



IQ Intelligence Level Analysis of Prospective Elementary School Students as a Condition for Readiness to Learn at School

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Abstract

This study aims to analyze the level of IQ intelligence of prospective elementary school students as readiness to enter elementary school. The entry of primary education is regulated by the government through the education and culture office, with one of the references that prospective elementary school students, in addition to age, must also have cognitive, social and emotional intelligence maturity. According to the Permendikbud, the minimum age for primary school entry is 6-7 years old. However, students under 6 years old who want to enter primary school must take a psychological test or get a recommendation from a psychologist. The method used was descriptive with data collection techniques using the DAP IQ intelligence test. The research sample consisted of 60 prospective primary school students who would enter grade one at SDNU. The results showed that the average IQ score of prospective elementary school students was 101. The analysis results show 87% 52 of prospective elementary school students have an average IQ intelligence level, 10% 6 students an IQ intelligence level above average, and 3% 2 students an IQ intelligence level below average. Based on the results of the study, it can be concluded that most prospective NU elementary school students have normal and above average IQ intelligence levels, so they are ready to follow the learning process at SDNU.

Keywords: *Elementary Students, IQ Intelligence, Learn at School*



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INTRODUCTION

The government has made a policy through the education law regarding the criteria for new elementary school students. According to Permendikbud 1/2021, prospective primary school students must be 7 years old or at least 6 years old as of July 1 of the current year (Arini, Mudjito, & Hariyati, 2021). The main priority in admitting new students at the primary school level is the age category, which is seven years old (Muhammad Yusuf, 2022). However, in reality, there are many parents who want to send their children to primary school at an age less than seven years old. This is preceded by entering the child into kindergarten at an earlier age (Pan, López, Li, & Liu, 2021). So that when graduating from kindergarten the child is still less than six years old. Enrolling children in primary school at less than seven years of age is an

educational choice made by some parents (Vaiopoulou, Papadakis, Sifaki, Kalogiannakis, & Stamovlasis, 2023). This often stems from the decision to enroll children in kindergarten at an earlier age, so that by the time the child graduates from kindergarten, they are less than six years old (Gregory et al., 2021). There are usually several reasons for this phenomenon, including the fact that parents have various reasons for sending their children to kindergarten at a younger age. One of them is to provide better early education and stimulate early development. Kindergarten is usually designed to teach children basic skills, such as reading, writing, counting and socialization (Kokkalia, Drigas, Economou, & Roussos, 2019).

Some children show high interest and ability to learn from an early age. Parents may want to accommodate the educational needs of these children by enrolling them in a formal education environment earlier (Kamaruddin et al., 2023). By entering kindergarten at an earlier age, parents hope that the child will be better prepared academically and socially when entering primary school (S. Ferdian Utama, 2017). They believe that the additional experience in kindergarten will better equip the child to face the challenges of primary school. Some primary schools may have policies that allow admission of students under the age of seven, provided the child has completed kindergarten and meets certain requirements (Bryce, Bradley, Abry, Swanson, & Thompson, 2018). This can be a factor in allowing parents to enroll their child in primary school early. Every child is different, and the decision to enter primary school at a younger age should be considered on an individual basis. Parents need to consider their child's physical, emotional and cognitive development before making a decision. In some countries or regions, there are legal provisions governing the minimum age of primary school entry (E. P. Ferdian Utama, 2020). Parents need to ensure that they comply with local laws before sending their child to primary school at a younger age. The decision to send a child to primary school at a younger age is a complex and thoughtful one. Parents need to consult with educators and child development experts to ensure that this decision is appropriate for their child's needs and potential. In addition, collaboration with the school in question and understanding their policies and requirements are also important in the process (Avnet, Makara, Larwin, & Erickson, 2019).

The scientific reason for the above regulation is at the age stage of seven years old the physical aspect, At the age of 7, children are considered the most physically ready (Adler, Salanterä, & Zumstein-Shaha, 2019). To stay in class until noon. At the age of seven, fine motor development is well developed. So that children are able to write and draw clearly independently. And the child is able to coordinate between the eyes, hands and small muscles (Ilham Kamaruddin, Achmad Abdul Azis, Mohammad Syahru Assabana, Arif ismunandar, & Duwi Meilina, 2022). Psychological aspects, at the age of six, children are able to concentrate well, so at the age of seven, children's concentration ability is much better in paying attention to important material at school (Bureekhampun, Techakarnjanakij, & Supavarasuwat, 2021). The concentration time span for elementary school students is generally between 30 minutes to 45 minutes (García-Hermoso et al., 2020). So if the child is not even 6 years old when entering elementary school, he/she is likely to have difficulty in concentrating in class. They are still developing their movement skills. Even though the child is intellectually capable, the child will have difficulty concentrating in class to understand and complete the subject matter. In the cognitive aspect, the basic abilities that children are

expected to have when entering primary school are basic writing skills, simple counting and the ability to read words or letters (Tamana et al., 2019). Children are also required to be able to understand commands and be able to complete school assignments. Emotional aspects, generally children who enter elementary school too early are academically mature (Rochanah, 2021). However, their independence and emotional maturity are not yet ready. This is very necessary for elementary school children, because the learning process in elementary school is different from that in kindergarten. In elementary school, children are required to be more independent. Harvard Medical School Research Results (2018) also show the negative effects of sending children to school too young.

In the United States, children are required to be 5 years old by September 1 to enter kindergarten (Ilin, Shampine, & Terry, 2022). Children who attend school under the age of 5 are 34% more likely to be diagnosed and treated for Attention-Deficit/Hyperactivity Disorder (ADHD) than their older peers (almost six years old). The results of research by Curby and Xia (2018) which compared the readiness of preschool children in China and America that in China teachers expressed concern in the aspects of academic skills (37%), concentration difficulties (26.5%), acting reflexively or spontaneously (22.5%). Research in the United States shows that children who are not independent are (62%), children who have difficulty understanding orders are (51%) and children who are not able to cooperate (51%). The research above shows that there is a negative impact if children are enrolled in elementary school at an early age under six years old. Meanwhile, in Indonesia the government has implemented a standard development stage in early childhood known as the Standard Level of Child Development Achievement (STPPA) which is divided into six parts, namely physical, motor, social, cognitive, emotional, art and religious and moral values. This is in accordance with the formulation of Permendikbud no.37 of 2013 (Kebudayaan, 2013).

Entering primary school is an important milestone in a child's life. It is the beginning of their formal education journey, where they will learn various skills and knowledge that will form the basis of their future development. The requirements for entering primary school have been regulated by the government, especially for those who are not yet six years old. In Permendikbud No. 1 of 2021, children aged 5 years can enter primary school on condition that they have special talents or intelligence and psychological readiness as evidenced by the testimony of a professional, namely a psychologist. This requirement is utilized by parents who have children under the age of six, so they look for psychologists to conduct school readiness tests on their children. Generally, psychologists will provide school readiness tests covering cognitive, social and emotional aspects. There are different concepts related to the term school readiness and learning readiness. School readiness is based on the readiness of social, cognitive and physical development stages. Meanwhile, the term learning readiness is the level of readiness of children to learn to understand specific material so that children can achieve academic success at school (Damayanti, A.K & Kristanti E.P., 2016). However, children's readiness to enter primary school is not only about age, but also involves aspects of physical, social, emotional, and intellectual readiness that need attention.

The cognitive development stage in children aged 6-7 years enters the concrete operational period (Ramdhani & Dea, 2021). As with other aspects of development,

cognitive or intellectual intelligence also undergoes stage-by-stage development towards perfection or maturity. According to Desmita (2010), cognitive is the ability to think more complex children, including the ability to solve problems and reasoning skills. Meanwhile, according to Pasek (2015), cognitive intelligence IQ is an intellectual ability characterized by the dominance of logical and rational thinking abilities. Approximately 80%, IQ is inherited from parents, while the rest is built at a very early age, namely 0-2 years of the first human life. Intellectual intelligence serves as a detection of one's future success. As a result, some research on IQ tests is designed for success in education and success in work or career. According to Sternbeg (2008), intellectual intelligence [IQ] is a person's ability to learn experiences, the ability to adapt to the social environment and the ability to think with metacognitive processes. Intellectual intelligence is often referred to as general mental ability in the process of learning and manipulating the environment and the ability to think abstractly (Bainbridge in Rahmita and Mega, 2019). intelligence is the entire ability to think and act adaptively, including complex mental abilities. In other words, intelligence is all the coordination possibilities that give structure to the behavior of an organism as a mental adaptation to new situations.

Stage of cognitive development, much revealed by Jean Piaget. It explains the cognitive structure of the child's ability to develop the concept of the world and its environment, (Loward s. Friedman and Miriam.W. Schustack. 2006). Stage of cognitive development according to Jean Piaget is divided into four stages, namely: (1) The sensory stage (sensori motor) Cognitive development at this stage occurs at the age of 0-2 years. The keyword for this cognitive development is that it cannot separate itself from its environment. At this stage the child's thinking ability begins to combine vision, taste, hearing, touch and shift. Thus, children have been able to understand something with their sensory abilities. (2) Pre-operational stage (age 2-6 years) At this level, children have shown cognitive activity in dealing with various things outside themselves. His thinking activities do not yet have an organized system. Children's ability to understand environmental reality and use symbols and signs is good. The child's thought process at this level is illogical, unsystematic and inconsistent. (3) Children, at the concrete operational stage, are able to think logically or operate specifically for physical objects that are present. Children also lose articialism and animism. Children are able to complete tasks that are conservation in nature, because their egocentrism is lower. However, children still need physical objects to be able to complete logical work. (4) Formal operations from the age of 12 years. At the age of 12 years and above. At this stage, children are able to use concrete operations in forming complex operations. (Matt Jarvis, 2011). At this stage, children are able to think abstractly so that without the help of a physical object or a concrete event. At this stage, children also have the ability to understand the arguments of others. [3], in the first year, intellectual development develops rapidly and intensively. According to Bloom in Monks, et al. (1992) said that the results of longitudinal model research found that children in the first year of age reached an intelligence development of 20% and developed 100% by the age of 17 years.

Taraf kecerdasan IQ sebagai berikut:

IQ Level	Category
≥ 140	Genius
129 - 139	Very Superior
120 - 128	Superior
110 - 119	Above average
90 - 109	Average
80- 89	Below average
70-79	Boderline
50-69	Debil

Tabel 1. IQ Category

There are two important things that parents should consider before sending their children to primary school, namely child readiness and maturity. Child readiness is the academic abilities and skills needed in elementary school. In terms of age, children must be at least six years old to seven years old. The level of intellectual intelligence IQ and age are factors that greatly affect a child's readiness to enter primary school. There are several psychological test tools to reveal the intelligence of 5-7 year old elementary school children such as the Binet test, S-FRIT test and DAP IQ. This study aims to determine the level of intelligence of prospective new students at Metro City NU Elementary School. So that it can be used as a tool for teachers in providing learning methods and providing direction to students. In addition to the above objectives, this research was conducted because the age of new prospective students at SDNU also varies, between the age of five years and six months to the age of seven years.

METHODOLOGY

This research method uses descriptive methods with data collection techniques using the DAP IQ intelligence test for prospective new students of SDNU Metro City with a total research sample of 60 students. (DAP: IQ) provides a set of general assessment criteria for estimating the intellectual ability of human figure drawings. To date, the measurement of cognitive ability by human figure drawing assessment has focused primarily on children and adolescents. DAP:IQ enhances the practice of human figure drawing evaluation (HFD) as a measure of cognitive ability by assessing elements that represent universal features of human figures. HFD collection is easy to standardize with a simple, easy-to-understand set of instructions, and takes very little time.

RESULTS AND DISCUSSION

IQ Intelligence

The study of intelligence level (IQ) has evolved over the decades. There are several theories that try to explain this concept, and the two most well-known theories are the "g" theory (general intelligence) and the theory of "multiple intelligences." The "g" theory was developed by psychometrician Charles Spearman in the early 20th century. This theory assumes that there is a single general factor that is the basis of all forms of intelligence. This factor is called the "g" factor or general intelligence factor. According to this theory, IQ can be measured through IQ tests that measure a person's overall cognitive abilities. The results of these IQ tests are believed to reflect an individual's level of general intelligence. The "g" theory also states that there are other factors that influence intelligence, such as the "s" factor (special factor) which includes specialized abilities in certain fields (Zajda, 2019).

The "g" factor is the core of this theory. Spearman considers it to be the core factor that reflects an individual's general level of intelligence. This means that the "g" factor has a dominant influence in all tasks involving aspects of intelligence, such as problem solving, verbal comprehension, reasoning, and abstract thinking ability. The "g" factor is considered the basic factor that provides the foundation for all more specialized cognitive abilities. In simple terms, the "g" factor reflects how intelligent a person is overall. The "g" theory led to the development of the IQ (Intelligence Quotient) test which is designed to measure an individual's level of general intelligence. These IQ tests attempt to measure a person's intellectual abilities in areas such as math, language, reasoning, and memory. The results of these IQ tests are expressed in the form of a number called an "IQ score." This score is believed to reflect a person's general intelligence level, although there have been criticisms and controversies related to the measurement (Kovacs & Conway, 2019).

In addition to the "g" factor, Spearman also recognized the existence of special factors or "s" that reflect special abilities in certain fields. For example, one person may have an edge in math, while another may excel more in languages. The "s" factors reflect more specific abilities and are not considered part of the general intelligence measured by the "g" factor. Although the "g" theory has provided an important basis for understanding intelligence, there has been controversy and criticism of the concept. Some critics argue that intelligence cannot be reduced to a single factor and that there are many types of intelligence that cannot be measured well by IQ tests. Over time, more holistic approaches to intelligence have become more popular, such as the theory of multiple intelligences developed by Howard Gardner.

Multiple Intelligences Theory, this theory was developed by Howard Gardner in 1983. Gardner argues that intelligence cannot only be measured by one number (IQ) and that there are several different types of intelligence (Moleka, 2021). According to this theory there are different types of intelligence that stand alone, such as linguistic intelligence, logical-mathematical intelligence, musical intelligence, interpersonal intelligence, intrapersonal intelligence, kinesthetic intelligence, and others (Utama, 2018). The theory recognizes that each individual has strengths and weaknesses in different types of intelligence, and proposes that education should consider this variation in learning. It challenges the traditional view of intelligence by proposing that intelligence cannot only be measured by a single number (such as IQ), but rather

that there are many different types of intelligence. Multiple Intelligences theory identifies different types of intelligence or stand-alone intelligences, each encompassing specialized abilities. Gardner initially identified seven types of intelligence, but later expanded it to nine types. Some examples of the types of intelligence recognized by this theory include linguistic intelligence. An ability in language, such as speaking, writing, and understanding words. Logical-Mathematical intelligence, the ability in mathematical problem solving and logical reasoning. Musical Intelligence, the ability to appreciate, understand, or create music. Interpersonal Intelligence, the ability to interact and communicate with others. Intrapersonal Intelligence, the ability to understand oneself, introspect, and control emotions. Kinesthetic Intelligence, physical abilities, such as sports or dance. Visual-Spatial Intelligence, the ability to understand and manipulate objects in space (Moleka, 2021).

There are individual strengths and weaknesses in Multiple Intelligences. This theory recognizes that each individual has strengths and weaknesses in different types of intelligence. An individual may excel more in one type of intelligence than another. For example, a person can have high linguistic intelligence while lacking in kinesthetic intelligence. This concept helps illustrate why people have different interests, talents and abilities. One of the main implications of the Multiple Intelligences theory is that education should take into account the variety of individual intelligences. Education should not only focus on developing verbal-logical intelligence (as measured by IQ tests), but should also provide opportunities to develop other types of intelligence. Educators can use diverse approaches in teaching to accommodate different types of student intelligence. This can help each student reach their potential in different areas. The theory of Multiple Intelligences has influenced education and our understanding of individual intelligence. Gardner introduced the idea that every individual has many ways to shine, and this approach has promoted a more inclusive understanding of intelligence in the context of education and human development.

Theories about IQ have provided valuable insights into how we understand and measure individual intelligence. However, it is important to remember that these theories do not always fully agree with each other, and there are diverse views on the concept of intelligence. Some experts even argue that intelligence may be too complex to be measured by a single number such as IQ and that a more holistic approach to understanding human potential may be more appropriate. The theory of IQ has been an important cornerstone in understanding and measuring individual intelligence. Historically, it has provided a deeper understanding of the diverse range of human cognitive abilities. IQ tests, which are one of the products of this theory, have helped in measuring the general intelligence level of individuals and become an important tool in cognitive testing. However, it is important to remember that these theories do not always fully agree with each other. There are variations and debates in the concept of intelligence, with some experts arguing that intelligence cannot be reduced to a single number such as IQ.

Such views underscore the complexity of human intelligence, which includes various aspects such as social, emotional, artistic and kinesthetic intelligence that may not be well measured by IQ tests. Some alternative experts and theories propose a more holistic approach to understanding human potential. They encourage recognizing the different types of intelligences and talents that individuals possess.

Theories such as "Multiple Intelligences" developed by Howard Gardner and others highlight the diversity of human intelligence and emphasize the importance of education that accommodates variation. The importance of this debate is to ensure that we do not limit our understanding of intelligence to a single metric. Instead, a more holistic approach can help us appreciate the diversity of human talent and potential, and better help individuals develop their full strengths. It also supports a more inclusive approach to education, which can maximize each student's potential according to their intelligence and interests. In conclusion, theories of intelligence provide a basis for our understanding, but it is important to consider a broader, holistic view in exploring individual uniqueness and potential.

IQ Intelligence Level Analysis of Prospective Elementary School Students

This study was conducted during the admission of new students at SDNU metro city. The test participants were all prospective new students with an age range of 5.6 to 7 years. The implementation of the DAP IQ test was carried out using the classical method. The results showed that the average IQ score of prospective elementary school students was 101. From the results of the analysis, it was found that 87% of prospective elementary students had a normal IQ level of intelligence, 10% had an IQ level of intelligence above average, and 3% had an IQ level of intelligence that was below average. Therefore, 97% of the 58 prospective new students at SDNU meet the intelligence requirements to take part in the learning process at elementary school. IQ distribution of new SDNU students.

No	IQ Level	Total %	Number of Students
1	>110	10%	6
2	90 - 109	87%	52
3	< 90	3%	2

Table 2: IQ Test Results of SDNU Students

Intellectual intelligence greatly affects students' ability to understand and solve academic problems at school. The complex curriculum in elementary schools indirectly requires students to have at least a normal or average level of intelligence. Intellectual intelligence is the ability to learn from experience, think using metacognitive processes, and the ability to adapt to the surrounding environment (Sternberg, 2008). The learning patterns and curriculum in elementary school are very different from those in kindergarten. So that prospective elementary school students must have good intellectual (IQ), social and emotional abilities. With these abilities, new students in elementary schools can adjust to the learning process in elementary schools, be able to socialize with peers and be able to control emotions. By having an average intellectual capacity, students will be able to follow the learning process in elementary school and be able to achieve academic achievement. Intelligence [IQ], greatly affects one's learning success at school (Khadijah, 2016). The results of Susilarini T.'s research (2021) revealed that the results of data analysis from 18 students for elementary school readiness using the CPM test showed that 27.8% of prospective elementary school students had an Intellectual category of very Superior / very

intelligent, 55.5% of the Superior / intelligent category and 16.7% had an average / average category.

Based on the results of this study, it shows that the average IQ score of prospective NU elementary school students is 101. From the results of the analysis, it was found that 87% of prospective students of SD NU had a normal IQ level of intelligence, 10% had an IQ level of intelligence that was above average, and 3% had an IQ level of intelligence that was below average. Thus, the majority of prospective students of SD NU have normal and above average IQ intelligence levels, so they can be considered ready to enter elementary school. However, there are still a small number of prospective primary school students who have below average IQ intelligence levels, who need special attention from schools and parents to help improve their intelligence potential. Different IQ intelligence levels are influenced by several factors. According to (Bayley in rinto, et al. 2014) in his research there are several factors that affect the intellectual abilities of individuals with other individuals, namely: 1). Congenital or hereditary, 2). Socio-economic background, 3). Environment, 4). Physical condition Nutritional conditions, 5). Education and 6). Motivation. Meanwhile, according to the results of Khumaerah's research (2017), it shows that the factors that affect children's intellectual intelligence include age, gender, ethnicity, nutritional status and parental care.

CONCLUSION

This study shows that analyzing the IQ level of prospective primary school students can be used as an indicator of readiness to enter primary school. The majority of prospective primary school students at SDNU have normal and above-average IQ levels and are therefore considered ready to enter primary school. However, there is still a need to pay special attention to prospective primary school students who have below average IQ levels to help improve their intelligence potential. SDNU can use the results of this study to develop education plans that are more tailored to the IQ intelligence level of prospective students. This can help in developing a more effective curriculum that supports students' individual development. Secondly, schools and authorities could consider increasing psychological support for students who have below-average IQ intelligence levels. This could include intervention programs or additional support to help students reach their potential. Third, parents can play an active role in monitoring their child's intelligence development and discuss with the school to identify special needs. Cooperation between schools and parents is essential to support students' development. Finally, further research can be conducted to understand how IQ intelligence levels relate to students' academic performance and social-emotional development during primary school. This study could provide further insights into the impact of IQ level on primary education.

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