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Effect of Teacher-Mediation, Mixed-Sex Play and Gender-Segregation on Academic Performance of Oyo State Primary School Pupils.

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Abstract: This study investigated the effect of teacher-mediation, mixed-sex play and gender-segregation on academic performance of Oyo State primary school pupils. This study adopted pre-test, post-test, control group, quasi experimental research design. One research hypothesis was generated to guide the conduct of the study and tested at 0.05 alpha level of significance. The population for the study consisted of all primary one pupils of Oyo state, Nigeria. All the primary one pupils of all the registered primary schools in the state; both public and private schools formed the population for the study.. A sample size 302 participants from sixteen (16) schools were selected for this study using simple random sampling technique. The study used a researcher self developed questionnaire on the achievement test instrument on pupils' academic performance. The reliability of the instrument was ascertained by trial testing it on forty (40) primary one pupils outside the study sample. The data generated were analysed for reliability and internal consistency using Cronbach Alpha formular. The Standardized Alpha value of 0.82 was obtained. Analysis of Covariance (ANCOVA) were used to analyse the hypothesis in the study. This was done to test differences that are more than two variables and to test interaction effects of variables. In other words, it also gave initial differences that existed among the groups. The result was also tested at 0.05 level of significance. The finding revealed that, the treatment is one of the major contributors to pupils' academic performances, teacher-mediation in play, mixed-sex play and gender-segregation in play should be applied or adopted as instruments of improving primary school pupils academic performance, and that Gender-segregation also plays important roles on pupils academic performance. Based on the result of the findings, researcher gave the following recommendations among others that schools should provide positive productive stimulating learning environment where pupils feel comfortable and safe, satisfied with their teachers and derive joy and pleasure from learning which can facilitate better academic performance; availability of play equipment, facilities and playground should be made compulsory for both private and public schools so that engagement in co-curricular activities will positively influence the academic performance of the pupils; and teachers that will mediate in pupils play activities must develop a more critical understanding of what different forms of play mean to individuals and group of children and pursue knowledge of play as part of their professional development.

KEYWORDS: Teacher-mediation, Mixed-sex play, Gender-segregation, Attitudes, and Academic Performance

INTRODUCTION

The attitudes toward schooling is related to either positive or negative feelings of an individual to react and act in a certain manner to an object, situation, circumstance and issue concerning the quality and quantity of activities of the learning environment (Adesokan, 2002). This may vary in children since attitudes are not the same for different situations, events and objects. It is the concern of all education stakeholders to encourage positive attitudes toward schooling which is expected to give rise to better academic performance. Attitude can alter every aspect of a person's life, including their education. If negative attitudes are not altered, a pupil is unlikely to continue his education beyond what is required. Pupils attitude towards schooling, either good or bad affect their outlook towards learning throughout life. Their attitude towards schooling affected not only their quality of education but their desire for education (Schleicher, 2013). As positive attitudes toward schooling is part of the sense of belonging to school, a pupil is expected to become enthusiastic and demonstrate positive similar attitudes to learning which is the only business of schooling. However, reverse is the case for some pupils who demonstrate negative attitudes toward schooling in some of the Nigeria primary schools especially at lower primaries.

The importance of pupils attitudes within the classroom should be of concern, particularly if these attitudes have the potential of interfering with learning. Pupils tend to acquire attitudes and values within their classrooms rather than in their homes. All too often, pupils learning of attitudes toward persons, objects, or ideas are either incidental or the result of unplanned exposure to classroom subject matter.

The need to conduct studies related to attitude was undertaken for two main reasons; namely the attitudes' feasible power to predict future behaviours like subject and career preferences of the children; and the correlation existing between attitude and academic achievement (Osborne, Simon,& Collins, 2003). Studies suggest that, there is a close relationship between students' attitudes towards academic subject and their overall achievement (Awang *et al*., 2013).

Attitude of the pupils towards schooling is at times difficult to be separated from the pupils academic performance; attitude often serves as a determinant of academic performance (Adesokan, 2002). Attitude towards school and learning is a significant predictor of academic performance (Veresova & Mala, 2016). Candeias, Rebelo and Oliveira (2010) expressed that attitudes toward school and learning are associated with academic performance. Students with poor academic performance have a more negative attitude towards learning.

This shows that there is a strong relationship between pupils' attitude and their academic performance (Amoo & Rahman, 2004; Bolaji, 2005; Olatoye, 2012). Even, Holubkova and Glasova (2011) associated academic performance with a positive attitude of a pupil towards school that may not be necessarily reflected in excellent achievement; although, it will be reflected in producing the best individual performance in relation to a pupil's disposition.

Teacher-Mediation in Play and Pupils Academic Performance

It is well established that a positive teacher-pupil relationship in any school activities or programme is a developmental asset for children from pre-school to high school (Crosnoe, Johnson, & Elder, 2004; Mc-Innes, Howard, Miles, & Crowley, 2011) pupils whose relationships with teacher are characterized by greater closeness and less conflict exhibit lower levels of aggression, truancy and other conduct problems (Silver, Measelle, Armstrong, & Essex, 2005). They also achieve at higher levels academically. More importantly, the quality of teacher-mediation or relationship in pupils activities in the early grades has implications for children's future academic, social and behavioural outcomes (Hughes, Cavell & Willson, 2001; Ladd & Burgess, 2001; Pianta & Stuhlman, 2004).

The teacher may serve as an attachment figure for young children, such that a secure and close relationship with the teacher especially during play or classroom learning activities enables children to cope better with social and academic challenges in pre-school and the early elementary grades (Mc-Innes *et al.*, 2011). Thus a child's social relationships with teacher inside and outside the classrooms, academic motivation, and achievement are viewed as constituting a reciprocal and dynamic process by which children's early school experiences affect their long term academic and social adjustment.

Mixed-Sex Play and Academic Performance

Consistent and robust evidences were lacking about the benefits of single-sex, or mixed-sex schooling. However, one emerging finding is that one cannot evaluate the effects of single-sex or mixed-sex school on educational achievement in a vacuum without touching or considering the social and cultural context of the

school needs. Nevertheless, many advocates of co-education argue that mixed-sex schools are essential so that girls and boys can learn to live and work together; in general, their argument is that schools should reflect 'real' life (presumably out-of-school life) and as society is mixed, schools should also be mixed (Smithers & Robinson, 2006).

The little empirical evidence that exists regarding the long term social consequences of single-sex and mixed-sex schooling reveals no consistent differences in the personal development of girls and boys in these school types. Evidence suggests, for example, there are no significant differences between students who attend single-sex schools and students who attend co-educational schools in terms of how easy or difficult they find it to adjust socially to school life (Datnow & Hubbard, 2002).

Men and women have different perspectives on many things in life. This is a valuable dimension that single sex education cannot provide. Children of either sex are able to see how differently the other side understands and evaluates many issues. In schools that encourage group discussions on issues, this factor will be evident. Mixed-sex also break gender stereotypes because pupils will be able to see first hand that there are member of either gender who can do many things equally well.

On school sex and students' academic performance, it was revealed that school sex had no significant influence on students' academic performance. This implies that whether a pupils attends single-sexed or mixed-sex school does not make a difference in his academic performance (Yusuf & Adigun, 2010).

Mixed-sex or co-education advocates agree that there are some small physiological differences in male and female brains. But they also opined that there's a lack of evidence that these differences matter to learning at the individual level.There is a great variation among girls and a great variation among boys and for that reason, choice is a good thing, one size does not fit all (Halpern *et al*., 2011). Effective teaching often depends on getting children engaged and excited about learning the materials. Many boys and girls do fine with co-education schools, but some do better in same-sex schools. Therefore, society can benefit from choice and diversity, so let's offer options said (Baumeister, 2008).

Gender-Segregation and Pupils Academic Performance

Single-sex or single-gender or game-sex group is the same with gender-segregation (Kessels & Hannover, 2008). This is uncommon in the previous researches in terms of play activities but were few in classroom setting. Some studies have reported that single-sex classrooms and schools are linked to less gender stereotyped academic attitudes e.g. (Kessels & Hannover, 2008) for example, in a report of Single-Sex School (SSS) and Mixed-Sex School (MSS) students' self concept of academic abilities, Sullivan (2009) found that although boys had more positive mathematics and science attitudes and girls had more positive attitudes about English. Single-sex school was linked to smaller gender gaps in these attitudes.

Advocates of single-sex school generally have used two lines of reasoning in their support of SSS. One is that boys and girls have meaningfully different learning styles which are rooted in structural and physiological differences in the brains of boys and girls that require different learning environment (e.g. Gurian, Henley, & Trueman, 2001; James, 2009; Sax, 2006). Yet, Eliot (2011) reviewed neuroscience research and concluded that there are few reliable differences between boys' and girls' brains relevant to learning or education. Similarly, advocates maintain that SSS reduces sexual distraction that arises from being near or interacting with members of the other gender. Also, advocates contend that teaching boys and girls in a single-sex environment, improves students self-concept of ability in school subjects that are usually considered appropriate for the other gender (Crombie, Armstrong, 1999; Hoffman, Badgett, & Parker, 2008; Kessels & Hannover, 2008; Norfleet & Richards, 2003). In other words, educating boys and girls in separate spaces may permit them to engage more freely in subjects that are otherwise loaded with gender stereotypes. However, the proliferation of SSS within the urban schools in particular has been part of the larger movement to improve academic performance among low income students (Fergus, Sciurba, Martin & Noguera, 2009; Goodkind, Shelbe, Joseph, Beers, & Pinsky, 2013; McCreary, 2011; Mitchell & Stewart, 2003).

In a research conducted by Abayomi (2015) on gender difference in achievement and attitude of public secondary school students towards science. The result of the study showed among other things that students in single-sex schools performed better than those students in mixed-sex schools in mathematical computation. This was also in line with (Kolawole, 2007) who also investigated into gender issues and academic performance of senior school students in mathematics computational tasks. It also appears that

some parents believe that their children cannot perform very well academically in co-educational school (mixed-sex schools). To this end, many of them would prefer to register their children in single sexed schools to enhance better academic performance (Yussuf & Adigun, 2010).

Since academic performance of the pupils has been a major concern of the parents, pupils themselves, the government and the society, as it is being referred to as the quality and quantity of knowledge, skills, techniques, positive attitudes, behaviour and philosophy that learners achieve or acquire. Therefore, this paper is set out to investigate the effect of teacher-mediation, mixed-sex play and gender-segregation on academic performance of Oyo State primary school pupils**.**

RESEARCH HYPOTHESIS

This hypothesis was formulated and tested in the study:

Ho_1: There is no significant effect of teacher-mediation, mixed-sex play and gender-segregation on academic performance of Oyo State primary school pupils.

2. RESEARCH METHODOLOGY

2.1. Population and Sample

This study investigated the effect of teacher-mediation, mixed-sex play and gender-segregation on academic performance of Oyo State primary school pupils, Nigeria. This study adopted pre-test, post-test, control group, quasi experimental research design. One research hypothesis was generated to guide the conduct of the study and tested at 0.05 alpha level of significance. The population for the study consisted of all primary one pupils of Oyo state, Nigeria. All the primary one pupils of all the registered primary schools in the state; both public and private schools formed the population for the study.. A sample size 302 participants from sixteen (16) schools were selected for this study using simple random sampling technique. The study used a researcher self developed questionnaire on the achievement test instrument on pupils' academic performance. The reliability of the instrument was ascertained by trial testing it on forty (40) primary one pupils outside the study sample. The data generated were analysed for reliability and internal consistency using Cronbach Alpha formular. The Standardized Alpha value of 0.82 was obtained.

2.2. Method of Data Analysis

Analysis of Covariance (ANCOVA) were used to analyse the hypothesis in the study. This was done to test differences that are more than two variables and to test interaction effects of variables. In other words, it also gave initial differences that existed among the groups. The result was also tested at 0.05 level of significance.

3. RESULTS AND DISCUSSION OF FINDINGS

Table 1: *Descriptive Statistics of Participants' Academic Performance*

Treatment Group	School Location	School Type	Mean	Std. Deviation	N
Teacher-mediation in play	Rural	Public	21.6000	2.16187	20
		Private	23.0000	1.61245	11
		Total	22.0968	2.07131	31
	Urban	Public	22.1500	2.87045	20
		Private	22.7619	1.99762	21
		Total	22.4634	2.45049	41
	Total	Public	21.8750	2.52361	40
		Private	22.8437	1.85106	32
		Total	22.3056	2.28676	72
Mixed-sex play	Rural	Public	20.9000	3.17722	20
		Private	24.1500	1.75544	20
		Total	22.5250	3.02119	40
	Urban	Public	22.1500	2.96071	20
		Private	22.4000	2.11262	20
		Total	22.2750	2.54183	40
	Total	Public	21.5250	3.09663	40
		Private	23.2750	2.11208	40
		Total	22.4000	2.77694	80
Gender-segregation in play	Rural	Public	20.8000	1.57614	20

		Private	22.1875	1.86971	16
		Total	21.4167	1.82639	36
	Urban	Public	21.8000	2.41922	20
		Private	23.4000	1.46539	20
		Total	22.6000	2.13397	40
	Total	Public	21.3000	2.07797	40
		Private	22.8611	1.74279	36
		Total	22.0395	2.06843	76
Control	Rural	Public	11.8947	1.96906	19
		Private	11.2308	2.12736	13
		Total	11.6250	2.02803	32
	Urban	Public	10.5238	2.33707	21
		Private	10.2857	2.05287	21
		Total	10.4048	2.17592	42
	Total	Public	11.1750	2.25192	40
		Private	10.6471	2.10169	34
		Total	10.9324	2.18545	74
Total	Rural	Public	18.8861	4.56853	79
		Private	20.6167	5.34914	60
		Total	19.6331	4.97697	139
	Urban	Public	19.0494	5.70723	81
		Private	19.6341	5.84472	82
		Total	19.3436	5.76642	163
	Total	Public	18.9688	5.16084	160
		Private	20.0493	5.64220	142
		Total	19.4768	5.41050	302

The results in Table 1 revealed a total mean academic performance score of 19.4768 with a standard deviation of 5.51050. However, a mean academic performance score of 22.3056 and a standard deviation of 2.28676 were observed for participants in the teacher-mediation in play treatment group. For participants in the mixed-sex play treatment group, a mean of 22.4000 and a standard deviation of 2.77694 were observed. For participants in the gender-segregation in play treatment group however, a mean of 22.0395 and a standard deviation of 2.06843 were observed. In the control group, a mean academic performance score of 10.9324 and a standard deviation of 2.18545 were obtained.

A mean score of 19.6331 and a standard deviation of 4.97697 were observed for academic performance of participants in rural schools. For participants in urban schools, a mean academic performance score of 19.3436 and a standard deviation of 5.76642 were recorded.

For participants within public schools, a mean academic performance score of 18.9688 and a standard deviation of 5.16084 were observed; also for participants with participants in private schools, a mean academic performance score of 20.0493 and a standard deviation of 5.64220 were observed.

3.1. Hypothesis

There is no significant effect of teacher-mediation, mixed-sex play and gender-segregation on academic performance of Oyo State primary school pupils.

Table 2: *Estimates of Effect of Teacher-mediation in play and Mixed-sex play on the Academic performance of Participants*

			95% Confidence Interval	
Treatment Group	Mean	Std. Error	Lower Bound	Upper Bound
Teacher-mediation in play	22.374[a]	.272	21.840	22.909
Mixed-sex play	22.321[a]	.254	21.821	22.820
Gender-segregation in play	22.129[a]	.262	21.614	22.644
Control	10.966[a]	.264	10.447	11.486

a. Covariates appearing in the model are evaluated at the following values: Pretest Performance = 12.0331.

The results in Table 2 revealed that participants in the teacher-mediation in playgroup had a mean academic performance score of 22.374 and standard error of .272. In the Mixed-sex play group, the mean score was 22.321 and the standard error was .254 and in the Gender-segregation in play group, the mean score was 22.129 and the standard error was .262. However, in the control group, the mean score was

10.966 and the standard error was .264. The results of analysis to test whether these mean scores are significantly different are shown in Table 3.

Table 3:*Univariates Test of the Effects of Teacher-mediation in play and Mixed-sex play on the Academic performance of Participants*

	Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	6888.974	3	2296.325	464.192	.000	.830
Error	1409.874	285	4.947			

The F tests the effect of Treatment Group. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

The results in Table 4indicated that there was a significant effect of treatment ($F_{(3,285)} = 464.192$; $p< 0.05$) on academic performance of participants. In effect the null hypothesis was therefore not accepted by this finding. The implication of this finding is that participants' academic performance differs by the treatment given to them. To determine the direction of differences, a pairwise comparison of mean scores with adjustment for multiple comparison with Bonferoni method was conducted. The results are presented in Table 4.

Table 4: *Pairwise Comparisons of the Effect of Teacher-mediation in play, Mixed-sex play and Gender-segregation in play on the Academic Performance of Participants*

(I) Treatment Group	(J) Treatment Group	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b] Lower Bound	Upper Bound
Teacher-mediation in play	Mixed-sex play	.054	.371	1.000	-.933	1.040
	Gender-segregation in play	.245	.377	1.000	-.757	1.248
	Control	11.408*	.379	.000	10.402	12.414
Mixed-sex play	Teacher-mediation in play	-.054	.371	1.000	-1.040	.933
	Gender-segregation in play	.192	.372	1.000	-.795	1.179
	Control	11.354*	.365	.000	10.386	12.323
Gender-segregation in play	Teacher-mediation in play	-.245	.377	1.000	-1.248	.757
	Mixed-sex play	-.192	.372	1.000	-1.179	.795
	Control	11.163*	.373	.000	10.171	12.154
Control	Teacher-mediation in play	-11.408*	.379	.000	-12.414	-10.402
	Mixed-sex play	-11.354*	.365	.000	-12.323	-10.386
	Gender-segregation in play	-11.163*	.373	.000	-12.154	-10.171

Based on estimated marginal means
*. The mean difference is significant at the .05 level
b. Adjustment for multiple comparisons: Bonferroni.

Results in Table 4 indicated that significant differences existed between each of the experimental groups and the control group. Participants in the teacher-mediation in play differ in academic performance (MD = 11.408; $p< .05$) from those in the control group. Also, participants in the Mixed-sex play had higher mean score in academic performance (MD = 11.354; $p< .05$). Again, participants in the gender-segregation in play differ in academic performance (MD = 11.163; $p< .05$). However, participants in the experimental groups did not show any significant differences in their attitudes toward schooling. This result is graphically presented in Figure 4.10.

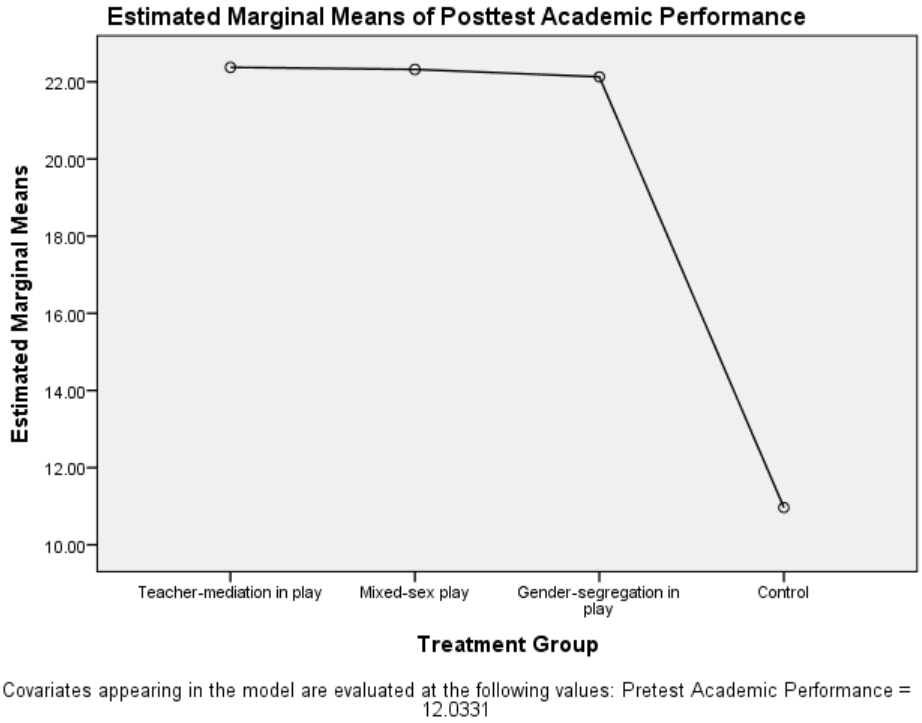

Figure 1: Treatment Effects on Participants' academic performance

Figure 1 indicates that participants in the teacher-mediation in play had the highest mean score (22.374) on academic performance followed by participants in the mixed-sex play group with a mean score of 22.321 followed by those in the gender segregation in play group (22.129) and by participants in the control group with 10.966.

4. Discussion of Findings

The result here indicated that there is significant interaction effect between the treatments given and the control group. Therefore the mean score ranging from the highest which was teacher-mediation, followed by mixed-sex play group and lastly gender-segregation play group was so closed but very wide from the control group. This indicated that the application of the treatments was so significant on the academic performance of the participants. It could be deduced from the finding that the treatment is one of the major contributors to pupils' academic performances. Therefore, teacher-mediation in play mixed-sex play and gender-segregation in play should be applied or adopted as instruments of improving primary school pupils academic performance. This result was in line with the work of (Lau, Higgins, Geifer, Hong & Miller, 2005) that teacher-mediation has been associated with positive social interaction that could arouse pupils positive attitude to learning and schooling and finally improving their academic performance if carefully introduced into pupils play activities in a school setting. On the mixed-sex play, it was reiterated by (Hanish & Fabes, 2003) that mixed-sex group play can provide a safe place for learning about similarities and differences across genders and for the development of skills. Meanwhile gender-segregation also plays important roles on pupils academic performance which was in line with the idea of (Fabes, Martins & Hanish, 2003) that both boys and girls have different experiences and learn skills, competencies and interest in their interactions with same-sex peers. However, this contradicts the idea of (Cook & Cook, 2009) that the boys tend to incur harsh criticism when they cross gender lines to play with girls.

5.1. CONCLUSION

The researcher made the following conclusion based on the findings of this work:

- That the treatment is one of the major contributors to pupils' academic performances.
- Teacher-mediation in play, mixed-sex play and gender-segregation in play should be applied or adopted as instruments of improving primary school pupils academic performance.
- That Gender-segregation also plays important roles on pupils academic performance

5.2. RECOMMENDATION

The following recommendations were made by the researcher, sequel to the results of the findings:

- Schools should provide positive productive stimulating learning environment where pupils feel comfortable and safe, satisfied with their teachers and derive joy and pleasure from learning which can facilitate better academic performance.
- Availability of play equipment, facilities and playground should be made compulsory for both private and public schools so that engagement in co-curricular activities will positively influence the academic performance of the pupils.
- Teachers that will mediate in pupils play activities must develop a more critical understanding of what different forms of play mean to individuals and group of children and pursue knowledge of play as part of their professional development.

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REFERENCES

[1] Abayomi, O. T. (2015). Gender difference in achievement and attitude of public secondary school students towards science. *Journal of Education and Practice.6*(2), 87-92.

[2] Adesokan, G. O. (2002). *Students' attitudes and Gender as determinants of performance in JSS 1 Integrated Science*. Unpublished B.Ed. project, University of Ado-Ekiti.

[3] Amoo, S. R. & Rahman, M. A. (2004). Secondary school students' attitudes to learning Mathematics in the world of Information Technology: Implication for Mathematics teachers and teacher preparation. In M.A.G. Akale (ed.) *Proceedings of STAN* 45th Annual Conference held at Abuja, 19-23 August, pp. 179-182.

[4] Awang, M.M., Ahmad, A., Abubakar, N., Abd-Ghani, S., Yunus, A.N.M., Ibrahim, M.A.H., Ramalu, J.C., Saad, C.P. & Abd-Rahman, M.J. (2013). Students attitudes and their academic performance in Nationhood Education. *International Education Studies. 6* (11), 21-28.

[5] Baumeister, R. F. (2008). Single-sex schools? Do we need single-sex public schools? Retrieved on 02/23/2017 from http://www.psychologytoday.com/blog/ culturalanimal/200810/single-sex-schools

[6] Bolaji, C. (2005). A study of factors influencing students' attitude towards Mathematics in the junior secondary schools. Mathematics Teaching in Nigeria. Retrieved on 17/7/2023 from http://www.ncsu.edu/ncsu/ acrn/bolajim.html

[7] Candeias, A. A., Rebelo, N. & Oliveira, M. (2010).Student attitudes towards learning and school-study of exploratory models about the effects of socio-demographics and personal attributes. Retrieved 4/23/18 from http://www.projectored.uevora.pt/ documentos/LICE.pdf

[8] Cook, J. L. & Cook, G. (2009). Gender segregation among childhood friends. Excerpt from child development principles and Perspectives. pp. 423-425.

[9] Crombie, G. & Armstrong, P. I. (1999). Effects of classroom gender composition on adolescents' computer-related attitudes and future intentions. *Journal of Educational Computing Research,20*, 217-327.

[10] Crosnoe, R., Johnson, M.K. & Elder, G.H. (2004). International bonding in school: The behavioural and contextual correlates of student-teacher relationships. *Sociology of Education*, 77, 60-81.

[11] Datnow, A. & Hubbard, L. (2002). Gender in policy and practice: Perspectives on single-sex and co-educational schooling. New York and London: Routledge Falmer, Taylor & Francis Group.

[12] Fabes, R. A., Martin, C. L. & Hanish, L. D. (2003). Young children's play qualities in same-other-and mixed-sex peer groups. Child Development.*74*, 921-932.

[13] Fergus, E., Sciurba, K., Martin, M., & Noguera, P. (2009). Single-sex schools for black and latino [14] boys: An intervention in search of theory. In Motion Magazine, retrieved 7/06/2023 from http://inmotionmagazine.com/er/fsmn_ 09.html.

[15] Goodkind, S., Schelbe, L., Joseph, A. A., Beers, D. E., & Pinsky, S. L. (2013). Providing new opportunities or reinforcing old stereotypes? Perceptions and experiences of single-sex public education. *Children and Youth Services Review, 35*, 1174-1181.

[16] Gurian, M., Henley, P., & Trueman, T. (2001). Boys and girls learn differently! A guide for teachers and parents. New York, NY: Jossey-Bass

[17] Halpen, D. E., Eliot, L., Bigler, R. S., Fabes, R. A., Hanish, L. D., Hyde, J., Liben, L. S., & Martin, C. L. (2011). The pseudoscience of single-sex schooling.*Science,333* (6050): 1706 DOI: 1126/science.1205031.
[18] Hoffman, B. H., Badgett, B. A., & Parker, R. P. (2008).The effect of single-sex instruction in a large, urban, at risk high school. *The Journal of Educational Research,102*, 15-35.
[19] Hughes, J. N., Cavell, T. A. & Willson, V. (2001).Further support for the developmental significance of the quality of the teacher-student relationship. *Journal of School Psychology.39*, 289-301.
[20] James, A. N. (2009). Teaching the female brain: How girls learn mathematics and science. Thousand Oaks, C.A: Corwin Press.
[21] Kessels, U. & Hannover, B. (2008). When being a girl matters less: Accessibility of gender-related self-knowledge in single-sex and coeducational classes and its impact on students' physics-related self concept of ability. *British Journal of Educational Psychology,78*, 273-289.
[22] Ladd, G. W. & Burgess, K. B. (2001). Do relational risks and protective factors moderate the linkages between childhood aggression and early psychological and school adjustment? *Child Development.72*, 1579-1601.
[23] Lau, C., Higgins, K., Geifer, J., Hong, E. & Muller (2005).The effects of teacher-mediation of the social interactions of young children during computer activities topics in Early Childhood Special Education.*25*(4), 208-217.
[24] Mc Innes, K..; Howard, J.; Miles, G. & Growley, K. (2011).Differences in practitioners' understanding of play and how this influences pedagogy and children's perceptions of play. *Early Years, 31*, 121-133.
[25] McCreary, A. J. (2011). Public single-sex k-12 education: The renewal of sex-based policy by post-race politics, 1986-2006. *Journal of Law and Education, 40*, 461-497.
[26] Mitchell, A. B. & Stewart, J. B. (2013). The efficacy of all-male academics: Insights from critical race theory (CRT). *Sex Roles,69*, 382-392.
[27] Olatoye, R. A. (2002). A causal model of school factors as determinants of science achievement in Lagos state secondary schools. PhD thesis, University of Ibadan, Ibadan.*39* (1&2). Retrieved on 07/14/2023 from stanonline.org>journals>pdf
[28] Osborne, J., Simon, S. & Collins, S. (2003). Attitude toward science: A review of the literature and its implications. *International Journal of Science Education, 25* (9), 1049-1079.
[29] Pianta, R. C. & Stuhlman, M. W. (2004). Conceptualizing risk in relational term: Associations among the quality of child-adult relationships prior to school entry and children's developmental outcomes in first grade. Educational and Child Psychology Special Issue: At Risk Children from Birth to Elementary School Age: Research Findings and Reflections on Intervention from an International Perspective. *21* (1), 32-45.
[30] Schleicher, A. (2013). What do students think about school? retrieved 29 July, 2023 at m.huffpost.com>entry.
[31] Silver, R. B., Measelle, J. R., Armstrong, J. M. & Essex, M. J. (2005). Trajectories of classroom externalizing behaviour: Contributions of child characteristic, family characteristics, and the teacher-child relationship during school transition. *Journal of School Psychology.43*, 39-60.
[32] Smithers, A. & Robinson, P. (2006).The paradox of single-sex and co-educational schooling. Buckingham: Carmichael Press.
[33] Veresova, M. & Mala, D. (2016).Attitude towards school and learning and academic achievement of adolescents. *The European Proceedings of Social and Behavioural Sciences*. On 7th International Conference on Education and Educational Psychology. Future Academy.
[34] Yusuf, M. A. & Adigun, J. T. (2010).The influence of school sex, location and type on students' academic performance. *International Journal of Education and Science,2*(2), 81-85.