Teacher-Student Consultation and Interest in Subject as Correlates of Learning Disability in Mathematics among Secondary School Students in Warri, Delta State, Nigeria

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ABSTRACT

This study examines teacher-student consultation and interest in subject as correlates of learning disability in mathematics among secondary school students in Warri, Delta State, Nigeria. Using the descriptive survey research design, two hypotheses were tested. Data were collected using validated instruments, from three hundred (300) purposively selected senior secondary school (SSII) students from ten randomly selected secondary schools in Warri, Delta State, Nigeria. Data was analysed using the Multiple Regression Analysis and Pearson Product Moment Correlation (PPMC) at 0.05 level of significance. The study reveals that the independent variables correlate with learning disability in mathematics among secondary school students. Therefore, it is recommended among others that teachers should make teaching and learning experience stimulating to arose the interest of students to get closer to them and develop interest in their subject.

Keywords: *Interest in subject, learning disability, mathematics, teacher-student consultation and Warri*

INTRODUCTION

Children with great expectations look forward to having unique learning experience in school that would be beneficial to their intellectual growth and developmental wellbeing. However, the challenges of learning disabilities could interfere with schools children ability to process basic information during teaching and learning interaction in classroom. Challenges of learning disabilities can also interfere with higher level skills such as organization, time planning, abstract reasoning, long or short term memory and attention. It is important to realize that learning disabilities can affect an individual's life beyond academics and can impact relationships with family, friends and in the workplace. School children with learning disabilities are of average or above average intelligence. However, there often appears to be a gap between the individuals who express learning disabilities potential and actual achievement. They look perfectly normal and seem to be a very bright and intelligent person, yet may be unable to demonstrate the skill level expected from someone of a similar age. Researchers like Okoiye (2014); Tella and Tella (2010) have reported that learning disabilities in Mathematics is associated with socio-psychological variables as well as other notable variables. These socio-psychological variables according to them may include achievement motivation, self-concept, self-esteem, interest in subject, self-

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confidence, self-regulation, parental support locus of control, self-efficacy, interest in schooling, study-habits and so on. The question of how these variables can be managed to improve academic achievement of students is still a complex one. In view of this context, this study is designed with the main purpose of investigating teacher-student consultation and interest in subject as correlates of learning disability in mathematics among secondary school students in Warri, Delta State, Nigeria. Specifically, it sought to determine if:

1. Teacher-students consultation has relationship with learning disability in mathematics among secondary school students.
2. Interest in subject has relationship with learning disability in mathematics among secondary school students.

Based on the above, the following hypotheses are formulated to guide the study.

1. There is no significant relationship between teacher-student consultation and learning disability in mathematics among secondary school students.
2. There is no significant relationship between interest in subject and learning disability in mathematics among secondary school students.

Teacher-Student Consultation and Interest

Teachers frequently struggle to motivate their students (Brophy, 2008; Froiland, 2010) through teachers-student consultation and this is geared towards motivating students to develop positive orientation towards their personal and academic development. Teachers-student consultation inspire students to engage in learning opportunities because consultation could make schooling enjoyable, interesting, or relevant to meeting one's core psychological needs (Ryan and Deci, 2000). According to self-determination theory, all people seek to satisfy three inherent psychological needs: the need for developing competence, the need for relatedness (creating meaningful connections with others), and the need for autonomy (perceiving that one is able to initiate and regulate one's own actions). Satisfaction of these psychological needs promotes intrinsic motivation. A student whose behaviour is regulated through teachers-student consultation would turn in his/her homework on time to avoid feeling like a terrible student or to avoid guilt, would voluntarily study more because he/she realizes the importance of doing well in school (Brophy, 2008; Froiland, 2010).

Teachers-student consultation could inspire students to learn more about a subject of interest both in school and outside of the regular school day because they find enjoyment and deep purpose in learning; their behaviour is fully regulated from within (Brophy, 2008; Froiland, 2010). Teachers-student consultations are the most enduring forms of motivation and are robustly related to academic success and psychological well-being (Froiland, 2011a). Teachers-student consultation is associated with high levels of effort and task performance as well as preference for challenge (Patall, Cooper and Robinson, 2008), which are desirable attributes to cultivate among students who will eventually be competing with others. Students with high levels of Teachers-student consultations are more likely to experience flow, a state of deep task immersion and peak performance which is accompanied by the sense that time is flying by (Shernoff and Csikszentmihalyi, 2009).

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The benefits of Teachers-student consultation also include broader measures of school success like improved psychological well-being (Deci and Ryan, 2008), positively affect while doing homework (Froiland, 2011a), and less drug abuse (Battistich, Schaps, Watson, Solomon and Lewis, 2000). Studies have also shown that students with higher Teachers-student consultation at the outset of the semester displayed more persistence and were less likely to drop out of school (Vallerand and Bissonnette, 1992; Hardre and Reeve, 2003). Teachers-student consultation is also a strong factor in performance, persistence and productivity which makes it vital for children's success and life satisfaction after school. The aforementioned reasons alone are enough for school psychologists to shift their focus toward increasing Teachers-student consultation (Froiland, Smith and Peterson, 2012).

Like reading, math requires strategies and persistence to become successful. Students engage in Teachers-student consultation are more likely than their peers to use effective math strategies such as estimating, visualizing, and checking (Montague, 1992). They are also more prone to select deeper performance and learning strategies. For instance, if given a choice between a simpler or a more complex math problem, they would choose the more complex problem because he/she prefers a challenge and wants to test his/her consultation experience (Middleton and Spanias, 1999). Additionally, Stipek, Salmon, Givvin, Kazemi, Saxe and MacGyvers (1998) observe that students who had teachers that emphasized learning mathematics through teacher-student consultation rather than just getting the answers right perceived themselves as being more competent in mathematics and experienced more positive emotions toward the subject. These same students also made greater gains on a fraction assessment that was given to them after a lesson on fractions (Stipek *et al.,* 1998).

Mata, Monteiro and Peixoto (2012) report that the complexity of factors that can influence mathematics performance is demonstrated by Singh, Granville, and Dika (2002) when they show that high achievement in mathematics is a function of many interrelated variables related to students' interest in the subject, family and schools support. Among student variables, interest in the subject is regarded by several researchers, as an important/ key factor to be taken into account when attempting to understand and explain variability in student performance in mathematics (Mato and De la Torre, 2010; Mohamed and Waheed, 2011). Fraser and Kahle (2007) have also highlighted this aspect in research which shows that learning environments at home, at school, and within the peer group accounted for a significant amount of variance in student interest in mathematics.

In addition, Mohamed and Waheed (2011) when reviewing literature aimed at understanding students' interest in mathematics subject and the influences on their development in relation to differences between students, identified three groups of factors that play a vital role in influencing student interest in mathematics subject: factors associated with the students themselves (e.g., mathematical achievement, anxiety, self-efficacy and self-concept, motivation, and experiences at school); factors associated with the school, teacher, and teaching (e.g., teaching materials, classroom management, teacher knowledge, attitudes towards mathematics, guidance, beliefs); finally factors from the home environment and society (e.g., educational background, parental expectations).

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Research has repeatedly suggested that interest in mathematics is a critical construct related to learning. Students' interest towards mathematics is positively and significantly associated with mathematics achievement in several countries: students with positive attitudes tend to achieve higher (Else-Quest, Hyde and Linn 2010; House, 2006; Shen and Tam, 2008; Winheller Hattie and Brown, 2013). A substantial body of research during the last three decades demonstrates that all these aspects of students' interest in mathematics have emerged as salient predictors of achievement in mathematics (Chiu and Klassen, 2010; Williams T. and Williams K., 2010). Furthermore, the study of Vandecandelaere, Speybroeck, Vanlaar De Fraine and Van Damme (2012) gives support on how to create the learning environment in enhancing the positive interest towards studying mathematics. According to Anastasi and Urbina (2007) as cited in Okoto, Joe and Kpolovie (2014), the nature and strength of one's interest in learning and in schooling may represent an important aspect of personality. The characteristic, interest, may substantially influence educational and occupational achievement, interpersonal relations, the enjoyment one derives from leisure activities, and other major phases of daily living. Values are clearly related to life choices and are often discussed in conjunction with interests and preference. From the view point of the student and what he intends to achieve educationally, a consideration of his interest might be of practical significance. The interest must be there for him to devote time for his study.

The high rates of school failure have been followed by grade repetition which has become a distinctive characteristic of many students in school probably due to poor teacher/ student consultation and lack of interest in school subjects being taught. This disposition has made some children to be scholastically backward and fail to achieve good marks. School failure can lead to serious consequences if untreated. The failing student loses self-confidence, becomes discouraged, decreases effort, and is more likely to fail again. Irrespective of its cause, school failure due to learning disability is associated with adverse health outcomes. Children who fail in school are more likely to engage in subsequent health-impairing behaviours as adolescents like smoking, drinking and drug abuse. Learning disability in Mathematics which will eventually affect their self-esteem negatively and impair students' chance of gaining admission into tertiary institution to further their educational career being a compulsory subject required for admission. Based on this context, this study investigated teacher-student consultation and interest in subject as correlates of learning disability in mathematics among secondary school students in Warri.

METHOD

This study adopted a descriptive survey design and utilized purposive sampling technique to select 300 senior secondary school II students as participants from ten randomly selected secondary schools in Warri, Delta State, Nigeria. These students were selected based on their poor performance in Mathematics during the first and second term examinations. The results of students who consistently scored below 25% in 1st and 2nd term examinations were selected through the help of the class teachers.

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Teacher-Student Consultation Questionnaire was used to measure teacher-student academic relationship in quest to acquire knowledge. This is a self-constructed instrument by the researcher. It was validated through a pilot study. It is a ten-item scale with a four point likert scale of strongly agree, agree, disagree and strongly disagree with a reliability coefficient of 0.82. It has items such as I discuss my difficulty while studying with my teachers; After classroom teaching I still approach my teachers to explain difficult concept to me; My teachers are always ready to discuss my class work with me; etc.

Interest in subject scale was used to measure students' level of interest in mathematics as a subject. This is a self-constructed instrument by the researcher. It was also validated through a pilot study. It is also a four point likert scale of strongly agree, agree, disagree and strongly disagree with a reliability coefficient of 0.86. It has items such as I am happy studying mathematics; Understanding mathematics is not difficult; Mathematics is easy to learn; I practise mathematics almost every day. Learning disability in mathematics was measured using the cumulative performance in Mathematics for the first and second term examinations. The results of students who consistently scored below 25% in 1st and 2nd term examinations were selected through the help of the class teachers.

The researcher obtained permission from principals of selected secondary schools and also seek the consent of the class teachers and students. The essence of the study was explained to them and thereafter the questionnaires were administered to them and collected back after completion.

Data were analysed using Pearson Product Moment Correlation statistical tools at 0.05 level of significance

RESULTS AND DISCUSSION

Table 1 shows that the variable teacher-student consultation correlates significantly with learning disability in mathematics among secondary school students, $r(298) = 0.262$, $p < .05$, the mean and standard deviation for teacher-student consultation was 13.31 and 2.11 respectively. With this result, the null hypothesis that there is no significant relationship between teacher-student consultation and learning disability in mathematics among secondary school students is thus rejected. This implies that student's poor consultation with their teachers on issues they do not understand while studying mathematics could be responsible for their learning disability in mathematics subject.

Table 2 shows that interest in subject correlates with learning disability in mathematics among secondary school students, $r(298) = 0.251$, $p < .05$. The mean and standard deviation for interest in the subject was 11.75 and 2.96 respectively. With this result, the null hypothesis that there will be no significant relationship between interest in subject and learning disability in mathematics among secondary school students is thus rejected. This highlights the fact that when student's lack interest in any subject it could influence their negative performance in the subject. The result of the first hypotheses revealed that the variable teacher-student consultation correlates significantly with learning disability in mathematics among secondary school students. This implies that student's poor consultation

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with their teachers on issues they do not understand while studying mathematics could be responsible for their learning disability in mathematics subject. In support, Shernoff and Csikszentmihalyi (2009) observe that students with high levels of Teachers-student consultations are more likely to experience flow, a state of deep task immersion and peak performance which is accompanied by the sense that time is passing by. The benefits of Teachers-student consultation also include broader measures of school success like improved psychological well-being (Deci and Ryan, 2008), positively affect while doing homework (Froiland, 2011a), and less drug abuse (Battistich, Schaps, Watson, Solomon and Lewis, 2000). Studies have also shown that students with higher Teachers-student consultation at the outset of the semester displayed more persistence and were less likely to drop out of school (Vallerand and Bissonnette, 1992; Hardre and Reeve, 2003). Teachers-student consultation is also a strong factor in performance, persistence and productivity which makes it vital for children's success and life satisfaction after school. The aforementioned reasons alone are enough for school psychologists to shift their focus toward increasing Teachers-student consultation (Froiland, Smith and Peterson, 2012).

The findings of the study also indicate that interest in school subject correlates with learning disability in mathematics among secondary school students. This highlights the fact that when student's lack interest in any subject it could influence their negative performance in the subject. Incongruence, researchers like Okoiye (2014); Tella and Tella (2010) have reported that learning disabilities in Mathematics is associated with socio-psychological variables as well as other notable variables. These socio-psychological variables according to them may include achievement motivation, self-concept, self-esteem, interest in subject, self-confidence, self-regulation, parental support locus of control, self-efficacy, interest in schooling, study-habits and so on. Also, Research has repeatedly suggested that interest in mathematics is a critical construct related to learning. Students' interest towards mathematics is positively and significantly associated with mathematics achievement in several countries: students with positive attitudes tend to achieve higher (Else-Quest, Hyde and Linn 2010; House, 2006; Shen and Tam, 2008; Winheller Hattie and Brown, 2013).

Table 1: PPMC summary table showing relationship between teacher-student consultation and learning disability in mathematics among secondary school students.

Variables	**N**	**Mean**	**SD**	**R**	**df**	**p**
learning disability in mathematics among secondary school students	300	24.21	7.75	.262	298	ns
teacher-student consultation	300	13.31	2.11			

Source: Descriptive survey, 2015

Table 2: PPMC summary table showing significant relationship between interest in subject and learning disability in mathematics among secondary school students

Variables	**N**	**Mean**	**SD**	**R**	**df**	**p**
learning disability in mathematics among secondary school students	300	24.21	7.75	.251	298	ns
interest in subject		300	11.75	2.96		

Source: Descriptive survey, 2015

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CONCLUSION AND RECOMMENDATIONS

The purpose of this study is to examine through descriptive research design teacher-student consultation and interest in subject as correlates of learning disability in mathematics among secondary school students in Warri, Delta State, Nigeria. Taking into consideration the findings of thid study, it is concluded that since it is the desire of every student to succeed academically, teachers should take into consideration the principle of individual differences as to use diverse teaching methods to meet the learning needs of students. Based on the findings of this study, the following recommendations are made:

i. Teachers should make teaching and learning experience stimulating to arose the interest of students to get closer to them and develop interest in their subject.

ii Teachers should endeavour to teach from simple to complex so as to make the task of learning easy and appealing to the students.

iii. Students should develop good study habit that will help them develop their intellectual ability to succeed in classroom learning activities.

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