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Mapping Multiple Intelligences of 7th Grade Junior High School Students: A Study Based on Paulus Winarto's Talent Test and Howard Gardner's Theory

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Abstract

This study aims to map the multiple intelligences profile of seventh-grade junior high school students based on Paulus Winarto's Talent Test and Howard Gardner's multiple intelligences theory. The research employs a descriptive quantitative approach with a purposive sample of 30 students. Multiple intelligence data were analyzed based on the overall intelligence average category (high, medium, low), dominant intelligence, and non-dominant intelligence in each category. Results reveal that most students (60%) fall into the medium category, with musical intelligence as the most prominent. Meanwhile, 23% of students are in the high category, dominated by interpersonal and naturalist intelligences. Additionally, 17% of students are in the low category, with logical-mathematical intelligence frequently appearing as non-dominant. These findings highlight the importance of personalized learning approaches to optimize students' dominant intelligences and develop their non-dominant ones. Learning strategies emphasizing exploration, collaboration, and multisensory activities are recommended to support holistic student development.

Keywords: multiple intelligences, Howard Gardner's theory, Paulus Winarto Talent Test, personalized learning.

Introduction

Multiple intelligence is a concept developed by Howard Gardner in his book *Frames of Mind* (Gardner, 1983). Gardner defines *intelligence* as the ability to solve problems or create valuable products in one or more specific cultural environments. This definition broadens the scope of intelligence, which was previously often only measured by traditional IQ tests (Gardner, 2006; Sternberg, 1985). These tests, such as the Stanford-Binet or WAIS, generally focus on logical-mathematical and linguistic abilities as a single representation of human intelligence (Gardner, 2006; Korb, 1994; Suarca et al., 2016; Shearer, 2018).

Gardner initiated the concept of multiple intelligences based on his observations of individuals with unique abilities, such as musicians, artists, athletes, and interpersonal experts, who only sometimes demonstrated high intelligence in academic contexts. His research spans multiple disciplines, including psychology, anthropology, biology, and education, showing that human intelligence is multidimensional. Through this research, Gardner identified eight types of intelligence: logical-mathematical, linguistic, spatial, kinesthetic, musical, interpersonal, intrapersonal, and naturalist (Gardner, 1983). In the 1990s, Gardner also introduced existential intelligence as an additional dimension, which refers to the ability to understand and reflect on deep questions about existence, life, and the universe (Gardner, 1999).

The urgency of multiple intelligences is increasingly recognized, along with the increasing awareness of the need for inclusive and personalized education. Recent research confirms the importance of this theory in improving the quality of education and developing

individual potential. A study by Armstrong (2017) showed that multiple intelligence-based learning can increase student learning motivation by up to 30% compared to traditional approaches. Students who learn with this approach also show increased engagement in learning because they feel the teaching method is more relevant to their interests and strengths (Mumtazah & Asih, 2024; Qoyyimah, 2022; Moreira & Lee, 2020).

Furthermore, several studies have shown that applying multiple intelligence theory in education can improve student learning outcomes, especially in subjects requiring creativity and collaboration (Mayasari et al., 2021; Rofiah, 2016; Šafranj, 2016). Problem-based learning effectively develops students' interpersonal intelligence and self-confidence (Saufi & Royani, 2016). Educators are encouraged to recognize and nurture different types of intelligence in students beyond traditional academic measures (Rofiah, 2016). The application of multiple intelligences in mathematics education has positively affected student motivation and understanding (Masridah & Dewi, 2024).

This approach allows teachers to adapt their teaching methods to students' diverse intelligences, potentially improving overall learning outcomes across subjects (Fathani, 2017). Students with high interpersonal intelligence excel in group discussion-based learning, while those with high logical-mathematical intelligence perform best in problem-solving tasks (Saufi & Royani, 2016). Applying multiple intelligence theory in education allows students to learn meaningfully by optimizing their unique potential and intelligence profile (Fathani, 2017; Karwadi, 2023).

In a global context, a study conducted by Díaz-Posada et al. (2017) showed that a multiple intelligence-based approach also supports cross-cultural learning. This approach allows students to appreciate better cultural diversity and ways of thinking, which are relevant in today's era of globalization. This study emphasizes the importance of interpersonal and intrapersonal intelligence in building harmonious social relationships, especially in multinational work and education environments.

In Indonesia, applying multiple intelligence theory also aligns with the vision of the Merdeka Curriculum, which emphasizes the importance of differentiation-based learning (Kementerian Pendidikan Kebudayaan Riset dan Teknologi, 2022). Understanding students' intelligence profiles is an important foundation for creating relevant learning and supporting individual development holistically. The Paulus Winarto's Talent Test, based on the theory of multiple intelligences, offers a comprehensive measuring tool to evaluate students' strengths and weaknesses in each dimension of intelligence (Winarto, 2010).

This study aims to map the profile of multiple intelligences of grade VII students at the junior high school level. Specifically, this study groups students based on their overall average intelligence into high, medium, and low categories. In addition, this study also analyses dominant and non-dominant intelligence in each category to provide deeper insight into the distribution of students' intelligence. This study's results are expected to contribute significantly to the world of education, especially in developing learning strategies based on student potential. In addition, this study can also be a reference for teachers, schools, and policymakers in designing an inclusive, personal, and multiple intelligence-based educational approach.

Method

This study used a quantitative descriptive design to map the multiple intelligence profiles of seventh-grade junior high school students. This approach was carried out by analyzing the Paulus Winarto Talent Test score data to group students based on their overall average

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intelligence into high, medium, and low categories. In addition, this study also identified the dominant intelligence and the lowest intelligence in each category.

The sample consisted of 30 seventh-grade students from one of the junior high schools in Bandung City who were selected using a purposive sampling technique. The sample selection considered the diversity of students' intelligence profiles to ensure data representation per the research objectives. Data were collected using the Paulus Winarto Talent Test, designed based on Howard Gardner's theory of multiple intelligences (Gardner, 2006; Winarto, 2010; Widiana & Jampel, 2016). This test measures eight dimensions of intelligence: logical-mathematical, linguistic, spatial, kinesthetic, musical, interpersonal, intrapersonal, and naturalist. The instrument consists of 80 statements with a Likert scale of 1–5, in which students are asked to rate the suitability of the statements to themselves.

The data obtained from the Paulus Winarto Talent Test were analyzed using descriptive statistical methods with an empirical statistical approach. The analysis process begins by calculating the overall average intelligence of each student. The average is calculated by adding up the scores from all dimensions of intelligence measured (logical-mathematical, linguistic, spatial, kinesthetic, musical, interpersonal, intrapersonal, and naturalist) and then dividing it by the number of dimensions of intelligence.

Categorizing students into high, medium, and low categories is done using an empirical statistical approach. This approach uses score criteria from the data that has been collected so that it better reflects the distribution of actual data(Azwar, 2016; Widhiarso, 2010;Brigandi et al., 2019). This step aims to describe groups of students according to their score profiles in the study context. The high category includes students with an overall average intelligence above the average group data, the medium category includes students with scores close to the average, and the low category includes students with scores lower than the average. The steps taken to determine the category level in this study are: (1) calculating the average ($\bar{x}$) of the score data, (2) calculating the standard deviation (SD), and (3) determining the category range based on the mean and standard deviation. The category range formula is presented in Table 1 below.

Table 1. Formulation of Multiple Intelligence Category Range of Students

Score (x)	Category
$x > \bar{x} + SD$	High
$\bar{x} - SD \leq x \leq \bar{x} + SD$	Medium
$x < \bar{x} - SD$	Low

The next step is to identify each student's dominant and lowest intelligence. Dominant intelligence is determined based on the intelligence dimension with the highest score, while the lowest intelligence is identified through the dimension with the lowest score. This analysis is carried out for each overall average category (high, medium, low) to provide insight into the distribution of student intelligence.

Results

Distribution of Overall Average Multiple Intelligence Categories

Based on the contents of the Paulus Winarto Talent Test, data on multiple intelligences of 30 junior high school students in grade VII who were used as subjects in this study were obtained. The average multiple intelligence of students was 34.1, with a standard deviation of 4.04. Thus, the high, medium, and low categories used in this study are presented in Table 2 below.

Table 2. Range of Students' Multiple Intelligence Categories

Score (x)	Category
$x > 38{,}14$	High
$30{,}06 \leq x \leq 38{,}14$	Medium
$x < 30{,}06$	Low

After being grouped based on Table 2, the distribution of students' multiple intelligence categories was obtained as in Figure 1 below.

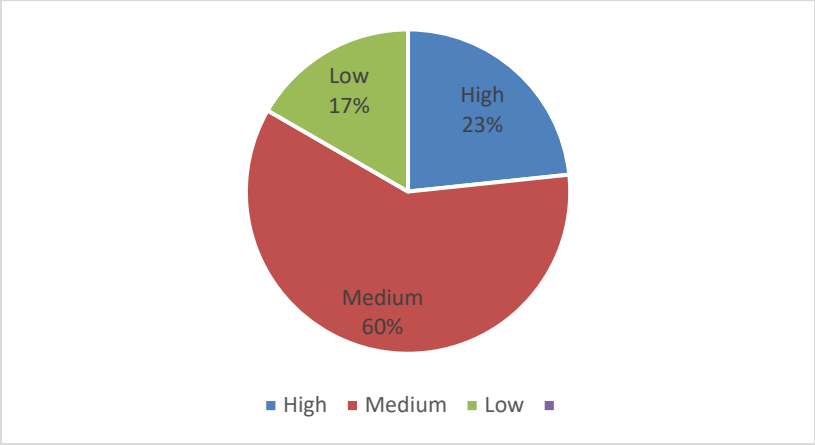


Figure 1. Distribution of students' multiple intelligence categories

The figure illustrates the distribution of students' multiple intelligence categories among the 30 seventh-grade junior high school students who participated in the study. Based on statistical analysis using mean scores and standard deviation, students were grouped into three categories: High category (23%), Medium category (60%), and Low category (17%). This classification formed the basis for the subsequent detailed analysis of dominant and non-dominant intelligences within each category.

Multiple Intelligence Profile of Students with High Intelligence Category

Seven students, or 23% of the 30, were in this study's high multiple intelligence category. The profile of students with high multiple intelligence is presented in Table 3 below.

Table 3. Profile of Students with High Multiple Intelligence Category

Subject	Mean	Dominant Intelligence	Non-Dominant Intelligence
S01	40.0	Naturalist	Linguistic
S06	39.1	Spatial	Kinesthetic
S10	39.1	Spatial	Naturalist
S12	40.8	Interpersonal and Naturalist	Linguistic
S13	39.1	Interpersonal	Spatial
S14	40.0	Interpersonal	Kinesthetic
S29	39.3	Kinesthetic	Linguistic

Based on the analysis of multiple intelligence profiles of students with a high intelligence category (mean>38.14), seven research subjects had an average overall intelligence score above the high category threshold. This analysis shows that the most dominant intelligence in this group is interpersonal intelligence, as seen in three students (S12, S13, and S14).

Multiple Intelligence Profile of Students with Medium Intelligence Category

The study's 18 students with medium multiple intelligence categories, or 60% of the total 30 students, were students with moderate multiple intelligence. The profile of these students is presented in Table 4 below.

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Table 4. Profile of Students with Medium Multiple Intelligence Category

Subject	Mean	Dominant Intelligence	Non-Dominant Intelligence
S02	31.0	Naturalist	Linguistic and Kinesthetic
S03	35.9	Musical	Naturalist
S05	35.8	Musical	Linguistic and Naturalist
S07	30.8	Interpersonal	Musical
S08	35.3	Naturalist	Musical
S09	34.6	Interpersonal	Linguistic
S11	35.0	Musical	Linguistic, Spatial, and Kinesthetic
S15	32.6	Logical-Mathematical	Spatial
S16	31.3	Logical-Mathematical	Musical
S17	31.9	Linguistic	Spatial
S18	30.3	Interpersonal	Linguistic
S21	36.1	Musical	Linguistic
S22	35.6	Kinesthetic	Linguistic
S23	34.5	Naturalist	Kinesthetic
S24	35.6	Logical-Mathematical	Kinesthetic
S25	32.5	Interpersonal	Kinesthetic and Intrapersonal
S26	32.6	Naturalist	Kinesthetic
S28	32.5	Naturalist	Intrapersonal

A total of 18 students (60% of the total subjects) were in the moderate multiple intelligence category. Their intelligence profiles showed diversity, including dominant and non-dominant intelligence. This diversity illustrates that even though they are in the moderate category, students still have unique potential that can be developed through relevant and adaptive learning approaches.

Multiple Intelligence Profile of Students with Low Intelligence Category

Five students in this study were in the low multiple intelligence category, or 17% of the total 30 students. The profile of students with moderate multiple intelligence is presented in Table 5 below.

Table 5. Profile of Students with Low Multiple Intelligence Category

Subject	Mean	Dominant Intelligence	Non-Dominant Intelligence
S04	28.6	Spatial	Logical-Mathematical
S19	28.3	Logical-Mathematical	Kinesthetic
S20	29.4	Intrapersonal	Linguistic and Spatial
S27	25.4	Musical	Spatial
S30	29.8	Kinesthetic	Logical-Mathematical

The results showed that five students (17% of the total subjects) were in the low multiple intelligence category, with an average overall intelligence below the threshold of 30.06. Despite being in the low category, these students still showed a variety of potentials through their dominant intelligences, such as spatial, logical-mathematical, intrapersonal, musical, and kinesthetic. This finding indicates that students with low intelligence still have strengths that can be optimized if appropriate learning interventions are given. However, underdeveloped non-dominant intelligence is also a concern because it can hinder their ability to complete various learning tasks.

Dominance Profile of Students' Multiple Intelligences

Based on the findings in Tables 2, 3, and 4, several dominant and non-dominant multiple intelligences were found in the research subjects. The distribution of dominant and non-dominant multiple intelligences students' is presented in Figure 2 below.

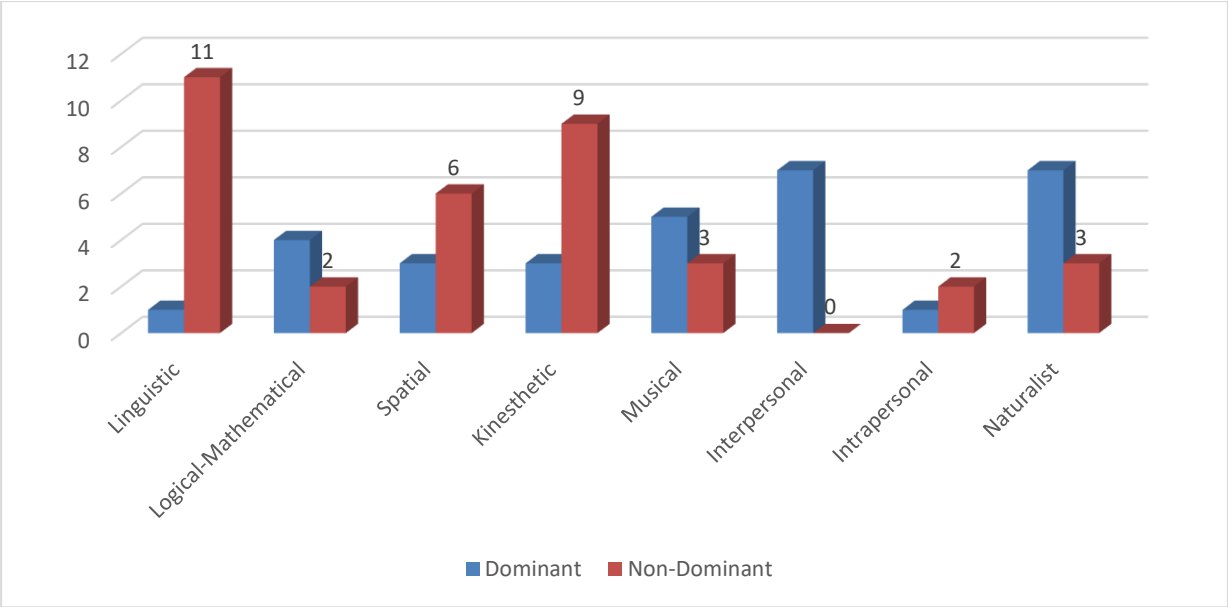


Figure 2. Distribution of dominance of students' multiple intelligences

The study results showed that naturalist and interpersonal intelligence were the most dominant intelligences among students, each with a frequency of 7 students. This reflects the unique potential of students in two different aspects, namely, understanding the natural environment and the ability to interact socially. This dominance is influenced by various factors, including the learning environment, learning approaches, and individual experiences, which directly or indirectly shape their strengths in these two intelligences.

Discussion

Distribution of Overall Average Multiple Intelligence Categories

The data distribution in Figure 1 shows that most students (60%) are in the medium category. This aligns with empirical statistical theory, which states that most data tends to be around the average in a normal distribution (Azwar, 2016). This medium category reflects the balance of students' abilities in various dimensions of multiple intelligences without showing too much dominance or significant weaknesses. Students in this category have potential that can be developed through diverse and adaptive learning. Gardner (1999) states that intelligence is dynamic and can be improved through a supportive learning environment.

As many as 23% of students are in the high category, which reflects that almost a quarter of the study subjects have an average intelligence above the established standard. This finding supports Armstrong (2017), who stated that students with a high intelligence profile tend to be able to complete more complex learning tasks significantly if they are adjusted to their dominant intelligence. This group of students needs challenge-based learning, such as problem-based learning, to optimize their (Díaz-Posada et al., 2017).

Meanwhile, 17% of students are in the low category, indicating this group's need for special attention. Gardner (1983) explains that students with low intelligence in several dimensions need a more concrete and multisensory learning approach. Direct experience-based learning strategies can help them overcome limitations and increase self-confidence (Chen et al., 2009). In addition, Visser et al., 2006) emphasized that environmental factors, motivation, and teaching methods greatly influence the development of students' intelligence, especially those in the low category.

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The results of this study indicate the importance of a flexible learning approach to accommodate the needs of students in each category. Most students are in the middle category, so diverse and adaptive learning is very relevant. At the same time, unique challenges need to be given to students in the high category to maintain their engagement, while individual support should be provided for students in the low category. This aligns with the Independent Curriculum principles, which emphasize the personalization of learning based on students' unique potential (Kementerian Pendidikan Kebudayaan Riset dan Teknologi, 2022).

Multiple Intelligence Profile of Students with High Intelligence Category

Based on Table 3, the most dominant multiple intelligence is interpersonal intelligence. Interpersonal intelligence allows individuals to understand emotions, build social relationships, and collaborate with others (Gardner, 1983). The dominance of this intelligence can be explained by learning environment factors that support social interaction, such as group work and class discussions. Students with high interpersonal intelligence tend to be sensitive to the social dynamics around them, so they excel in collaborative activities (Armstrong, 2017). In addition, recent research shows that interpersonal intelligence has a linear and significant relationship with a person's learning outcomes, with a correlation of 0.985, which means that the correlation is robust because it is close to 1.00 (Pasiak et al., 2018).

Naturalist intelligence also stands out among two students (S01 and S12), who show great potential in understanding patterns and relationships in the natural environment. Gardner states this intelligence develops through direct exposure to environmental contexts, such as science experiments or nature exploration (Gardner, 1999). The possibility of the dominance of naturalist intelligence is supported by project-based learning activities or direct experiences in nature (Armstrong, 2017; Bistari et al., 2024; Gardner, 1983; Gardner, 1999). n addition, spatial intelligence was dominant in two other students (S06 and S10). This ability reflects strength in visualization, understanding spatial relationships, and structuring ideas in graphic or three-dimensional form (Armstrong, 2017). The dominance of spatial intelligence can be associated with students' preferences for visual-based learning, such as diagrams or infographics (Darwis et al., 2024; Ghairabeh, 2012; Mayer & Massa, 2003). One student (S26) showed dominance of kinesthetic intelligence, which reflects physical abilities and manipulative skills. Gardner (1999) emphasized that kinesthetic intelligence often develops in students involved in practice-based learning, such as simulations or direct experiments.

In contrast, linguistic intelligence is often non-dominant in this group, as seen in three students (S01, S12, and S29). This shows that even though they are in the high category, they are less superior in verbal aspects, such as reading or writing. Low scores on this dimension can be explained by their preference for non-verbal activities, such as visual or physical exploration (Visser et al., 2006). In addition, spatial and kinesthetic intelligence also appear as non-dominant intelligence in some students, depending on exposure to activities that support the development of these abilities. For example, students with low kinesthetic intelligence may be less exposed to movement-based activities, such as sports or hands-on practice (Dewi et al., 2021; Gardner, 2006).

The analysis of intelligence combinations found that S12 students had two dominant intelligences: interpersonal and naturalist. This combination reflects a unique ability to understand social relationships and patterns. Gardner (1999) emphasized that individuals with this combination of intelligence tend to excel in project-based learning that involves exploring the environment in groups. This unique combination of intelligences also reflects the multidimensional profile of students, where the potential of various intelligences complement each other. Shearer (2024) states that students with a combination of intelligences have greater

flexibility in choosing learning strategies because they can integrate the strengths of two or more mutually supportive intelligences.

These results indicate that students in the high intelligence category have unique potential diversity. Personalized learning strategies are needed to maximize their dominant intelligence, such as collaboration-based activities for students with interpersonal intelligence or visual-based learning for students with spatial intelligence. On the other hand, non-dominant intelligence can be strengthened by providing relevant learning experiences, such as a multisensory approach for students with low linguistic intelligence (Algrni, 2020; Mathias et al., 2021).

Thus, it can be concluded that students with the high intelligence category not only have the potential to excel in academic aspects that rely on logical-mathematical and linguistic intelligence but also have the opportunity to excel in other fields, such as those that require collaboration or teamwork, sports and arts that rely on body movement, and fields related to nature.

Multiple Intelligence Profile of Students with Medium Intelligence Category

Musical intelligence is the dominant intelligence that appears most often in this category and is found in six students. According to Kraus and Chandrasekaran (2010), musical intelligence develops through music-based activities, such as listening, playing musical instruments, or observing sound patterns. These activities can strengthen neural connections in the brain, especially in areas responsible for processing sound and rhythmic patterns, impacting musical intelligence, linguistic abilities, and verbal memory (Koelsch, 2011). This shows that the dominance of musical intelligence can be associated with students' experiences of having access to music-based activities inside and outside the school environment.

In addition to musical, interpersonal intelligence is also dominant in five students. Gardner (1983) emphasized that interpersonal intelligence allows individuals to understand and respond to the emotions, motivations, and needs of others, which is very important in a social environment. A study by Armstrong (2017) showed that collaborative learning, such as group discussions and teamwork, can encourage the development of interpersonal intelligence. The dominance of this intelligence can be explained by students' exposure to a social environment that encourages interaction through academic activities such as class discussions or extracurricular activities.

Logical-mathematical intelligence also emerged as the dominant intelligence in three students. According to research by Li and Geary (2017)This intelligence develops through logic-based activities, problem-solving, and mathematical tasks. Students with this intelligence tend to understand patterns, structures, and logical relationships, which are supported by problem-based learning. This approach allows students to apply logic to real-world situations, thus strengthening the dominance of this intelligence.

Five students' naturalist intelligence was found to be dominant. This intelligence reflects their ability to observe patterns and relationships in the natural environment. Gardner (1999) explained that this intelligence develops through interactions with nature, such as environmental exploration or observation-based science experiments. Research by Lomax et al. (2024) revealed that direct involvement with nature improves observation skills and helps develop creativity and empathy for the environment.

However, although students in this category have diverse dominant intelligences, they also show non-dominant intelligences that include linguistic, kinesthetic, spatial, and intrapersonal. Linguistic intelligence is the most common non-dominant intelligence found in seven students. Algrni (2020) explained that the lack of verbal-based learning experiences, such as reading, writing, or intensive discussions, can limit the development of this intelligence.

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Another study by Mayer and Massa (2003) showed that a multisensory approach, such as combining visual, auditory, and kinesthetic in verbal learning, can help students strengthen their linguistic intelligence.

Five students' non-dominant kinesthetic intelligence can be explained by minimal exposure to physical or movement-based activities, such as sports, dance, or direct experiments. Armstrong (2017) stated that this intelligence develops through active involvement in practical activities, so students' needs tend to show strength without these activities. Likewise, non-dominant spatial intelligence in some students may be caused by the minimal use of visual aids, such as diagrams or maps, in learning (Mayer & Massa, 2003).

This diversity shows that although they are in the moderate category, students have unique and complementary intelligence profiles. Research by Visser et al. (2006) shows that combining dominant and non-dominant intelligence can create a specific learning pattern for everyone. This emphasizes the importance of a personalized learning approach, where dominant intelligence can be optimized while non-dominant intelligence is strengthened through relevant learning strategies.

For example, students with dominant musical intelligence can be involved in song-based or rhythm-based learning to understand abstract concepts. On the other hand, students with non-dominant linguistic intelligence can be helped through a multisensory approach to improve their verbal abilities. With the right approach, the potential of students in the moderate category can develop optimally so that they not only focus on strengthening dominant intelligence but also overcome weaknesses in non-dominant intelligence.

Multiple Intelligence Profile of Students with Low Intelligence Category

Spatial intelligence was dominant in two students (S04 and S27) in this category. Gardner (1983) explained that spatial intelligence includes understanding patterns, space, and mental visualization. Students' preference for visual-based learning may influence their dominance of this intelligence. However, the limited overall score indicates a lack of access to relevant visual media, such as diagrams, maps, or models. Research by Mayer and Massa (2003) supports the idea that consistent use of visual media can help students with spatial intelligence develop their potential further.

In addition, logical-mathematical intelligence is dominant in S19 students. This ability reflects students' understanding of logical patterns, numbers, and mathematical relationships. However, Li and Geary (2017) showed that the development of logical-mathematical intelligence depends on structured logic-based learning. The dominance of this intelligence in S19 students may indicate their interest in logical patterns. However, the low overall score indicates a lack of reinforcement in problem-based learning or real applications of mathematics.

Intrapersonal intelligence, dominant in S20 students, shows their ability to understand and reflect on their emotions and motivations. Gardner (1999) stated that this intelligence often appears in reflective individuals who take time to analyze their thoughts. However, the lack of structured reflection activities, such as writing journals or conducting self-evaluations, may cause these students to have low overall scores. Armstrong (2017) suggested that routine reflection activities can help optimize students' potential with dominant intrapersonal intelligence.

S27 students have musical intelligence as dominant. Research by Kraus and Chandrasekaran (2010) suggests that experiences with music, such as playing an instrument or listening to rhythmic patterns, can enhance cognitive abilities associated with musical intelligence. However, the low overall average of these students' intelligence may indicate a need for more support or structured music-based activities in their learning environment.

Kinesthetic intelligence is dominant in S30 students, indicating that students use their bodies to complete tasks or express ideas. Gardner (1999) emphasized that kinesthetic intelligence develops through physical activities such as sports, simulations, or hands-on experiments. However, the low overall score indicates that this potential has yet to be optimized through relevant movement-based activities.

On the other hand, students in this category demonstrate non-dominant intelligences that include linguistic, logical-mathematical, kinesthetic, and spatial. The low scores on linguistic intelligence seen in S20 students may be due to minimal exposure to verbal-based activities such as reading or discussions. Algrni (2020) showed that a multisensory approach, which combines visual, auditory, and kinesthetic pathways, can help students with low linguistic intelligence to strengthen their verbal abilities.

Logical-mathematical intelligence, which is non-dominant in students S04 and S30, reflects students' understanding of logical patterns and numbers. Li and Geary (2017) stated that students need to be sufficiently exposed to problem-based learning often show lower logical-mathematical scores. In addition, low kinesthetic intelligence in some students can be explained by the lack of practice-based activities, such as sports or direct experiments, which are very important for developing their physical potential (Armstrong, 2017).

This diversity shows the importance of a personalized learning approach to support students in the low category. Visual-based learning can help students with dominant spatial intelligence to understand abstract patterns. Students with dominant musical intelligence can be supported through rhythm or song-based activities to help understand learning concepts. Reflective approaches such as self-evaluation and counselling can enhance students' potential with dominant intrapersonal intelligence.

A multisensory approach can help strengthen students' linguistic abilities for non-dominant intelligence, while hands-on learning can optimize their kinesthetic potential. With appropriate strategies, students in the low category can still achieve better learning outcomes by strengthening their dominant intelligence and developing their non-dominant intelligence.

Dominance Profile of Students' Multiple Intelligences

Naturalist intelligence refers to students' ability to recognize patterns and relationships in nature, such as understanding ecosystems, observing natural phenomena, or distinguishing types of plants and animals. Gardner (1999) explains that this intelligence involves sensitivity to environmental details and ecological patterns that are often not realized by others. Students with dominant naturalist intelligence tend to be highly interested in exploring nature and can think critically about the relationship between humans and the environment.

The dominance of this naturalist intelligence cannot be separated from exposure to an environment that supports the development of these abilities. Adiwena dan Djuwita (2022) stated that children with access to green open spaces, such as parks or forests, show better naturalist intelligence development than those who live in urban environments. This exposure allows students to observe and analyze ecological patterns directly, thus strengthening their ability to understand natural phenomena.

In addition, project-based curricula that emphasize environmental exploration also play an important role. Programs such as ecosystem observations or research on local species provide students with authentic learning experiences that support the dominance of their naturalist intelligence. Research by Ernst and Monroe (2004) shows that environmental-based learning improves naturalist intelligence and students' critical thinking skills, which are important in understanding abstract concepts in science and geography.

Technology contributes to the development of naturalist intelligence not only through direct experience but also through applications such as plant and animal recognition or nature

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documentaries. These tools provide students with additional tools to strengthen their understanding of ecological patterns. McClain and Zimmerman (2016) found that nature-based media can increase student engagement in learning, even though they are only sometimes in an outdoor environment.

The dominance of interpersonal intelligence reflects students' ability to understand and respond to the emotions, motivations, and needs of others. Students with this dominant intelligence excel in group work, discussions, or other collaborative activities. It also shows high social sensitivity, which allows students to build strong and effective interpersonal relationships.

A supportive social environment, such as group discussions, collaborative projects, or social simulations, is one of the main factors in students' dominance of interpersonal intelligence. Armstrong (2017) explains that this intelligence develops optimally in interactive social situations, where students can hone their communication skills. Research by Lubis (2022) juga also found that students with high interpersonal intelligence have verbal and non-verbal communication advantages, which positively impacts their learning outcomes.

The influence of individual experiences also plays a role in strengthening this intelligence. Students who often act as group leaders or mediators have more opportunities to develop their interpersonal skills. Learning activities such as debates, role-playing, or social simulations also support this, allowing students to understand group dynamics and improve their collaborative skills.

A relevant learning approach must be applied to maximize students' potential with dominant naturalist and interpersonal intelligence. Students with naturalist intelligence can be supported through activities based on environmental exploration, such as ecosystem observations or research on local environmental changes. Meanwhile, students with interpersonal intelligence can be empowered through collaborative activities, such as group projects or debates, to leverage their social strengths to complete learning tasks.

On the other hand, linguistic intelligence, which includes the ability to read, write, speak, and understand language, emerged as the most non-dominant intelligence in this study, with a frequency of 11 students. This finding suggests that although linguistic intelligence is often considered one of the essential competencies in formal learning, some students show lower potential in this aspect compared to other intelligences. This condition can be explained by several factors, including minimal exposure to verbal-based activities, the dominance of other intelligences, and learning approaches that do not support the development of linguistic skills.

Gardner (1983) explains that linguistic intelligence involves a person's ability to use language effectively, both in oral and written forms. Students with high linguistic intelligence tend to excel in composing, reading, or learning a new language. Conversely, students with low linguistic intelligence may need help understanding texts, constructing arguments, or conveying ideas verbally. In the context of this study, low linguistic intelligence indicates the need for more adaptive learning strategies to help students improve their potential in this area.

Minimal exposure to verbal-based activities is one of the causes of low linguistic intelligence. Algrni (2020) found that learning that does not emphasize verbal skills, such as intensive reading or creative writing, can hinder the development of students' linguistic intelligence. In addition, an unsupportive learning environment, such as a lack of interesting reading materials or low-quality class discussions, also contributes to students' low verbal abilities.

Mayer and Massa (2015) emphasized that a multisensory approach, which combines visual, auditory, and kinesthetic elements, is needed to help students understand verbal concepts more effectively. In addition to environmental factors, the dominance of other intelligences, such as naturalist or kinesthetic intelligence, can also explain low linguistic

intelligence in some students. Gardner (1999) noted that students tend to develop the intelligence that best suits their experiences. Thus, students more often involved in physical activities or environmental exploration may need to focus more on developing their linguistic abilities.

The impact of low linguistic intelligence is seen in several aspects of learning. Students with low linguistic intelligence often need help understanding written texts, which can affect their abilities in theory-based subjects such as language or history. In addition, students need more oral and written communication to effectively convey their ideas or arguments in class discussions and written assignments. This condition can also impact overall academic achievement, considering many subjects rely on reading and writing skills.

Learning strategies to increase students' potential are needed to overcome low linguistic intelligence. Intensive reading activities and creative writing, such as creating short stories or poems, can help students develop their verbal skills. In addition, group discussions and class debates allow students to hone their speaking skills. Research shows that multisensory approaches, such as educational videos or role-playing, can help students with low linguistic intelligence understand verbal concepts more effectively (Mayer & Massa, 2015). Learning technology, such as language learning applications, can also effectively improve students' verbal skills interactively.

Thus, some students' low linguistic intelligence reflects the importance of a more inclusive and adaptive learning approach. Relevant learning strategies can increase students' linguistic intelligence potential so that they can achieve better academic achievement and develop effective communication skills for everyday life.

Conclusion

This study offers valuable insights into the distribution of multiple intelligences among seventh-grade students, revealing that a significant portion (60%) of them fall into the medium intelligence category. The research identifies musical intelligence as the most dominant form, while linguistic intelligence is the least effective among the group. Additionally, about 23% of students exhibit high intelligence levels, particularly in interpersonal and naturalist intelligences, whereas 17% are classified as having low intelligence, primarily struggling with logical-mathematical skills. These findings indicate the diverse strengths of students, emphasizing a need for differentiated instructional approaches that cater to both their dominant and non-dominant intelligences.

Furthermore, the prevalence of low linguistic intelligence underscores the importance of employing multisensory learning strategies to enhance verbal skills. Educators are encouraged to create tailored learning activities that leverage students' strengths while simultaneously addressing their weaknesses. For instance, students with strong naturalist or interpersonal intelligences could benefit from hands-on activities in nature or collaborative projects, respectively. The study advocates for personalized assessments to better recognize the various intelligence profiles, aligning with contemporary educational reforms aimed at fostering inclusive and effective learning environments that nurture every student's potential.

References

Adiwena, B. Y., & Djuwita, R. (2022). Manusia dan lingkungan alam: Analisis faktor konfirmatori terhadap Nature Relatedness Scale Bahasa Indonesia. *Jurnal Psikologi Sosial*, *20*(1), 57–71. https://doi.org/10.7454/jps.2022.08

Algrni, N. S. (2020). The Effectiveness of Using Multisensory Approach in Enhancing

Copyright © 2025 The Author(s)

Achievement and Retention of English Vocabulary Amongst Intermediate Female Students with EFL Learning Disabilities. *Journal of Education and Practice*, *11*(9), 148–159. https://doi.org/10.7176/jep/11-9-17

Armstrong, T. (2017). *Multiple Intelligences in the Classroom, 4th Edition*. ASCD. https://books.google.co.id/books?id=3NRBDwAAQBAJ

Azwar, S. (2016). Kelompok Subjek Ini Memiliki Harga Diri Yang Rendah"; Kok, Tahu...? *Buletin Psikologi*, *1*(2), 13–17. https://doi.org/10.22146/bpsi.13160

Bistari, Mumtazah, N. W., Mardiyyaningsih, A. N., & Rusdiono. (2024). How Do Lecturers Implement Case and Project Learning Models to Strengthen the Merdeka Curriculum? : A Study at Tanjungpura University, Indonesia. *Jurnal Paedagogy*, *11*(4), 777–787. https://e-journal.undikma.ac.id/index.php/pedagogy/index

Brigandi, C. B., Gilson, C. M., & Miller, M. (2019). Professional Development and Differentiated Instruction in an Elementary School Pullout Program: A Gifted Education Case Study. Journal for the Education of the Gifted, 42(4), 362–395. https://doi.org/10.1177/0162353219874418

Chen, J.-Q., Moran, S., & Gardner, H. (2009). Multiple intelligences around the world. In J.-Q. Chen, S. Moran, & H. Gardner (Eds.), *Multiple intelligences around the world.* Jossey-Bass/Wiley.

Darwis, R. H., Mashuri, S., Tahmir, S., & Talib, A. (2024). The Relationship between Spatial and Linguistic Intelligence with Mathematical Problem Solving Abilities. *Asian Journal of Education and Social Studies*, *50*(6), 40–48. https://doi.org/10.9734/ajess/2024/v50i61392

Dewi, A. I., Syahrir, M., Ardiansyah, A., & Rejeki, H. S. (2021). Students' Kinesthetic Intelligence in Physical Education: Garnering Indonesian Literatures. *AL-ISHLAH: Jurnal Pendidikan*, *13*(3). https://doi.org/10.35445/alishlah.v13i3.1410

Díaz-Posada, L.-E., Varela-Londoño, S.-P., & Rodríguez-Burgos, L.-P. (2017). Multiple Intelligences and Curriculum Implementation: Progress, Trends and Opportunities. *Revista de Psicodidáctica (English Ed.)*, *22*(1), 69–83. https://doi.org/https://doi.org/10.1387/RevPsicodidact.15614

Ernst, J., & Monroe, M. (2004). The effects of environment-based education on students' critical thinking skills and disposition toward critical thinking. *Environmental Education Research*, *10*(4), 507–522. https://doi.org/10.1080/1350462042000291038

Fathani, A. H. (2017). Reorientasi Visi Pembelajaran Matematika Sekolah (Implikasi Teori Kecerdasan Majemuk Gardner dalam Praktik Pembelajaran Matematika di Sekolah). *JPM: Jurnal Pendidikan Matematika*, *2*(1), 1. https://doi.org/10.33474/jpm.v2i1.200

Gardner, H. (1983). *Frames of Mind*. New York: Basic Books.

Gardner, H. (2006). Multiple Intelligences: In *As Bad as They Say?* New York: Basic Books. https://doi.org/10.2307/j.ctt13x0cxv.14

Gardner, Howard. (1999). Intelligence reframed: Multiple intelligences for the 21st century. In *Intelligence reframed: Multiple intelligences for the 21st century.* Basic Books.

Ghairabeh, A. M. Al. (2012). Brain Based Learning and Its Relation with Multiple Intelligences. *International Journal of Psychological Studies*, *4*(1). https://doi.org/10.5539/ijps.v4n1p103

Karwadi, K. (2023). Implementation of Multiple Intelligence in Elementary School or Madrasah Ibtidaiyah Learning. *Golden Age : Jurnal Pendidikan Anak Usia Dini*, *7*(1), 43–52. https://doi.org/10.29313/ga:jpaud.v7i1.11738

Kementerian Pendidikan Kebudayaan Riset dan Teknologi. (2022). *Panduan Implementasi Kurikulum Merdeka*. Jakarta: Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi.

Koelsch, S. (2011). Toward a neural basis of music perception – A review and updated model. *Frontiers in Psychology*, *2*, 110. https://doi.org/10.3389/fpsyg.2011.00110

Korb, K. B. (1994). Stephen Jay Gould on intelligence. *Cognition*, *52*(2), 111–123. https://doi.org/10.1016/0010-0277(94)90064-7

Kraus, N., & Chandrasekaran, B. (2010). Music training for the development of auditory skills. *Nature Reviews Neuroscience*, *11*(8), 599–605. https://doi.org/10.1038/nrn2882

Li, Y., & Geary, D. C. (2017). Children's visuospatial memory predicts mathematics achievement through early adolescence. In *PLoS ONE* (Vol. 12, Issue 2). Public Library of Science.

Lomax, T., Butler, J., Cipriani, A., & Singh, I. (2024). Effect of nature on the mental health and well-being of children and adolescents: meta-review. *The British Journal of Psychiatry*, *225*(3), 401–409. https://doi.org/DOI: 10.1192/bjp.2024.109

Lubis, D. M. G. S. (2022). Studi Meta-Analisis: Hubungan Antara Kecerdasan Emosional dengan Perilaku Prososial pada Siswa. *Jurnal Social Library*, *2*(1), 17–23. https://doi.org/10.51849/sl.v2i1.59

Masridah, M., & Dewi, S. N. (2024). Analisis Kecerdasan Majemuk pada Mata Pelajaran Matematika di Kelas 6. *IJEDR: Indonesian Journal of Education and Development Research*, *2*(2), 1364–1371. https://api.semanticscholar.org/CorpusID:270874443

Mathias, B., Andra, C., & Schwager, A. (2021). The Integration of Visual and Kinesthetic Modalities in Vocabulary Learning Enhances Retention in Children. *Journal of Cognitive Psychology, 33*(6), 717–730.

Mayasari, D., Natsir, I., & Taufik, A. R. (2021). Analysis of Students' Mathematical Problem-Solving Ability in Term of Multiple Intelligence. *Jurnal Didaktik Matematika*, *8*(2), 250–266. https://doi.org/10.24815/jdm.v8i2.20369

Mayer, R. E., & Massa, L. J. (2003). Three Facets of Visual and Verbal Learners: Cognitive Ability, Cognitive Style, and Learning Preference. *Journal of Educational Psychology*, *95*(4), 833–846. https://doi.org/10.1037/0022-0663.95.4.833

McClain, L. R., & Zimmerman, H. T. (2016). Technology-mediated engagement with nature: sensory and social engagement with the outdoors supported through an e-Trailguide. *International Journal of Science Education, Part B*, *6*(4), 385–399. https://doi.org/10.1080/21548455.2016.1148827

Moreira, P. A. S., & Lee, V. E. (2020). School social organization influences adolescents' cognitive engagement with school: The role of school support for learning and of autonomy support. Learning and Individual Differences, 80, 101885. https://doi.org/10.1016/j.lindif.2020.101885

Mumtazah, N. W., & Asih, E. C. M. (2024). Using Mathematical Poetry to Enhance Students' Interest in Learning Mathematics by Leveraging Linguistic Intelligence. *Jurnal Pendidikan MIPA*, *25*(2), 554–568.

Pasiak, T., Dachrud, M., & Darise, G. N. (2018). Hubungan Antara Kecerdasan Interpersonal dan Kecerdasan Eksistensial-Spiritual Dengan Indeks Prestasi Kumulatif (IPK) Mahasiswa IAIN Manado. In *Journal of Islamic Education Policy* (Vol. 3, Issue 2). https://doi.org/10.30984/j.v3i2.865

Qoyyimah, N. D. (2022). Pengembangan Lembar Kerja Siswa Berbasis Multiple Intelligence di Sekolah Dasar. *Didaktika: Jurnal Kependidikan*, *11*(2), 79–94. https://doi.org/10.58230/27454312.143

Rofiah, N. H. (2016). Menerapkan Multiple Intelligences dalam Pembelajaran di Sekolah Dasar. *Jurnal Dinamika Pendidikan Dasar*, *8*(1), 68–79. http://jurnalnasional.ump.ac.id/index.php/Dinamika/article/view/937%0Ahttp://jurnalnasional.ump.ac.id/index.php/Dinamika/article/view/937/875

Šafranj, J. (2016). Logical/Mathematical Intelligence in Teaching English as a Second Language. *Procedia - Social and Behavioral Sciences*, *232*, 75–82.

Copyright © 2025 The Author(s)

https://doi.org/10.1016/j.sbspro.2016.10.019

Saufi, M., & Royani, M. (2016). Mengembangkan Kecerdasan Interpersonal dan Kepercayaan Diri Siswa Melalui Efektivitas Model Pembelajaran PBL. *Math Didactic: Jurnal Pendidikan Matematika*, *2*(2), 106–115. https://doi.org/10.33654/math.v2i2.35

Shearer, B. (2018). Multiple Intelligences in Teaching and Education: Lessons Learned from Neuroscience. Journal of Intelligence, 6(3), 38. https://doi.org/10.3390/jintelligence6030038

Sternberg, R. J. (1985). *Human Intelligence: Perspectives on Its Theory and Measurement*. Cambridge: Cambridge University Press. https://www.britannica.com/science/human-intelligence-psychology

Suarca, K., Soetjiningsih, S., & Ardjana, I. E. (2016). Kecerdasan Majemuk pada Anak. *Sari Pediatri*, *7*(2), 85. https://doi.org/10.14238/sp7.2.2005.85-92

Visser, B. A., Ashton, M. C., & Vernon, P. A. (2006). Beyond g: Putting multiple intelligences theory to the test. *Intelligence*, *34*(5), 487–502. https://doi.org/10.1016/j.intell.2006.02.004

Widhiarso, W. (2010). *Membuat Kategori Skor Hasil Pengukuran dari Skala*. Yogyakarta: Fakultas Psikologi Universitas Gadjah Mada.

Widiana, I. W., & Jampel, I. N. (2016). Improving Students' Creative Thinking and Achievement through The Implementation of Multiple Intelligence Approach with Mind Mapping. International Journal of Evaluation and Research in Education (IJERE), 5(3), 246. https://doi.org/10.11591/ijere.v5i3.4546

Winarto, P. (2010). *Maximizing Your Talent (Menemukan & Memaksimalkan Potensi Diri Anda)*. PT. BPK Gunung Mulia.

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