INFLUENCE OF EARLY AND NORMAL SCHOOLING ON ACADEMIC ACHIEVEMENT OF SECONDARY SCHOOL STUDENTS IN DELTA STATE

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Abstract
Schooling in an informal setting prepares the individual academically to fit in and compete well in the larger society. It also prepares the individual to contribute his or her quota in national growth and development. All of these cannot be achieved in an underdeveloped stage of the child. Meanwhile, limited studies are available investigating the impact of early schooling on children academic achievement. This study therefore examined the influence of early and normal (late) schooling on academic achievement of secondary school students in two Educational zones of Delta State. The expost-facto research design was adopted. The population of the study comprised 14,749 senior secondary school one (SSS 1) students in the two zones. The sample was made up of 600 students drawn from 15 Co-educational secondary schools. Three research questions were raised and three hypotheses were tested at 0.05% alpha level. The research questions were answered using the mean (x) and standard deviation (SD), while the hypotheses were tested using the T-test. Data was collected using students academic records. The findings of the study showed a significant different in academic achievement of students in favor of the normal (late) entrants. Based on the finding, the study recommended that: awareness campaign is needed to guide parents on the growth and development of their children in order to avoid academic abuse and violence of their children.

Keywords: *Early schooling, academic achievement, brain development*

Introduction

In all countries, formal education is perceived as an indispensable tool in national development. Nigeria as a developing nation also stresses this belief in accepting education as a veritable tool and instrument for the acquisition of appropriate skills, abilities, knowledge and competence, both physical and mental equipment for the individual to earn a living from and contribute to the development of his or her society.

According to Asiwe (2018) citing Aggarwal, understands the education of the child as "a process which draws out the best in the child with the aim of producing well balanced personalities, culturally refined, emotionally stable, ethically sound, mentally alert, morally upright, physically strong, socially efficient, vocationally self sufficient and internationally liberal". That was why, in 1999, the Universal Basic Education (UBE) was launched and the UBE act of 2004 placed early child care and education (ECCE) into the mainstream of Nigeria Education (UNESCO 2006). Since then, there have been several efforts made to educate the child early enough through schooling. Hence parents everywhere, especially in Delta State, are rushing their tender children to school irrespective of their age (Otubelo, 2015)

However, worthy of note is the fact that schooling is an academic training which takes place formally in an institution where pupils and students are instructed in Arts, Science and languages (Asiwe 2019). Schooling involves mental or cognitive processes, that require development and maturity for effective and meaningful learning to take place. According to neuroscientists, the brain part involved in learning is the prefrontal lobe, which according to these scientists must fully develop and mature like other organs of the body before it can be put to use for long term benefit (Hockenbury, 2011). On the other hand, the brain part involved in social skills is the parietal lobe. Neuroscientists such as Giedd, (2004) noted that this part of the brain, when scanned by magnetive resonance imaging (MRI) revealed that it undergoes neuronal pruning for development, reinforcement, strengthening for normal functioning from ages 5 years, 8 years, 12 years, 16 years and 20 years upward in a gradual process. In the light of this, maturation and acquisition of social skills are very important tools for schooling.

Today, however, most children who are between 1-2 years are already introduced to academic training in schools by their parents. The reason for this is the belief that it is the computer age and the children are super kids. Therefore, their earlier exposure to schooling will yield early academic achievement or reward to the children, the family and the society at large. Again, the belief that any subject can be taught effectively in some intellectually honest form to any child at any stage of development also tend to heighten the influence of early schooling for the children, according to Elkind (2006) making reference to Jerome Brunner on effective teaching. Even now, there is an ongoing explosion of programme aimed at educating the fetus in the womb. This is called Fabric Pouch made by Baby plus. According to Elkind (2010), the fabric pouch is to be strapped to a pregnant woman's stomach and gives off scientifically designed rhythmic sound that resemble a mother's heart beat. The rhythm of the sound increases as the pregnancy progresses. According to the Baby plus, the sound patterns introduce the baby to a sequential learning process. Babies and children enriched with the baby plus are more relaxed at birth with opened eyes and hands, crying little. These children reach their milestones earlier and

have longer attention span than their counterparts without baby plus.

Early schooling according to Educational experts, is a branch of education theory that relates to the teaching of children from birth up to the age of late childhood (Barnett. W, Steven& Jason, T., 2013). Early schooling in view of this study is a period the child progresses faster into schooling than he should from early childhood when he begins between 1 or 2 years nursery school, 3 or 4 years primary school, 8 or 9 years secondary school and 14 or 15 years tertiary school, despite the standard period of schooling by NERDC (2014) and National Policy on Education (NPE) 2012. While normal schooling, is a period the child begins schooling normally from middle to late childhood between 3 or 5 years nursery school, 6 or 7 years primary school, 12 or 13 years secondary school and 17 or 18 years tertiary school; as set out by NERDC (2014) and NPE (2012). Specifically, NERDC (2014) and NPE (2012) mapped out, nursery schooling for 3 years upward to prepare the child for the primary level of education and 6-12 years upward for primary school for the child in order to inculcate in the child permanent literacy and numeracy and ability to communicate effectively. While the secondary school shall be 12-18years upwards for the child to prepare himself for useful living within the society and for higher education.

But right now, a look at most primary and secondary schools reveal that the primary six class seems to have been faced out in Delta State. A child now reads from primary one to five and is admitted into secondary school. In the secondary school, most of the students from JSS2 and SS2 begin to enroll to write the junior secondary school certificate examination and senior secondary school certificate examination (SSCE) with the West African Examination Council (WAEC) and National Examination Council (NECO) and even Joint Admission and Matriculation Board (JAMB), respectively. Meanwhile, the academic achievement of these early schooling students is always very low in Delta State. This has prompted the springing up of miracle examination centres where most of these students enroll to pass their examinations in flying colours, with malpractices .

Theoretically, Jean Piaget (1961) outlined four different stages of cognitive development that also involve life skills for proper academic learning to take place according to their age brackets. These stages are:

(a) Sensori motor - from birth to 2 years
(b) Preoperational - from 2 years to 7 years
(c) Concrete operation - from 7 years to 11 years
(d) Formal operation - from 11 years to 17 years upwards

From these stages, Piaget's work suggests that increases in cognitive performance cannot be attained unless both cognitive readiness brought about by maturation and appropriate environmental stimulation are present. For example, at the sensory motor stage, the level of cognitive development of the child, (0-2 years) is very low. Children under this age have relatively little competence in representing the environment using images, language or

other kinds of symbols. They have no awareness of objects or people that are not immediately present at a given moment they also lack life skills or social skills to sustain a satisfactory school environment, coupled, with weak muscular dexterity (Roberth, 2010).

Observation by Ann-Marie (2019), has shown that this period set the stage in which most parents in Delta State introduce their infant children to formal education and into academics. The children are woken up to prepare for school as early as 5:00am. In addition to this, parents also ensure that these children are enrolled to attend extra-mural class after the normal school hours where they will stay learning till the evening. And while in the school, their school teachers will hold the tender hands of these children whether in the primary or secondary school, to force them to write letters of the alphabet and to solve some mathematics. Again, this same child who has spent almost the whole day in the school, returning home burn-out, worn-out and emotionally sapped will be given homework assignment to submit the next day. Failure to solve the assignment of which they have no knowledge of, will further attract punishment from their teachers.

Over the years, as a school teacher, the researcher has keenly noted the declining nature of academic achievement of underaged students in the secondary schools in Delta State, with sudden increases in some behavior ranging from poor social skills, vices, cultism delinquency, examination malpractices and substance abuse. Otubelu (2015) observed long ago, the underachievement of under aged pupils and students in the schools in Delta state and called it waste of time and resources on the parts of parents and future harmful effects on the part of children. Now, this under-achievement of the students in the secondary schools continues to spill over to the tertiary institutions, creating worries in the minds of parents and the society at large. Many persons strongly believe that the poor academic achievements of the children is a result of the poor standard of education in Nigeria (Obiagele, 2006). Based on this, and looking for means to remedy this problem, policy makers in education continue to map out ways to improve the academic achievement of pupils and students.

In Aba, Nigeria, Okwuonu (2015) conducted a study with a sample of 300 students with early entrants and 120 with late entrants of students into secondary schools. The study was conducted from junior secondary school one to senior secondary school (1-6). His instrument for data collection was achievement test of the core subjects:- mathematics, English language and one basic science subjects. He used the mean and standard deviation to analyze the data. He found out from the study that the students with late entrants achieved higher than their counterparts academically in the first three years of secondary schooling. And the gap between them in academic achievement is widest in almost the years of the secondary schooling.

Although, studies support the view that pupils exposed to schooling at the normal age cut-off, tend to perform better academically than their counterparts who started early, Fox and Powel (2010) carried out a study in Sweden with a sample of 200 early entrants to High school, compared with115 late entrants in first grades. Using the first grade in academic record, they found out in their own result that there was no significant difference in the academic achievement at the first and second grade levels of the early and late schooling of the students.

Studies also showed that male students and female students on the average perform differently in various aspect of academics engagement. The works of Eagly, Benbow and Wood (2006) and that of Denworth (2017) showed that male students perform on spatial and mathematics more than female students. On the other hand, female students score higher in language skill than male students.

In Delta State, academic achievement record of the Junior Secondary School Certificate from 1999 till date are clear indication of the rapid decline in the academic achievement of the students. This is shown by many reports from the secondary schools in the Local Government Areas as well as from the Examination and Standard Department, Ministry of Basic and Secondary Education. Some factors such as poor quality of teachers, inconsistence educational policy, faulty foundation of primary school poor reading culture and lack of equipped library have been underscored as the causes of the low academic achievement of the students in the secondary schools level (Alanin, Nnadi, Gowon and Olayinka, 2012).

Is low academic achievement of students actually the responsibility of teachers and the government? Is it really lack of good foundation, Or can it be linked to early schooling with poor social skills and mental underdevelopment of the students? Age as a factor for academic achievement can be seen in late 60's and early 70's wherein, pupils who were admitted into primary schools from home. They were expected to have their hands crossed over their heads to touch their ears. This was a sign of maturity and for school readiness. The chronological age for a child's hand crossing over his/her head to touch the ear was between 6-7 years upward. Meanwhile, those whose hands were not able to cross over "their heads to touch their ears were not matured enough for schooling. Their age invariably was below 5 years. The children whose years were 6 and 7 above, can be admitted into the secondary school at 12 or 13 years minimum, upon their completion of the primary school.

If this method of admission into schools then and that of today (computer age) has anything to go by, what is the influence of early schooling on academic achievement of the students? Again, what is the influence of (early) schooling compared with (normal) schooling on academic achievement of male and female students differently in Delta state? If schooling and learning are best achieved upon cognitive maturity and experience, upon effective development of social skill and upon physical, moral and emotional growth of the children, what happens if these

psychological constructs are rushed too early in a child or are gradually followed at a normal age of the child i.e late schooling? It is on these bases that the research work was aimed at studying the influence of early schooling compared with (normal) schooling on social skills and academic achievement of students in the secondary schools in Delta State.

Statement of the Problem

It is worrisome to observe that large number of students are admitted into secondary schooling very early, at childhood stage. According to Elkind (2010) most parents feel that when children are into schooling early they tend to perform highly academically and enhance themselves, their families and the nation earlier in life. But the problem over the years, coming from the reports of ministry of education, examination and standard division, and from parents is that, there is a rapid decline in academic achievement of the teenage students in secondary schools. This was attributed to poor quality of teachers and poor foundation, with little or no attention paid to early schooling compared with normal schooling and its influence on academic achievement of the students in the secondary schools. Available literature shows that not much has been purely devoted to early entrance into secondary schooling, its influence on academic achievement of the students in Delta state.

It is against this background that the study was set out to examine the influence of early schooling on academic achievement of students using the core subjects, English language and mathematics.

The study has the following research questions listed below:

(1). What are the mathematics and English language mean achievement scores of students admitted early and normal to secondary schooling?

(2). What are the mathematics and English language mean achievement scores of male students admitted early and normal to secondary schooling?

(3). What are the mathematics and English language mean achievement scores of female students admitted early and normal to secondary schooling?

While the following null hypotheses were tested at 0.05 alpha level.

H01: There is no significant difference in the mean mathematic achievements cores of students who started secondary schooling at early and normal age

There is no significant difference in the mean English language achievement scores of students who started secondary schooling at early and normal age

HO2: There is no significant difference in the mean mathematic achievement scores of male students who started secondary schooling at early and normal age,

There is no significant difference in the mean mathematic achievement scores of female students who started secondary schooling at early and late age

Ho3: There is no significant difference in the mean English language achievement scores of male students who started secondary schooling at early and normal age.

There is no significant difference in the mean English Language achievement scores of female students who started secondary schooling at early and normal age.

Method

This study adopted an ex-post facto research design, which involves the collection of information or data that have already occurred and seeks to establish cause-effect relationship by linking some already existing observation to some variables as causative agents, (Alordiah, 2016). This design is appropriate for this study because it focused on facts already on group which is age of entering into secondary school (early and normal) on academic achievement of students, without any manipulation. The population of the study is made up of 14,749 SSS1 students in the North and South Educational zones of Delta State. The sample on the other hand is made up of 600 students drawn from fifteen (15) co-educational secondary schools in the major towns of Delta south and Delta north. Academic records of the students based on their Junior Secondary School Certificate Examinations (JSSCE) results were collected from the ministry of Education, Exams & Standard division for data analysis. Three research questions were raised and answered with the mean(x) and standard deviation (SD) while three hypotheses were tested at 0.05% alpha level.

Research Question 1:

Table 1: Mean and Standard deviation scores of students in English Language and Mathematics based on their age of schooling

Age of Schooling	N	English (Mean)	Std. Deviation	Maths (mean)	Std. Deviation
early 7-11	300	40.11	5.20	39.85	6.79
normal 12-13	272	44.50	7.36	44.04	6.63

Table 1 above shows the mean and standard deviation scores of students in English Language and Mathematics based on their age of schooling. It shows that those that entered school at the normal school entrance age scores higher that those who entered school earlier in both English Language and Mathematics.

Research Question 2

Table 2: Mean and Standard deviation scores in English Language and mathematics of male students who entered school at the earlier and those who entered at normal age

Gender	N	English (Mean)	Std. Deviation	Maths (Mean)	Std. Deviation
Male (Earlier Age)	171	40.63	4.39	42.52	4.87
Male (Normal Age)	86	44.98	7.45	45.97	7.01

Table 2 shows that male students who enrolled in school at the normal age had higher mean scores in English language and mathematics than male students who enrolled at earlier age.

Research Question 3:

Table 3: Mean and Standard deviation scores in English Language and mathematics of female students who entered school at the earlier and those who entered at normal age

Gender	N	English (Mean)	Std. Deviation	Maths (Mean)	Std. Deviation
Female (Earlier Age)	161	40.32	5.82	38.44	7.19
Female (Normal Age)	155	44.33	7.96	42.50	6.40

Table 3 shows that female students who enrolled in school at normal age had higher mean score than those who enrolled at an earlier age.

Hypothesis 1:

Table 7: t-test statistics on Differences in mean scores of Students who entered school at the earlier and those who entered at normal age in English and Mathematics

	Age of schooling	N	Mean	Std. Deviation	T	Df	Sig. (2-tailed)	Remark
English	early 7-11	300	40.11	5.20	-8.298	570	.000	Significant
	normal 12-13	272	44.50	7.36				
Maths	early 7-11	300	39.94	6.47	-7.548	570	.000	Significant
	normal 12-13	272	44.04	6.50				

An independent-samples t-test was conducted to compare the mean differences in the achievement of students who enrolled in school at an earlier age and those who enrolled at the normal age in English Language and Mathematics. Table 7 revealed that there was significant difference in the scores for early 7-11 (M=40.11, SD=5.20) and normal 12-13 (M=44.50, SD=7.36) in English language. The table indicates that t-cal > t-crit. (t-cal = -8.298, df = 570 =, $\alpha = 0.05$). Therefore, the hypothesis that there is no significant difference in their English Language achievement is rejected.

Furthermore, the table revealed that there was significant difference in the scores for early 7-11 (M=39.94, SD=6.47) and normal 12-13 (M=44.04, SD=6.50) in Mathematics. The table indicates that t-cal > t-crit. (t-cal = -7.548, df = 570 =,$\alpha = 0.05$). Therefore, the hypothesis that there is no significant difference in their mathematics achievement is rejected.

Hypothesis 2:

Table 9: t-test statistics on Differences in mean scores of male Students who entered school at the earlier and those who entered at normal age in English Language and Mathematics

	Age of schooling	N	Mean	Std. Deviation	T	df	Sig. (2-tailed)	Remark
English	male early	140	39.87	4.37	-7.116	255	.000	significant
	Male normal	117	44.73	6.50				
Maths	male early	140	41.67	4.98	-6.370	255	.000	significant
	male normal	117	46.07	6.09				

An independent-samples t-test was conducted to compare the mean differences in the scores of male students who enrolled in school at an earlier age and those who enrolled at the normal age in English language and mathematics. Table 9 revealed that there was significant difference in the scores for early 7-11 (M=39.87, SD=4.37) and normal 12-13 (M=44.73, SD=6.50) in English language. The table indicates that t-cal >t-crit. (t-cal = -1.774, df = 255=,α = 0.05). Therefore, the hypothesis that there is no significant difference in their English Language mean scores is rejected.

Furthermore, the table revealed that there was significant difference in the scores for early 7-11 (M=41.67, SD=4.98) and normal 12-13 (M=46.07, SD=6.09) in mathematics. The table indicates that t-cal > t-crit. (t-cal = -6.370, df = 255=,α = 0.05). Therefore, the hypothesis that there is no significant difference in their mathematics is rejected.

Furthermore, the table revealed that there was no significant difference in the scores for early 7-11 (M=2.88, SD=0.31) and normal 12-13 (M=2.87, SD=0.26) in verbal communication skills. The table indicates that t-cal < t-crit. (t-cal = 0.424, df = 255 =,α = 0.05). Therefore, the hypothesis that there is no significant difference in their mathematics is not rejected.

Hypothesis 3:

Table 11: t-test statistics on Differences in mean scores of female Students who entered school at the earlier and those who entered at normal age English Language and Mathematics

	Age of school	N	Mean	Std. Deviation	T	df	Sig. (2-tailed)	Remark
English	female early	160	40.32	5.84	-5.111	313	.000	significant
	Female normal	155	44.33	7.96				
Maths	female early	160	38.43	7.21	-5.303	313	.000	
	female normal	155	42.50	6.40				significant

An independent-samples t-test was conducted to compare the mean differences in the scores of female students who enrolled in school at an earlier age and those who enrolled at the normal age in English language and mathematics. Table 9 revealed that there was significant difference in the scores for early 7-11

(M=40.32, SD=5.84) and normal 12-13 (M=44.33, SD=7.21) in English language. The table indicates that t-cal >t-crit. (t-cal = -5.111, df = 313=,α = 0.05). Therefore, the hypothesis that there is no significant difference in their English Language mean scores is rejected.

Furthermore, the table revealed that there was significant difference in the scores for early 7-11 (M=38.43, SD=7.21) and normal 12-13 (M=42.50, SD=6.40) in mathematics. The table indicates that t-cal > t-crit. (t-cal = -5.303, df = 313=,α = 0.05). Therefore, the hypothesis that there is no significant difference in their mathematics is rejected.

Discussion of Findings

The result of the data in table I indicated that those that entered school at the normal school entrance age achieved higher that those who entered earlier in both English language and mathematics. Also, the analysis of hypothesis I table 7 using t-test indicated that there is significant difference in academic achievement both in English language and mathematics for those who entered school at the normal school entrance age against those that entered at earlier school entrance age. This finding is in agreement with earlier findings by Okwuonu (2015) who opined that the students who entered into secondary school late, achieved higher academically in the first three years of their secondary school than their counterpart who entered earlier. And the gap between them academically is widest in almost the years of the secondary schooling. Again, the result of the data on table 3 showed that male students who entered school at the normal age had higher mean (x) scores in English language and Mathematics than male students who entered at earlier age. And in table 4, female students who enrolled in school at the normal age had higher mean (x) scores in English language and Mathematics than female students who enrolled at the earlier age. The analysis of hypothesis 3, table 9 indicated a significant difference in academic achievement in favour of the male students who entered school at the normal age over the male students who entered earlier. Again the analysis of hypothesis 5 on table II indicated a significant difference in academic achievement in mathematic and English language of female students who enrolled in school at the normal age over the female students who enrolled at earlier age.

Finally, the findings of this study on gender differences in academic achievement in mathematics and English language showed that male and female achieved differently in these two core subjects. For example, the result of the data in table 3 and 4 indicated a mean score in mathematic higher for male students than for female students who entered school at earlier age, and also higher for male students than female students who entered school at normal age. While in English language the data showed that the female students who entered school at the normal age scored higher than the male students. This findings again agreed with the findings by Eagly, Benbow and Wood (2006) and Denworth (2017) who reported that on the average, male students score higher on

spatial and Mathematic achievement than female students. While females on the other hand, score higher in language skills than males, because of the differences in their corpus callosum.

Conclusion from the Study

Conclusively, findings from the study indicated that:

Schooling in a formal setting with academic achievement is bothered on the maturity of the brain part (prefrontal cortex) for learning, hence normal entrants into secondary school achieved more academically in mathematics and English language than early entrants.

Gender differences in academic achievement in mathematics and English language is an eye opener to counselors guiding students on career choices for proper placement for self enhancement and for national development.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. Students below 11 years should not be made to start secondary schools, just as children below 3 years to start nursery school and those below 5 years to start primary schools.
2. Awareness campaign is needed to guide parents on the growth and development of their children in order to avoid academic abuse of their children. This awareness campaign can be done by the various school counsellors; through-Parents Teachers Association (PTA).
3. School Authority, Teachers, proprietors and proprietresses should follow strictly the laid down policy of Education specifying the various age brackets children are expected to be admitted into school and into learning.
4. Government policy on education should seriously be enforced, supervised and monitored in all institutional establishments, public or private.
5. Again, government should continue to motivate students to promote healthy and ideal reading and learning culture through scholarships, prizes, grants and excursions tour.

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