ever coordinate discussions with friends to make it easier to do the assigned tasks?	Yes, I invited my friends to discuss	Yes, I have	
	Do you always do the evaluation tasks	Yes, I do the assignments given	Yes, following the teacher's orders,	

Indicator	Question	Answer (Subject 1)	Answer (Subject 2)	Description
	as instructed by the teacher?	by the teacher, although not on time.	although the assigned tasks are not completed on time	
Characteristics Based on Value	How do you behave when you don't understand the material presented by the teacher?	Ask the teacher and friends	I will ask the teacher	Both students were not active during the learning process, so the characteristic indicators were not answered; this is evidenced by the results of the interview.
	Do you study independently first to understand the material to be learned?	Sometimes, but more often, I listen to the teacher's explanation directly.	No, I prefer to study together because I study with my tutor at home.	
	Have you ever proven a natural phenomenon that your teacher told you about when you got home from school?	Never	Never, because the teacher just explains	
	Do you always involve yourself in expressing opinions when drawing conclusions about the science material learned?	Yes, at the end of the lesson, I always participate in summarizing the material together.	Yes, but not always	

Table 4 shows that students with auditory learning styles have very good affective abilities in participating in the learning process; students actively ask or answer questions from the teacher, do assignments well, and are more active during the learning process in the classroom. From the results of observations and interviews, it is concluded that the profile of affective abilities of students with auditory learning styles is three indicators of affective abilities, namely indicators of receiving, responding, and organizing. The affective abilities of students with auditory learning styles are students who can speak well and have the courage to ask and answer questions from the teacher every time they have the opportunity to ask; auditory learners do not hesitate to ask questions and prefer to learn together (Komariah et al., 2023). One of the things that can affect the success of a student's learning process is the learning style because it is a fast way for students to receive, respond to, and process information on the material being studied. With auditory learning styles, they learn through the sense of hearing, where students will find it easier to remember the material explained by the teacher, like to discuss, have the ability to speak very well, and dare to ask questions. Students with auditory learning styles are more than visual and kinesthetic learning styles (Wahyudi, 2017). The results of observations that have been made in class V for three meetings with two students who have a kinesthetic learning style are as follows:

Table 5. Observation Results

Indikator	Subject Observation Results (√)		Description
	1	2	
Receive	-	-	Not Observed
Respond	√	-	Not Observed
Appreciate	-	-	Not Observed
Organize	-	-	Not Observed
Characteristics Based on Value	-	-	Not Observed

Table 5 shows that students do not have good affective abilities and cannot follow the learning process in class. The students look more active playing alone and do not pay attention to the learning process. The

results of interviews conducted in class V with two students who have an auditory learning style are as follows.

Table 6. Interview Results

Indicator	Question	Answer (Subject 1)	Answer (Subject 2)	Description
Receive	What is your habit when you are paying attention or listening to the teacher's explanation when giving lessons?	I listened, but I couldn't focus on what I was learning in class.	I only see what the teacher explains	Both students could not receive the material well
	Do you often ask about phenomena related to the material presented by the teacher?	Never	I never ask questions when the teacher explains in front of the class	
	Do you understand the material that has been delivered by the teacher?	Understand it well enough, but sometimes.	Yes, I understand, but not everything I can understand because there is material that is difficult to understand	
	Do you often pay attention to the teacher's explanation?	Sometimes	Not often, but I have listened to the teacher's explanation	
Respond	How did you feel during the learning process?	I'm happy, but I get bored because I can't just sit on the bench all the time.	I feel tired and bored if I keep sitting in class	Both students were unable to respond to the teacher's presentation
	Do you often have discussions with friends in class?	I have, but I don't often chat with my classmates.	Never; I like to play and chat with my friends.	
	Do you often actively ask questions during class?	Yes, often, because if I ask a question, I can stand up	Does not ask often but does ask	
	Are you able to answer questions given by the teacher?	Yes, I can, but I can't either	I am never asked questions by the teacher while studying	
Appreciate	Do you complete your tasks promptly?	Never, always late when completing the assignment	No, I'm always late	Both students could not appreciate the explanation from the teacher
	Are you disciplined and honest when completing tasks?	Sometimes	sometimes	
	Do you carefully follow the delivery of science material given by the teacher?	No, because I usually play by myself when the teacher is	Yes, I can follow	

Indicator	Question	Answer (Subject 1) explaining.	Answer (Subject 2)	Description
	Do you ever feel bored during the learning process?	Yes, I feel bored if I keep sitting on the bench.	Yes, I always feel bored in class.	
Organize	Do you always take notes on the material the teacher gives you?	Never	Never, I don't really like writing	Both students were unable to follow the learning process in class, so the organizing indicator was not met.
	Have you ever connected science material with natural phenomena around you?	Never	Never	
	Do you ever coordinate discussions with friends to make it easier to do the assigned tasks?	Never	Never	
	Do you always do the evaluation tasks as instructed by the teacher?	Yes, I do what the teacher tells me to do, but I don't finish the assignment on time.	Yes, I sometimes do it, but I never finish it on time.	
Characteristics Based on Value	How do you behave when you don't understand the material presented by the teacher?	Ask a peer	I will ask my next-door friend	Both students were not active during the learning process, so the value-based characteristics indicator was not met.
	Do you study independently first to understand the material to be learned?	Sometimes	Never at home, I also rarely study	
	Have you ever proven a natural phenomenon that your teacher told you about when you got home from school?	Never	Never	
	Do you always involve yourself in expressing opinions when drawing conclusions about the science material learned?	Sometimes, if asked by the teacher	Never	

Table 6 shows that students cannot do the assignment on time, cannot concentrate, and daydream more during the learning process. Students with kinesthetic learning styles are known as attractive children or cannot stay still for a long time, so the affective abilities of kinesthetic students in the classroom are not good. From the results of observations and interviews, it is concluded that the profile of affective abilities of students with kinesthetic learning styles is that no ability indicators are observed from 5 existing indicators, although there are only a few aspects that appear. Students with kinesthetic learning styles will feel bored because they have to sit for a long time, cannot pay attention to the teacher's explanation properly, and never do assignments on time. Students with kinesthetic learning styles are known as attractive children or cannot stay still for a long time, so the affective abilities of kinesthetic students in the classroom are not good. Kinesthetic learning style tends to learn by movement or hands-on learning (Leasa et al., 2017). The affective abilities of students with kinesthetic learning styles include an attitude that they cannot sit in their seats for a long time, get bored quickly, and move actively (Cecilia & Nursalim, 2019). The kinesthetic learning style is not good (Putri & Sutiyati, 2020).

Each learning style has different characteristics and cannot be equated; this is what makes each student have affective abilities that are not the same as other students, and students' affective abilities arise because of the learning style possessed by the student (Suciani et al., 2022). The characteristic of the learning style itself is to determine how students best receive, respond to, and appreciate the material delivered by the teacher during the learning process (Kristia & Krismiati, 2023). Students who have a visual learning style look good

during the learning process, but they are less active in asking questions or responding to what the teacher says (Muslim et al., 2022). Students who have auditory learning styles are more active and dare to ask questions, so students with auditory learning styles are better than those with kinesthetic learning styles (Putri & Sutiyati, 2020).

CONCLUSION

This study presents the profile of the affective abilities of fifth-grade elementary school students in science learning in terms of different learning styles, namely visual learning styles, auditory learning styles, and kinesthetic learning styles. The profile of affective abilities of fifth-grade students in science learning in terms of learning styles shows that: 1) The profile of students' affective abilities based on visual learning styles includes indicators of acceptance and appreciation; 2) The profile of students' affective abilities based on auditory learning styles includes indicators of receiving, responding, and organizing; 3) The profile of students' affective abilities based on kinesthetic learning styles is that no indicators are observed. This research can provide information to educators that it is important to pay attention to and improve students' affective abilities.

REFERENCES

- Afandi, Sajidan, Akhyar, M., & Suryani, N. (2019). Development framework of the Indonesian Partnership 21-century skill standards for prospective science teachers: A Delphi study. *Jurnal Pendidikan IPA Indonesia*, 8(1), 89–100.
- Akib, E., Imran, M. E., Mahtari, S., Mahmud, M. R., Prawiyogy, A. G., Supriantna, I., & Ikhsan, M. H. (2020). Study on implementation of integrated curriculum in Indonesia. *International Journal of Recent Educational Education*, 1(1), 39–57.
- Albeta, S. W., Haryati, S., Futra, D., Aisyah, R., & Desviana, A. (2021). The effect of learning style on students' learning performance during the COVID-19 pandemic. *Jurnal Tadris Kimiya*, 1(6), 115–123.
- Amriadi, & Fadly, Z. (2022). The influence of learning style and motivation on students' learning achievement in entrepreneurship and archives science courses during the COVID-19 pandemic at Amik Lamappapoleonro Soppeng. *Jurnal Ilmu Manajemen*, 07(01), 128–133.
- Amrianto, & Fazlan, M. (2021). Analisis gaya belajar peserta didik SMP Al-Azhar 32 Padang sebagai kriteria penentuan pemilihan strategi pembelajaran. *Research and Development Journal of Education*, 7(1), 70–79.
- Anas, A., & Sartika, S. (2021). Profil kemampuan afektif siswa SMP pada pembelajaran IPA ditinjau dari gaya belajar. *Jurnal Kajian Pendidikan IPA*, 1(1), 13–20.
- Apsari, N., & Sastiawati. (2021). Kemampuan kognitif, afektif dan psikomotorik siswa sekolah dasar pada pembelajaran IPA menggunakan metode inkuiri. *Jurnal Pendidikan Dasar*, 9(1), 37–45.
- Budiarti, Y., & Solviana, M. (2021). Kemampuan afektif calon guru sekolah dasar pada pembelajaran online di Program Studi PGSD Universitas Muhammadiyah Pringsewu Lampung. *Journal of Primary Education*, 2(2), 221–234.
- Cecilia, Y., & Nursalim. (2019). Gaya dan strategi belajar bahasa. *Edukatif: Jurnal Ilmu Pendidikan*, 1(3), 138–149.
- Dalkiran, O., Eryiğit, F., & Sivri, S. (2020). Comparison of the effects of constructivist learning on cognitive, affective, and psychomotor fields applied in physical education courses. *African Educational Research Journal*, 8(8), 327–334.
- Dewantara, A. H., Amir, & Harnida. (2020). Kreativitas guru dalam memanfaatkan media berbasis IT ditinjau dari gaya belajar siswa. *Journal of Primary Education*, 1(1), 15–28.
- Fajar, O., Permanasari, A., Firman, H., & Riandi. (2021). The importance of STEM-based education in Indonesia curriculum. *Jurnal Ilmiah Pendidikan*, 05(02), 56–61.
- Ha, N. T. T. (2021). Effects of learning style on students' achievement: Experimental research. *Journal Linguistics and Culture Review*, 5, 329–339.
- Hanif, M. (2020). The development and effectiveness of motion graphic animation videos to improve primary school students' science learning outcomes. *International Journal of Instruction*, 13(3), 247–266.

- Irawati, I., Nasruddin, & Ilhamdi, M. L. (2021). Influence of learning style on the students' science achievement. *Jurnal Pijar MIPA*, 16(1), 44–48.
- Komarlah, K., Hamidah, S., Sugiyono, & Marifa, K. (2023). Soft skills profile of critical thinking ability for culinary arts students in online learning. *Jurnal Pendidikan Vokasi*, 13(1), 27–35.
- Kristia, N., & Krismiati. (2023). Analysis of learning styles of students majoring in computer and network engineering. *International Journal of Active Learning*, 8(2), 76–86.
- Leasa, M., Corebima, A. D., & Suwono, H. (2017). Emotional intelligence among auditory, reading, and kinesthetic learning styles of elementary school students in Ambon-Indonesia. *Journal of Elementary Education*, 10(1).
- Maison, M., Kurniawan, D. A., & Zain, M. S. (2021). Students' attitudes in science learning: Comparison between public and private junior high schools. *Journal of Education Research and Evaluation*, 5(4), 568–579.
- Mayangsari, N., & Sartika, S. (2021). Profil guru SD dalam kegiatan belajar mengajar di masa pandemi COVID-19. *Jurnal Pendidikan Dasar Nusantara*, 6(2014), 1–11.
- Mohzana, Murcahyanti, H., & Fahrurrozi, M. (2021). Kemampuan guru dalam menilai aspek afektif. *Journal of Education and Instruction*, 4(1), 243–248.
- Munna, A. S., & Kalam, A. (2021). Teaching and learning process to enhance teaching effectiveness: A literature review. *International Journal of Humanities and Innovation*, 4(1), 1–4.
- Musengimana, J., Kampire, E., & Ntawiha, P. (2021). Factors affecting secondary school students' attitudes toward learning chemistry: A review of literature. *EURASIA Journal of Mathematics, Science and Technology Education*, 17(1), 1–12.
- Muslim, F., Ekawarna, Ramalia, A., Purnama, R., & Chen, D. (2022). Learning intensity and visual learning style on learning outcomes. *Journal of Educational Research and Evaluation*, 6(2), 385–396.
- Mustafa, P. S. (2022). Characteristics of learners and their implications in learning. *Jurnal Pendidikan*, 14, 7043–7056.
- Nabila, N., Rostan, A., Ismail, H., Norma, A., & Jaafar, M. (2020). The use of multisensory technique in the teaching open syllables reading skill for preschoolers from a teacher's perspective. *Southeast Asia Early Childhood Journal*, 9(2), 155–165.
- Novelasari, S. A., Wardani, S., & Sunarso, A. (2020). Scientific learning on the teaching with theme always save the energy. *Journal of Primary Education*, 9(2), 176–185.
- Paino, & Desmawan, W. (2020). Analisis sikap siswa pada pembelajaran IPA di SDN 124 / VIII Sidorejo Kabupaten Tebo. *Integrated Science Education Journal*, 1(2), 49–53.
- Putri, N. W. S., & Sutyati, N. K. (2020). Analysis of the style of learning based on visual, auditorial, and kinesthetics for computer systems students. *International Journal of Education & Curriculum Application*, 3(1), 43–47.
- Rahmah, N. (2022). Analisis gaya belajar siswa pada pembelajaran IPA kelas IV SD. *Jurnal Ilmiah Multidisiplin*, 1(X), 9–14.
- Rais, M., & Aryani, F. (2017). Learning style in teaching: An effort understanding the characteristics of learners in early learning. *Journal The 1st International Conference on Education, Science, Art and Technology*, July, 259–265.
- Rizaldi, D. R., Doyan, A., Makhrus, M., Fatimah, Z., & Pineda, C. I. S. (2021). The relationship between learning style and critical thinking skills in learning kinetic theory of gases. *Journal of Science and Science Education*, 2(2), 72–76.
- Shamsuddin, N., & Kaur, J. (2020). Students' learning style and its effect on blended learning: Does it matter? *International Journal of Evaluation and Research in Education*, 9(1), 195–202.
- Suciani, N. K., Sudarma, I. K., & Bayu, G. W. (2022). The impact of learning style and learning motivation on students' science learning outcomes. *Jurnal Mimbar PGSD Undiksha*, 10(2), 395–401.
- Sukmayadi, V., & Yahya, A. H. (2020). Indonesian education landscape and the 21st century challenges. *Journal of Social Studies Education Research*, 11(4), 219–234.
- Suryaratri, R. D., Prayitno, E. H., & Wuryani. (2019). The implementation of multisensory learning at

- elementary schools in Jakarta. *Jurnal Pendidikan Usia Dini*, 13(April), 100–113.
- Susilo, A., & Sustianingsih, I. M. (2021). Student learning style in high school history learning process towards achievement improvement. *Journal Edukasi*, 15(2), 101–109.
- Syafi'i, A., Marfiyanto, T., & Rodiyah, S. (2018). Study about student learning achievement aspects and factors affecting it. *Jurnal Komunikasi Pendidikan*, 2(2), 115–123.
- Valente, S., Veiga-Branco, A., Rebelo, H., Lourenço, A. A., & Cristóvão, A. M. (2020). The relationship between emotional intelligence ability and teacher efficacy. *Universal Journal of Education*, 8(3), 916–923.
- Wahab, I., & Nuraeni. (2020). The analysis of students' learning style. *Scope of English Language Teaching, Literature and Linguistics*, 3(1), 41–46.
- Wahyudi. (2017). Scaffolding sesuai gaya belajar sebagai usaha meningkatkan kemampuan berpikir kreatif matematis. *Premiere Educandum*, 7(2), 144–157.
- Yusup, M., Lubis, T., & Anggraeni, G. S. (2023). The influence of learning attitudes and motivation on students' learning achievement. *Jurnal Manajemen, Kepemimpinan, Dan Supervisi Pendidikan*, 8(1), 1–14.
- Zebua, D. I. (2022). Analysis of students' cognitive, affective, and psychomotor aspects of accounting materials as an information system subject of service company accounting cycle. *Jurnal Edumaspul*, 6(2), 2252–2255.