

Research Article

Analysis of Differentiated Instruction to Optimize Students' Motivation in IPAS Learning

Fitri Sarabunis, Marwan*, Rahmi Novalita

Master of Basic Education, Postgraduate, Universitas Almuslim, Matangglupang Dua, Bireueun, Indonesia

*Corresponding Author: marwan@umuslim.ac.id | Phone: +6281375444190

ABSTRACT

Learning in IPAS at the elementary school level still faces challenges in accommodating students' diverse characteristics, which often affects learning engagement and motivation. This study aims to analyze the implementation of differentiated instruction and to describe students' learning motivation in IPAS learning on the topic "My Responsibility in Social Interaction". This research employed a qualitative approach with an intrinsic case study design. Data were collected through in-depth interviews with teachers, classroom observations, and document analysis, and were analyzed using NVivo software. The findings indicate that differentiated instruction was implemented through the identification of students' readiness, interests, and learning styles, as well as through differentiation of content, process, and product. The implementation of differentiated instruction had a positive impact on students' learning motivation, as reflected in increased active participation, enthusiasm, confidence, and willingness to ask questions. The study concludes that differentiated instruction is a relevant and effective approach to improving the quality of IPAS learning in elementary schools.

Keywords: differentiated instruction, learning motivation, IPAS, elementary school

1. INTRODUCTION

Basic education plays a crucial role in shaping students' academic foundations and character (Sari & Wijaya, 2021). At this level, learning must be able to accommodate the diversity of student characteristics so that the learning process becomes meaningful and supports optimal competency achievement (Supriyanto & Hasanah, 2022). However, in practice, uniform instructional approaches remain dominant, particularly in the subject of Integrated Natural and Social Sciences (IPAS), which requires active engagement and contextual understanding (Wulandari et al., 2023).

National Assessment data from 2021–2023 indicate that more than 52% of students have not achieved minimum competency in scientific literacy, including in IPAS (Kemendikbudristek, 2023). In addition, post-pandemic surveys reveal that 46% of students experienced a decline in learning motivation due to instructional methods that were not adapted to individual needs (Kemendikbudristek, 2021). Similar findings in the field also show a tendency for students to be passive during IPAS learning (Fahrudin et al., 2022).

In Tomlinson's (2001) book *How to Differentiate Instruction in Mixed-Ability Classrooms*, content differentiation is described as relating to what teachers want students to learn. There are two ways to differentiate content: adjusting the material itself or modifying how teachers provide students with access to the material to be learned (Bondie et al., 2019; Grecu, 2023). Process differentiation refers to teachers' efforts to provide varied learning strategies according to the diverse learning needs of students within a classroom with different ability levels (Atavrou & Koutselini, 2016; Haelermans, 2022). Product differentiation means that teachers provide students with choices in learning outputs to enable them to think, apply, and demonstrate what they have learned in optimal ways. (Tomlinson, 2017; Tomlinson & Jarvis, 2023).

Differentiated instruction is regarded as a responsive approach to student diversity (Tomlinson, 2017). This approach allows for modifications to content, process, product, and learning environment based on individual learning profiles (Nurhayati & Setyawan, 2021). Previous studies have demonstrated that differentiation can significantly improve motivation and learning outcomes (Andriani, 2022; Putri & Rahmawati, 2023). The findings are expected to provide in-depth empirical insights for the development of more adaptive and student-centered instructional practices. Despite growing evidence on differentiated instruction, qualitative studies that explore how differentiation is implemented in IPAS and how it influences students' motivation at the classroom level remain limited, particularly in elementary school contexts. However, the implementation of differentiated instruction at the elementary school level, particularly in IPAS, still faces serious challenges. Factors such as limited teacher understanding, conventional teaching habits, and lack of training are

major obstacles (Pratiwi & Sari, 2020; Dewi et al., 2023). Moreover, qualitative studies that examine in depth the implementation process and its impact on learning motivation remain limited (Santoso & Novianti, 2023). Based on this background, the present study seeks to address two main research questions: (1) How is differentiated instruction implemented in IPAS learning on the topic “My Responsibility in Social Interaction”? (2) How is students’ learning motivation manifested in differentiated IPAS instruction on this topic?. Using a qualitative approach with NVivo-assisted data analysis, this study aims to describe in detail the process of implementing differentiation by teachers and to explore students’ learning experiences and motivation.

2. RESEARCH METHOD

This study employed a qualitative approach with an intrinsic case study design to explore the implementation of differentiated instruction and its impact on learning motivation. The study was conducted in Grade IV at UPTD SDN 1 Peudada in IPAS learning on the topic “My Responsibility in Social Interaction.”

Participants and Data Collection

Participant selection used a snowball sampling technique, in which initial participants recommended subsequent participants. The subjects consisted of two Grade IV teachers representing diverse academic abilities. Data were collected through triangulation: (1) semi-structured in-depth interviews with teachers, (2) passive participant observation over three learning sessions, and (3) document analysis including lesson plans, student worksheets, and reflective journals. The limited number of participants is consistent with the intrinsic case study design, which prioritizes depth of understanding over generalizability model proposed by Miles, Huberman, and Saldaña (2019).

Data Analysis Using NVivo 15 Plus

All qualitative data were systematically analyzed using NVivo 15 Plus through three stages (Azeem & Dogar, 2012; Woolf & Silver, 2017):

1. Thematic Coding: Data were imported and coded using open coding to identify initial concepts. Codes were then grouped into two main themes: differentiated instruction (subthemes: identification of readiness, interests, learning styles, content, process, product, and learning objectives) and motivation (subthemes: students and impact).
2. Query and Visualization: NVivo features such as word cloud, hierarchy chart, and project map were used to analyze keyword patterns and compare teacher perceptions.
3. Interpretation: Findings were verified through member checking with participants and peer debriefing to ensure data trustworthiness.

3. RESULTS AND DISCUSSION

3.1 Implementation of Differentiated Instruction Strategies in IPAS Learning

Based on the coding results of interview transcripts with two Grade IV teachers, several main subthemes were identified, namely Identification of Readiness or Prior Ability, Identification of Interests, Identification of Learning Styles, as well as Differentiation of Process, Content, Product, and Learning Objectives, as illustrated in **Figure 1**.

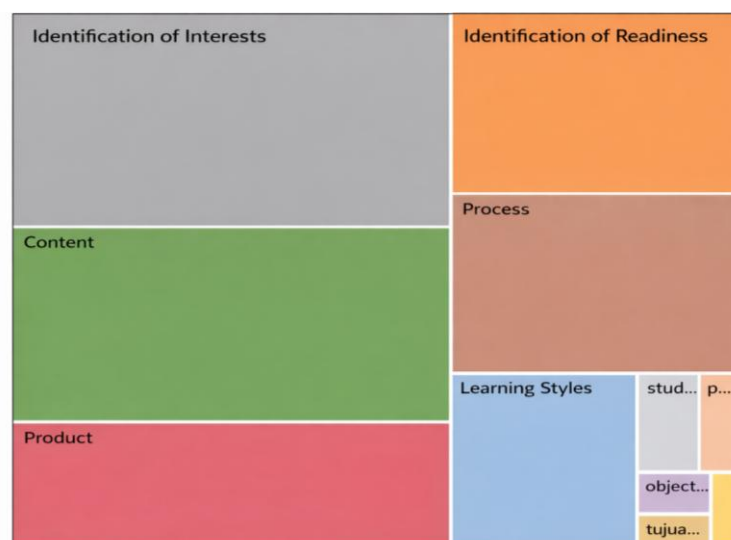


Figure 1. Hierarchy Chart of Differentiated Instruction Themes in Elementary IPAS Learning

instructional strategies, but also in students’ learning experiences. Learning becomes more varied, interactive, and oriented toward students’ needs, thereby creating a more adaptive and meaningful learning environment. To provide a clearer overview of how differentiated instruction was operationalized in classroom practice, the forms of differentiation implemented by teachers in IPAS learning are presented in **Table 1**.

Table 1. Types of Differentiation in IPAS Learning on the Topic “My Responsibility in Social Interaction”

Differentiation Aspect	Form of Implementation	Examples of Learning Activities
Content	Tiered materials	Level 1: Video and concrete examples Level 2: Case studies and discussion Level 3: Mini campaign project
Process	Learning centers	Visual center (posters, diagrams) Auditory center (discussion, presentations) Kinesthetic center (simulations, role play)
Product	Choice of learning demonstration	Posters, short drama performances, mini articles, digital presentations

Table 1, shows that differentiated instruction in IPAS learning was implemented through content, process, and product differentiation. Content differentiation was applied using tiered materials to accommodate students’ varying levels of readiness, while process differentiation was realized through learning centers that addressed visual, auditory, and kinesthetic learning styles. Product differentiation provided students with choices in demonstrating their learning outcomes, such as posters, short dramas, mini articles, and digital presentations. These forms of differentiation indicate that the learning process was designed to be flexible, student-centered, and responsive to the diverse needs of learners.

3.2 Students’ Learning Motivation in Differentiated IPAS Instruction on the Topic “My Responsibility in Social Interaction”

This study examines students’ learning motivation in differentiated IPAS instruction on the topic “My Responsibility in Social Interaction.” The description of students’ learning motivation in this study was obtained through the analysis of interview, observation, and documentation data, which were subsequently processed and mapped using NVivo thematic coding. Based on the coding results, students’ learning motivation was analyzed in terms of observable behaviors during the learning process, the factors influencing motivation, and the impact of differentiation strategies on students’ engagement, persistence, and learning attitudes in the classroom. These findings are illustrated in the **figure 3**.



Figure 3. Word Cloud Visualization of Students’ Learning Motivation in Differentiated IPAS

The NVivo word cloud visualization of the motivation theme shows the dominance of words such as *more*, *learning*, *active*, *instruction*, *students*, *enthusiasm*, *confidence*, *asking questions*, and *participating*. This pattern indicates that differentiated instruction contributes to increased student engagement and learning participation. The word *more*, which appears as the most dominant term, reflects a shift toward improved learning behaviors, such as being more active, more enthusiastic, more confident, and more involved in the learning process. This finding is consistent with interview data in which teachers stated that:

“Setelah strategi pembelajaran disesuaikan dengan kebutuhan siswa, mereka terlihat lebih aktif, lebih berani bertanya, dan lebih semangat mengikuti kegiatan pembelajaran.”

The presence of the words *active*, *participating*, *asking questions*, and *discussion* in the word cloud confirms that students’ motivation is not only reflected in their physical presence in the classroom, but also in their cognitive and social participation. Students were actively involved in discussions, expressed their opinions, and showed initiative in seeking further understanding when they encountered difficulties. This finding is reinforced by a teacher’s statement:

“Biasanya mereka belajar lebih serius, banyak bertanya saat tidak paham, dan meminta latihan tambahan untuk persiapan.”

Thus, indicators of high motivation are evident through students’ persistence, curiosity, and readiness to engage in continuous learning activities.

Furthermore, the appearance of words such as *enthusiastic*, *motivated*, and *confident* indicates changes in students’ emotional attitudes during the learning process. Students appeared to enjoy learning because they perceived the instruction as relevant to their interests and abilities. One teacher emphasized that:

“Ada siswa yang awalnya pasif, tetapi setelah diberi tugas sesuai minatnya, misalnya membuat poster, dia jadi lebih aktif dan percaya diri.”

This finding suggests that differentiation in instructional strategies, media, and activity choices has a positive impact on students’ affective aspects. Overall, the NVivo word cloud results demonstrate that students’ learning motivation in differentiated instruction on the topic “My Responsibility in Social Interaction” is characterized by increased active engagement, enthusiasm, willingness to ask questions, and self-confidence. These findings indicate that differentiation strategies not only facilitate content understanding, but also play a significant role in fostering students’ internal motivation and positive attitudes toward the learning process.

This conclusion is further supported by data triangulation using the NVivo Project Map, which shows a strong relationship between learning motivation and the differentiated instructional strategies implemented by teachers. The connectivity map illustrates that increases in student motivation—such as active engagement, enthusiasm, willingness to ask questions, and self-confidence—consistently emerge in nodes related to content, process, and product differentiation, as well as the provision of learning activity choices. Therefore, the Project Map not only strengthens the validity of the findings but also demonstrates that changes in students’ motivation are a direct outcome of the implementation of differentiated instruction strategies in the classroom, as illustrated in the [Figure 4](#).

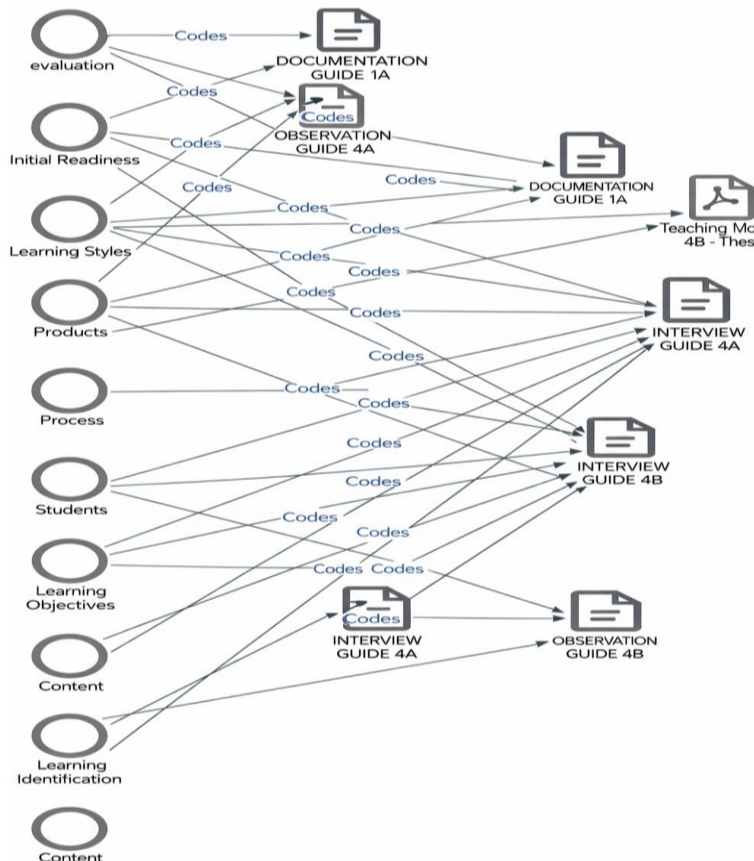


Figure 4. NVivo Project Map Showing the Relationship Between Differentiated Instruction Components and Students’ Learning Motivation

The results of data triangulation using the NVivo Project Map show that students' learning motivation in differentiated instruction is closely related to the instructional components applied by teachers in the classroom. The analysis map illustrates that nodes representing initial identification, interest identification, learning styles, process, product, content, and learning objectives are directly connected to multiple data sources, including interviews, observations, documentation, and teaching modules. This interconnected pattern indicates that improvements in students' learning motivation are not incidental, but emerge from a consciously designed and adaptive learning process that aligns instructional strategies with students' learning needs. The Project Map further highlights the coherence of the instructional design, demonstrating that differentiated strategies are consistently supported by empirical evidence from various data sources, thereby strengthening the credibility and explanatory power of the findings.

3.3 Discussion

The implementation of differentiated instruction in IPAS learning in this study demonstrates that instructional strategies grounded in an understanding of student diversity are able to create more meaningful learning experiences. Teachers' emphasis on students' interests, readiness, and learning styles reflects a responsive pedagogical approach that aligns with the principles of differentiated instruction as proposed (Tomlinson, 2017; Azkia & Yulinawati, 2025; Rizaldi et al., 2025), in which content, process, and product are adjusted according to students' actual learning needs. This finding reinforces the view that instructional effectiveness is not solely determined by content delivery, but by the alignment between teaching strategies and students' individual characteristics (Smets et al., 2022; Ismajli & Imami-Morina, 2018).

Placing students' learning interests as the foundation of instructional planning can be interpreted as an effort to build emotional and cognitive connections between learners and IPAS content (Surul & Septiliana, 2023; Kusuma, 2025). According to Hidi and Renninger (2019), interest functions as a critical trigger for sustained engagement and plays an essential role in directing attention, persistence, and deeper cognitive processing. When students perceive learning activities as relevant to their interests and real-life experiences, they are more likely to engage meaningfully with the material. In the context of IPAS, which integrates social and environmental concepts closely related to students' daily lives, an interest-based approach becomes particularly strategic. This finding is consistent with recent studies showing that interest-oriented and contextualized instruction in elementary science and social studies enhances student engagement and intrinsic motivation (Putri & Rahmawati, 2023; Wulandari et al., 2023).

The application of content and process differentiation in this study reflects teachers' efforts to accommodate variations in how students access, process, and construct knowledge. Mayer (2020) emphasizes that learning environments that integrate multiple representations of information, such as visual, verbal, and experiential modes, support deeper conceptual understanding, especially for elementary school students. By providing diverse learning pathways, teachers not only increase the likelihood of academic success but also reduce learning barriers often experienced by students with specific learning preferences. This aligns with the findings of Anderman and Dawson (2018), who argue that instructional flexibility contributes positively to students' self-regulation and learning motivation.

Product differentiation, as identified in this study, has important implications for assessment practices in IPAS learning. Assessment is no longer positioned merely as a mechanism for ranking or selection, but as a means of providing equitable opportunities for students to demonstrate their understanding. Smale-Jacobse et al. (2019) highlight that flexibility in learning products enhances students' self-confidence and fosters more positive perceptions of learning. By offering choices in learning outputs, students are empowered to express their understanding in ways that align with their strengths, interests, and competencies. Similar conclusions were reported by Nurhayati and Setyawan (2021), who found that product choice promotes students' sense of ownership and responsibility toward their learning.

The increase in students' learning motivation observed in this study can be interpreted as a logical outcome of instructional practices that support autonomy, competence, and emotional engagement (Tomlinson, 2017; Tomlinson & Jarvis, 2023). From the perspective of self-determination theory, intrinsic motivation develops when learners feel a sense of control over their learning processes, perceive themselves as capable, and receive acknowledgment for their efforts (Ryan & Deci, 2020). Differentiated instruction, through the provision of choices, varied learning activities, and recognition of individual differences, implicitly fulfills these basic psychological needs. This interpretation is supported by Schunk et al. (2014), who emphasize that motivation is strengthened when students experience success and feel valued within the learning environment.

The strong relationship between differentiated instruction strategies and students' learning motivation, as evidenced by the NVivo Project Map, further suggests that differentiated instruction is not merely a variation of teaching methods, but a comprehensive pedagogical approach with systemic impact. The consistent linkage between motivational indicators and multiple differentiation components indicates that the instructional design was implemented in an integrated and intentional manner. Santoso and Novianti (2023) argue that adaptive instruction tailored to students' needs fosters positive learning attitudes and academic persistence. The findings of this study support this argument by demonstrating that motivation emerges as a direct outcome of coherent and responsive instructional planning (Shepard et al., 2018; Sapan & Mede, 2022).

Conceptually, the findings of this study strengthen the position of differentiated instruction as a contextual and applicable approach in elementary IPAS learning. When differentiation is designed consciously and implemented reflectively, it contributes to the creation of an inclusive, adaptive, and motivating learning environment (Massaad & Chaker, 2020; Wong et al., 2023; Krishan, 2023). Therefore, differentiated instruction should be continuously developed and supported as part of broader efforts to improve the quality of IPAS learning, with a focus on students' needs, potential, and overall learning well-being (Khodijah et al., 2025; Pozas et al., 2021; Hariyati et al., 2023). However, these findings should be interpreted within the context of a single-case qualitative design, which prioritizes depth of analysis over generalizability.

4. CONCLUSION

Differentiated instruction in IPAS learning represents an effective pedagogical approach for accommodating the diverse characteristics of elementary school students. The implementation of differentiation based on an understanding of students' readiness, interests, and learning styles enables teachers to design instruction that is more adaptive, inclusive, and student-centered. This approach not only supports students in understanding learning content, but also fosters more meaningful learning experiences. Differentiated instruction has also been shown to contribute positively to the enhancement of students' learning motivation. The provision of varied content, processes, and learning products, along with opportunities for students to choose learning strategies and task formats, encourages active engagement, self-confidence, and positive attitudes toward IPAS learning. Increased learning motivation emerges as a result of instructional practices that promote student autonomy and respect individual differences. Conceptually, the findings of this study reinforce the view that differentiated instruction is not merely a variation of teaching methods, but a comprehensive instructional strategy oriented toward addressing students' needs holistically. Therefore, differentiated instruction should be continuously developed and sustainably implemented in elementary IPAS learning as part of efforts to improve both the quality of learning processes and learning outcomes.

ACKNOWLEDGEMENTS

The authors would like to express their sincere gratitude to the teachers and students of UPTD SDN 1 Peudada for their cooperation and active participation in this study. Appreciation is also extended to the school administrators for granting permission and facilitating the research process. Furthermore, the authors thank colleagues and academic peers who provided valuable feedback and insights during the research and writing stages of this study.

REFERENCES

- Anderman, E. M., & Dawson, H. (2011). Learning with motivation. In *Handbook of research on learning and instruction* (pp. 233-256). Routledge.
- Anderman, E. M., & Dawson, H. (2018). Learning with motivation. *Educational Psychologist*, 53(2), 102–116. <https://doi.org/10.1080/00461520.2018.1438154>
- Andriani, D. (2022). Implementasi pembelajaran berdiferensiasi terhadap motivasi dan hasil belajar siswa sekolah dasar. *Jurnal Pendidikan Dasar*, 13(2), 145–156.
- Azeem, M., Salfi, NA, & Dogar, AH (2012). Penggunaan perangkat lunak NVivo untuk analisis data kualitatif. *Academic Research International*, 2 (1), 262-266.
- Azkiya, S., & Yulianawati, D. (2025). Improving IPAS Learning Outcomes through Differentiated Instruction and Assembler Edu. *Dinamika Jurnal Ilmiah Pendidikan Dasar*, 17(2), 53-66.
- Bondie, R. S., Dahnke, C., & Zusho, A. (2019). How does changing “one-size-fits-all” to differentiated instruction affect teaching?. *Review of Research in Education*, 43(1), 336-362.
- Boonk, L., Gijsselaers, H. J., Ritzen, H., & Brand-Gruwel, S. (2018). A review of the relationship between parental involvement indicators and academic achievement. *Educational research review*, 24, 10-30.
- Dewi, P. S., Sari, R. N., & Hadi, S. (2023). Tantangan guru dalam mengimplementasikan pembelajaran berdiferensiasi di era kurikulum merdeka. *Jurnal Ilmiah Sekolah Dasar*, 7(2), 320-330.
- Fahrudin, A., Hidayat, T., & Rahman, M. (2022). Analisis keaktifan siswa dalam pembelajaran IPAS di sekolah dasar. *Jurnal Pendidikan dan Pembelajaran*, 29(1), 33–44.
- Greco, Y. V. (2023). Differentiated instruction: Curriculum and resources provide a roadmap to help English teachers meet students' needs. *Teaching and Teacher Education*, 125, 104064.
- Haelermans, C. (2022). The Effects of Group differentiation by students' learning strategies. *Instructional Science*, 50(2), 223-250.
- Hidi, S., & Renninger, K. A. (2006). The four-phase model of interest development. *Educational psychologist*, 41(2), 111-127.
- Hidi, S., & Renninger, K. A. (2019). The four-phase model of interest development. *Educational Psychologist*, 54(2), 1–19. <https://doi.org/10.1080/00461520.2019.1581936>

- Ismajli, H., & Imami-Morina, I. (2018). Differentiated instruction: Understanding and applying interactive strategies to meet the needs of all the students. *International journal of Instruction*, 11(3), 207-218.
- Kemendikbudristek. (2021). Laporan hasil survei pembelajaran pascapandemi. Pusat Asesmen dan Pembelajaran.
- Kemendikbudristek. (2023). Hasil asesmen nasional 2021–2023. Badan Standar, Kurikulum, dan Asesmen Pendidikan.
- Krishan, I. Q. (2023). The effect of technology-oriented differentiated instruction on motivation to learn science. *International Journal of Instruction*, 16(1), 961-982.
- Kusuma, N. E. (2025). Implementation of Interactive Learning Approach in IPAS Learning. *Jurnal Penelitian Pendidikan IPA*, 11(2), 493-499.
- Massaad, M., & Chaker, L. Y. A. (2020). The influence of differentiated instruction on Lebanese students' motivation, knowledge, and engagement. *International Journal of English Literature and Social Sciences*, 5(3), 755-774.
- Mayer, R. E. (2020). *Multimedia learning* (3rd ed.). Cambridge University Press.
- Mayer, R. E. (2024). The past, present, and future of the cognitive theory of multimedia learning. *Educational Psychology Review*, 36(1), 8.
- Nurhayati, S., & Setyawan, A. (2021). Profil belajar siswa sebagai dasar penerapan pembelajaran berdiferensiasi di sekolah dasar. *Jurnal Inovasi Pendidikan Dasar*, 6(2), 89–98.
- Pozas, M., Letzel, V., Lindner, K. T., & Schwab, S. (2021, December). DI (differentiated instruction) does matter! The effects of DI on secondary school students' well-being, social inclusion and academic self-concept. In *Frontiers in Education* (Vol. 6, p. 729027). Frontiers Media SA.
- Pratiwi, I. A., & Sari, M. P. (2020). Kendala implementasi pembelajaran diferensiasi di sekolah dasar. *Jurnal Pendidikan dan Konseling*, 2(2), 112-119.
- Putri, A. K., & Rahmawati, F. (2023). Pengaruh pembelajaran berdiferensiasi terhadap motivasi dan hasil belajar IPAS. *Scholaria: Jurnal Pendidikan dan Kebudayaan*, 13(1), 88-99.
- Rizaldi, I., Sukri, S., Amrullah, L. W. Z., & Makki, M. (2025). Implementasi Pembelajaran Berdiferensiasi Dalam Kurikulum Merdeka Pada Pembelajaran Ips Kelas V Sdn 5 Cakranegara. *SOCIAL: Jurnal Inovasi Pendidikan IPS*, 5(1), 188-200.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary educational psychology*, 25(1), 54-67.
- Ryan, R. M., & Deci, E. L. (2020). *Intrinsic and extrinsic motivations: Classic definitions and new directions*. Routledge.
- Santoso, B., & Novianti, R. (2023). Studi kualitatif implementasi pembelajaran berdiferensiasi: Sebuah tinjauan sistematis. *Jurnal Pendidikan Indonesia*, 4(1), 34-45.
- Sapan, M., & Mede, E. (2022). The effects of differentiated instruction (DI) on achievement, motivation, and autonomy among English learners. *Iranian Journal of Language Teaching Research*, 10(1), 127-144.
- Sari, D. P., & Wijaya, A. (2021). Peran pendidikan dasar dalam pembentukan karakter dan kompetensi akademik. *Jurnal Pendidikan Dasar Nusantara*, 6(2), 200-215.
- Schunk, D. H., Meece, J. L., & Pintrich, P. R. (2014). *Motivation in education: Theory, research, and applications* (4th ed.). Pearson Education.
- Shepard, L. A., Penuel, W. R., & Pellegrino, J. W. (2018). Using learning and motivation theories to coherently link formative assessment, grading practices, and large-scale assessment. *Educational measurement: issues and practice*, 37(1), 21-34.
- Smale-Jacobse, A. E., Meijer, A., Helms-Lorenz, M., & Maulana, R. (2019). Differentiated instruction in secondary education: A systematic review. *Educational Research Review*, 28, 100–112. <https://doi.org/10.1016/j.edurev.2019.100283>
- Smale-Jacobse, A. E., Meijer, A., Helms-Lorenz, M., & Maulana, R. (2019). Differentiated instruction in secondary education: A systematic review of research evidence. *Frontiers in psychology*, 10, 2366.
- Smets, W., De Neve, D., & Struyven, K. (2022). Responding to students' learning needs: How secondary education teachers learn to implement differentiated instruction. *Educational Action Research*, 30(2), 243-260.
- Stavrou, T. E., & Koutselini, M. (2016). Differentiation of Teaching and Learning: The Teachers' Perspective. *Universal Journal of Educational Research*, 4(11), 2581-2588.
- Supriyanto, A., & Hasanah, U. (2022). Pembelajaran berpusat pada siswa di sekolah dasar: Tantangan dan peluang. *Jurnal Pendidikan Dasar Nusantara*, 7(1), 1–12.
- Surul, R., & Septiliana, L. (2023). Analysis of the implementation of ipas (natural and social sciences) learning in the merdeka curriculum. *Educatio: Journal of Education*, 8(2), 320-328.
- Tomlinson, C. A. (2017). Differentiated instruction. In *Fundamentals of gifted education* (pp. 279-292). Routledge.
- Tomlinson, C. A., & Jarvis, J. M. (2023). Differentiation: Making curriculum work for all students through responsive planning & instruction. In *Systems and models for developing programs for the gifted and talented* (pp. 599-628).

Routledge.

- Wong, B. S., Chue, K. L., Ali, R. B., & Lee, P. (2023). Differentiated instruction: a comparison of motivation and perceived competence between students with high and low readiness levels. *Educational Research for Policy and Practice*, 22(1), 139-151.
- Woolf, NH, & Silver, C. (2017). Analisis kualitatif menggunakan NVivo: Metode QDA® lima tingkat . Routledge.
- Wulandari, D., Sari, M., & Wijaya, R. (2023). Pembelajaran IPAS berbasis konteks untuk meningkatkan keterlibatan siswa sekolah dasar. *Jurnal Pendidikan IPA Indonesia*, 12(3), 401–412. <https://doi.org/10.15294/jpii.v12i3>.