

Exploring the Impact of Age and Class Level on Emotional Perception: A Study of Nigerian Secondary School Girls Using the Reading the Mind in the Eyes Test (Student Abstract)

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Abstract

Assessing social cognition in adolescents by understanding emotional perception is crucial, especially through tasks like the Reading the Mind in the Eyes Test (RMET). This ongoing research investigates the emotional perception skills of Nigerian high school girls through the Reading the Mind in the Eyes Test (RMET). Preliminary analysis looks at how age and class level (SS1 and SS2) affect RMET scores, with 20% of the data (n = 215) already gathered. ANOVA findings display a notable distinction among class levels ($p = 0.024$), while regression analysis suggests that age effectively predicts RMET scores ($\beta = 1.06$, $p = 0.037$), showcasing that older students achieve higher scores. These preliminary results indicate that age is a significant factor in how emotions are perceived, and more data is being collected and analyzed to gain deeper understanding. These findings can guide strategies to enhance social skills in education and improve AI models for emotion recognition in diverse and age-sensitive contexts.

Introduction

Recognizing and understanding others' emotions, known as emotional perception, is an essential part of social cognition that matures during adolescence. The Reading the Mind in the Eyes Test (RMET) is commonly utilized to measure the skill of recognizing emotions through the eye expressions of individuals (Baron-Cohen et al. 2001). Young people, particularly those in high school, are in a crucial period of emotional and cognitive growth, and investigating the elements that impact how they perceive emotions can offer critical perspectives on their social skills and mental health (Oram et al. 2017).

In Nigeria, high school students are typically divided into Junior and Senior Secondary levels based on age and grade. Limited research has explored the impact of age and class level on emotional perception during critical stages of development. Most RMET studies focus on Western contexts, leaving a gap in understanding how these findings apply to non-Western groups, such as Nigerian schoolgirls, who may experience unique cultural and environmental influences.

This study investigates the emotional perception skills of Nigerian high school girls using the RMET. Initial analyses explore the influence of age and academic year on RMET scores. The study aims to contribute to discussions on adolescent emotional development and inform educational and psychological interventions to enhance social cognition and emotional intelligence in teenagers. Furthermore, insights from this research can inform AI models for emotion recognition, improving applications in education, mental health, and human-computer interaction systems, particularly in age-sensitive and cross-cultural contexts.

Related Works

Emotional perception, a key aspect of social cognition, is crucial for effective communication and emotional intelligence. Baron-Cohen et al. developed the Reading the Mind in the Eyes Test (RMET) to assess emotion recognition through eye expressions. RMET studies show that emotional perception improves during adolescence as cognitive and emotional skills develop (Vetter et al. 2013).

Research shows that age, gender, and socio-environmental factors influence RMET performance. Eddy and Hansen found that both biological and environmental factors affect emotion recognition. Additionally, cultural differences shape emotional perception, as non-Western individuals may interpret facial expressions differently due to varied social and emotional norms (Jack et al. 2009).

There is limited research on emotional perception in African adolescents, particularly Nigerian girls. This study aims to address this gap by examining the impact of age and academic year on RMET performance among Nigerian high school girls, providing insights into emotional understanding in a non-Western context.

Methodology

This ongoing study involves 215 Nigerian secondary school girls from Senior Secondary 1 (SS1) and Senior Secondary 2 (SS2), aged 14 to 17. Recruitment is ongoing for a larger sample size. The Reading the Mind in the Eyes Test (RMET) was used to assess emotional perception. Participants identified emotions from 36 images of human eyes with four possible emotional states each. Data was collected in schools

with groups of participants guided by trained research assistants. Participants completed the RMET and provided demographic information.

Preliminary analysis of the initial 20% of data ($n = 215$) included descriptive statistics and an ANOVA to examine differences by class level (SS1 vs. SS2). Linear regression analyzed the relationship between age and RMET scores, controlling for class level, using R software. Statistical significance was set at $p < 0.05$. The study received ethical approval and adhered to guidelines, with informed consent from parents or guardians and assent from students.

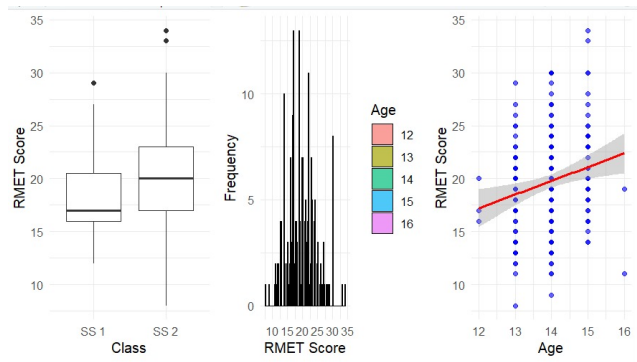


Figure 1: Exploring RMET Scores: Class-Level Differences, Age Distribution, and Trends

Result And Discussion

A total of 215 secondary school girls participated in this study, with students distributed across two class levels: Senior Secondary 1 (SS1) and Senior Secondary 2 (SS2). The participants' ages ranged from 14 to 17 years, with a mean age of 15.5 years ($SD = 0.98$).

The average RMET score for SS1 students was 19.42 ($SD = 4.65$), while for SS2 students, the mean RMET score was higher at 21.53 ($SD = 5.12$). From Figure 1, the boxplot (Left), SS2 students scored higher on RMET than SS1, with a wider range and higher median scores, indicating better emotional perception in older students. The histogram (middle) shows RMET scores mostly centered around the mid-range, with younger ages less represented in higher scores. The scatterplot (right) reveals a positive trend, showing that RMET scores improve with age.

Pearson correlation analysis was conducted to explore the relationships between age, class level, and RMET scores. The results indicated a moderate positive correlation between age and RMET scores ($r = 0.215$, $p = 0.003$), suggesting that older students tended to score higher on the test. The correlation between class level and RMET scores was weaker ($r = 0.154$, $p = 0.024$), indicating that students in SS2 generally scored higher than those in SS1. There was a strong correlation between age and class level ($r = 0.578$, $p < 0.001$), reflecting the expected relationship as students progress through school.

An Analysis of Variance (ANOVA) was performed to examine the difference in RMET scores between the two class

levels (SS1 and SS2). The results showed a significant difference, $F(1, 213) = 5.17$, $p = 0.024$, with SS2 students scoring higher on average than SS1 students. A linear regression analysis was conducted to assess the impact of both age and class level on RMET scores. The overall model was statistically significant, $F(2, 212) = 4.82$, $p = 0.009$. Age was found to be a significant predictor of RMET scores ($\beta = 1.058$, $p = 0.037$), while class level did not contribute significantly after accounting for age ($\beta = 0.799$, $p = 0.369$).

Greenberg et al. observed that RMET performance improves during adolescence, peaking around early adulthood, reflecting the influence of cognitive and emotional development on the ability to recognize emotions. Similarly, this study found that older students (SS2) outperformed younger students (SS1), supporting the global trend and adding a culturally specific perspective from Nigerian secondary school girls.

Conclusion

This study examined emotional perception in Nigerian high school girls using the Reading the Mind in the Eyes Test (RMET). Results show that age significantly influences performance, with older students scoring higher. Class level also impacts RMET scores, but its effect diminishes when age is considered, highlighting the role of cognitive growth in emotional comprehension. The study is ongoing, with 20% of data collected, and findings are limited to a specific group. Future research should expand the sample size and explore additional factors, such as socio-economic status and cultural influences, to deepen the understanding of adolescent emotional perception.

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