

Influence of Chronological Age on Academic Achievement of lower Basic Education Pupils in Ikwuano Local Government Area, Abia State

*¹Vera Idaresit Akpan, ²Udodirim Angela Igwe, ³Maxwell O. Ede,
⁴ Arunsi, Gloria Arua

Department of Adult and Continuing Education, Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria.

Abstract: *The study examined the influence of chronological age on academic performance of lower basic education pupils. The study adopted expo-facto research design. The population of the study comprised all the 159, 420 basic education pupils with 80,827 females and 78, 593 males. The sample of the study was 46 lower basic education pupils (21 males and 25 females) drawn from two schools in two selected local government areas in the state using purposive or convenient sampling technique. In each of the schools, the second term results of pupils from 2015-2018 in Mathematics and English Studies were collected from the school head teachers to serve as data. Mean and standard deviation were used to answer the research questions while t-test statistic was used to test the hypotheses at 0.05 level of significance. The results of the study showed that the younger pupils had higher mean achievement scores than their older counterparts and difference in their mean achievement scores was also significant in favour of the younger pupils. The study also showed that younger male and female pupils respectively had higher mean achievement scores than their older counterparts but the difference was not significant. It was recommended that parents should send their children to basic schools early enough to enable them progress early in their academics. Also, school administrators should provide equal access to basic education for younger and older pupils while education policy makers should review the entry age policy for basic education.*

Keywords: *Chronological Age, Academic Achievement, lower Basic education, Pupils*

Date of Submission: 11-06-2020

Date of Acceptance: 28-06-2020

I. Introduction

One of the factors that a teacher has to consider in the selection of teaching method is the age of the learners (Alaka, 2011). Johnson, Blum and Gied (2009) in their study on adolescent maturity and the brain, observed that mental development is a correlate of chronological development (age). This means that reasoning capacity or the ability to process thought in the mind is equal to or dependent upon age. In other words, the older the pupil, the greater the understanding and reasoning ability of the pupil. The Federal Republic of Nigeria (FRN, 2014) stipulates that basic education is meant for children aged 6-15years, comprising, 1 year of pre-basic education for ages 5-6, 3years of lower basic education for ages 6-9, 3years of middle basic education for ages 9-12 and 3years of upper basic education for ages 12-15. The government also recognizes the early child care and development education meant for children aged 0-4years of age. One of the purposes of early child care and development education is to provide adequate care, supervision and security for the children while their parents are at work (FRN, 2013). This suggests that age 0-4years is not a school age though a good number of daycare centers and crèche that house early child care and development education are situated in formal schools meant for lower basic education. Sometimes these children are registered for 1 year of pre-basic education meant for ages 5-6 when they should still be in the daycare centers and crèche. This is possible because as the babies are taken to these centers at the end of their mothers' maternity leave, the tendency of transiting earlier than scheduled to formal education classes cannot be ruled out. This means that these children are likely to enroll formally into basic schools before the recommended 6years of age. This negates the stipulations of the Federal government in the Nigeria's National Policy on Education.

While the National Policy on Education stipulates 3years as the entry age for early child education (Nursery school) and 6years for basic education (Primary school), The parents on the other hand tend to vie for an earlier entry due to some socio-economic reasons, while there are arguments among educators ((Ede, 2004; Grissom, 2004) on the right age for school entry. The question at hand is, should parents send children who are not up to the government approved age of 6years to register for basic education? In another way, should schools register children who are not up to 6years for basic education? At this point it would be beneficial to all stake

holders to have data from different backgrounds that will enable them take informed decisions on the entry age of basic pupils. Since the National Education Policy of Nigeria stipulates 3years of lower basic education for ages 6-9, it implies that lower basic 1 (primary 1) should be for ages 6-7; lower basic 2 (primary 2) should be for ages 7-8 while lower basic 3 should be for ages 8-9. Suffice it to say that some parents do not wait for their children to reach the formal school age of 6 years for entrance into lower basic 1(primary 1). This situation remains as the child progresses into other classes. Akpan (2013) observed that the pupil's age has peculiarities that influence teaching and learning. The age of the learner is one of the factors teachers consider while preparing and implementing the curriculum. Age can be said to be a correlate of growth and maturity, and also a determinant for school readiness. According to shrestha (2019), learning readiness occurs when a student is physically, mentally and emotionally ready to learn. Afangedeh (2009), Obasi, Obih and Udosen (2016) attest to the fact that learners need to be ready and willing to learn before any academic success can be recorded and one factor that indicate readiness is the age of the learner.

It is necessary to ensure that the child is ready to learn before enrolling him or her in the school. This requires time to allow adequate physical, mental and emotional development. For reasons beyond the scope of this paper, the learners in a particular class or level are not always of the same age. In other words, not all basic education pupils begin school at the age of 6 as required by education policy (FRN, 2013). Some are younger while others are older at the point of entry or registration. One may therefore ask, 'is there any advantage or setback for being younger or older in terms of academic achievements?'

Academic achievement is a term used to reflect how students are performing in their studies and classes (Sharma, 2013). Ezenwosu and Nworgu (2013) assert that academic achievement is commonly measured by using classroom exercise, assignment and continuous assessment as well as internal and external examinations. It is still a debate if the learner's academic achievement is significantly affected by his/her age or level of cognitive maturity. According to DaSilva (n.d), cognitive maturity and by extension age, do matter when it comes to choosing a teaching-learning approach. She also explained that matured students are likely to adopt a deep learning approach that involves learner engagement and self- motivation which usually results to better learning outcomes. To her, chronological age determines cognitive maturity and also is used to refer to the age of the learner.

There have been previous researches on the effect of age on academic performance of pupils in other settings which could lend credence to this study. Rodriguez (2015) also carried out a study to find out whether chronological age differences had an impact on the academic performance of students. Using 29 pupils, participants were classified as either younger (≤ 85 months) or older (≥ 86 months). The result revealed that younger group showed difficulties in mathematics, while the older group showed some difficulties in reading. The younger group also needed more teacher guidance. Yesil and Jones (2012) also conducted a similar study and found out that older children had stronger mathematics skills than younger ones. This suggests that younger pupils are more likely to perform poorly in mathematics. Contrary to this, Mendez, Kim, Ferron, and Woods, (2015) in their own study observed that some older students actually underperformed when compared with their younger classmates. They did not consider the gender factor.

Gender is one factor that any civilized society today does not overlook. It is not merely about the sex of an individual but the perceptions and roles attached to the female and male that makes it an issue worth considering when it comes to causal phenomenon. Therefore, in this study gender will be considered alongside chronological age to determine if either or both have influence on the academic achievement of lower basic pupils. Ede (2004) in a study on the reading and language acquisition skills of very young children, found gender to be significant for predicting success in reading but not in mathematics in elementary and middle school. He also asserted that boys mature at a slower rate than girls, and are therefore less prepared for formal education. While Oshima and Domaleski (2006) found gender to be significant for predicting academic achievement in reading in elementary and middle school in a study they conducted on student gender and academic success. On the other hand Voyles (2011) in her statistical analysis of the relationship between student gender and student academic success found that there was no relationship between student gender and academic success in either reading or mathematics for students based on her study. This current study is focused on finding out if the chronological ages of lower basic pupils influence academic achievement.

In this study, chronological age is used to refer to the birth age of the pupils as at the time of entry or admission into lower basic 1, while influence is seen as that factor which has the power to affect their academic capabilities or achievements. To say that educators and parents have lofty desires for high academic achievement of their children is stating the obvious. The result of this study will therefore be significant to parents, teachers, school administrators and education policy makers.

The purpose of this study was to find out the influence of chronological age on academic performance of lower basic education pupils in the school. The specific objectives were to find out:

1. the mean difference between the academic achievement of pupils who were younger by their age and those who were older,

2. the mean difference between the academic achievement of female pupils who were younger by their age and those who were older,
3. the mean difference between the academic achievement of male pupils who were younger by their age and those who were older.

Research questions

The following research questions were posed to guide the study:

1. What is the mean difference between the academic achievements of pupils who were younger by their age and those who were older?
2. What is the mean difference between the academic achievements of female pupils who were younger by their age and those who were older?
3. What is the mean difference between the academic achievements of male pupils who were younger by their age and those who were older?

Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance:

1. There is no significance difference between the mean achievement scores of pupils who were younger by their age and those who were older.
2. There is no significance difference between the mean achievement scores of female pupils who were younger by their age and those who were older.
3. There is no significance difference between the mean achievement scores of male pupils who were younger by their age and those who were older.

II. Method

The study adopted ex-post-facto research design where three-year past records of 2nd term examination results of Lower basic I-3 pupils from sampled schools were obtained and used as data. This design is suitable because data used existed before the assumption of the study. According to Nworgu (1991), in ex-post-facto research design the researcher attempts to link some already existing observation(s) to some variables as causative agents, thereby using non-manipulative independent variables. The area of study is Ikwano Local Government Area, of Abia State, Nigeria. The population comprised all the 159, 420 basic pupils in Abia state with 80,827 being females and 78, 593 males (Federal Ministry of Education[FME], 2016). The sample of the study was 46 (25+21) lower basic education pupils from two schools. The choice of lower basic education pupils for the study was to capture learners that were neither at the early school age nor at the terminal level before junior secondary education. Simple random sampling was used to select two local government areas from the state. Convenient sampling was used to select one school each from the two local government areas to serve for the study. In each of the schools, the 2nd term results of pupils in Mathematics and English studies from 2015-2018 were collected from the school head teachers. These two subjects were selected because they are the basic core subjects for pupils at this level of education. To collect the data, the researcher collected records of the dates of birth of the children with their 2nd term results for three academic years (2015-2018) from the office of the school head teacher. The pupils were grouped into younger (6years and below) and older (7years and above) from the date of admission. The pupils' scores in Mathematics and English Studies were collated as data and used for analysis to answer research questions and test the hypotheses that were developed for the study. The data collected were analyzed using mean and standard deviation to answer the research questions while t-test statistic was used to test the hypotheses at 0.05 level of significance.

III. Results

The results are presented below and according to the research questions and hypotheses that guided the study.

Research Question 1

What is the mean difference between the academic achievement of pupils who were younger and those who were older?

Table1: Mean Analysis of the difference between the mean achievement scores of Pupils who were younger and those who were older

AGE	N	X	SD
Younger	31	69.41	11.37
Older	15	59.18	13.77
X difference		10.23	2.4

The result in Table 1 shows that that younger pupils had a mean achievement of 69.41 with standard deviation of 11.37 while their older counterparts had a mean achievement of 59.18 with standard deviation of 13.77. The

Table further showed that the mean difference between the achievements of the younger pupils is 10.23. This indicated that the younger pupils had a higher mean achievement than their older counterparts. In other words the younger pupils performed better in Mathematics and English Studies. The standard deviation of 2.4 showed that their scores were not close to the mean.

Hypothesis 1

There is no significance difference in the mean achievement scores of pupils who were younger and those who were older.

Table 2:t-Analysis of the mean difference between the mean Achievement scores of Pupils who were younger and those who were older

Age	N	X	Sd	df	t-cal.	P-value	Remark
Young	31	69.41	11.37	44	2.67	0.011	S
Old	15	59.18	13.77				

Data in table 2 reveal a P-value of 0.011 which is less than 0.05 alpha value. Since the P-value of 0.011 is less than 0.05 alpha value, the null hypothesis stated was rejected. Therefore, there is significance difference in the mean achievement scores of pupils who were younger and those who were older.

Research Question 2

What is the mean difference between the academic achievement of female pupils who were younger and those who were older?

Table 3: Mean Analysis of the difference between the mean achievement scores of Female pupils who were younger and those who were older

AGE	N	X	SD
Younger Females	7	18	69.74
Older Females		61.74	12.98
X difference		8.00	1.47

The results in Table 3 reveal that younger female pupils had a mean achievement of 69.74 with standard deviation of 11.15 while their older counterparts had a mean achievement of 61.74 with standard deviation of 12.98. The Table further showed that the mean difference between the achievements of the female pupils who were younger and those who were older age is 8.00. This indicated that the younger female pupils had a higher mean achievement than their older counterparts. In other words the younger females achieved higher in Mathematics and English Studies than the older ones. The standard deviation of 1.47 showed that their scores were not close to the mean.

Hypothesis 2

There is no significance difference in the mean achievement scores of female pupils who were younger and those who were older.

Table 4:t-Analysis of the mean difference between the Mean Achievement Scores of Female Pupils who were younger and those who were older

Age	N	X	Sd	df	t-cal.	P-value	Remark
Young Females	18	69.74	11.15	23	1.54	0.137	NS
Old Females	7	61.74	12.98				

Results in table 4 reveal a P-value of 0.137 which is greater than 0.05 alpha value. Since the P-value of 0.137 is greater than 0.05 alpha value, the null hypothesis stated was not rejected. Therefore, there is no significance difference in the mean achievement scores of female pupils who were younger and those who were older.

Research Question 3

What is the mean difference between the academic achievement of male pupils who were younger and those who were older?

Table 5: Mean Analysis of the difference between the mean achievement scores of Male pupils who were younger and those who were older

AGE	N	X	SD
Younger Males	13	68.99	12.14
Older Males		57.00	14.96
X difference		8	11.99
			2.82

The results in Table 5 show that male pupils with younger age had a mean achievement score of 68.99 with standard deviation of 12.14 while their older counterparts had a mean achievement of 57.00 with standard deviation of 14.96. The Table also revealed that the mean difference between the achievements of the male pupils who were younger and those who were older age is 11.99. This indicated that the male pupils with the younger age had a higher mean achievement than their older counterparts. In other words the younger males achieved higher in Mathematics and English Studies than the older ones. The standard deviation of 2.82 indicated that their scores were not close to the mean.

Hypothesis 3

There is no significance difference between the mean achievement scores of male pupils who were younger and those who were older.

Table 4: t-Analysis of the mean difference between the Mean Achievement Scores of Male Pupils who were younger and those who were older

Age	N	X	Sd	df	t-cal.	P-value	Remark
Young	13	68.99	12.14				
				19	2.014	.058	NS
Old	8	57.00	14.96				

Results in table 4 reveal a P-value of 0.058 which is greater than 0.05 alpha value. Since the P-value of 0.058 is greater than 0.05 alpha value, the null hypothesis stated was not rejected. Therefore, there is no significance difference in the mean achievement scores of male pupils who were younger and those who were older.

IV. Discussion of the Results

The results of this study indicated that the younger pupils had higher mean achievement scores than their older counterparts. The difference in the mean achievement scores of pupils who were younger and those who were older was also significant in favour of the younger pupils. This agrees with the study of Mendez, Kim, Ferron, and Woods, (2015) which revealed that younger students actually performed better than their older classmates in academic activities. The difference which was in favour of the younger pupils could be because their attention are less distracted from their academic activities than their older counterparts. The study is contrary to the findings of Yesil and Jones (2012) who found out that younger pupils perform poorly in mathematics than the older ones.

This study also showed that younger female pupils had a higher mean achievement scores than their older counterparts but the difference was not significant. Similarly, the result further showed the younger male pupils had a higher mean achievement score than the older males. The differences in their respective achievements were not significant. In other words, younger male and female pupils had higher achievement scores than their older counterparts. The results suggested that age rather than gender influences academic achievement of pupils. They agreed with the previous findings of Voyles (2011) who in her statistical analysis of the relationship between student gender and student academic success found that there was no relationship between student gender and academic success in either Reading or Mathematics.

V. Conclusion

From the findings of the study, it could be concluded that the younger pupils had significant higher mean achievement scores than their older counterparts. Also, the younger female and male pupils respectively had higher mean achievement scores than their older counterparts although the differences were not significant. This implied that age rather than gender influences academic achievement of pupils significantly.

VI. Recommendations

Based on the results and the conclusions drawn from the study, the following recommendations were made:

- Parents should be encouraged to send their children to basic schools once they are through with the pre-basic (Early learning/child care) education.

- Parents should give equal opportunity to their younger male and female children to attend basic schools without fear of low academic achievement.
- Schools should register young children for basic education even though they are not up to 6years of age.
- Teachers should be prepared to teach pupils of varied ages since all, if given equal opportunities can do very well.
- Teachers should encourage and give both the male and female pupils equal chances to learn and discourage anything that could allow gender disparity in classroom instructions.
- School administrators should provide children with equal access to basic education without age restriction.
- Policy makers in education should review the entry age policy for basic education to allow unrestricted access to younger children.

References

- [1]. Afangedeh, M. (2009). Curriculum implementation at the Basic Education Level. . U. M. O. Ivowi, K. Nwfor, C. Nwagbara, J. Ukwungwu, I. E. Emah& G. Uya (Eds.). Curriculum Theory and Practice. Curriculum Organization of Nigeria: Top Goddy Nig. Ltd.
- [2]. Akpan, V. I. (2013). Knowingand caring for the Child: A key to enhancing academic and achieving UBE goals at the pre-primary and primary school levels. *Journal of the Nigerian Council of Educational Psychologist*, 7(1), 132-136.
- [3]. Alaka, A. M. (2011). Learning Styles: what difference do the differences make? *Charleston Law Review*, 5(2), 133-172.
- [4]. DaSilva, C. (n.d.). How Students' Maturity Levels Impact Learning. retrieved from: <https://study.com/academy/lesson/how-students-maturity-levels-impact-learning.html> 26/10/2019
- [5]. Ede, A. (2004). Is my child really too young for kindergarten? *Childhood Education*, 80(4), 207- 210.
- [6]. Ezenwosu, S. U &Nworgu, L. N (2013). Efficacy of peer tutoring and gender on students' achievement in Biology. *Internationaljournal of scientific research*, 4(12), 944-950.
- [7]. Federal Ministry of Education (2016). Nigeria Education Indicators 2016. www.nemis.gov.ng › downloads_fold › Nigeria Education Indicators 20...
- [8]. Federal Republic of Nigeria (2013). National Policy on Education. Lagos: NERDC Press
- [9]. Grissom, J.B. (2004). Age and achievement. *Education Policy Analysis Archives*, 12(49).
- [10]. Retrieved from <http://epaa.asu.edu/epaa/v12n49/>.
- [11]. Johnson, S. A. Blum, R. W. &Gied, J. N. (2009). Adolescent Maturity and the Brain: The promise and pitfalls of neuroscience research in adolescent health policy. *Journal of Adolescent Health*, 45(3), 216-221. doi: [10.1016/j.jadohealth.2009.05.016](https://doi.org/10.1016/j.jadohealth.2009.05.016)
- [12]. Mendez, R. L. M., Kim, E. S., Ferron, J., & Woods, B. (2015). Altering school progression through delayed entry or kindergarten retention: Propensity score analysis of long-term outcomes. *Journal of Educational Research*, 108(3), 186-203. DOI: 10.1080/00220671.2013.867474
- [13]. Nworgu, B. G. (1991). Educational research: basic issues & methodology. Ibadan: Wisdom Publishers Limited
- [14]. Obasi, V. A., Obih, S. O. A. &Udosen, A. (2016). Factors affecting learning. In T. N. Kanno, V. A. Obasi, & S. O. A. Obih (Eds.). contemporary Issues in Curriculum Implementation and Methods. Owerri: Hysap Printers & Publishers.
- [15]. Rodriguez, A. I. (2015). Impact of Chronological Age Differences on the Academic Performance of Students in a First-Grade Classroom. *Education Undergraduate Research*. 21.https://knowledge.e.southern.edu/undergrad_ed/21
- [16]. Sharma, A. (2013). Effectiveness of play way method for teaching mathematics to children. A synopsis submitted for the partial fulfillment of the degree of Doctor of Philosophy, Dayalbagh Educational Institute (Deemed University) Dayalbagh, Agra.
- [17]. Shrestha, M. (2019). Learning Readiness and Educational Achievement among School Students. *The International Journal of Indian Psychology*, 7(2),467-476. DOI: 10.25215/0702.056
- [18]. Voyles, M. J. (2011). Student academic success as related to student age and gender. A Dissertation submitted to the Faculty of the University of Tennessee at Chattanooga. In Partial Fulfillment of the Requirements for the Doctor of Education Degree in Learning and Leadership . The University of Tennessee at Chattanooga.
- [19]. Yesil, D. U. & Jones, I. (2012). The effect of on-time, delayed and early kindergarten enrollment on children's mathematical achievement: Different by gender, race and family socio-economic status. *Educational Sciences: Theory and Practice*, 12(4), 3061-3074. Retrieved from: <http://www.edam.com.tr/kuyeb/en/makale.asp?ID=761&act=detay>

Vera Idaresit Akpan, et. al. "Influence of Chronological Age on Academic Achievement of lower Basic Education Pupils in Ikwuano Local Government Area, Abia State." *IOSR Journal of Research & Method in Education (IOSR-JRME)*, 10(3), (2020): pp. 01-06.