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The Connection Between Students Mental Capacity and Learning Outcome in Secondary Schools

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ABSTRACTS

The aim of this study is to examine the connection between students' mental capacity and learning outcome in secondary schools. Learning outcome is the result of education in which student, teacher or institution were able to derived their educational aims and objectives. The participant for this study will comprises of 190 teachers in secondary schools in education district 1. The research design for this study was correlational research design type. Data Were Collected Using The "Students Mental Capacities, And Learning Outcome Questionnaire" (SMCLOQ). The mean score of students with mental capacity was higher, so teacher needs to concentrate on students whose learning outcome is low and use different teaching materials and methods, the teachers should teach according to the capacities of students which will assist the students to be successful. Learning outcomes and student's mental capacity are significantly related, so schools needs to support the students to develop their mental capacities.

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1. INTRODUCTION

Education is a means of developing abilities, attitudes and other forms of behaviour that are of positive value to the society in which the individual lives (Prasad & Gupta, 2020). Learning outcome has become an instrument to determine success. One of the aims of intelligence testing is to forecast educational goals (Castillo-Diaz & Gomes, 2022). Various studies have displayed that a relation between mental capacities and learning outcome which are measured by various psychometric tests. Mental capacity is a major determinant of learning outcome in many academic work (Danylenko & Sotnikova-Meleshkina, 2020). The students with high level of mental capacities can perform excellently in school. The school authority needs to concentrate well to introduce mental training whenever the learning outcome and mental capacities of students are not in correlation (Padmini 2017; Mahoney et al., 2021).

Different scholars have proposed various mental capacities model. Some of the model which are general mental capacity and specific mental capacities (Kim et al., 2022), in which Al-Bakri & Salman (2020) identified the fluid and crystallized mental capacities among the specific mental capacities. Fluid mental capacities as an individual's ability to reason, form concepts, and solve problems using unfamiliar information or novel procedures, more so crystallized mental capacities to include an individual's acquired knowledge, the ability to communicate one's knowledge, and the ability to reason using previously learned experiences (Al-Bakri & Salman, 2020). Various studies have supported that high-quality education have great effect on mental capacity and learning outcome development (Mehta et al., 2023). Learning outcome of students can be influenced by giving them problem solving situations in class, discussion on a topic, quiz competitions etc. that will enable to improve and develop their thinking capacities. The school high quality will enhance mental capacity of students. The level of processing information is a major determinant of fluid intelligence, working memory, which in turn contribute to individual differences in learning outcome (Shi & Feng, 2022). Mental capacity display positive effect on learning outcome and personality characteristics (Shi and Qu 2021).

Purpose of the Study

The purpose of this study is to find out the connection between students' mental capacity and learning outcome in secondary schools. The specific purposes of the study are to.

1. Examine the level of students' mental capacity in secondary schools.
2. Investigate the level of learning outcome in secondary schools.
3. Determine the relationship between students social interaction and learning outcome in secondary schools.
4. Assess the relationship between students' problem-solving abilities and learning outcome of secondary schools.

Research Questions

1. What is the level of students' mental capacity in secondary schools?
2. What is the level of learning outcome in secondary schools?

Hypotheses of the Study

1. There is no significant difference between students' social interaction and learning outcome in secondary schools.
2. There is no significant difference between students' problem-solving abilities and learning outcome of secondary schools.

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2. METHODS

The research design that was used for the study is correlational research design type which was used to measure the correlation between students' mental capacity and learning outcome of 190 teachers' senior secondary school students. The senior secondary schools in Lagos education district 1 was used as the population of the study in which 190 senior secondary schools teachers was randomly selected and used as the sample with 10 senior secondary schools, 20 teachers from each of the selected schools was used.

Instrument

The instrument that was used in this study was "Students Mental Capacities, And Learning Outcome Questionnaire" (SMCLOQ) which focuses on students' mental capacity, learning outcome, students' social interaction and problem-solving abilities. The reliability of this instrument was found to be 0.88 and 0.83 respectively and the instrument was considered reliable for the study.

3. RESULTS AND DISCUSSION

The data collected were analyzed with Pearson product moment correlation coefficient and regression analysis at 0.05 level of significance.

Results

Ho1 There is no significant difference between students' social interaction and learning outcome in secondary schools.

Table 1. The correlation coefficient between students' social interaction and learning outcome in senior secondary school

Variable	N	Pearson's Correlation	Df	Level of significance
Students' social interaction	190	0.85	188	0.001
Learning outcome	190			Significant > 0.01

Table 1 shows that the correlation between students' social interaction and learning outcome in senior secondary schools was 0.85 which is positive and significant at 0.01 level against df 188. This indicate that students' social interaction and learning outcome in senior secondary school were positively correlated. Thus, the null hypothesis that there is no significant correlation between students' social interaction and learning outcome in secondary schools was rejected. It may, therefore, be said that the students' social interaction and learning outcome in senior secondary schools were seen to be highly correlated.

Ho2 There is no significant difference between students' problem-solving abilities and learning outcome of secondary schools.

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Table 2. The correlation coefficient between students' problem-solving abilities and learning outcome of secondary schools.

Variable	N	Pearson's Correlation	Df	Level of significance
Students' problem-solving abilities	190	0.86	188	0.01
Learning outcome	190			Significant > 0.01

Table 2 shows found that the correlation coefficient between students' problem-solving abilities and learning outcome in senior secondary school is 0.86 which is positive and significant at 0.01 level. It reflects that students' problem-solving abilities and learning outcome in senior secondary school were positively related. Therefore, the null hypothesis that there is no significant correlation between students' problem-solving abilities and learning outcome in senior secondary schools was rejected. It was, therefore, be said that students' problem-solving abilities in senior secondary schools were seen to be highly related. That is, higher the students' problem-solving abilities, higher is likely to be the positive learning outcome of students.

Discussion

The findings shows that a very high positive correlation was found between reading culture and learning outcome of students studying in junior secondary schools of Lagos education district 1. Moreover, the reverse is the case with the results of the study of Samuel (2022), which found no significant relationship between reading culture and learning outcomes. More so, the present study displayed that female students were performed better than their counterpart male students. Furthermore, this study showed that female students achieved better learning outcomes than male students (Amtu, 2020). This implies that reading culture is highly valued in education to positively enhance the learning outcome of students and promote the attainment of educational goals.

The aim of this study was to examine the correlation between students' mental capacity and learning outcome in secondary schools. This participant of the study consists of 190 secondary school teachers of various schools in Education district 1. The results of the study revealed that significant correlation was found between students mental capacity and learning outcome in secondary schools. This result is positive with study examined by (Padmini, 2017; Mahoney et al., 2021) that explained the significant relationship between mental capacity and academic success. The present study indicated that there is significant and positive relationship between students' mental capacity and learning outcome in secondary schools. The result of the study is positive with the studies conducted by (Padmini, 2017; Mahoney et al., 2021).

4. CONCLUSION

The investigation in this study have demonstrated a strong, positive correlation between students' mental capacity and learning outcome. Based on mental capacities, differences are been discovered in learning outcome. In order to assist students to excel in their education journey, teachers should pay much attention on the students with low learning outcome. To this end, teachers should use a variety of teaching tools, such as audiovisual aids, charts, and actual objects. They should also adopt different teaching strategies. In order to assist students develop their mental capacities, schools should also offer mental training, reasoning classes etc. By enhancing students' mental capacities will develop their learning outcome.

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Recommendation for future research, 1) Engage the students in activities that promote critical thinking, brain teaser and problem solving; 2) Teach students to understand and manage their emotions as well as empathise with others; 3) Encourage students to explore and discover concept through real world application; 4) Provide regular feedback and encourage students to reflect on their learning and identify area for improvement.

5. AUTHORS' NOTE

The authors declare that the entire process of writing and publishing this article was conducted objectively and professionally without any conflict of interest with any party. The authors also affirm that this article is an original scientific work compiled based on the principles of academic honesty and has undergone a careful source tracing process, so that it is free from any form of plagiarism. Thus, this manuscript meets scientific publication ethics standards and is academically accountable.

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