

Effect of Rational Emotive Behaviour Therapy on Mathematics Self-Efficacy and Achievement of Gifted Underachievers

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Abstract

Gifted underachievement is a serious threat to potential achievement and national development. There is, therefore, an urgent need to search for and apply effective therapy as an intervention to correct and improve particularly Mathematics achievement for gifted and talented students. This study, therefore, examined the efficacy of Rational Emotive Behaviour Therapy (REBT) in enhancing Mathematics self-efficacy and achievement of underachieving gifted students in Calabar, Nigeria. The study adopted an experimental design. The sample consists of 160 participants who show evidence of giftedness but underachieve in Mathematics and have low Mathematics self-efficacy. The sample was randomly assigned into experimental and control groups. Pretest and posttest were conducted and the instruments used were Intelligent Test, Mathematics Achievement Test and Mathematics Self-Efficacy Scale. MANCOVA was used for data analysis. Findings showed that REBT enhanced significantly the Mathematics achievement and self-efficacy of the participants. It was concluded that Mathematics underachievement and self-efficacy can be prevented or reversed with the appropriate use of REBT. It was recommended, among others, that school-wide assessment should be conducted to identify Mathematics gifted underachievers with low self-efficacy, and that REBT should be used to reverse the trend in Nigerian Schools.

Keywords: self-efficacy, underachieving, gifted, emotive, therapy

Introduction

Mathematics underachievement in gifted students is one of the most baffling, frustrating problems parents, teachers, and students can face. Parents and teachers can see the student's possibilities and are occasionally given a glimpse of brilliance in mathematics, but then it is gone, replaced by a wall of apathy or apparent unconcern. But, all of this

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may be just a façade because the underachiever is even more frustrated than anyone (Dada, 2016). Unfortunately, the case of Mathematics underachievement among gifted students is growing (Dada & Ogundare, 2017; Dada, 2017b). Seeley in Dada and Dada (2014) estimates that 15% to 40% of gifted learners become involved with significant Mathematics underachievement; Dada and Fagbemi (2014) found 63% of academically underachieving gifted students in a given population. In a similar vein, Dada (2013) identified 69% of Mathematics underachieving gifted students.

There has also been an increase in school report on behavioural problem among students including gifted students (Dada & Fagbemi, 2018). The behavioural challenges have significantly interfered with academic creativity, intelligence, learning outcome, intrapersonal and interpersonal relationships as well as self-efficacy in many school subjects of which Mathematics is considered a major (Dada et al., 2016; Orim et al., 2017). This ugly development is a time bomb that poses a serious threat to social, economic, political, and technological development. Mathematics self-efficacy and achievement are highly central to the nation's development and hence demand concerted efforts for improvement (Marsh & Martin, 2011). The gifted students are expected to have high academic achievements and confidence in Mathematics owing to its application for self and societal growth (Dada, 2008). It is however unfortunate that most students including the gifted students are experiencing dwindling performance in Mathematics (Dada & Dada, 2014; Dada & Obi, 2015; Dada & Akpan, 2019). There is therefore an urgent need to increase efforts towards salvaging the poor thread in Mathematics self-efficacy and achievement (Akah et al., 2022), particularly for the gifted students who are the potential agents for the nation's development.

Many researchers and scholars are evolving strategies and pedagogies towards helping students out of poor performance in Mathematics; but it is worrisome to observe the persistence of the problem (Dada, 2010). Most efforts have been channeled toward teaching strategies, teachers' quality, instructional facilities, and classroom management (Dada, 2011). Little attention was given to the personality interference of the gifted student in their Mathematics self-efficacy and achievement. Although many works of literature have reported the interference of students' behaviour in their academic performance (Marsh & Martin, 2011), but not in Mathematics for gifted students. This gap this study stands to fill.

The term "self-efficacy" is used to describe self-belief in one's actions to produce the desired result. It is a powerful incentive to act or to persevere in a given task. Therefore, Mathematics self-efficacy refers to students' convictions that they can be successful and perform well in given Mathematics tasks at designated levels (Schunk, 1996). Students who have low levels of Mathematics self-efficacy are at a high risk of underachievement in mathematics, even if they have high potential abilities (Bandura, 1997). Unfortunately, gifted students who have low Mathematics self-efficacy are less likely to perform well in Mathematics achievement or be motivated to engage in learning Mathematics (Klassen & Usher, 2010; Schunk & Pajares, 2009).

In 2012, the Programme for International Student Assessment (PISA) investigated a range of students on Mathematics self-efficacy (the extent to which students believe in their own ability to handle Mathematical tasks effectively and overcome difficulties), Mathematics self-concept (students' beliefs in their own Mathematics abilities), and Mathematics anxiety (thoughts and feelings about the self in relation to Mathematics, such as feelings of helplessness and stress when dealing with Mathematics), and students' engagement in Mathematics activities in and outside school. Results confirm previous evidence that different Mathematics self-beliefs are related. The result also indicates that 30% of students reported that they feel helpless when doing Mathematics problems; 25% of boys, 35% of girls, and 35% of disadvantaged students, and 24% of advantaged students reported feeling that way.

The manifestation of underachievement is a reflection of the difference between what students have the capacity to learn and what they have learned. It is a marked difference between actual potential and achievement (Dada, 2017a). The underachievement of a gifted student may sound paradoxical; nevertheless, a gifted student who finds the school system, curriculum and classroom instruction unchallenging may underachieve (Olofu et al., 2005; Olofu & Nkpubre, 2014; Dada, 2014b). Rimm (1997) suggested that the causes of underachievement should be viewed from two perspectives: environmental and personality factors. The environmental factor seems to stem from two problem areas: the school and the students' peer group. An anti-intellectual school or anti-ability school's atmosphere can contribute to underachievement behaviour. Reis and McCoach (2000) reported negative peer influence as a major important force blocking gifted students' high achievement. Major components of the personality factor that relate to achievement are self-concept and motivation (Reis & McCoach, 2000). Students, who learn to see themselves as a failure, eventually begin to place self-imposed limits on what they are capable of doing. Contemporary researchers in gifted underachievers such as Whitmore (1987) has confirmed that underachieving gifted students are different from achieving gifted students in an expression of low self-efficacy and poor learning motivation.

Some underachieving students may lack self-efficacy, goal-directedness, or self-regulation skills (Siegle & McCoach, 2001); other low achievers may suffer from either obvious or hidden disabilities. Still others may underachieve in response to inappropriate educational environments or poor emotional dispositions. Dada (2014a) maintained that the gifted or talented student who is underachieving in Mathematics represents the greatest loss to both society and self. With appropriate interventions however, it is possible to reverse the pattern of underachievement and modify the pupil's cognitions and attitudes toward Mathematics (Dada, 2012; Egaga & Dada, 2015; Dada & Ani, 2019).

Rational Emotive Behaviour Therapy (REBT) was considered a way to improve Mathematics self-efficacy and achievement of gifted underachieving students in this study. According to Wayne in Dada and Dada (2014) REBT is a psychological theory and therapeutic treatment used to change irrational beliefs that lead to emotional problems. REBT is eclectic in nature because it uses a variety of approaches, such as cognitive, affective, and behavioural techniques that are consistent with the client's needs. The therapy aimed at teaching clients how to develop a positive self-image; to dispute irrational beliefs and become positive about what they want to do. The application of

the therapy is justified in the enhancement of Mathematics self-efficacy and achievement. This is because it revealed behaviour such as irrational thinking and a negative belief of students about his/her strength and poor emotion towards Mathematics. Since Mathematics Self-Efficacy (MSE) constitutes a key component in cognitive construct, the therapist is expected to help guide the students towards developing positive emotional behaviour and strong belief in their capability to achieve better in Mathematics. It is against this background that the researchers investigated the efficacy of REBT on Mathematics self-efficacy and achievement of gifted underachieving students in Calabar, Nigeria.

Objectives of the study

The specific objectives of the study were to determine the:

1. Main effect of REBT on Mathematics self-efficacy and Mathematics achievement of underachieving gifted students
2. Interaction effect of REBT and gender on Mathematics self-efficacy and Mathematics achievement of underachieving gifted students

Hypotheses

Ho1: REBT has no significant main effect on Mathematics self-efficacy and Mathematics achievement of underachieving gifted students

Ho2: REBT and gender has no significant effect on Mathematics self-efficacy and Mathematics achievement of underachieving gifted students

Methodology

The study adopted a pretest-posttest, control experimental design. The target population was gifted students who are Mathematics underachievers in Calabar Municipal LGA in Cross River State, Nigeria. A sample of 160 participants from four schools was used for the study with 72 males and 88 females with equal numbers in the experimental and control groups. The participants were purposively selected after screening and identifying for giftedness by nomination and measure of intelligence test. Students who demonstrate high intelligence ($IQ \geq 120$ from the Slosson Intelligence test) but exhibit low academic achievement (≤ 35) and self-efficacy (≤ 35) in Mathematics are purposively selected for the study. The participants were randomly assigned to experimental and control groups.

Three instruments were used in the study; adapted Slosson Intelligence Test Revised (SIT-R, 2006), Mathematics Self-efficacy Scale (MSES) and Mathematics Achievement Test. The adapted version was revalidated by three experts in test psychology after that, the instrument was trial tested on 30 students. The test re-test method of determining reliability was used and the correlation coefficient obtained from the trial testing was $r = 0.89$. Mathematics Self-Efficacy Scale (MSES) with reliability coefficient = .72 obtained through test re-test and Mathematics Achievement Test (MAT reliability coefficient = .78 from Kuder-Richardson 20 formula). The instruments were validated by measurement psychologist and seasoned Mathematics teacher. The MAT was researcher made test containing 20 items, the MSES comprise 15 items while the SIT-R is adapted for age 12-16 years containing 32 items.

A pretest of the MAT and MSES was administered to the participants for pretest data, and a random assignment of the participants to experimental and control groups was done in the first week of the study. The pretest was followed by the treatment of REBT given to the experimental group for six weeks by the school counsellor and class Mathematics teacher (research assistants) in the experimental group. The research assistants were previously trained on their roles in the techniques with pre-planned activities to be carried out in the experimental group. The REBT involves three techniques namely the cognitive, emotional, and behavioural techniques in the experimental group. The cognitive technique is an active directive instruction to dispute irrational beliefs and the use of humour took two weeks. The emotional technique includes role playing and rational imagery done for two weeks. The behavioural technique involves operant conditioning, self-management strategy and modelling for two weeks. Therefore the REBT was used to adjust the MSE of the participants' beliefs, concerning their ability to successfully perform a given Mathematics task. The distribution of the participants was as shown in table 1. Two schools were used for each of the experimental group and control. The choice of two schools for each group was to control for confounded variables and ensure randomness.

The posttest of MAT and MSES were administered for posttest data in the 8th week of the study. Therefore data was collected from the pretest and posttest scores of the participants. The data collected was analyzed using Multivariate Analysis of Covariance (MANCOVA). The results of the tested hypotheses were presented according to the hypothesis.

Presentation of results

The descriptive analysis of the data collected is presented in table 1.

Table 1: Descriptive statistics of mean and standard deviation of the posttest

Variable	Group	Gender	Mean	Std. Deviation	N
Mathematics Achievement	Experimental group	Male	43.44	4.86	36
		Female	43.02	3.75	44
		Total	43.21	4.26	80
	Control Group	Male	33.61	3.16	36
		Female	34.00	4.69	44
		Total	33.83	4.05	80
	Total	Male	38.52	6.41	72
		Female	38.51	6.20	88
		Total	38.52	6.27	160
Mathematics Self-efficacy	Experimental group	Male	40.75	4.77	36
		Female	40.56	3.39	44
		Total	40.65	4.04	80
	Control Group	Male	33.00	3.10	36
		Female	31.50	4.13	44
		Total	32.17	3.76	80
	Total	Male	36.87	5.58	72
		Female	36.03	5.91	88
		Total	36.41	5.76	160

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Ho1: REBT has no significant main effect on Mathematics self-efficacy and Mathematics achievement of underachieving gifted students.

The independent variable in this hypothesis is REBT while the dependent variables are Mathematics self-efficacy and Mathematics achievement. MACOVA is the statistics used in testing the hypothesis. The use of MACOVA was based on two reasons; first because there are two dependent variables in the hypothesis: Mathematics self-efficacy and Mathematics achievement, secondly, the accommodation of the covariate that is the pretest scores.

Table 2 and 3 show the results of the analysis with respect to the hypothesis. The results show that there is significant main effect of treatment on Mathematics self-efficacy and Mathematics achievement of underachieving gifted students when combined as dependent variables (Wilks' $\lambda = .394$, $F_{(2, 154)} = 118.403$, $p < .05$ and multivariate eta square (η^2) = .606) after adjusting for the covariate of the pretest in academic achievement in Mathematics. The multivariate effect of the treatment is considerably high on the two dependent variable 60.6% (from $\eta^2 = .606$). Since the result of the multivariate test of the main effect of the treatment is significant it is therefore necessary to examine the univariate test of the Mathematics self-efficacy and Mathematics achievement separately.

Table 3 shows that the treatment has a statistically significant main effect on Mathematics achievement $F_{(1, 155)} = 192.330$, $p < .05$ ($p = .000$), with partial $\eta^2 = .554$. The influence of the therapy on Mathematics achievement is 55.4%. The therapy also has a significant main effect on Self-efficacy $F_{(1, 155)} = 185.955$, $p < .05$ with partial $\eta^2 = .545$. Again, the therapy has about 54.5% influence on the self-efficacy of the participants.

Ho2: REBT and gender have no significant interaction effect on Mathematics self-efficacy and Mathematics achievement of underachieving gifted students.

Multivariate Analysis of Covariance (MANCOVA) was used to test this hypothesis. Again, this is justified on the basis that there are two dependent variables regardless of the number of independent variables in interaction. The result of the analysis is presented in tables 2 and 3. The interaction effect of REBT and gender on Mathematics self-efficacy and Mathematics achievement when combined and after adjusting for the covariate effect of the previous score on academic achievement in Mathematics gives a value of Wilks' $\lambda = .988$, $F_{(2, 154)} = .952$, $p > .05$ ($p = .388$) and multivariate eta square (η^2) = .012. These results interpret that there is no interaction effect of the therapy (REBT) and gender on Mathematics self-efficacy and Mathematics achievement when combined.

Table 2: MANCOVA of the effects REBT and gender on Mathematics self-efficacy and Mathematics achievement

Effect		Value	F	df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.767	253.377 ^b	2	154	.000	.767
	Wilks' Lambda	.233	253.377 ^b	2	154	.000	.767
	Hotelling's Trace	3.291	253.377 ^b	2	154	.000	.767
	Roy's Largest Root	3.291	253.377 ^b	2	154	.000	.767
Pretest	Pillai's Trace	.022	1.700 ^b	2	154	.186	.022
	Wilks' Lambda	.978	1.700 ^b	2	154	.186	.022
	Hotelling's Trace	.022	1.700 ^b	2	154	.186	.022
	Roy's Largest Root	.022	1.700 ^b	2	154	.186	.022
Therapy	Pillai's Trace	.606	118.403 ^b	2	154	.000	.606
	Wilks' Lambda	.394	118.403 ^b	2	154	.000	.606
	Hotelling's Trace	1.538	118.403 ^b	2	154	.000	.606
	Roy's Largest Root	1.538	118.403 ^b	2	154	.000	.606
Gender	Pillai's Trace	.028	2.218 ^b	2	154	.112	.028
	Wilks' Lambda	.972	2.218 ^b	2	154	.112	.028
	Hotelling's Trace	.029	2.218 ^b	2	154	.112	.028
	Roy's Largest Root	.029	2.218 ^b	2	154	.112	.028

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Therapy*	Pillai's Trace	.012	.952 ^b	2	154	.388	.012
Gender	Wilks' Lambda	.988	.952 ^b	2	154	.388	.012
	Hotelling's Trace	.012	.952 ^b	2	154	.388	.012
	Roy's Largest Root	.012	.952 ^b	2	154	.388	.012

Table 3: MANCOVA of effect of REBT and gender on Mathematics self-efficacy and Mathematics achievement

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F-ratio	p-value	Partial Eta Squared
Corrected Model	Achievement	3533.187 ^a	4	883.297	50.100	.000 ^a	.564
	Self-efficacy	2943.585 ^b	4	735.896	48.720	.000 ^b	.557
Intercept	Achievement	7518.712	1	7518.712	426.456	.000	.733
	Self-efficacy	5761.322	1	5761.322	381.432	.000	.711
Pretest	Achievement	1.665	1	1.665	.094	.759	.001
	Self-efficacy	25.356	1	25.356	1.679	.197	.011
Therapy	Achievement	3390.906	1	3390.906	192.330	.000	.554
	Self-efficacy	2808.752	1	2808.752	185.955	.000	.545
Gender	Achievement	.070	1	.070	.004	.950	.000
	Self-efficacy	42.230	1	42.230	2.796	.097	.018
Therapy* Gender	Achievement	4.741	1	4.741	.269	.605	.002
	Self-efficacy	8.138	1	8.138	.539	.464	.003
Error	Achievement	2732.757	155	17.631			
	Self-efficacy	2341.190	155	15.104			
Total	Achievement	243657.000	160				
	Self-efficacy	217424.000	160				
Corrected Total	Achievement	6265.944	159				
	Self-efficacy	5284.775	159				

Discussion of the findings

The finding with respect to hypothesis one, showed that there is a significant main effect of the REBT on the Mathematics self-efficacy and Mathematics achievement of underachieving gifted students. It also indicates that the therapy has an estimate of about 55.4% and 54.5% effect on Mathematics self-efficacy and achievement respectively. This finding goes in line with that of the investigation of Marsh and Martin (2011) who found that there was a significant influence of behavioural-objective based objectives instructional strategies (BOBIS) on attitude towards Mathematics. The Mathematics achievement was improved for the participants in this experimental group as a result of improved self-efficacy through the therapy. It was found that self-efficacy is a major determinant of the choices that individuals make, the effort they expend, the perseverance

they exert in the face of difficulties, and the thought patterns and emotional reactions they experience. Furthermore, self-efficacy plays an essential role in achievement, motivation, self-regulated learning processes, and mediates academic achievement particularly in Mathematics and for the gifted student whose underachievement may be hidden. So, it is quite important that schools and teachers realize the benefit loaded in REBT and include the application of the therapy in curriculum plan for all students and particularly the gifted students.

It was realized that gender has no main significant as well as interaction effect with REBT on self-efficacy and achievement in Mathematics of the participants. The implication of the result is that the application of REBT is without gender bias. In other words, there is no gender difference in the application of REBT. Therefore the therapy will always produce the same result on both male and female gifted students. This result is against the notion that gifted girls do not need any behaviour therapy because they do not have behavioural problems.

Conclusion

Gifted students are the most neglected in the school in terms of educational provision because of the assumption that they have no problem in learning. This assumption is a gross mismatch between the expected differentiated education a gifted student requires and what is being offered in the school; consequently, many gifted students underachieve. Mathematics underachievement among gifted students has been consistently reported that it is caused by low self-efficacy among many other factors. In search for solution to this malady for gifted students, the REBT was experimented as a behaviour therapy. The therapy was found effective as it produced significant improvement on the self-efficacy and achievement in Mathematics of the participants. The therapy was not gender bias and hence is good for both male and female students.

Recommendations

Following the findings of the study, the following recommendations became paramount:

1. Schools should conduct identification and behavioural assessment to know students who are gifted but are not achieving their potential in Mathematics for special intervention.
2. Schools should also include and implement REBT in the curriculum for students with behavioural problem and academic underachievement.
3. Government should train teachers on the theory and practice of REBT for appropriate implementation.

References

- Akah, L. U., David, V. J., Alawa, A. Ojie, F. C., Usoro, A. A. Dada, O. A., Olofu, M. A. Ebuara, V. O., Ajigo, I., Essien, E. E., Essien, C. K., Unimna, F. A., Ukpong, J., Adeleke, O. P., & Neji, H. A. (2022). [ICT deployment for teaching in the COVID-19 era: A quantitative assessment of resource availability and challenges in public universities](#). *Frontiers in Education*, 7, 1-10.
- Bandura, A. (1997). *Self-efficacy: The Exercise of Self-control*. New York: W.H. Freeman and Company.

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- Dada, O. A. & Akpan, S. M. (2019). Discriminant analysis of psycho-social predictors of mathematics achievement of gifted students in Nigeria. *Journal for the Education of Gifted Young Scientists*, 7(3), 647-655.
- Dada, O. A. & Ani, A. U. (2019). Evaluation of instructional delivery in gifted education programme in Nigeria. *International Journal of Development Research*, 9(5), 27901-27907.
- Dada, O. A. & Dada, O. E. (2014). Efficacy of Co-operative and Self-directed Learning strategies in Enhancing Mathematics Achievement of Underachieving Gifted Students in Nigeria. *Journal of Humanities and Social Science*, 19(9), 41-50.
- Dada, O. A. & Fagbemi, O. O. (2014). Education for the gifted/talented students in Nigeria: A justification. *IISTE Journal of Education and Practice*, 5(33), 9-11.
- Dada, O. A. & Fagbemi, O. O. (2018). Influence of Emotional Intelligence and Locus of Control on Academic Achievement of Underachieving High Ability Students. *Journal for the Education of Gifted Young Scientists*, 6(2), 14-22.
- Dada, O. A. & Obi, F. B. (2015). Managing gifted children with behavioural problem in school. *Special Needs Education*, 1, 14-28.
- Dada, O. A. & Ogundare, O. G. (2017). Paradigm shift in assessment for giftedness and talent: A catholicon for realistic gifted education in Nigeria. *African Journal of Theory and Practice of Educational Assessment*, 3, 10-21.
- Dada, O. A. (2008). Implementation of policy on gifted education. *The Exceptional Child*, 10(2), 601-608. National Centre for Exceptional Children.
- Dada, O. A. (2010). Perception of high ability students in selected secondary schools on peer tutoring in Ibadan, Nigeria. *The Exceptional Child*, 12(1), 117-124.
- Dada, O. A. (2011). Peer Assessment in cooperative learning: The view of gifted student in high Schools. *The Exceptional Child*, 13(1), 27-35. National Centre for Exceptional Children.
- Dada, O. A. (2012). Ability grouping and enrichment programmes in enhancing mathematics for high ability students. *Journal of Advocacy and Rehabilitation in Special Education*, 11(1), 1-7.
- Dada, O. A. (2013). Models and strategies for implementing qualitative inclusive gifted education in Nigeria. In T. Ajobiwe & P. Osurji (Eds.), *Inclusive Education*. Jos, Nigeria: Oxford Binders.
- Dada, O. A. (2014a). Assessment of regular teachers' knowledge on psychosocial needs of gifted students in Nigeria. *International Journal of Educational Administration, Planning and Research*, 6(1), 143-151.
- Dada, O. A. (2014b). Influence of levels of intelligence in co-operative learning on Mathematics achievement of gifted students. *The Special Educator*, 13(1), 239-250.
- Dada, O. A. (2016). Intervention for preventing underachievement of gifted/talented child in an inclusive classroom. *African Journal of Inclusive Education*, 2(1), 67-74.
- Dada, O. A. (2017a). Equalizing access and quality education for gifted learners through ICT. In M. T. Joshua, P. N. Asuquo & J. S. Petters (Eds.), *Education for Careers in the 21st Century*. Calabar-Nigeria: University of Calabar Press.
- Dada, O. A., Bassey, B. A. & Usani, J. O. (2016). Institutional predictors of academic creativity of undergraduate in universities in Cross River State. *Global Journal of Educational Research*, 15, 113-119.

- Dada, O. A. (2017b). Appropriate strategy for accommodating gifted learners in an inclusive context: Enrichment or acceleration strategy? In E. O. Esu, I. M. Kalu & C. C. Chukwurah (Ed.), *Issues in Education, Science and Technology*. Calabar: Stiffaith Print & Supplies Co.
- Egaga, P. I. & Dada, O. A. (2015). Efficacy of ICT in enhancing mathematics creative thinking of exceptional children in selected primary schools. *International Journal of Humanities, Social Sciences and Education, 2*(9), 1-7.
- Klassen, R. M. & E. L. Usher (2010). Self-efficacy in educational settings: Recent research and emerging directions. In T. C. Urdan & S. A. Karabenick (Eds.), *The Decade Ahead: Theoretical Perspectives on Motivation and Achievement*. United Kingdom: Emerald. (1-33).
- Marsh, H. & Martin, A. J. (2011). Academic self-concept and academic achievement: Relations and causal ordering. *British Journal of Educational Psychology, 81*, 59–77.
- Olofu, M. A. & Nkpubre, U. (2014). Subject specialization, gender and the implementation of primary science curriculum in Cross River State. *International Journal of Continuing Education and Development Studies, 2*(3), 180-184.
- Olofu, M. A., Agbo, F. O. & Ogodu, F. A. (2005). Assessing teachers' awareness and application of recommended instructional strategies in the implementation of primary science curriculum. *Nigeria Journal of Curriculum Studies, 12*(2), 127-133.
- Orim, R. E., Dada, O. A. & Igwe, B. (2017). Cognitive dyscalculia and students attitudes towards learning mathematics in Cross River State, Nigeria. *Special Needs Education, 3*, 99-110.
- Reis, S. M. & McCoach, D. B. (2000). The underachievement of gifted students: What do we know and where do we go? *Gifted Student Quarterly, 44*, 152-170.
- Rimm, S. (1997). Underachievement Syndrome: A national epidemic. In N. Colangelo and G. A. Davis (Eds.), *Handbook of Gifted Education* (2nd ed., pp. 416-435). Boston: Allyn and Bacon.
- Schunk, D. H. & Pajares, F. (2009). Self-efficacy theory. In K. R. Wentzel & A. Wigfield (Eds.), *Handbook of Motivation at School*. New York: Taylor Francis. , (35-53).
- Schunk, D. H. (1996). *Self-efficacy for learning and performance*. Paper presented at the annual conference of the American Educational Research Association, New York.
- Siegle, D. & McCoach, D. B. (2001). Promoting a positive achievement attitude with gifted and talented students. *The social and emotional development of gifted students: What do we know?* Waco, TX: Prufrock Press.
- Whitmore, J. R. (1987). *Giftedness, Conflict, and Underachievement*. Boston: Allen & Bacon.