Understanding Multiple Intelligences for Basic Education

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Abstrak

Artikel ini menyelidiki penerapan dan implikasi pedagogis dari teori kecerdasan majemuk Howard Gardner dalam konteks pendidikan dasar. Pendidikan dasar, yang meliputi tingkat PAUD, sekolah dasar, dan sekolah menengah pertama, merupakan fase yang paling penting dalam membentuk pengetahuan, keterampilan, sikap, dan nilai-nilai dasar anak. Namun, sistem pendidikan tradisional sering kali mengandalkan standar akademis yang sempit, terutama menekankan pada kemampuan bahasa dan logika-matematika. Pendekatan ini dapat mengabaikan profil kognitif siswa yang beragam, sehingga mengakibatkan ketidakterlibatan dan pengembangan pribadi yang terbatas. Teori Gardner, yang mengidentifikasi sepuluh jenis kecerdasan yang berbeda - linguistik, logis-matematis, visual-spasial, bodily-kinestetik, musikal, interpersonal, intrapersonal, naturalistik, spiritual dan eksistensial - menawarkan kerangka kerja yang lebih luas dan lebih inklusif untuk memahami dan mengembangkan potensi siswa. Melalui kajian yang mendetail terhadap setiap jenis kecerdasan, studi ini menyoroti bagaimana pendidikan dasar dapat mengadaptasi strategi pembelajaran, kegiatan belajar, dan model penilaian untuk mendukung siswa yang beragam. Dengan menyelaraskan desain kurikulum dengan kecerdasan majemuk, para pendidik dapat menciptakan lingkungan belajar yang dinamis dan berbeda yang mendorong pemahaman yang lebih dalam, keterlibatan siswa, dan perkembangan holistik. Temuan ini menunjukkan bahwa mengintegrasikan kecerdasan majemuk ke dalam pendidikan dasar tidak hanya meningkatkan hasil akademik, tetapi juga menumbuhkan keterampilan hidup yang penting seperti empati, kreativitas, refleksi diri, kesadaran lingkungan, dan kolaborasi. Pada akhirnya, teori kecerdasan majemuk memperkuat perlunya paradigma pendidikan yang berpusat pada anak, inklusif, dan fleksibel yang menghargai perbedaan individu dan mempersiapkan siswa untuk menghadapi kompleksitas kehidupan modern. Translated with DeepL.com (free version)

Kata Kunci: kecerdasan majemuk, pendidikan dasar, pembelajaran holistik, pembelajaran berdiferensiasi, keberagaman pebelajar

Abstract

This article investigates the application and pedagogical implications of Howard Gardner's theory of multiple intelligences in the context of basic education. Basic education, which encompasses early childhood, primary, and lower secondary levels, serves as the most critical phase in shaping a child's foundational knowledge, skills, attitudes, and values. However, traditional educational systems often rely on narrow academic standards, primarily emphasizing linguistic and logical-mathematical abilities. This approach may overlook the diverse cognitive profiles of students, resulting in disengagement and limited personal development. Gardner's theory, which identifies ten distinct types of intelligence—linguistic, logical-mathematical, visual-spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, naturalistic, spiritual and existential—offers a broader, more inclusive framework for understanding and nurturing student potential. Through a detailed examination of each intelligence type, this study highlights how basic education can adapt instructional strategies, learning activities, and assessment models to support diverse learners. By aligning curriculum design with multiple intelligences, educators can create dynamic and differentiated learning environments that promote deeper understanding, student engagement, and holistic development. The findings suggest that integrating multiple intelligences into

basic education not only improves academic outcomes but also fosters essential life skills such as empathy, creativity, self-reflection, environmental awareness, and collaboration. Ultimately, the theory of multiple intelligences reinforces the need for a child-centered, inclusive, and flexible educational paradigm that respects individual differences and prepares students for the complexities of modern life.

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INTRODUCTION

Basic education is internationally recognized as a fundamental human right, carrying both political and legal obligations for states worldwide. In recent decades, the right to basic education has emerged as a distinct concept in international law, with UNESCO and United Nations human rights treaty bodies placing increasing emphasis on monitoring its implementation. UNESCO developed an operational definition of basic education in 2007, which serves as a useful tool for understanding and evaluating basic education systems globally (Singh, 2010). Basic education serves as the foundation of learning and development for individuals across the globe. Analysis of current research reveals that despite international recognition of the right to basic education, significant disparities persist in access and quality, particularly for marginalized populations. The conceptualization of basic education has evolved to encompass not only traditional literacy and numeracy skills but also a more holistic approach including infrastructure adequacy, teacher qualification, and democratic values.

A holistic understanding must be based on the fundamental characteristics that serve as its initial conditions. Reigeluth & Merrill (1979) divide instructional conditions into three categories: (1) the goals and characteristics of the field of study, (2) the constraints and characteristics of the field of study, and (3) student characteristics. Degeng (1989) states that student characteristics refer to the aspects or individual qualities that students already possess. Analyzing student characteristics aims to identify their personal traits. Essentially, instruction should support the growth and development of students in mastering the subject matter. The goal of instruction is to ensure that students understand knowledge and can use it as a reference for structuring their lives in the future (Cholifah, 2018).

The current understanding positions teachers as the sole authoritative and irreplaceable source of learning, reflecting the dynamics of teacher-centered learning. This is evident in research conducted by Thaariq (2023), which highlights frequent mismatches between students and teachers, particularly in teaching methods. This claim is supported by several studies that indicate students' dislike for certain subjects. For instance, Az-Zahroh et al (2019) and Qolbi et al. (2019) identified students' disinterest in mathematics as the background of their research. Furthermore, the study by Thaariq et al (2023) outlines issues in science-related subjects, such as a lack of hands-on experiments, an overemphasis on memorization and standardized testing, insufficient diversity and inclusivity in the curriculum, and inadequate integration of technology. Similar concerns are raised by Sagala et al (2022) regarding history lessons, citing constant curriculum changes, limited teaching materials, and students perceiving history as a dull subject. Numerous studies highlight the issues in the way subjects are delivered by teachers. Thaariq (2023b) states that today's students belong to Generation Z and Alpha, meaning they have largely adapted to digitalization in their lives. However, observations in the field show that teachers still rely on outdated teaching methods, justifying their approach by adhering to government-mandated curricula (Thaariq, 2023a).

The current learning paradigm has shifted from teacher-centered learning to student-centered learning. According to Degeng (1998), this constructivist paradigm allows students the freedom to develop their learning process independently. According to constructivist views, students have control over their own learning process and regulate it independently (Chen et al., 2022). Teachers are expected to guide students in constructing their own understanding and

knowledge while empowering them to grow (Belo et al., 2014). The constructivist perspective focuses on the interdependence of social and individual processes in the co-construction of knowledge. After reviewing the momentum for understanding the influence of social and cultural factors on cognition, methods for explaining learning from this perspective are identified (Saleem et al., 2021).

In constructivism, merely memorizing facts is not enough. Connections must be made with experience, and these connections are fluid, constantly evolving as new experiences occur. Based on this premise, constructivism aligns well with Howard Gardner's Theory of Multiple Intelligences (Matsumoto, 2022). The multiple intelligences theory restructures the classroom to focus on individual learners and shifts the teacher's attention toward meeting each student's needs (Torreon & Sumayang, 2021). Nolen (2003) also states that instruction based on this theory helps teachers identify successful students who are active learners.

Systematic reviews of multiple intelligences implementation in curriculum contexts have revealed significant progress in pedagogical approaches. Analysis of 244 publications produced between 1983 and 2015 identified substantial advances in teaching models, instructor roles, educational activities, assessment instruments, and real-world applications (Díaz-Posada et al., 2017). Implementation of multiple intelligences theory has been adapted across different cultural and religious contexts. In Indonesian Islamic education, multiple intelligences implementation has successfully improved student achievement while encouraging instructors to teach creatively through demonstrations, role-playing, information and communication technology integration, outdoor learning, and motivational techniques (Mahmud et al., 2024). Research evidence on multiple intelligences implementation reveals a robust and evolving field with applications spanning diverse educational contexts, technological innovations, and specialized settings. The theory has demonstrated practical value in enhancing student engagement, supporting academically vulnerable populations, and promoting pedagogical innovation across cultural contexts.

The main objective of this literature review is to examine the necessity of understanding multiple intelligences in basic education. The research questions in this study focus on the importance of understanding multiple intelligences in primary education, how this concept influences teaching strategies, and its implications for the role of teachers in the learning process. This study is limited to analyzing the theory of multiple intelligences and its relevance to basic education without conducting empirical research. The discussion focuses on the fundamental concepts of the theory, its application in learning, and strategies that teachers can use to accommodate various types of intelligence among students.

METHODS

This study adopts a narrative literature review approach, allowing for an in-depth exploration of various relevant studies without strict selection criteria. Narrative reviews can be used to answer one or more research questions, even though the selection criteria may not always be explicitly stated (Ferrari, 2015). This method is particularly useful for identifying trends, patterns, and research gaps within a specific field of study. In general, a narrative review serves as a qualitative summary of the available literature, whether it involves statistical analysis or not (Pautasso, 2019). Within this context, a narrative review enables the integration of various studies with different research questions and methodologies (Baumeister, 2013). As

a result, this approach provides a broader and more holistic understanding of the development of knowledge in the studied field. This method is widely applied across various disciplines in social sciences and humanities, which tend to be interpretative and subjective. Most narrative reviews are rooted in the subjectivist and interpretivist paradigms, which emphasize that reality is subjective, contextual, and dynamic (Sukhera, 2022). With this perspective, a narrative review not only presents factual information but also offers deeper insights into how a phenomenon is understood within different academic contexts.

One of the main reasons to study this topic is to improve teaching methods in elementary schools. Teachers who understand multiple intelligences can design more varied learning strategies, making it easier for students to grasp concepts effectively based on their dominant intelligence. For instance, students with visual-spatial intelligence may learn better through images or diagrams, while those with kinesthetic intelligence may grasp concepts more easily through hands-on activities or physical movement. Furthermore, applying the theory of multiple intelligences helps optimize students' potential. An education system that only evaluates intelligence based on academic ability may overlook other talents and strengths that children possess. By adopting this approach, schools can help students recognize and develop their unique skills, whether in the arts, sports, or social abilities, making them better prepared for the future. In addition, a multiple intelligence-based approach can enhance students' motivation and self-confidence. When students feel valued and are given opportunities to learn in a way that aligns with their strengths, they become more motivated to improve. This also helps reduce frustration or failure that often arises due to teaching methods that do not match their learning styles. Finally, understanding multiple intelligences in basic education is highly relevant in preparing students for future challenges. The modern world demands diverse skill sets, not just academic intelligence. By providing students with opportunities to develop various aspects of their intelligence, schools can play a crucial role in shaping individuals who are more creative, adaptable, and ready to compete in different fields of life.

DISCUSSION
A Brief History of Multiple Intelligences

Despite shifts between theoretical and practical focuses, intelligence has remained a key concept in psychology. Following the Darwinian revolution, when scientific psychology was emerging, many researchers became interested in how intelligence developed across different species (H. Gardner, 1995). During the late 19th and early 20th centuries, several publications examined variations in intelligence both among species and within human populations (Bolton, 1895; Hobhouse, 1915; Romanes, 1883). Francis Galton, a cousin of Charles Darwin, was one of the first psychologists to attempt to measure intelligence directly. Although Galton (1869) was theoretically interested in intelligence, his work also had practical implications. As a staunch eugenicist, he aimed to assess intelligence and promote selective breeding to enhance the overall intellectual capacity of the population.

The first intelligence test was developed by Alfred Binet and Theodore Simon in 1905 in Paris at the request of the French government. The purpose of the test was to identify students who were most likely to succeed or fail in the school system. In the 1930s, Lewis Terman revised this test and renamed it the Stanford-Binet Intelligence Test, introducing the concept of Intelligence Quotient (IQ)—the ratio of tested mental age to chronological age, multiplied

by 100. Over time, the Stanford-Binet IQ Test and the Wechsler Intelligence Scale for Children (WISC) became the primary tools for assessing intelligence. However, these tests primarily focused on verbal-linguistic and mathematical-logical intelligence, leading to an educational system that emphasized reading, writing, and mathematical skills as the main measures of intelligence (Nicholson-Nelson, 1999).

In 1983, Howard Gardner introduced the Theory of Multiple Intelligences in his book *Frames of Mind: The Theory of Multiple Intelligences*. Gardner developed his theory based on brain research and studies of various individuals, including stroke victims, autistic individuals, prodigies, and those with learning disabilities. He concluded that intelligence is not a single, fixed trait measurable by standardized tests, but rather consists of multiple intelligences that operate independently or in synergy depending on environmental and developmental factors (Nicholson-Nelson, 1999). Candidate capacities that consistently appeared across various sources were compiled into a preliminary list of human intelligences, while those that emerged only occasionally or were defined differently in different contexts were excluded from consideration (H. Gardner & Hatch, 1989). Students who once perceived themselves as unintelligent can thrive when they discover their strengths in areas such as music or social interactions. Kinesthetic learners, for example, can recognize their abilities as being "body smart." The notion that intelligence is not solely determined by IQ has been a transformative and empowering concept, allowing individuals to redefine their potential and capabilities (White, 2005).

Initially in Gardner (1983) book, he identified seven types of intelligence, namely (1) logical-mathematical, (2) spatial, (3) musical, (4) kinesthetic, (5) interpersonal, (6) intrapersonal and (7) linguistic. However, in the modern era, Gardner (2000), in his book *Intelligence Reframed: Multiple Intelligences for the 21st Century*, stated that three new intelligences have emerged in the 21st century: Naturalistic Intelligence, Spiritual Intelligence, and Existential Intelligence. These intelligences are interconnected, and research suggests that improving proficiency in one area can enhance overall cognitive abilities. Therefore, it is essential to encourage children to engage with and develop all their intelligences. Providing a stimulating and supportive environment enriched with diverse educational resources—such as books, games, toys, and interactive materials—plays a crucial role in fostering intellectual, emotional, and social growth. Students who are exposed to such experiences gain a broader range of learning strategies, enabling them to acquire knowledge more effectively across various domains (Gardner, 1987).

Verbal-Linguistic Intelligence

Verbal-linguistic intelligence is a fundamental aspect of multiple intelligences that children inherently possess. This form of intelligence is one of the most commonly utilized in everyday activities. More specifically, verbal-linguistic intelligence pertains to an individual's capacity to effectively process, comprehend, and convey information and communication, whether in spoken or written form (Hali, 2017). The emphasis on linguistic intelligence is attributed to its significant role in the enhancement of language skills among early-grade students. Linguistic intelligence encompasses the capacity to utilize words proficiently, which includes the manipulation of language structure, phonology (the sounds of language),

semantics (the meanings of language), and the practical application of language (Zhran et al., 2024).

The study results indicate that students exhibited seven indicators of verbal-linguistic intelligence in reading. First, they demonstrated strong prior knowledge in recognizing words. Second, they enjoyed engaging in word games like Scrabble. Third, they entertained themselves and their peers by playing tongue twisters. Fourth, they were able to explain the meanings of words that were written and discussed. Fifth, they encountered challenges in mathematics. Sixth, their conversations often referenced things they had read or heard. Lastly, they possessed the ability to compose poetry based on personal experiences (Hasanudin & Fitrianingsih, 2020). The other findings also revealed that when their research used TikTok application as a digital media, when combined with suitable methods and techniques, can serve as an interactive learning tool to enhance verbal-linguistic intelligence in early childhood. With its diverse features and user-friendly operation, the TikTok application can be utilized for dialogue-based learning between teachers and students (Nu'man et al., 2022). Lastly, the research findings from Hasanudin & Fitrianingsih (2018) indicate that: 1) the implementation of the flipped classroom follows six stages, and 2) the improvement in students' verbal-linguistic intelligence is observable in each cycle. In the preliminary study, the researcher assessed the learning styles of 30 students. The results showed that 6 students had a visual learning style, 7 had an auditory learning style, and 17 had a kinesthetic learning style. In Cycle I, after implementing the FLIP model, students' verbal-linguistic intelligence was recorded at 61.43. By Cycle II, this score increased to 81.03.
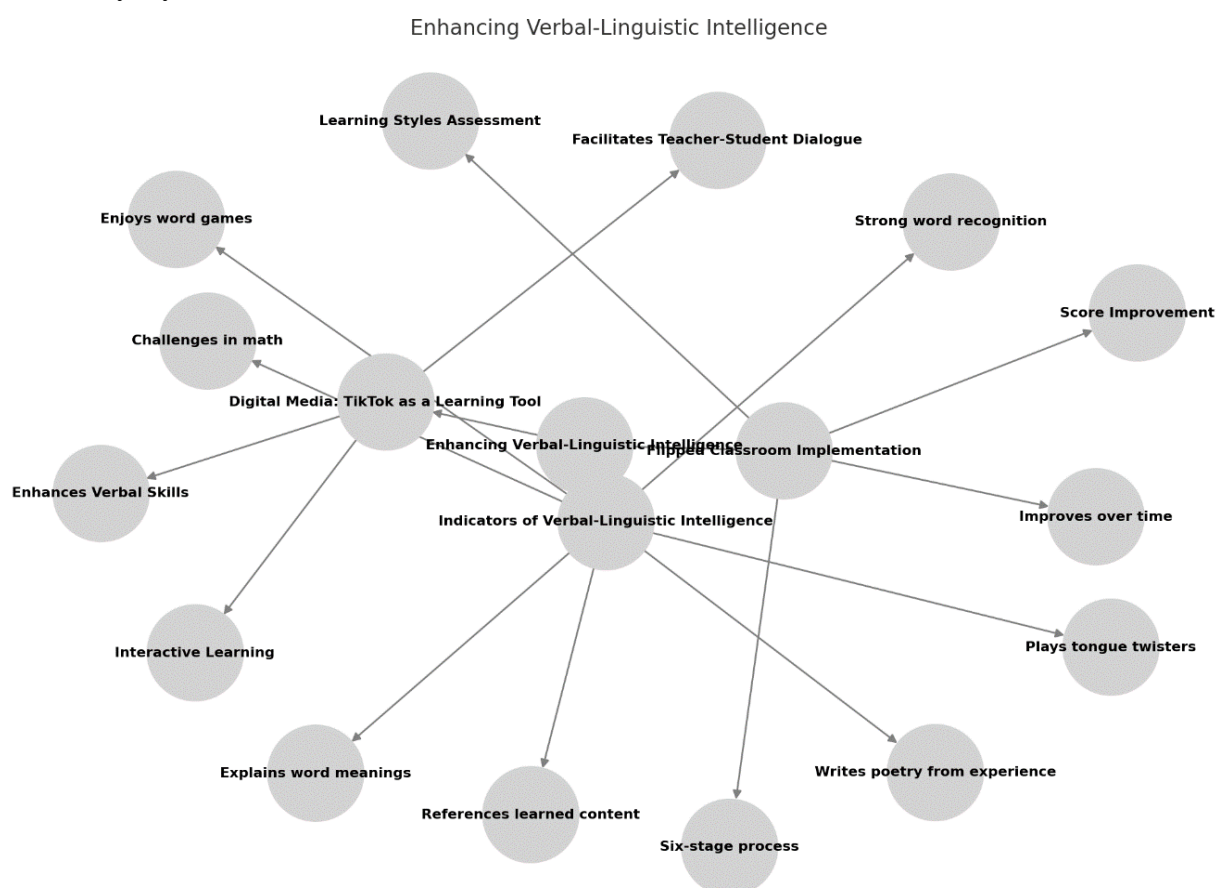

Figure 1 The key concepts related to enhancing verbal-linguistic intelligence based on findings.

In summary, various studies highlight different approaches to enhancing students' verbal-linguistic intelligence. Key indicators include strong word recognition, engagement in word games, and the ability to explain and reference learned content. The use of digital media, such as the TikTok application, has proven effective in fostering interactive learning when combined with appropriate methods. Additionally, the implementation of the flipped classroom model, structured in six stages, has demonstrated significant improvements in students' verbal-linguistic intelligence, as evidenced by increased scores across learning cycles. These findings emphasize the importance of diverse instructional strategies and digital tools in supporting language development and student engagement.

Logical-Mathematical Intelligence

Logical-mathematical intelligence refers to the ability to analyze problems systematically, perform mathematical calculations, and explore scientific concepts (Tun et al., 2020). According to Gardner (1983), this intelligence involves recognizing patterns, applying deductive reasoning, and thinking logically (as cited in Alviárez et al., 2015). It encompasses the capacity to use abstraction, logic, and both deductive and inductive reasoning in problem-solving. Additionally, it includes the ability to manipulate objects scientifically, think concretely about physical entities, conceptualize relationships in the absence of objects, and determine the consequences of events (as cited in Gudder, 2013). Individuals with strong logical-mathematical intelligence excel in working with numbers and recognizing logical patterns and relationships (Armstrong, 2009). They enjoy experimenting, questioning, and solving logical puzzles. Their approach to learning involves identifying connections, organizing information systematically, and structuring ideas in a logical sequence. According to Kennedy (in Šafranj, 2016), logical-mathematical learners solve problems using reasoning, quickly perform mathematical calculations, and prefer structured, categorized information. They are particularly adept at deductive reasoning, pattern recognition, and logical thinking (Šafranj, 2016).

The research from Azinar et al (2020) found that only a few students—three out of 25—demonstrated logical-mathematical intelligence based on numeracy and problem-solving indicators. This suggests that students' logical-mathematical intelligence remains low and requires further examination. The result of the research from Niroo et al (2012) indicated a significant relationship between mathematical intelligence and students' overall mathematical functioning, particularly at the levels of application and reasoning. However, no such relationship was found at the knowing level. Additionally, no significant correlation was observed between these two variables across all cognitive levels. Lastly, the research from Isnani et al (2023) results indicate that students with high logical intelligence can meet three indicators of mathematical literacy when solving mathematical problems. Meanwhile, those with moderate logical intelligence can fulfill two indicators, and students with low logical intelligence can also meet two indicators. On average, across all categories of logical intelligence, students demonstrate mathematical literacy that meets two indicators.
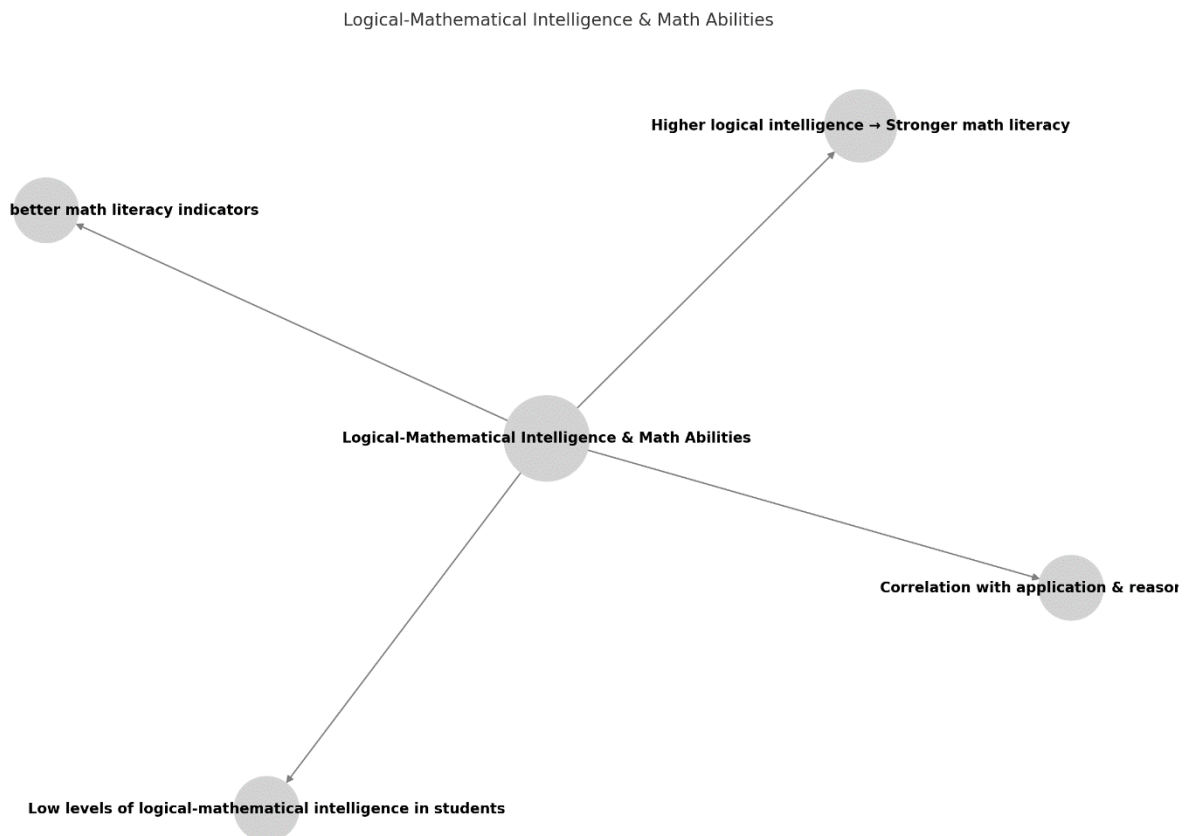
Logical-Mathematical Intelligence & Math Abilities

Higher logical intelligence → Stronger math literacy

better math literacy indicators

Logical-Mathematical Intelligence & Math Abilities

Correlation with application & reason

Low levels of logical-mathematical intelligence in students

Figure 2 The key concept of the logical-mathematical Intelligence based on findings

The research collectively highlights the varying influence of logical-mathematical intelligence on students' mathematical abilities. While some studies indicate a significant relationship between mathematical intelligence and problem-solving skills at higher cognitive levels, others suggest that overall logical-mathematical intelligence remains low among students. Despite differences in findings, a common trend emerges: students with higher logical intelligence tend to demonstrate stronger mathematical literacy. These insights underscore the need for further investigation and targeted interventions to enhance students' logical-mathematical abilities and overall mathematical proficiency.

Spatial Intelligence

Spatial thinking is the ability to consider the shapes and positions of objects in space, as well as spatial processes like object deformation and the movement of objects or other entities within a space (Hegarty, 2010). There are several key reasons. First, spatial intelligence plays a vital role in evolution and adaptation. Second, research in intelligence and cognitive processes over the past century has shown that spatial thinking serves as a fundamental counterpart to verbal thinking. Third, spatial thinking enhances reasoning even in areas that do not appear inherently spatial. Fourth, it is especially crucial in the fields of science, technology, engineering, and mathematics (STEM) (Newcombe & Frick, 2010). Spatial relation refers to the ability to understand the arrangement of objects or their components in space and how they relate to one another (Aszalos & Bako, 2004).

According to the result study from Kholid & Dewi (2024), spatial skills aid in visualizing and manipulating objects, which is essential for solving complex mathematical problems,

especially in non-routine problem-solving. Another study from Kolvoord (2005), tools like GIS (Geographic Information Systems) rely heavily on spatial thinking to analyze and interpret geographical data, helping students understand environmental phenomena and spatial patterns. The last study from Aspanani et al (2023) showed that there is a significant relationship between spatial intelligence and visual memory with learning (the object of their study is anatomy) and planning to enhance these characteristics can be fruitful in students.
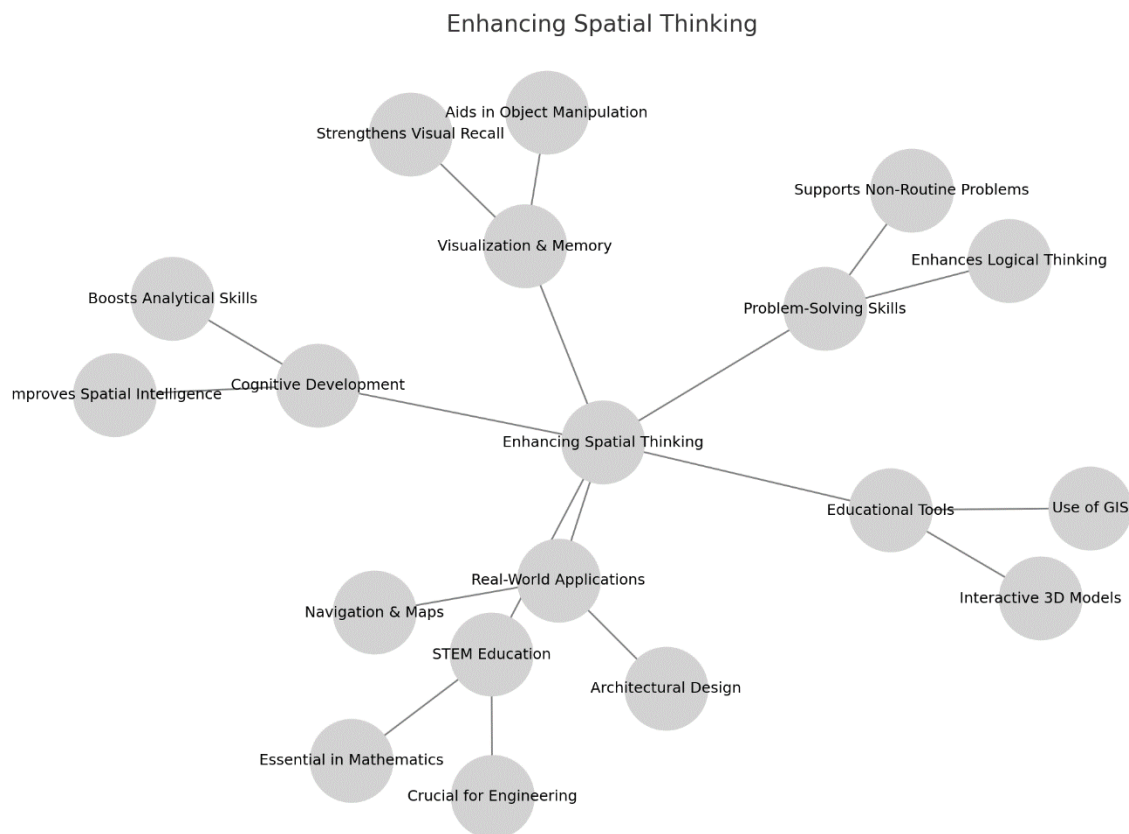

Figure 3 The key to enhancing spatial thinking based on findings

Spatial skills are essential for learning and problem-solving across various domains. They enhance the ability to visualize and manipulate objects, which is particularly useful for tackling complex mathematical problems. In fields like geography, spatial thinking helps in analyzing and interpreting data, improving understanding of environmental patterns. Additionally, there is a strong connection between spatial intelligence, visual memory, and learning, especially in subjects that require detailed visualization, such as anatomy. Strengthening these skills can greatly benefit students by improving their cognitive abilities and overall academic performance.

Musical Intelligence

Modern definitions of music go beyond traditional understandings. Blacking (1973) described music as any sound organized by humans, though today, much of it is created by computers. DeNora (1986) explored how musical meaning emerges through social interaction, referring to music as a "place and space for 'work.'" Small (1998) introduced the concept of "musicking," which includes not just performing music but also listening, practicing, rehearsing, or dancing—any form of participation. John Cage's 1952 piece 4'33" further

broadened the idea of music by having musicians remain silent for the entire duration, making the ambient sounds of the performance space itself part of the musical experience (Sternberg, 2021). Musical intelligence refers to the abilities related to composing, performing, and appreciating music, as well as other musical aspects. It encompasses skills involved in recognizing and processing pitches, patterns, and rhythms (Gardner, 1983, 2011).

The study from Kusuma & Dwipriyoko (2021) indicates a link between musical intelligence and the improvement of mathematical connection ability, as well as increased student motivation in learning mathematics. Additionally, musical intelligence is one of several factors that can influence this ability. The findings from Veisi et al (2024) indicated that both successful intelligence and musical intelligence had significant direct effects on wisdom. Furthermore, musical intelligence was found to mediate the relationship between successful intelligence and wisdom. The proposed model demonstrated a good fit to the data (RMSEA = 0.071, p < 0.05), suggesting that successful intelligence, through the mediating role of musical intelligence, accounted for 90% of the variance in wisdom. Lastly, findings from Bonetti et al (2021) indicate that individuals with lower intelligence tend to use music more frequently to seek intense sensory experiences compared to those with higher intelligence.
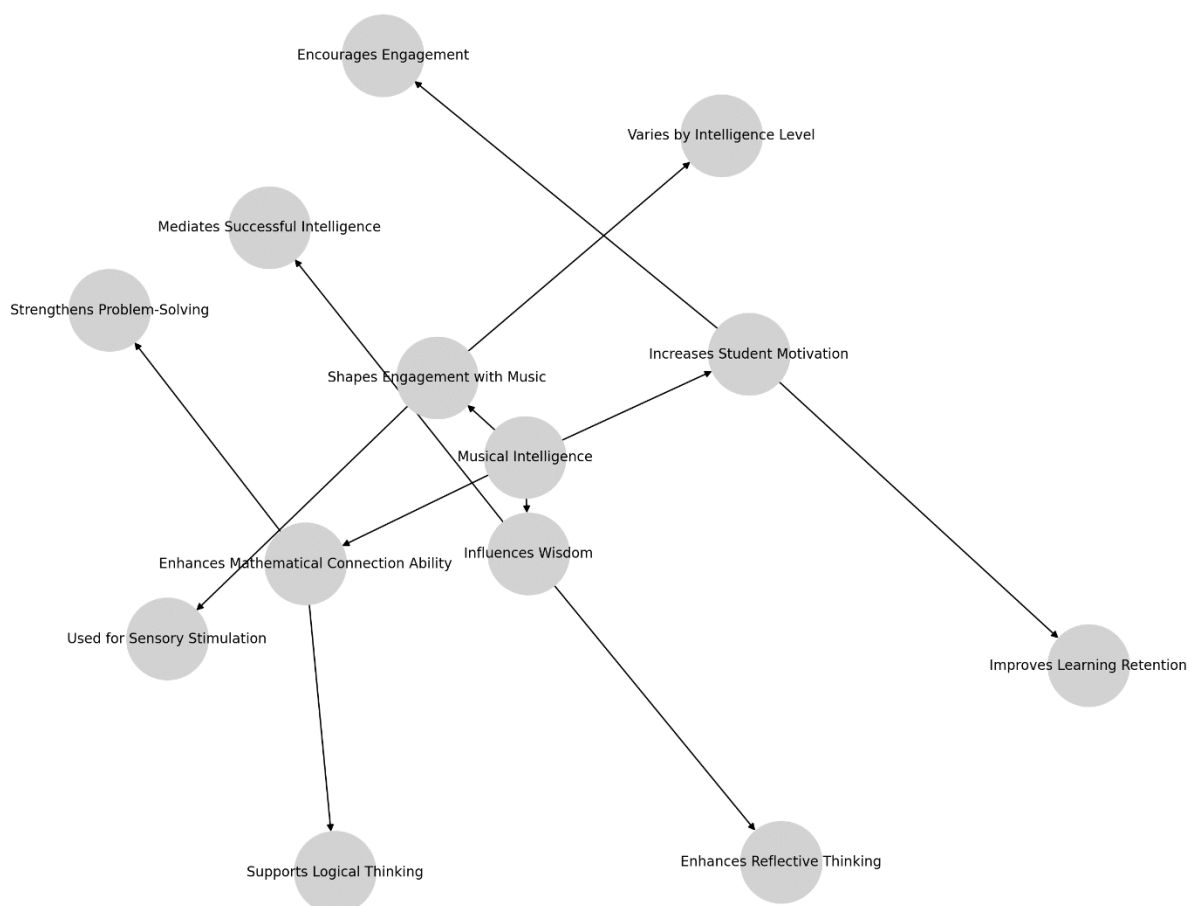

Figure 4 The key impact of musical intelligence on cognitive and emotional processes based on findings

Musical intelligence plays a significant role in various cognitive and emotional processes. It contributes to enhancing mathematical connection ability and increasing student motivation in learning. Additionally, it influences wisdom, acting as a mediator between successful

intelligence and wisdom. Furthermore, intelligence levels may shape how individuals engage with music, with those of lower intelligence using it more frequently for intense sensory experiences.

Kinesthetic Intelligence

This category focuses on movement and action. People with strengths in this area excel in physical activities like sports or dance and often prefer hands-on tasks. They may enjoy acting or performing and are skilled at building or creating things. Their learning style is typically experiential—they grasp concepts best by physically engaging with them rather than through reading or listening. Those with strong bodily-kinesthetic intelligence rely on muscle memory, meaning they retain information through physical movement rather than verbal or visual recall (Gardner, 1987). Thus, this refers to the capacity to develop and apply physical skills effectively. Top athletes showcase this intelligence in their respective sports, such as Australian golfer Greg Norman and American golfer Tiger Woods, as well as tennis champions Roger Federer and the Williams sisters. It is also evident in performers like Angelina Jolie in the film industry (Kivunja, 2015).

The result study from Michelaki & Bournelli (2016) revealed that preschool children's bodily-kinesthetic intelligence can be enhanced through creative dance sessions. The findings indicated overall improvement in all children, with some showing slight but satisfactory progress and others experiencing significant development. Statistical analysis demonstrated a notable difference in the average bodily-kinesthetic intelligence scores between the 1st, 4th, and 7th lessons, both in individual abilities and overall intelligence levels. The substantial variation in results further confirms that these creative dance sessions effectively contributed to the improvement of bodily-kinesthetic intelligence in all students. The conclusion of the study from Koçak (2019) revealed that the extent of participation in sports and the level of well-being influence attitudes toward sports and the development of bodily-kinesthetic intelligence. Similarly, as attitudes toward sports become more positive, bodily-kinesthetic intelligence also improves. The research from Mashkoor & Hameed (2022) also conclude that there was a significant difference in physical intelligence between the experimental and control groups in the post-tests, favoring the experimental group. Additionally, a notable difference was observed in fundamental basketball skills—such as forward shooting, free throws, and passing—within both groups. Finally, significant differences were identified between the two groups in forward shooting, flexibility, and agility.
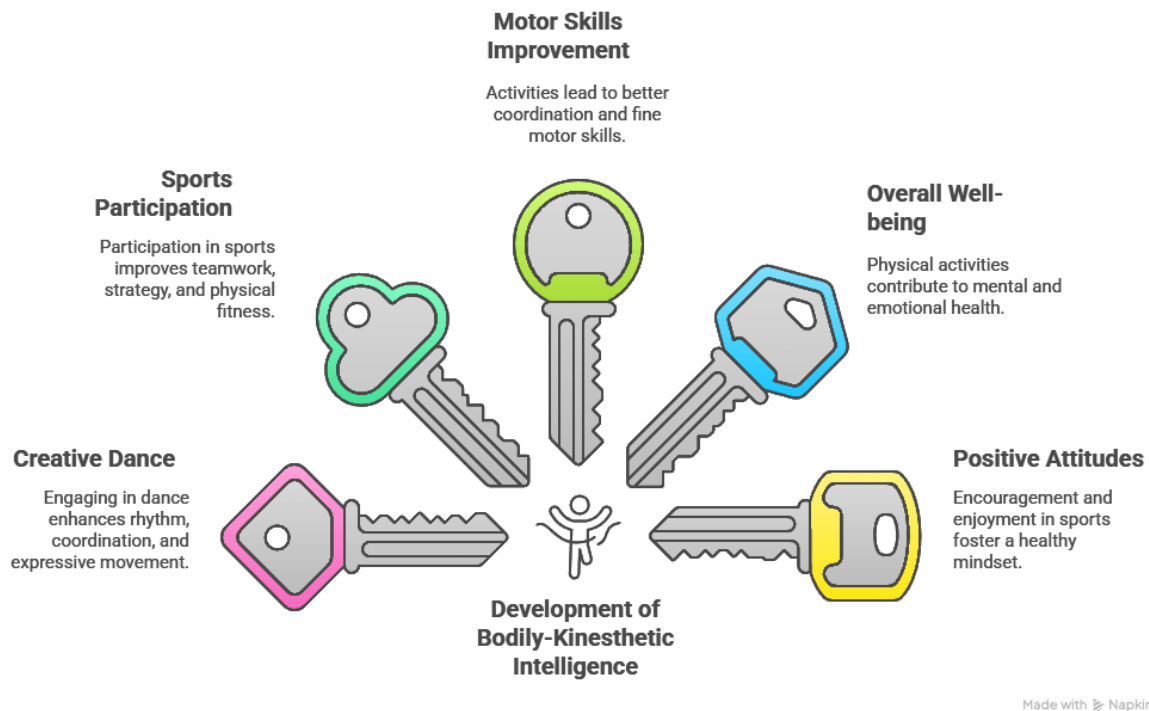
Figure 5 The key to enhancing bodily-kinesthetic intelligence based on findings

The findings collectively suggest that bodily-kinesthetic intelligence can be effectively developed through physical activities such as creative dance and sports participation. Engaging in movement-based experiences leads to overall improvement, with some individuals showing gradual progress while others achieve significant development. Positive attitudes toward sports and well-being also play a crucial role in enhancing bodily-kinesthetic intelligence. Additionally, structured physical training can significantly improve fundamental motor skills, flexibility, and agility, further supporting the importance of active engagement in sports and movement-based learning.

Interpersonal Intelligence

Interpersonal intelligence is one of the multiple intelligences identified by Gardner (1983). When developing the concept of personal intelligence, Gardner explored two key aspects of human nature: the internal aspect, known as intrapersonal intelligence, and the external aspect, which involves understanding and interacting with others—referred to as interpersonal intelligence (Lai et al., 2017). This type of intelligence encompasses the ability to recognize and interpret the emotions, intentions, and motivations of others by observing facial expressions, vocal tones, and body language. It also involves recognizing different types of interpersonal relationships and responding appropriately in social interactions (Armstrong, 1999; H. Gardner, 1993). According to Armstrong (2009), interpersonal intelligence includes the capacity to establish and maintain relationships, function effectively in a community, and accurately interpret various social cues such as expressions, gestures, and voice inflections.

The findings of Istapra et al (2021) study indicate a significant correlation between interpersonal intelligence and student achievement. This is supported by statistical analysis, where the calculated r-value exceeds the critical r-value (0.995 > 0.347) at a 5% significance level. The results from Lastari et al (2023) indicate that both the experimental and control

classes have a significance value greater than 0.05. The pretest data and learning outcomes also show a significance value above 0.05 (0.47 > 0.05). Students taught using the problem-based learning model demonstrated better interpersonal intelligence and learning outcomes compared to those taught using the direct instruction model. Furthermore, there is a positive correlation between interpersonal intelligence and student learning outcomes in the problem-based learning approach. The learning outcome improvement was 0.41 (moderate), while the increase in students' interpersonal intelligence was 0.55 (moderate). Lastly, based on the study from Zaini & Dianto (2022), interpersonal intelligence is measured through three key indicators: (1) social sensitivity, which falls into the very high category at 67.67%, (2) social insight, also classified as very high at 56.39%, and (3) social communication, which is in the very high category at 60.15%.
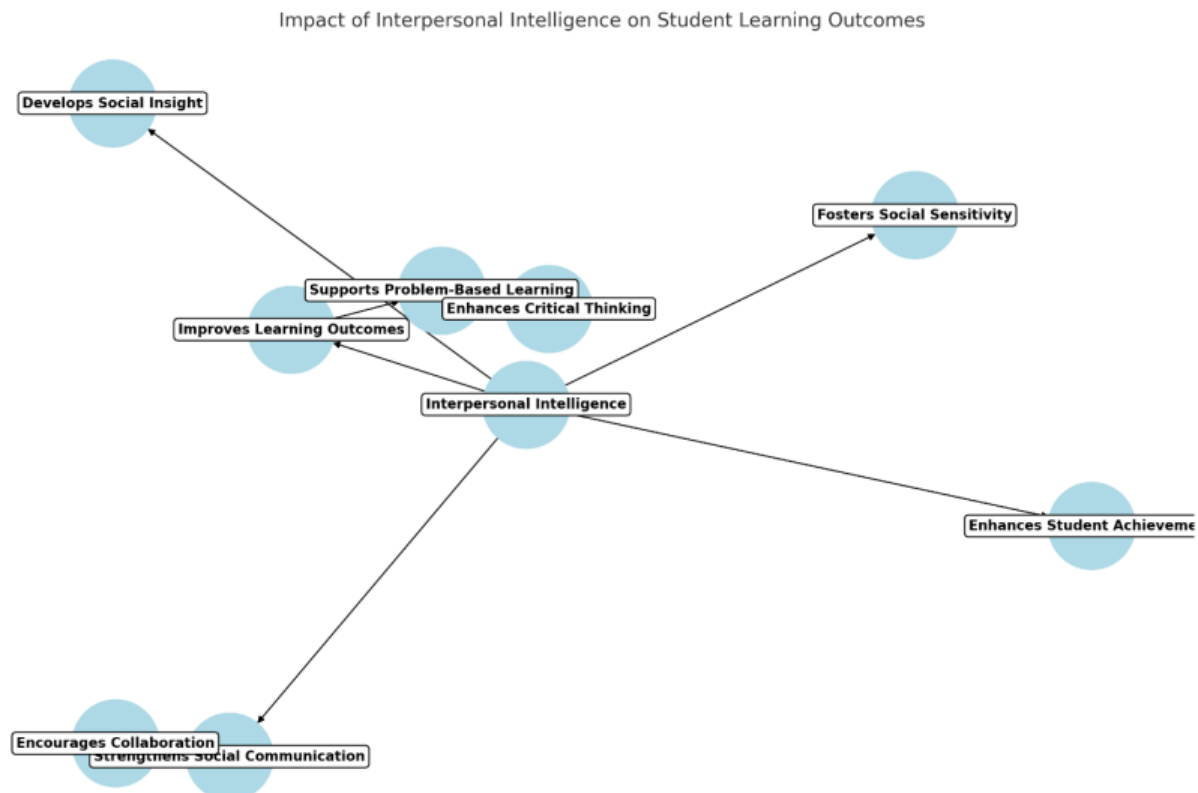

Figure 6 The key impact of interpersonal intelligence on student learning outcomes based on findings

The findings indicate a strong correlation between interpersonal intelligence and student achievement. Students with higher interpersonal intelligence tend to perform better academically. Additionally, the use of a problem-based learning model enhances both interpersonal intelligence and learning outcomes more effectively than direct instruction. The results show a moderate improvement in learning outcomes and interpersonal intelligence among students taught with this approach. Furthermore, interpersonal intelligence can be assessed through three key aspects: social sensitivity, social insight, and social communication, all of which were found to be at a very high level.

Intrapersonal Intelligence

Intrapersonal intelligence, meaning "within oneself," is one of the nine types of intelligence outlined in Howard Gardner's Theory of Multiple Intelligences. A Harvard

psychologist, Gardner introduced this concept in 1983, challenging traditional views on intelligence (Gardner, 2006). He proposed that intelligence is not a single, fixed ability but rather consists of multiple dimensions. His theory identified several distinct forms of intelligence (Gardner, 1983; Gutierrez et al., 2006). Intrapersonal intelligence, often referred to as "self-smart," is the ability to understand and reflect on one's inner thoughts and emotions. It involves independent thinking without relying on external influences. This type of intelligence enables individuals to recognize their true selves, set personal goals, and understand their desires. It plays a crucial role in personal growth, creativity, and learning. Everyone possesses some level of intrapersonal intelligence, but those who excel in it tend to be highly self-motivated, introspective, independent, and productive (Sadiku & Musa, 2021a).

The study from Moon & Song (2024) examined how intrapersonal intelligence among childcare teachers affects their respect for children's rights. It found that positive psychological capital and psychological burnout mediate this relationship, suggesting that enhancing intrapersonal intelligence can improve respect for children's rights through better psychological well-being. Another study from Jeong & Kim (2024) analyzing the relationship between intrapersonal intelligence and technology acceptance found that intrapersonal intelligence significantly influences behavioral intention and use behavior when using meditation apps. This suggests that individuals with higher intrapersonal intelligence are more likely to adopt and use technology effectively. In addition, study from Arteaga-Checa et al (2023) who make an intervention program aimed at developing intrapersonal intelligence in university students highlighted the potential benefits of targeted interventions for enhancing wisdom and self-awareness. The last study from Jannah (2023) examining the relationship between intrapersonal intelligence and learning independence found no significant correlation, suggesting that while intrapersonal intelligence is important, it may not directly influence learning independence.
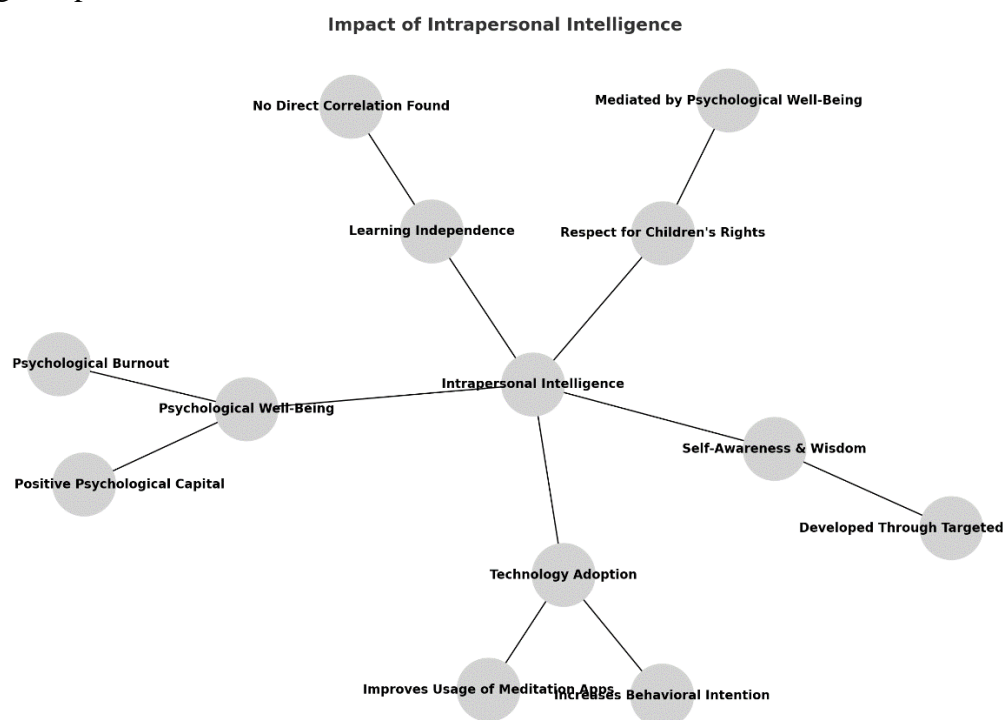

Figure 7 The key impact of intrapersonal based on findings

Research on intrapersonal intelligence highlights its significant impact on various aspects of personal and professional life. It plays a crucial role in fostering psychological well-being, influencing behavioral intentions toward technology use, and enhancing self-awareness through targeted interventions. However, its direct relationship with learning independence remains unclear. These findings suggest that while intrapersonal intelligence contributes to personal growth and adaptability, its effects may vary depending on the context.

Naturalistic Intelligence

Intelligence is a biological and psychological capacity for processing information, which can be utilized within a cultural context to solve problems or produce culturally valued creations (Gardner, 1983). Naturalistic intelligence is a more recent addition that aligns with Gardner's standards for defining an intelligence. He successfully identified specific brain areas linked to each type of intelligence, and naturalistic intelligence is associated with regions involved in pattern recognition and heightened sensory awareness (Sadiku & Musa, 2021b). Naturalistic intelligence is demonstrated through a strong awareness of the environment, such as actively participating in or supporting environmental conservation efforts (Lazear, 2000). Individuals with this intelligence tend to avoid harmful actions like indiscriminate tree cutting, damaging plants, mistreating animals, or hunting. Instead, they focus on maintaining a clean and sustainable environment. This type of intelligence is commonly found in biologists, nature enthusiasts, and environmental activists (Ningrum et al., 2018). According to Hayes (2009), students who engage in direct observation of nature are more likely to develop the ability to recognize and understand the natural world.

The study from Watve & Watve (2018) found that individuals with high naturalistic intelligence are likely to excel in careers related to nature, such as conservation, environmental science, and biology. They contribute significantly to sustainable management and conservation efforts. Expert naturalists are highly sensitive to the variety, relationships, and patterns in natural objects. They utilize multiple senses (visual, auditory, olfactory, tactile, and gustatory) to experience their surroundings, which is indicative of high naturalistic intelligence. The research findings from Wirdianti et al (2019) revealed a connection between: (1) naturalistic intelligence and responsible environmental behavior; (2) personality and responsible environmental behavior; and (3) the combined influence of both naturalistic intelligence and personality on responsible environmental behavior. Therefore, enhancing both competencies—naturalistic intelligence and personality—is a crucial step in fostering students' responsible behavior toward the environment. Lastly, from another research, there is an impact of students' naturalistic intelligence levels on their critical thinking skills when taught using problem-based learning methods. This is supported by the analysis results, where the calculated t-value ($t_o = 6.89$) is greater than the critical t-value ($t_t = 2.03$), indicating a significant positive correlation, with a determination coefficient of 0.58 (Suhirman, 2020).
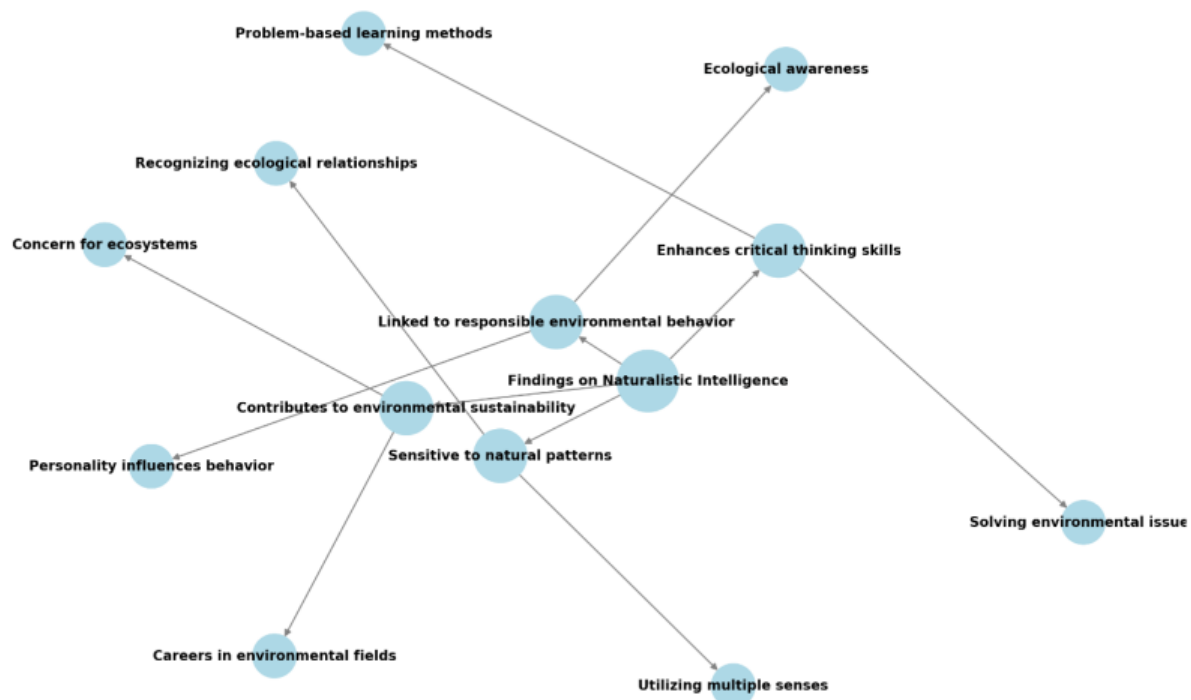
Figure 8 The key findings of naturalistic intelligence

In conclusion, individuals with high naturalistic intelligence tend to thrive in nature-related careers and play a vital role in promoting environmental sustainability. This type of intelligence is closely linked to a strong awareness of natural patterns and relationships, often involving the use of multiple senses to engage with the environment. Research indicates that naturalistic intelligence, along with personality, significantly influences responsible environmental behavior. Additionally, students with higher levels of naturalistic intelligence demonstrate improved critical thinking skills, especially when engaged through problem-based learning approaches. Therefore, developing both naturalistic intelligence and positive personality traits is essential for encouraging responsible and thoughtful engagement with environmental issues.

Existential Intelligence

Exploring fundamental questions about existence—like the meaning of life or what happens after death—is a common human experience, and most individuals hold some beliefs about these existential topics. As such, reflecting on these issues and finding personal meaning may play a key role in overall well-being. However, people vary greatly in how frequently they think about such matters. Modern psychology could benefit from a tool that measures existential thinking to better understand its impact and connections to other aspects of life (Allan & Shearer, 2012). Individuals with strong existential intelligence tend to be deeply introspective. They understand that truly comprehending the world around them requires a strong awareness of themselves. As a result, those with high existential intelligence often also demonstrate strong intrapersonal intelligence. They have a clear understanding of their own beliefs and typically interpret new information through the lens of their personal values and life experiences (McCoog, 2010). Some researchers refer to existential learners as "wonder smart" due to their ability to explore the deeper meaning behind everyday experiences

(Logsdon in McCoog, 2010). Others describe this learning style as "the human response to being alive in all its dimensions" (Stanford, 2003).

Existential intelligence-oriented learning tools have demonstrated significant effects on students' creative thinking skills and engagement. Research conducted in Indonesia found that students exposed to learning devices designed around existential intelligence achieved higher post-test scores compared to those in traditional learning environments. These tools fostered active participation, curiosity, and collaboration among students, enhancing their understanding of complex concepts (Sari et al., 2019). A study at the World Islamic Sciences University in Jordan assessed existential intelligence among graduate students and found it to be at a medium level overall. Items related to philosophical reflection and empathy scored higher, while questions about humanity's origins scored lower. The findings suggest that educational environments play a critical role in shaping existential intelligence (Jaddou & Abdullah, 2018). Lastly, research in an English for Specific Purposes (ESP) classroom used existential intelligence as a tool to enhance speaking skills. The study proposed using AI and deep learning methods to assess the impact of interventions, aiming to reduce bias in evaluations (Philip et al., 2024).
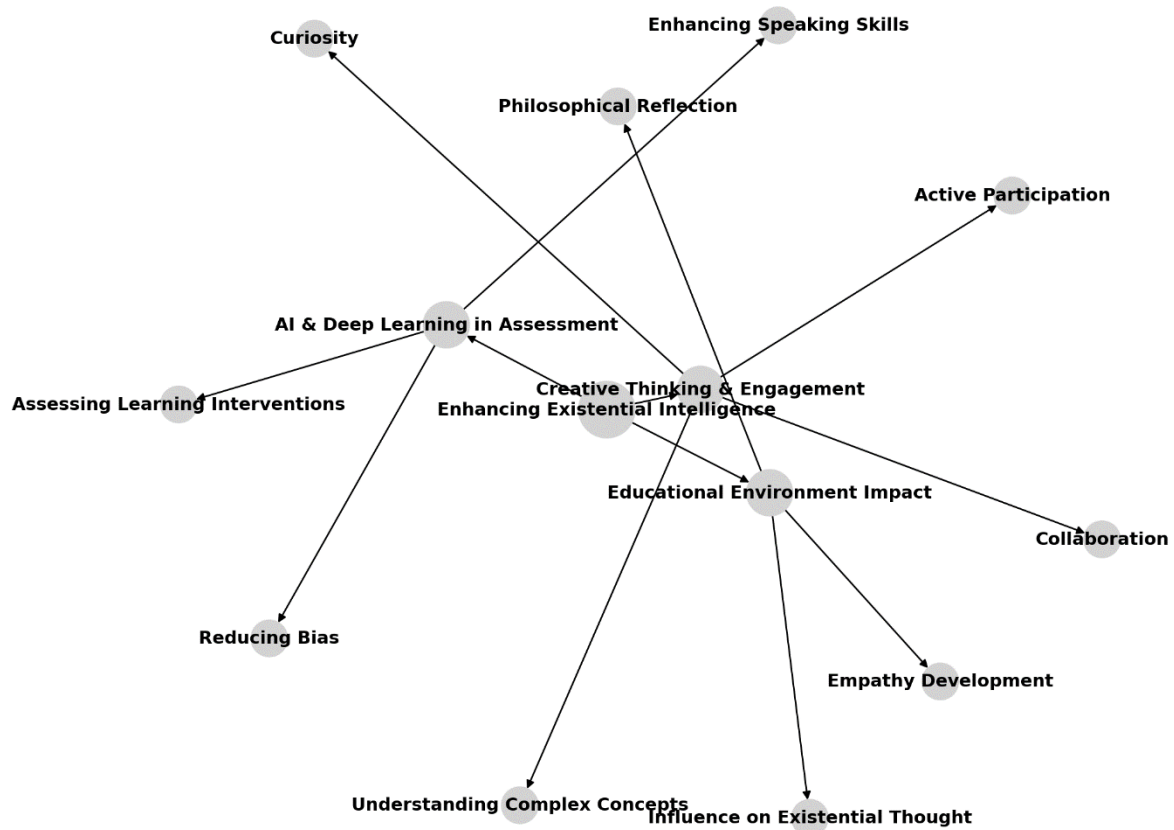

Figure 9 The key to enhance existential intelligence based on findings

Existential intelligence-oriented learning tools have been shown to significantly enhance students' creative thinking, engagement, and overall learning outcomes. By encouraging active participation, curiosity, and philosophical reflection, these approaches help students develop a deeper understanding of complex concepts. Educational environments play a crucial role in shaping existential intelligence, influencing how individuals engage with profound questions about life and human existence. Additionally, integrating advanced technologies like AI and

deep learning can further refine assessments and reduce biases in evaluating learning interventions.

Spiritual Intelligence

The concept of spiritual intelligence is increasingly recognized by educators and psychologists. It refers to an awareness of our connection with a higher power or the divine. This form of intelligence involves the ability to sense, comprehend, and act with intentions that go beyond personal gain. It deepens our understanding of others on a profound level. Key traits associated with spiritual intelligence include faith, humility, gratitude, self-discipline, modesty, moral values, forgiveness, wisdom, integrity, honesty, compassion, and love (Sadiku & Musa, 2021c). It allows us to perceive reality clearly, make thoughtful decisions, and grow from our experiences (Sadiku et al., 2020). Spiritual intelligence refers to the ability to deeply explore existential questions and gain insight into various levels of consciousness. It involves an awareness of spirit as the foundation of existence or as the driving creative force behind evolution. If the progression of life—from stardust through minerals, plants, animals, and eventually humans—suggests an underlying intelligence rather than pure chance, this could be viewed as spiritual in nature. As consciousness continues to evolve, spiritual intelligence grows through increased awareness of matter, life, the body, mind, soul, and spirit. It is more than just a cognitive skill; it bridges the gap between the personal and the transpersonal, linking the self to a higher spiritual reality. Thus, spiritual intelligence surpasses traditional psychological development (Srivastava, 2016).

The study from Suhifatullah et al (2021) concludes that spiritual intelligence plays a crucial role in fostering holistic human development, particularly within educational settings. It emphasizes that nurturing spiritual intelligence can lead to the growth of essential values such as compassion, integrity, inner peace, and a deeper sense of purpose. Going beyond intellectual capabilities, spiritual intelligence helps individuals connect with themselves, others, and the greater reality in a meaningful way. The study advocates for its intentional inclusion in educational practices to support the formation of morally grounded, emotionally balanced, and spiritually aware individuals. Another finding showed a positive correlation between empathy and spiritual intelligence (Aliabadi et al., 2021). The study's findings from Anjaya et al (2021) revealed that when a teacher possesses spiritual intelligence, they develop a deeper understanding of their own nature and gain insight into God's will, allowing the Holy Spirit to guide and inspire their life.
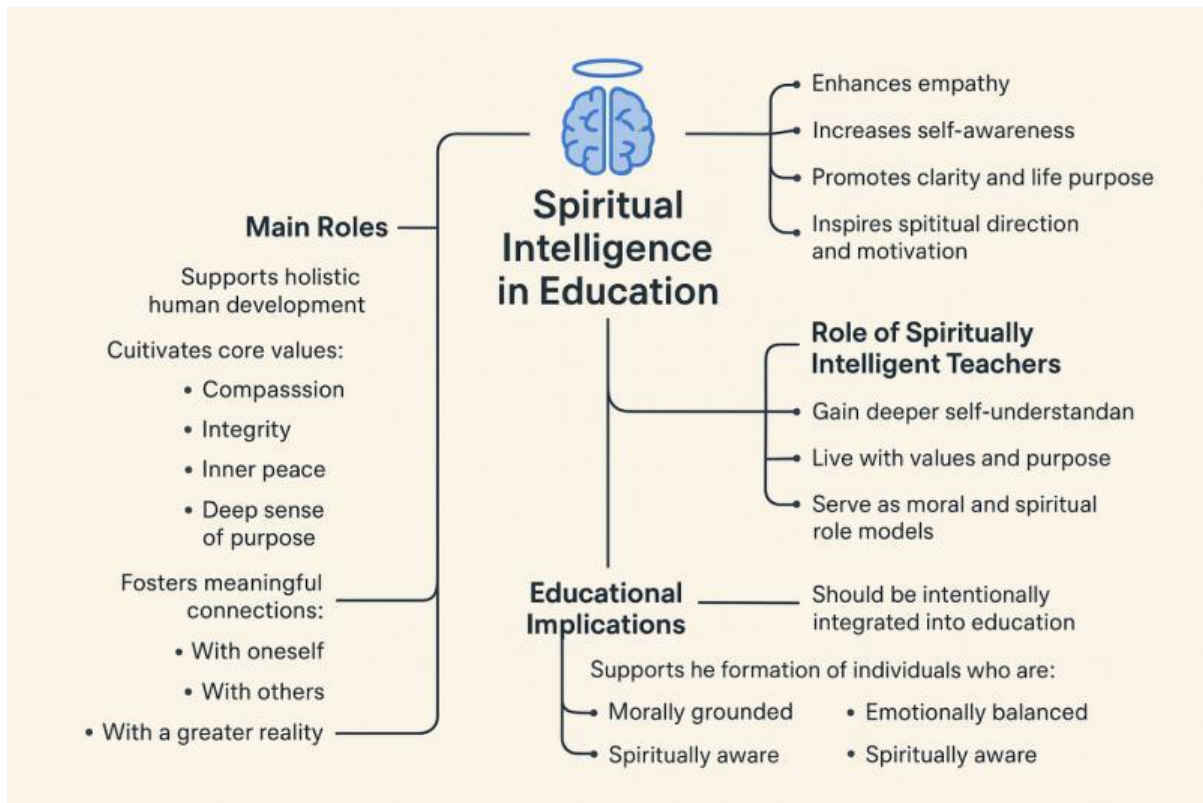
Figure 10 The key to enhance spiritual intelligence based on findings

In conclusion, spiritual intelligence plays a vital role in supporting the overall development of individuals, especially in educational environments. It encourages the growth of core values such as compassion, integrity, inner peace, and a strong sense of purpose. By going beyond intellectual abilities, spiritual intelligence fosters meaningful connections with oneself, others, and a greater reality. It also enhances empathy and self-awareness, enabling individuals—particularly educators—to live with clarity, purpose, and spiritual guidance. Integrating spiritual intelligence into education can help nurture morally grounded, emotionally resilient, and spiritually enriched individuals.

Implication for Basic Education

The theory of multiple intelligences, proposed by Howard Gardner, significantly reshapes how educators approach teaching and learning in basic education. By recognizing that intelligence is not a singular, fixed capacity but rather a spectrum of cognitive abilities, teachers can create more inclusive, engaging, and personalized learning environments. Each intelligence type offers unique insights into how children process information, solve problems, and express themselves. Understanding and applying this theory in the context of basic education ensures that all students—regardless of their dominant intelligence—have the opportunity to thrive academically and personally.

Logical-mathematical intelligence refers to the ability to think abstractly, reason logically, and solve mathematical problems. Students who exhibit strength in this area enjoy working with numbers, patterns, and logical sequences. They often ask "why" and "how" questions and are drawn to problem-solving tasks. To support these learners, teachers can integrate math puzzles, scientific experiments, coding activities, and inquiry-based learning

into the curriculum. Encouraging these students to explore cause-and-effect relationships, conduct research, and work through logic problems helps nurture their critical thinking skills.

Visual-spatial intelligence involves the capacity to think in images and visualize accurately. Learners with this intelligence excel at interpreting charts, maps, diagrams, and visual art. They often enjoy drawing, designing, and constructing models. In the classroom, teachers can provide opportunities for visual learners to express their understanding through infographics, visual storytelling, mind maps, and art integration. Using educational technology such as graphic design software or visual simulations can also enhance their learning experience.

Students with high bodily-kinesthetic intelligence learn best through hands-on activities and physical movement. These learners enjoy manipulating objects, engaging in physical activities, and learning by doing. In basic education, it is essential to incorporate kinesthetic strategies such as role-playing, interactive simulations, classroom experiments, and educational games. Providing movement breaks and using techniques like Total Physical Response (TPR) in language learning can help maintain their focus and deepen comprehension.

Musical intelligence reflects sensitivity to sound, rhythm, pitch, and music. Children with this intelligence can remember melodies, recognize patterns in sound, and often express themselves musically. To cater to these learners, educators can use songs and chants to teach vocabulary or math concepts, allow students to compose songs related to subject matter, or integrate rhythm into learning routines. Music can also be a tool for emotional regulation and classroom management, especially in early education.

Interpersonal intelligence involves the ability to understand and interact effectively with others. Students with this intelligence enjoy group activities, are often empathetic, and can mediate conflicts. Teachers can support these learners by implementing cooperative learning strategies, peer tutoring, group discussions, and team-based projects. Activities that involve negotiation, collaboration, and leadership help these students develop both academically and socially.

In contrast, intrapersonal intelligence refers to a deep understanding of oneself—one's emotions, motivations, and goals. Students with this intelligence may prefer working alone, are highly self-aware, and often engage in self-reflection. Teachers can foster their growth by providing independent projects, journaling exercises, self-assessment tools, and opportunities for goal setting. These students thrive in environments that allow for quiet contemplation and personal expression.

Lastly, naturalistic intelligence is the ability to recognize and categorize elements in nature. Learners with this intelligence have a strong connection to the natural world, enjoy observing plants and animals, and are often concerned about environmental issues. In basic education, teachers can design outdoor learning activities, nature walks, environmental science projects, and gardening activities to engage these students. Incorporating themes of sustainability and ecological awareness into the curriculum also supports their interests and strengths.

Basic education refers to the foundational stages of formal learning, typically covering early childhood, primary, and lower secondary education. Its primary goal is to ensure that every child acquires essential knowledge, skills, values, and attitudes necessary for personal

development, social integration, and lifelong learning. In many countries, basic education is compulsory and is seen as a fundamental human right. It is within this stage that learners build literacy, numeracy, communication, and basic problem-solving skills, as well as develop their social, emotional, and physical capacities. Given the diversity of learners in any classroom, a uniform teaching approach often fails to meet the needs of all students. Children come from different cultural, linguistic, and socioeconomic backgrounds, and they possess varied cognitive strengths and learning preferences. This is where the theory of multiple intelligences becomes highly relevant. Proposed by Howard Gardner, this theory recognizes that intelligence is not a single, fixed attribute measurable by IQ tests alone, but rather a combination of distinct modalities through which individuals learn and express understanding.

In the context of basic education, applying the concept of multiple intelligences allows educators to design teaching strategies that cater to the full range of students' abilities. It helps teachers go beyond traditional academic measures by embracing musical, spatial, bodily-kinesthetic, interpersonal, intrapersonal, and naturalistic talents. By doing so, basic education becomes more inclusive, equitable, and responsive to the real developmental needs of children during their most formative years.

SIMPULAN

In conclusion, the integration of multiple intelligences theory into basic education offers a transformative approach to teaching and learning. Basic education serves as the critical foundation for a child's lifelong development, encompassing cognitive, emotional, social, and physical growth. Recognizing that students possess diverse strengths and ways of learning, the application of multiple intelligences allows educators to move beyond traditional academic boundaries and foster more inclusive, engaging, and effective learning environments. Each type of intelligence—whether linguistic, logical-mathematical, visual-spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, or naturalistic—represents a unique pathway through which children understand the world and express their knowledge. By designing learning activities that cater to these multiple domains, teachers can unlock the full potential of each student, promote self-confidence, and encourage meaningful participation in the learning process. Ultimately, embracing the diversity of intelligences in the classroom not only enhances academic outcomes but also supports the holistic development of learners. It prepares children to face real-world challenges, collaborate with others, and pursue their individual passions and talents. Therefore, the theory of multiple intelligences should be regarded not merely as a pedagogical strategy, but as a guiding principle for developing equitable and learner-centered basic education systems.

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