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Analysis of IQ and EQ on Physical Education Learning Achievement Among Sixth-Grade Students in an Inclusive School Culture

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Abstract

This study aims to analyze the relationship between intellectual intelligence (IQ) and emotional intelligence (EQ) and their influence on physical education (PJOK) academic achievement among sixth-grade students at SDN Wonorejo V/316 Surabaya, which implements an inclusive school culture. This research employed a quantitative correlational approach with an ex post facto design. The study involved 30 purposively selected students. Data were collected through IQ tests, EQ questionnaires, PJOK academic records, and interviews with six students representing high and low IQ categories. Data analysis techniques included Pearson correlation and multiple linear regression. The results showed a very strong relationship between IQ and PJOK academic achievement ($r = 0.965$; $\text{sig} = 0.000$), and a significant relationship between EQ and PJOK achievement ($r = 0.476$; $\text{sig} = 0.008$). Simultaneously, IQ and EQ contributed 93.1% to students' PJOK academic performance ($R^2 = 0.931$). The interviews revealed that the inclusive school environment played a role in shaping students' social interactions, empathy, and cooperative attitudes, which in turn supported their success in learning PJOK.

Keywords: Intellectual Quotient (IQ) Emotional Quotient (EQ); Physical Education; Inclusive School Culture; Learning Achievement; Elementary School.

INTRODUCTION

Inclusive education is a strategic approach in the field of education that emphasizes equity and diversity, including in the context of learning in elementary schools. Schools with an inclusive culture provide a welcoming and open learning environment for all students, including those with special needs. In this context, every student is seen as having unique potential that deserves recognition, both in academic and socio-emotional aspects (Winter, 2019). One of the main challenges in implementing an inclusive school culture is managing the diverse characteristics of students, particularly in terms of intellectual and emotional abilities, which significantly influence their learning processes and outcomes (Anggreani et al., 2024).

In the field of education, intelligence quotient (IQ) has long been used as a predictor of academic success. IQ encompasses a person's cognitive capacity for logical thinking, problem-solving, understanding concepts, and retaining information (Wechsler, 2017). However, student learning success is not solely determined by IQ. Emotional intelligence (EQ)—which includes self-awareness, emotional regulation, motivation, empathy, and social skills—is also a critical aspect that supports student engagement and effectiveness in the learning process (Goleman, 1995). In Physical Education, Sports, and Health (PJOK) learning, which demands teamwork, emotional regulation, and physical skills, both dimensions of intelligence play crucial roles.

Previous studies have shown that EQ has a positive correlation with student learning outcomes, particularly in subjects requiring social engagement such as PJOK (Fenanlampir & Mutohir, 2021; Wibowo & Dese, 2024). Other studies have also confirmed that high IQ can enhance students' abilities

to understand and execute sports techniques and game strategies (Sulistiya, 2016). However, research specifically examining the simultaneous contributions of IQ and EQ to PJOK learning achievement in the context of inclusive schools remains very limited. A more comprehensive understanding of these two factors would offer important implications for developing more adaptive, inclusive, and responsive learning approaches that address the diversity of students.

Therefore, this study aims to analyze the relationship between IQ and EQ with PJOK learning achievement among sixth-grade students at SDN Wonorejo V/316 Surabaya, a school that consistently implements an inclusive educational culture. The school was selected based on its institutional commitment to creating a learning environment that values diversity and its implementation of inclusive education principles as outlined in Surabaya Mayor Regulation No. 52 of 2022. This study measures IQ using the Wechsler Intelligence Scale for Children (WISC) and EQ based on Goleman's (1995) framework, while PJOK learning achievement is assessed from the odd semester academic report of the 2024–2025 school year.

The main objective of this study is to determine the extent to which IQ and EQ, individually and simultaneously, affect PJOK learning achievement in an inclusive school environment. In addition, the study also aims to explore the responses of students with high and low IQ and EQ levels toward the presence of inclusive students, thereby providing a more comprehensive picture of the socio-emotional dynamics within inclusive classrooms. This research is expected to contribute theoretically to the development of inclusive physical education studies and practically benefit teachers, schools, and policymakers in designing more effective and equitable learning strategies for all students.

METHOD

Type of Research

This study uses a quantitative approach with a correlational research design. This approach aims to examine the relationship between two independent variables—intellectual intelligence (IQ) and emotional intelligence (EQ)—and the dependent variable, which is PJOK learning achievement. The study also employs an ex post facto design, as the data collected were not directly manipulated by the researcher but were analyzed based on conditions that had already occurred.

Time and Place of the Research

This research was conducted over one semester, specifically the odd semester of the 2024/2025 academic year, which took place from July to December 2024. The research site was SDN Wonorejo V/316 Surabaya, a public elementary school that consistently implements an inclusive school culture.

Research Target and Subjects

The target population of this study was sixth-grade students at SDN Wonorejo V/316 Surabaya. A total of 30 students were selected as research subjects, consisting of both regular students and students with mild special needs. The subjects were chosen purposively, based on the criteria that they actively participated in PJOK classes, were willing to complete the entire IQ and EQ testing process, and had complete PJOK report card scores for the current semester.

Research Procedures

The research was carried out through the following stages:

1. Obtaining permission from the school and students' parents;
2. Administering the IQ test using a modified version of the Wechsler Intelligence Scale for Children (WISC);
3. Distributing the EQ questionnaire, developed based on Goleman's theory;
4. Collecting students' PJOK report card scores from the odd semester of the 2024/2025 academic year;
5. Conducting interviews with six students representing high and low IQ and EQ categories to explore their responses to the inclusive environment and PJOK learning experience.

Instruments and Data Collection Techniques

The instruments used in this study were:

1. An IQ test using the Wechsler Intelligence Scale for Children (WISC), consisting of several subtests to assess verbal, logical, numerical, memory, and spatial abilities;
2. An EQ questionnaire developed based on Goleman's five dimensions: self-awareness, self-regulation, motivation, empathy, and social skills;
3. Documentation of students' PJOK report card grades, reflecting both physical and social aspects of PJOK learning;

4. A semi-structured interview guide to explore students' perceptions of PJOK learning in an inclusive setting.
5. Data collection techniques included individual testing for IQ, distribution of written EQ questionnaires, collection of PJOK grades from the subject teacher, and direct interviews with selected students as qualitative informants.

Data Analysis Techniques

Data were analyzed using both descriptive and inferential statistical techniques. Descriptive statistics were used to illustrate the distribution of IQ, EQ, and PJOK learning achievement scores. Inferential analysis was conducted using Pearson's correlation test to examine the partial relationship between IQ and EQ with PJOK learning achievement. To determine the simultaneous contribution of the two independent variables to the dependent variable, multiple linear regression analysis was employed. Data analysis was performed using the latest version of SPSS software. For interview data, thematic analysis was used to support and enrich the quantitative findings.

RESULT AND DISCUSSION

Research Results

This study aimed to analyze the relationship between IQ and EQ with PJOK learning achievement among sixth-grade students in an inclusive elementary school. Data were collected from 30 students through IQ tests, EQ questionnaires, PJOK report card scores, and interviews. The following presents the analysis results and discussion.

Descriptive Statistic

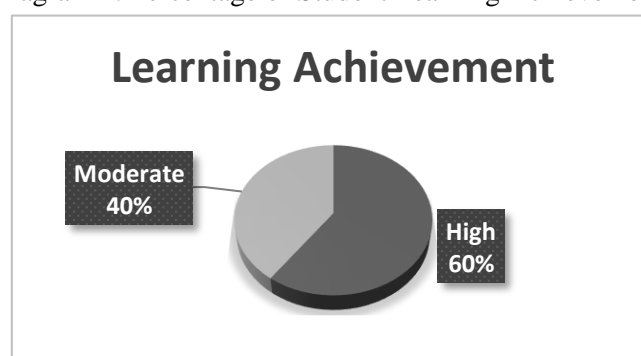
Table 1. Mean and Standard Deviation of IQ, EQ, and Student Learning Achievement

| Variabel | <i>N</i> | <i>Mean</i> | <i>Standard Deviation</i> |
|-----------------------------|-----------------|--------------------|----------------------------------|
| <i>Intellegent Quotient</i> | 30 | 87,67 | 16,64 |
| <i>Emotional Quotient</i> | 30 | 68,60 | 16,65 |
| Learning achievement | 30 | 81,27 | 4,91 |

Source: Processed data, 2025

The students' average IQ was categorized as low-average, while EQ fell into the lower-middle category. However, PJOK learning achievement showed relatively high results. This suggests that despite average-to-low IQ and EQ levels, students were still able to perform fairly well academically. This indicates the possible influence of other supporting factors, such as effective learning strategies and an inclusive environment.

Diagram 1. Percentage of Student Learning Achievement



Based on Diagram 1, 60% of students demonstrated high learning achievement, while 40% were in the moderate category. This reflects a strong academic performance in PJOK, which is influenced not only by cognitive ability but also by social-emotional factors and classroom culture.

Pearson Correlation Test

Table 2. Pearson Correlation Results

| Variable | <i>IQ</i> | <i>EQ</i> | <i>Learning Achievement</i> |
|-----------------------------|------------------|------------------|------------------------------------|
| <i>Intellegent Quotient</i> | 1 | 0,479 | 0,965** |

| | | | |
|-----------------------------|---------|---------|---------|
| <i>Emotional Quotient</i> | 0,479 | 1 | 0,476** |
| <i>Learning Achievement</i> | 0,965** | 0,476** | 1 |

Note: Significant at $\alpha = 0,01$ (2-tailed)

Source: Processed data, 2025

The correlation test showed a very strong relationship between IQ and PJOK learning achievement ($r = 0.965$; $\text{sig} = 0.000 < 0.05$). Meanwhile, the relationship between EQ and learning achievement was moderate ($r = 0.476$; $\text{sig} = 0.008 < 0.05$). This indicates that the higher the IQ and EQ of a student, the greater their likelihood of achieving success in PJOK.

Regression Test (Coefficient of Determination)

Table 3. Coefficient of Determination (R Square)

| Model | <i>R</i> | <i>R Square</i> | <i>Adjusted R Square</i> | <i>Std. Error Estimate</i> |
|-------|----------|-----------------|--------------------------|----------------------------|
| 1 | 0,965 | 0,931 | 0,926 | 1,337 |

a. Predictors: (Constant), *Emotional Quotient*, *Intellegent Quotient*.

Source: Processed data, 2025

The results indicate that IQ and EQ together contributed 93.1% to the variance in PJOK learning achievement, while the remaining 6.9% was influenced by other factors such as motivation, teaching strategies, or family support.

Interview Results

Interviews with six students revealed that those with higher IQs tended to be neutral or somewhat disturbed by the presence of inclusive peers, while students with lower IQs were more supportive. One student with a lower IQ stated, "I enjoy helping friends who struggle." This finding reinforces the idea that EQ plays a stronger role in shaping social attitudes than IQ. Teachers also emphasized that PJOK learning focuses not only on physical skills but also on values such as empathy, teamwork, and confidence.

Discussion

The results of this study confirm that IQ is a primary predictor of PJOK learning achievement. This aligns with Wechsler's theory, which states that IQ affects students' ability to understand concepts, develop strategies, and solve problems within learning contexts. Students with high IQs are better able to grasp game strategies, think logically, and make quick decisions during physical activities.

Nevertheless, EQ also plays an important role. As stated by Goleman (1995), the ability to recognize and manage emotions influences success in social contexts and teamwork. Both correlation analysis and interview findings demonstrate that EQ contributes to students' success in collaboration and communication during sports activities.

In addition, the inclusive environment at SDN Wonorejo V/316 Surabaya acts as a catalyst for student success. By removing learning barriers and creating a supportive atmosphere, all students are given the opportunity to develop optimally, both cognitively and emotionally. Learning strategies such as the Sport Education model or Cooperative Learning are considered highly appropriate in this context, as they integrate both cognitive and affective aspects into a single learning process.

Conclusion

Based on the research findings and discussion, it can be concluded that intellectual intelligence (IQ) has a very strong and significant relationship with PJOK learning achievement among sixth-grade students in inclusive elementary schools. Emotional intelligence (EQ) is also significantly related to learning achievement, although its influence is in the moderate category. Simultaneously, IQ and EQ contribute 93.1% to students' PJOK learning outcomes.

These findings indicate that students' success in PJOK learning is not solely determined by physical abilities, but also influenced by their cognitive and emotional capacities. An inclusive environment also supports the development of students' social skills and empathy, especially in those with higher EQ. Therefore, learning approaches in inclusive schools should aim to strengthen both IQ and EQ to improve students' overall academic outcomes.

As a recommendation, PJOK teachers and school administrators are encouraged to design learning strategies that not only emphasize motor skills but also foster critical thinking, teamwork, and

students' emotional regulation. Periodic assessments of IQ and EQ can also serve as a foundation for designing more adaptive and personalized learning interventions for every student in an inclusive educational setting.

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