



## The Correlation Between Teachers' Instructional Strategies and Students' Academic (Skills) Achievement for Children with Special Needs in North Sulawesi

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### ABSTRACT

**Purpose of the study:** This study investigates the extent of teachers' instructional strategies, the level of students' academic (skill) achievement, and the relationship between the two among children with special needs in special schools across North Sulawesi.

**Methodology:** Employing a quantitative, descriptive-correlational research design, the study was conducted during the first semester of the 2023/2024 academic year. A total of 95 teacher respondents from 12 special education schools were selected through total population sampling. Data were collected using a validated Likert-scale questionnaire, and the results were analyzed using correlation analysis to determine the strength and significance of the relationship between instructional strategies and student achievement.

**Main Findings:** Findings reveal that teachers demonstrate a consistently high level of instructional strategies. Specifically, the mean scores were as follows: understanding of students' characteristics ( $M = 4.50$ ), fulfilling roles as educators, instructors, mentors, and content deliverers ( $M = 4.57$ ), and efforts in fostering creativity ( $M = 4.63$ ). In terms of student academic (skill) achievement, the mean score was 4.46, suggesting a high level of learning outcomes among students with special needs. Most notably, the study found a statistically significant and strong correlation between teachers' instructional strategies and students' academic achievement, indicating that effective pedagogical approaches directly influence skill development in special education contexts.

**Novelty/Originality of this study:** The novelty of this study lies in its focus on the nuanced relationship between instructional strategies and skill-based achievement within the under-researched demographic of special needs learners in Eastern Indonesia.

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## 1. INTRODUCTION

Education serves as a fundamental foundation for shaping individuals' potential, character, and competencies. It is a deliberate and structured process through which cultural values, knowledge, and skills are transferred from one generation to the next [1]-[4]. As society evolves and technological advancements reshape pedagogical methods, education has transformed from traditional to modern approaches, requiring the integration of both formal and informal learning modalities. Education not only influences individual

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development but also plays a crucial role in the progress of society as a whole [5]-[7]. This transformative role of education should not exclude any child, including those with special needs. According to Jardinez & Natividad, every child, regardless of ability, has the right to quality education [8]. Educating children with special needs demands not only patience but also specific instructional strategies tailored to meet their diverse learning needs.

Children with special needs are characterized by abilities and challenges that differ from typically developing children [9]-[11]. Unfortunately, in many cases, these children continue to receive limited attention and support from their communities, despite their equal rights and potential. Children possess inherent human rights equal to those of adults. Child protection efforts must therefore ensure equitable access to education and development opportunities. Every child is born with unique traits and talents, including those with disabilities, and many have the potential to achieve excellence in academics, sports, or the arts. Teachers play a vital role in creating inclusive and supportive learning environments. They require continuous professional development and access to adequate resources to effectively meet the educational needs of students with disabilities [12]-[15].

Based on preliminary observations and field visits to several Special Education Schools (SLB) in North Sulawesi, it was found that some students with special needs have achieved commendable success, even at the national level. This indicates the presence of effective instructional practices being applied by certain teachers. However, these practices are often undocumented or vary significantly between schools. Consequently, there is a need to investigate systematically the instructional strategies employed by teachers in special education settings. As emphasized by Bendini & Devercelli, a child's success is largely influenced by the quality of teaching [16]. Instructional methods, particularly those supported by technology, can significantly enhance engagement and comprehension for students with special needs [17]-[19].

Existing research highlights the importance of tailored instructional strategies in special education. For example, Bernacki et al noted that teachers must personalize their lessons based on each student's needs [20]. Individualized instruction, behavioral strategies, use of learning media, and strong collaboration with parents and professionals as effective approaches in inclusive settings. Furthermore, emphasized the need for teachers to possess broad competencies to accommodate the unique demands of special education. While Andani et al., explored teacher strategies through a descriptive qualitative method at SLB Negeri 5 Bengkulu City [21], there remains a *gap in research* using quantitative methods that explore measurable correlations between instructional strategies and student outcomes particularly in different regional contexts like North Sulawesi. Although various studies have examined teaching strategies in special education, most have employed qualitative approaches focused on teacher narratives or classroom observations in limited geographical areas. There is a lack of empirical research in the form of quantitative studies that investigate the relationship between instructional strategies and measurable academic (skills-based) outcomes of children with special needs, especially in underrepresented regions like North Sulawesi. Moreover, few studies have explored this relationship within the unique cultural, infrastructural, and pedagogical contexts of special education in Eastern Indonesia.

This study aims to fill that gap by conducting a descriptive-correlational quantitative analysis to (1) identify the types and extent of instructional strategies used by teachers in special schools in North Sulawesi, and (2) examine the relationship between the two. Through this research, it is expected that a clearer understanding of the link between teaching strategies and student performance will emerge, thereby informing policy and teacher training programs aimed at improving educational outcomes for children with special needs in Indonesia.

## 2. RESEARCH METHOD

This study adopts a quantitative approach with a descriptive-correlational design to examine the instructional strategies of teachers and their relationship to the academic skill achievement of students with special needs in special schools (SLB) across North Sulawesi. Quantitative research is characterized by a structured, systematic, and planned process, beginning from the formulation of the research design to data analysis. The descriptive aspect of this study focuses on providing a detailed portrayal of the levels of instructional strategies and student achievements, while the correlational aspect aims to determine the statistical relationship between these two variables, correlational research involves examining the association between two numerical variables without manipulation. The study was conducted during the first semester of the 2023/2024 academic year, with the population comprising all teachers in SLBs located in North Sulawesi. A portion of this population was selected as the sample using a convenience sampling technique. Convenience sampling involves selecting participants based on ease of access, proximity, and availability, such as teachers who were present and willing to participate at the time of data collection.

The sampling procedure began with the researcher submitting a formal research proposal to the Dean of the Faculty of Teacher Training and Education (FKIP) at Universitas Klabat, requesting a letter of permission to collect data in SLBs. This letter was subsequently delivered to the principals of the selected schools. Upon receiving approval, the researcher explained the research objectives and the process of completing the questionnaire to the teachers and then distributed the questionnaires for completion.

The research instrument used in this study was a structured questionnaire developed to assess teachers' instructional strategies and students' academic skill achievement. Research instruments are tools used to measure phenomena in both natural and social settings. In this study, the questionnaire served as the primary data collection instrument and was distributed to SLB teachers throughout North Sulawesi. Instrument validity and reliability were rigorously tested prior to data collection. Validity refers to the degree to which the instrument measures what it is intended to measure, ensuring accuracy and relevance. Reliability, on the other hand, concerns the consistency of the instrument in producing stable results. The questionnaire's internal consistency was evaluated using Cronbach's Alpha, where a coefficient greater than 0.70 was considered acceptable for indicating reliability.

To answer the research questions, different analytical methods were employed. For Research Question 1, which investigates the level of instructional strategies applied by SLB teachers, and Research Question 2, which explores the level of academic (skills) achievement among students with special needs, descriptive statistical analysis using average scores was applied. For Research Question 3, which seeks to determine the relationship between teachers' instructional strategies and students' academic skills achievement, the Pearson correlation test was used as an appropriate statistical method for identifying the strength and direction of the relationship between two continuous variables.

The Likert scale, as referenced by Pranatawijaya, was used in interpreting the responses related to both instructional strategies and academic achievement [22]. A significance level (p-value) of 0.05 was employed to determine the statistical significance of the correlation, following standard practices in educational research where the margin of error typically ranges between 1% and 5%. Overall, this methodological approach ensures a valid and reliable investigation into the effectiveness of instructional strategies used by SLB teachers and their association with the academic skill development of students with special needs in North Sulawesi.

### 3. RESULTS AND DISCUSSION

The results of the descriptive data analysis in this study are presented in Table 1.

Table 1. The results of descriptive research

Indicator	N	Min	Max	Mean	Std. Deviation	Interpretation
Teachers Understand Student Character	95	3.50	5.00	4.5000	.41897	Very good
As Educators, Teachers, Advisors, and Guidance Counselors, as well as Providers of Theory for Students	95	3.93	5.00	4.5663	.34748	Very good
Developing Student Creativity	95	3.71	5.00	4.6331	.34534	Very good
Student Achievement	95	3.00	5.00	4.5684	.53896	Very good

Based on descriptive data from Table 1, all indicators of teacher learning strategies show a high average score with a mean range between 4.50 and 4.63, as well as a relatively low standard deviation (<0.42). This indicates that Teachers Understand Student Character (Mean = 4.50), Meaning They are considered very good at understanding the background, needs, and potential of students. This understanding of student character is a crucial foundation for implementing a personalized and adaptive learning approach. The Role of Teachers as Educators and Mentors (Mean = 4.57), teachers not only teach cognitively but also carry out other affective and pedagogical functions, such as serving as advisors, guides, and theory providers. This reflects a holistic approach to learning. Developing Student Creativity (Mean = 4.63), this is the highest score, which indicates that teachers provide ample space for students to think creatively and generate new ideas. In the context of 21st-century education, creativity is one of the 4Cs (critical thinking, creativity, collaboration, communication) that is highly emphasized. Student Achievement (Mean = 4.57) is also at a very good level, indicating real results from the implementation of quality learning strategies. The low standard deviation across all variables suggests that respondents' perceptions tend to be homogeneous, which may indicate consistent learning practices across teachers and schools.

The results of the study indicate that the learning strategies implemented by teachers in special needs schools are categorized as very good, as evidenced by three key indicators: understanding student character, the teacher's role as a comprehensive educator, and the ability to foster student creativity. The average scores for these three indicators ranged from 4.50 to 4.63, with a low standard deviation, indicating that the teachers consistently implement these practices. This reflects that teachers not only focus on delivering academic material but also serve as facilitators and guides, developing students' potential. Teachers who understand student characteristics will be able to design learning that is tailored to their needs and learning styles, thereby encouraging improved learning outcomes [23]-[27].

The most prominent strategy in this study was the teachers' ability to develop student creativity (mean = 4.63). In the context of 21st-century education, creativity is one of the essential skills, alongside critical thinking, collaboration, and communication (4Cs). Teachers who provide space for students to think critically and explore ideas independently will create meaningful learning that impacts academic achievement [28]-[30]. Student achievement, which also fell into the excellent category (mean = 4.57), supports the hypothesis that teacher instructional strategies have a significant influence on student learning outcomes. This aligns with Lauermann & ten Hagen research in Visible Learning, which showed that the quality of teacher instruction is one of the most potent factors influencing student achievement [31].

The results of the relationship between variables are presented in Table 2.

Table 2. The results of Teacher learning strategies and Students achievement

				Student Achievement	Interpretation of Correlation
Teachers Character	Understand Student	Pearson Correlation		.707**	Strong
		Sig. (2-tailed)		.000	
		N		95	
As Educators, Teachers, Advisors, and Guidance Counselors, as well as Providers of Theory for Students		Pearson Correlation		.755**	Strong
		Sig. (2-tailed)		.000	
		N		95	
Developing Student Creativity		Pearson Correlation		.757**	Strong
		Sig. (2-tailed)		.000	
		N		95	

All relationships had a significance value of  $p < 0.01$ , confirming that the relationships were statistically significant, meaning they were unlikely to occur by chance. A positive correlation means that the better the teacher implemented the strategy, the higher the student achievement. A substantial correlation value ( $> 0.70$ ) indicates that the teacher's learning strategies contributed significantly to the variation in student achievement. This means that learning strategies are not merely complementary, but are the primary determinant of student academic success. Of the three indicators of teacher strategies, developing student creativity had the highest correlation with student achievement ( $r = 0.757$ ). This indicates that creativity is not merely an additional aspect but plays a significant role in shaping academic achievement.

From the correlation analysis, all indicators of teacher learning strategies showed a strong and significant relationship to student achievement, with correlation values ranging from  $r = 0.707$  to  $0.757$ , and a significance value of  $p < 0.01$ . This indicates that the higher the quality of the learning strategies implemented by teachers, the higher the student achievement. The highest correlation was found for the variable developing student creativity ( $r = 0.757$ ), followed by the teacher's role as educator, advisor, and theory provider ( $r = 0.755$ ), and finally, understanding student character ( $r = 0.707$ ). This confirms the findings of Sugihartono et al. (2007), who stated that creativity and emotional connections between teachers and students have a direct impact on student motivation and learning outcomes.

These findings also align with the constructivist approach, which states that effective learning occurs through active student involvement in constructing knowledge, with teachers acting as facilitators who understand the student's learning context [32]-[38]. Teachers who can adapt strategies to individual student characteristics and create a fun and challenging learning environment will be more successful in improving academic achievement. In the context of the Indonesian Independent Curriculum, this type of learning strategy is highly relevant. The Independent Curriculum emphasizes differentiated, student-centered learning, taking into account differences in student abilities, interests, and learning styles [39]-[43]. Therefore, these findings support ongoing policies within the national education system.

These findings support constructivist theory, which emphasizes that learning is an active process, and the teacher's role is as a facilitator who understands student characteristics and encourages their creative engagement. Learning strategies that emphasize not only content but also affective and innovative aspects are more effective in improving academic achievement. Furthermore, these findings are consistent with the differentiated learning approach and social-emotional learning (SEL) that are now part of the Independent Curriculum. When teachers understand students' differences and encourage creativity, learning becomes more relevant, meaningful, and impactful on learning outcomes.

Theoretically, this study contributes to the understanding that student-centered teacher learning strategies, encompassing cognitive, affective, and creative aspects, have a significant influence on student achievement. This emphasizes the importance of teachers' roles not only as instructors but also as developers of student character and potential [44]-[52]. Practically, these results can serve as a basis for teacher training programs focused on differentiated learning, creative strategies, and understanding student character, teacher

performance evaluations that emphasize not only student learning outcomes but also the learning process and approaches used, and educational policies that support active and reflective learning, tailored to the needs of each student.

A novelty aspect of this study is its focus on special education settings, an area that is often underrepresented in empirical research on teacher effectiveness. It extends existing pedagogical models by emphasizing that personalized, emotionally responsive, and creativity-oriented teaching strategies are just as vital if not more so in special needs classrooms as in mainstream education. Practically, these results imply that teacher training programs should prioritize developing competencies in differentiated instruction, creativity enhancement, and character education. School leaders and policymakers are encouraged to incorporate these aspects into performance appraisals and professional development frameworks. Furthermore, given the high consistency in teachers' practices, scalable models of best practices can be developed to enhance instructional quality across schools.

Despite these valuable findings, this study is not without limitations. Its reliance on a quantitative, correlational design restricts causal inferences, and its dependence on teacher self-reports may introduce social desirability bias. The exclusive focus on teacher perceptions, without triangulating data from students or parents, also limits the interpretive depth regarding the psychosocial effects of teaching strategies. Future research should adopt mixed-method or longitudinal designs to capture the dynamic implementation of teaching strategies and their long-term effects on students. Including student and parent perspectives would enrich the understanding of how instructional approaches influence motivation, engagement, and emotional well-being. Additionally, studies comparing different school contexts urban, rural, inclusive, and non-inclusive would offer a broader picture of effective teaching practices in diverse educational landscapes.

#### 4. CONCLUSION

This study demonstrates a strong and statistically significant relationship between teachers' instructional strategies and the academic skill achievement of students with special needs in North Sulawesi. All three instructional strategy indicators understanding student character, serving as educators and mentors, and fostering student creativity were rated as "very good" and showed strong correlations ( $r = 0.707$  to  $0.757$ ) with student achievement. The strongest relationship emerged between fostering student creativity and academic success, underscoring the importance of creative, student-centered approaches in special education. The findings highlight the practical effectiveness of instructional strategies that prioritize personalization, creativity, and holistic support for learners with diverse needs. These results align with the principles of constructivist learning, the Independent Curriculum, and differentiated instruction frameworks. They also offer critical insights for teacher professional development, suggesting that building competencies in character education, emotional sensitivity, and innovative pedagogy is essential for improving learning outcomes among students with disabilities. This study's novelty lies in its empirical, quantitative focus on special education a frequently underexplored context thus filling a critical gap in educational research. However, limitations include the use of a correlational design and reliance on teacher self-reports, which may limit causal conclusions and introduce potential bias. Future research should incorporate mixed-method approaches, include student and parent perspectives, and explore varied educational contexts to develop a more comprehensive understanding of effective special education strategies.

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