Assessment of Pre – Service Teachers' Competence in Literacy and Numeracy Skills at entry point in Tertiary Institutions in Delta State.

By

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Abstract

The need to improve on the principles and practices in the teacher – education sub – sector in Nigerian education system, so as to raise the levels of literacy and numeracy, which is still comparatively low from global standards has engaged the attention of stakeholders. Thus, this study was aimed at assessing the pre – service teachers' competence in literacy and numeracy skills at the entry point into the tertiary institutions in Delta State, using a descriptive survey design. The population comprised of all pre – service teachers admitted into the tertiary institutions in the 2017/2018 academic session. The sample is made up of 600 pre – service teachers drawn from the four colleges of education in Delta State, through a purposive sampling technique. The instruments used are Pre – service Teachers' Literacy Test (PTLT) and Pre – service Teachers' Numeracy Test (PTNT), which were constructed and validated by the researchers. Three research questions and six hypotheses guided the study. Descriptive statistics (e.g. mean, standard error, skewness, Kurtosis, frequency), t – tests and Pearson – product moment correlation was used for analyzing the data using the SPSS computer package. It was found among others that: the pre – service teachers' literacy skill was average while the numeracy skill was very low at the entry point; there was significant relationship between their literacy and numeracy skills and there was no significant difference between the literacy and numeracy skills of male and female pre – service teachers at entry point. These results underscore the fact that the entrants into the Colleges of education in Delta State, which prepares the professional teachers for the basic education level, are not students with very high levels literacy and numeracy skills. Recommendations based on these findings are provided in this paper.

Keywords: Assessment, Literacy Skill, Numeracy Skill, Pre-Service Teachers' Competence.

Introduction

Education is the bed rock of any society and plays a vital role in the development of individuals and their nation. When individuals are educated, their country is propelled towards rapid social, economic and technological growth. This further enhances the standard of living of citizens. Unfortunately, it has become increasingly clear over the last decade that education systems in a number of countries are failing to provide a learning environment that leads to success for many of their Students (Offices for Standards in Education, 2011[23]; Auguste, Kihn & Miller, 2010[5] Greenberg, McKee & Walsh, 2013[12], Thomson, 2008[29]). In several member countries of the Organization of Economics Co – operation and Development (OECD), low standards of literacy are viewed as serious problems in economic terms, especially when poor adult literacy requires a large financial commitment from governments in their drive to assist adults to attain basic literacy and numeracy skills (Industry Skills Council, 2018[15]; OECD, 2010[22]; Kingston, 2009[18]; Toppo 2009[30]; Baer, Kunter and

Sabatini, 2009 [9]). The importance of acquiring literacy and numeracy skills by citizens of any country to her development cannot be overemphasized.

Teachers are the main factor in ameliorating the unpleasant situation of the fallen standard of literacy and numeracy skills. Unfortunately, the primary and secondary school systems that produce potential students for training as teachers are plagued with falling standard in literacy and numeracy skills which will in turn affect the quality of students admitted into teacher training institutions. The chief examiners report for the English language for the west African Senior school Certificate Examination (WASSCE) in 2018 showed that candidates' performance in the subject is on the decline (WAEC, 2018[32]). In 2019, report showed that 64% of candidates had credit (and above) pass in English language and Mathematics which is an improvement over 38.22% and 46.76% who obtained credit (and above) passes in mathematics and English language respectively in 2018 (WAEC, 2018[32]).

On the Nigerian scene, Humphrey and Crawford (2014) [13] asserted that despite large investments in education in recent years, the quality of teachers teaching and teacher training continues to be a grave concern for Nigeria. There is a general outcry of the dwindling performance of teacher's literacy and numeracy skills in schools in Nigeria. (Kaduna State Government (2017) [17].

Statement of the Problem

No nation can rise above the quality of her teachers and Educational system. One of the problems that have been identified in the teaching profession in Nigeria, is that the academic requirements for gaining admission into the courses under education in tertiary institutions are usually the lowest compared to other fields of study like medicine, engineering and law. Similarly, the academic requirement hinges on the levels of literacy and numeracy with which

entrants into studies in teacher education are being admitted from the ordinary level education of the nation. It is therefore necessary to assess the level of literacy and numeracy of pre – service teachers at entry point, so as to guide effective interventions in the education sector.

Purpose of the Study

This study is aimed at determining empirical evidence of the level of competence of pre – service teachers in tertiary institutions in Delta State, in numeracy and literacy skills at the point of entry into the Programme. This will partly give a vivid description of the problem of teachers in the process of finding solution to it.

The gender factor and other non-cognitive correlates of the pre – service teacher's competence in literacy and numeracy are also assessed, in addition to the relationship between competences in the two skills.

Significance of the Study

It is expected that the result of this study would be of great significance to the gamut of Nigerian educational system and the nation's social, economic and technological development. Specifically, it will help in the regular review of the curriculum of teacher training institutions, thereby improving the quantity of trained teachers and ultimately enhance the acquisition of literacy and numeracy skills by the students they would teach after graduation.

Research Questions and Hypotheses

Research Questions

1. What is the pre – service teacher's competence in literacy skills at the entry point?
2. What is the pre – service teacher's competence in numeracy skills at the entry point?
3. Is there any significant relationship between the pre – service teachers competences in literacy and numeracy skills?

Hypotheses

There is no significant difference between the literacy skill of the pre – teachers categorized as: -

i. Being male or female.
ii. Studying mathematics related courses and non – mathematics related courses.
iii. Studying English language related courses or non-English language related courses.

There is no significant difference between the numeracy skill of the pre – service teachers categorized as: -

iv. Being male or female.
v. Studying mathematics related or non – mathematics related courses.
vi. Study English language related or non – English language related courses.

Theoretical Background: Literacy, Numeracy and link to English language and mathematics in the Nigerian context.

Literacy is traditionally understood as the ability to read and write. The modern term's meaning has been expanded to include the ability to use language, numbers, images, computers and other basic means to understand, communicate, gain useful knowledge and use the dominant symbol system of a culture. The meaning of literacy has been seen as both dynamic and complex to the extent that it is seen as an important index of sustainable development of the nations. In this vein, United Nations Educational and Cultural Organization (UNESCO (2004) [31] defined literacy as,

"the ability to identify, understand, interpret, create, communicate and compute using printed and written (and visual) materials associated with the ***varying contexts.*** *Literacy involves a continuum of learning to enable an individual to achieve his or her goals, to develop his or her knowledge and potential and to participate fully in the wider society" p – 13.*

This comprehensive definition of literacy enables one to consider it in varying contexts according to the required aspect of skills. In the perspective of this study, aimed at measuring literacy skills in the Nigerian context, the ability to read, write, speak and listen in English language is the foundation. This is also seen as English literacy which is seen as a strong index of Nigerian education for development (Njoku (2017) [20], Eno (2016) [10].

In the Nigerian context "literacy in English should be attained by all and sundry" Njoku (2017), based on the role played by the subject as the language of instruction in the educational system and second language in the country. Hence, in this study, literacy is measured by an appropriate test in English language.

"Numeracy" is the ability to access, use and interpret and communicate mathematical information and ideas, in mathematical demands of various situations. Various ideas show that to be numerate is to confidently and effectively use mathematics to meet everyday demands of life (Commonwealth of Australia, 2012[8]; O. Donoghue, 2002[21]; Sidoliki 2017[26]). In the Nigerian contexts, researchers have shown that the three basic components of numeracy; context, content, cognitive and affective refer to ability to make use of mathematical concepts in peculiar ways to solve real life problems. (Awofala 2017[6]; Eno, 2016 [10]; Adegoke 2013[1]). However, the assessment of numeracy skills should go beyond the assessment of mere mathematical skills to its application in everyday life (Awofala, 2017[6]; Thelma 2011, [28]). Specifically, Thelma (2011) provided a guidance in assessing numeracy skills to include a combination of mathematical skills and their daily application and this is the level of content of the mathematics subject at the ordinary level of education, as considered in this study. Hence an appropriate mathematics test is used to assess the literacy skills of the pre – service teachers.

Concept of pre – service teachers' competence at entry point.

Competence is the ability of an individual to do a job properly. Pre – service teacher education is the education and training provided to student teachers before they undertake any teaching as professional teachers.

Fejet, et al (2004) [11]. The pre – service teacher is a student undergoing the training above, who is admitted based on specified background academic qualifications. For the tertiary institutions, the previous academic qualification required for admission as a pre – service teacher includes credit and above passes in at least five subjects including English language and mathematics. It is expected that, having obtained at least credit passes in English language and mathematics at Senior Secondary School Certificate Examination (SSCE) level, pre – service teachers should exhibit pre-requisite competences in basic literacy and numeracy skills. In this study, the actual literacy and numeracy skills possessed by the pre – service teachers as they commence their studies, (i.e. the entry point) is assessed.

Methodology

The research design adopted for this study is descriptive survey in which the characteristics of the population is described without changing the environment. The population of the study is all pre – service teachers who were admitted into the 2017/2018 academic session in all the four (4) colleges of education in delta state. These are: -

1. College of Education, Agbor.
2. College of Education, Warri.
3. Federal College of Education (Technical), Asaba and
4. College of Physical Education, Mosogar.

A non – probability (purposive) sampling technique was used to select six hundred (600) students. (150 each) from the colleges. This was based on the availability and willingness of a student to participate in the study and inclusion of students from all the schools in the colleges.

Instrumentation

Two multiple choice objective achievement tests of forty items each were constructed, validated and used to collect data. They are: -

1. Pre – service teachers' literacy skills test (PTLT).
2. Pre – service teachers' numeracy skills test (PTNT).

Each of the test items have three (3) distracters and a key (answer). PTLT and PTNT were constructed using a test blue print (or table of specification) covering the scheme of work of ordinary level (or SSCE) literacy and numeracy skills. The items were validated by test experts in measurement and evaluation as well as in literacy and numeracy skills. An initial 50 – item multiple choice tests were administered to pre – service teachers in a sister College of Education in Edo State. Their scores were used to carry out item analysis of the tests in order to determine item difficulty and discrimination indices in addition to the reliability index. Items with difficulty index in the range of 0.4 to 0.8 were retained while others were removed being either too simple (for those above 0.8) or too difficult (for those below 0.4). This yielded a final test of forty (40) items for PTLT and PTNT. Kuder – Richardson reliability coefficient was calculated from a single administration as a power (not speed) test. The computed reliability for the

literacy test (PTLT) is 0.83 while that of the numeracy (PTNT) is 0.60 and these indices are judged as high enough for the instruments to be used.

Data Collection Procedure

The Colleges (that have earlier agreed to participate in the research) were personally visited by the researchers to administer the tests to the students under standard examination conditions and the students provided their answers on the separate answer sheets given to them. Researchers collected back the answer sheets immediately after the test period.

Analysis of Data

The students' answers were computer – analyzed using descriptive statistics, frequency distribution and t – tests to answer questions 1 and 2; Pearson – product moment correlation coefficient to answer question 3 and t-tests for independent groups to test the six hypotheses, at 0.05 level of significance. The results of the analysis are displayed in tables 1 to 11 and figures 1 to 4. Gender is coded (1) for females and (2) for males. Similarly, all courses which requires mathematics or is a combination of mathematics and another subject is coded (2) while others are coded (1). All courses which have English language as one of the subject's combination or are from purely art - subjects are coded (2) while others are coded (1).

Results

Table .1. Descriptive statistics for the performance of pre – service teachers in literacy test.

Test	Number of Student	Minimum score	Maximum score	Mean score	Standard deviation	skewness	Standard error	Kurtosis	Standard error
PTLT	599	2.00	36.00	18.04	6.613	-0.006	0.100	-0.615	0.199

Table 2: One sample t – test for the mean score in the literacy test.

Test	Mean score	Standard error of mean	Test value	Test observation	significance	Df	Significance at 0.005
PTLT	18.04	0.270	16.00	7.532	0.000	598	*

* Significant at 0.005 Level.

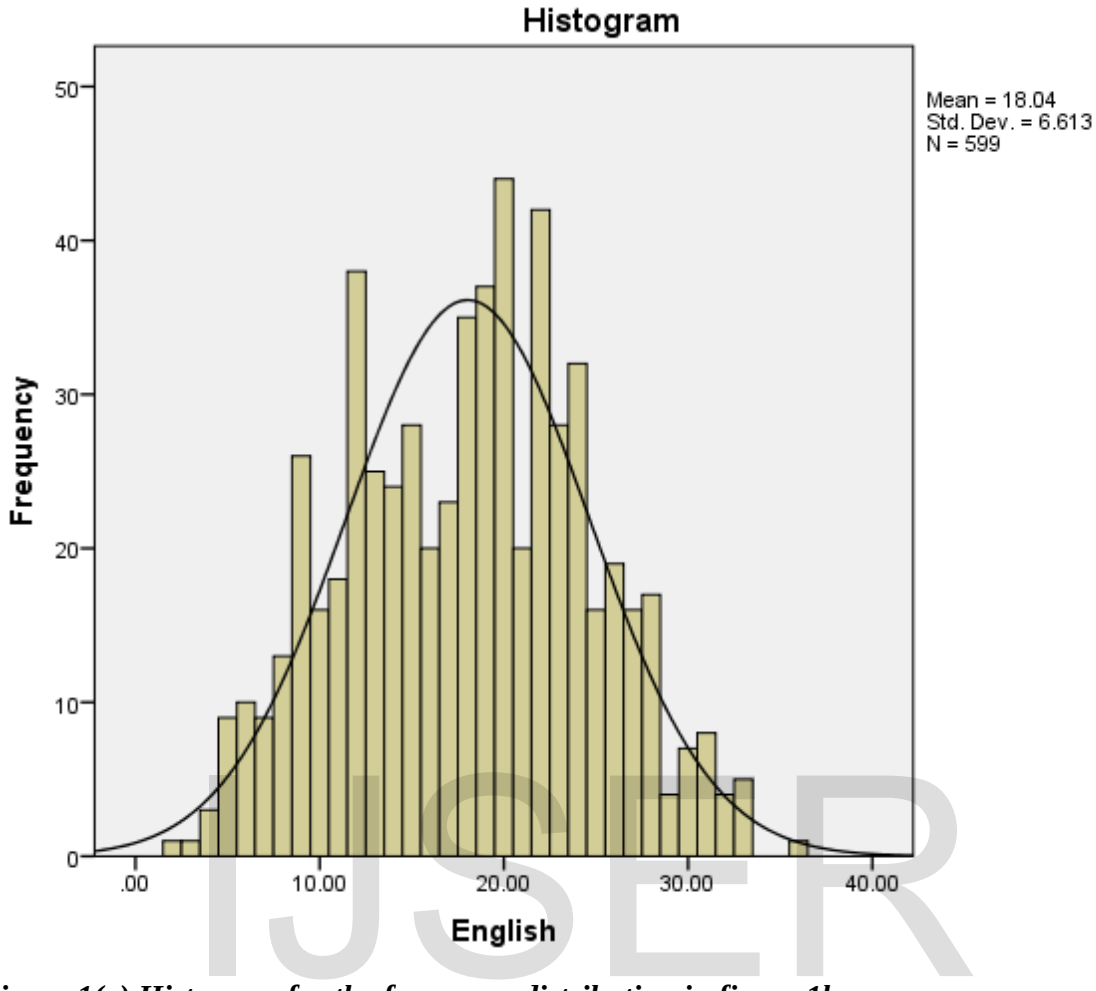


Figure 1(a) Histogram for the frequency distribution in figure 1b.

PTLT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	1	.2	.2	.2
	3.00	1	.2	.2	.3
	4.00	3	.5	.5	.8
	5.00	9	1.5	1.5	2.3
	6.00	10	1.7	1.7	4.0
	7.00	9	1.5	1.5	5.5
	8.00	13	2.2	2.2	7.7
	9.00	26	4.3	4.3	12.0
	10.00	16	2.7	2.7	14.7
	11.00	18	3.0	3.0	17.7
	12.00	38	6.3	6.3	24.0
	13.00	25	4.2	4.2	28.2
	14.00	24	4.0	4.0	32.2
	15.00	28	4.7	4.7	36.9
	16.00	20	3.3	3.3	40.2
	17.00	23	3.8	3.8	44.1
	18.00	35	5.8	5.8	49.9
	19.00	37	6.2	6.2	56.1
	20.00	44	7.3	7.3	63.4
	21.00	20	3.3	3.3	66.8
	22.00	42	7.0	7.0	73.8
	23.00	28	4.7	4.7	78.5
	24.00	32	5.3	5.3	83.8
	25.00	16	2.7	2.7	86.5
	26.00	19	3.2	3.2	89.6
	27.00	16	2.7	2.7	92.3
	28.00	17	2.8	2.8	95.2
	29.00	4	.7	.7	95.8
	30.00	7	1.2	1.2	97.0
	31.00	8	1.3	1.3	98.3
	32.00	4	.7	.7	99.0
	33.00	5	.8	.8	99.8
	36.00	1	.2	.2	100.0
	Total	599	99.8	100.0	
Missing	99.00	1	.2		
Total		600	100.0		

***Figure 1b** Frequency Distribution of Pre-service Teachers' Literacy Test.*

Research Question 1: Tables 1 and 2 and figure (1a&b) above show the results of the analysis for research question 1.

- The mean score of the students in the literacy test is 18 which is less than 20 (or 50%).

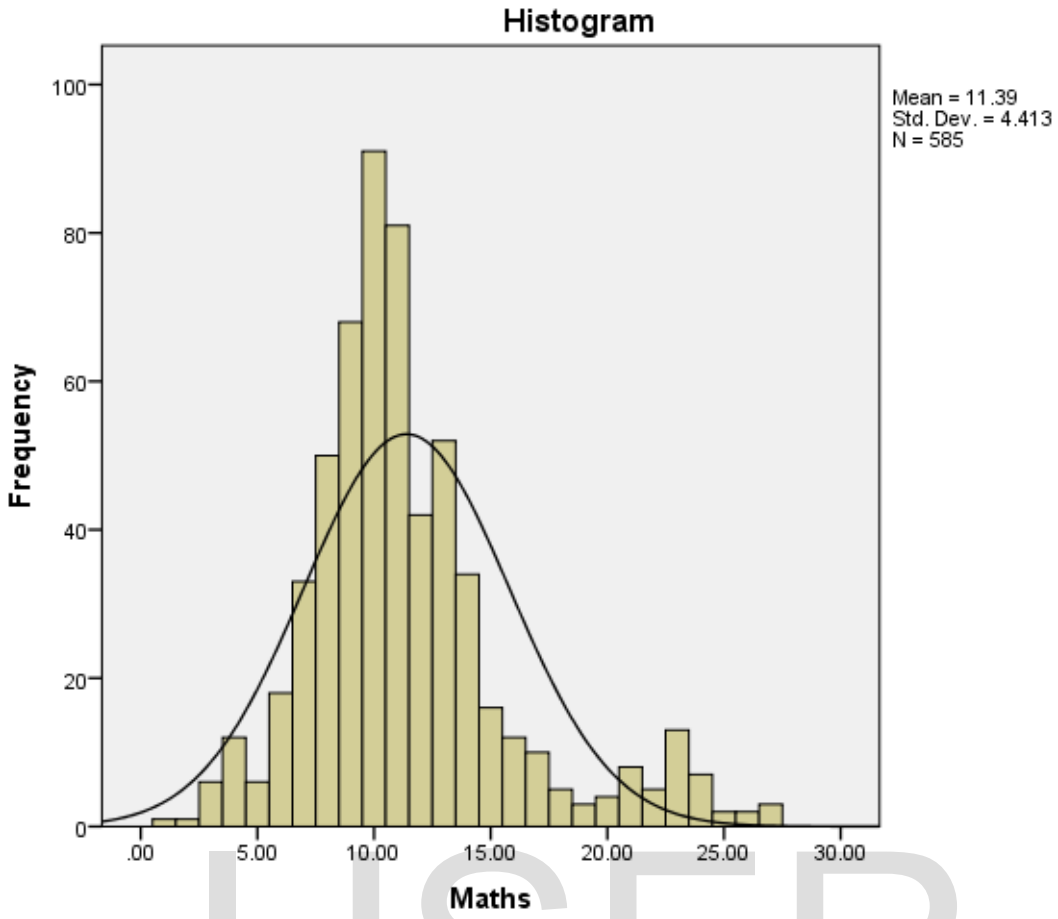
- The mean score 18 is significantly higher than the test value 16 (or 40%) which is the lowest 'pass' score in the course examinations in Colleges of Education.
- The values of the Kurtosis (- 0.615) and the skewness (- 0.006) showed that the distribution of scores is slightly deviated from normal (see figure 1). The distribution is platykurtic showing that few students performed very low and very high. It is also slightly negatively skewed showing that more students(335, 56%) had higher performances than the mean performance (see figure 1a & b).
- The literacy skills of the pre – service teachers at the entry point is just average although some of them (56%) exhibited higher competence than the average.

Table 3: Descriptive statistics for the performance of pre – service teachers in numeracy test.

Test	Number of Students	Minimum score	Maximum score	Mean score	Standard deviation	Skewness	Standard error	Kurtosis	Standard error
PTNT	585	1.00	27.00	11.39	4.41	1.186	0.101	1.890	0.202

Table 4: One sample t – test for the mean score in the numeracy test.

Test	Mean score	Standard error of mean	Test value	Test observation	significance	D.F	Significance at 0.005
PTNT	11.39	0.182	16.00	-25.250	0.000	584	*



* Significant at 0.005 Level.

Figure 2 a. Histogram for the Frequency distribution in figure 2 b.

PTNT

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	1	.2	.2	.2
2.00	1	.2	.2	.3
3.00	6	1.0	1.0	1.4
4.00	12	2.0	2.1	3.4
5.00	6	1.0	1.0	4.4
6.00	18	3.0	3.1	7.5
7.00	33	5.5	5.6	13.2
8.00	50	8.3	8.5	21.7
9.00	68	11.3	11.6	33.3
10.00	91	15.2	15.6	48.9
11.00	81	13.5	13.8	62.7
12.00	42	7.0	7.2	69.9
13.00	52	8.7	8.9	78.8
14.00	34	5.7	5.8	84.6
15.00	16	2.7	2.7	87.4
16.00	12	2.0	2.1	89.4
17.00	10	1.7	1.7	91.1
18.00	5	.8	.9	92.0
19.00	3	.5	.5	92.5
20.00	4	.7	.7	93.2
21.00	8	1.3	1.4	94.5
22.00	5	.8	.9	95.4
23.00	13	2.2	2.2	97.6
24.00	7	1.2	1.2	98.8
25.00	2	.3	.3	99.1
26.00	2	.3	.3	99.5
27.00	3	.5	.5	100.0
Total	585	97.5	100.0	
Missing 88.00	15	2.5		
Total	600	100.0		

Figure 2b. Frequency Distribution of Pre-service Teachers' Numeracy Test.

Research Question 2: Tables 3 and 4 and figure 2 above show the results of the analysis for research question 2.

- The mean score of the students in the numeracy test is 11.39 (23.5%) which is less than 20 (or 50%).
- The mean score 11.39 is significantly less than the test value (16 or 40%) which is the lowest 'pass' score in the course examinations in Colleges of Education.
- The value of Kurtosis (1.890) skewness (1.186) showed a marked deviation of the distribution of scores from the normal. The distribution of their scores is

Leptokurtic implying that many of the students' scores are located in either the lower or higher values. The positive skew-ness showed that many students have scores in the lower values. The frequency distribution showed that 48.9% of the students had scores lower than the average.

- From these results, the numeracy skills of the pre-service teachers at the entry point is lower than the average.

Table 5: Correlation between the performance of pre – service teachers in PTLT and PTNT tests.

		PTLT	**PTNT**
PTLT	Pearson Correlation	1.000	0.283*
	Significance (2 tailed)		0.000
	N	599	584
PTNT	Pearson Correlation	0.283*	1.000
	Significance (2 tailed)	0.000	
	N	584	585

* Significant at 0.005 Level.

Research Question 3: There was significant relationship between the performance of the pre – service teachers in the literacy test and their performance in the numeracy test, r = .283, p = .000 (see table 5).

- Those who performed well in the English test also performed well in the Mathematics test.
- There is significant relationship between the competence of the pre – service teachers in the literacy skills and their competence in numeracy skills.

Table 6: T – test for the performance of male (2) and female (1) pre - service teachers (literacy) test.

Test	Gender	N	Mean score	Standard deviation	Standard error of mean	test observation	significance	Df	Significance
PTLT	1	329	19.34	6.348	0350	1.055	0.614	441	•
	2	114	18.61	6.205	0.581				

- Not Significant at 0.005 Level.

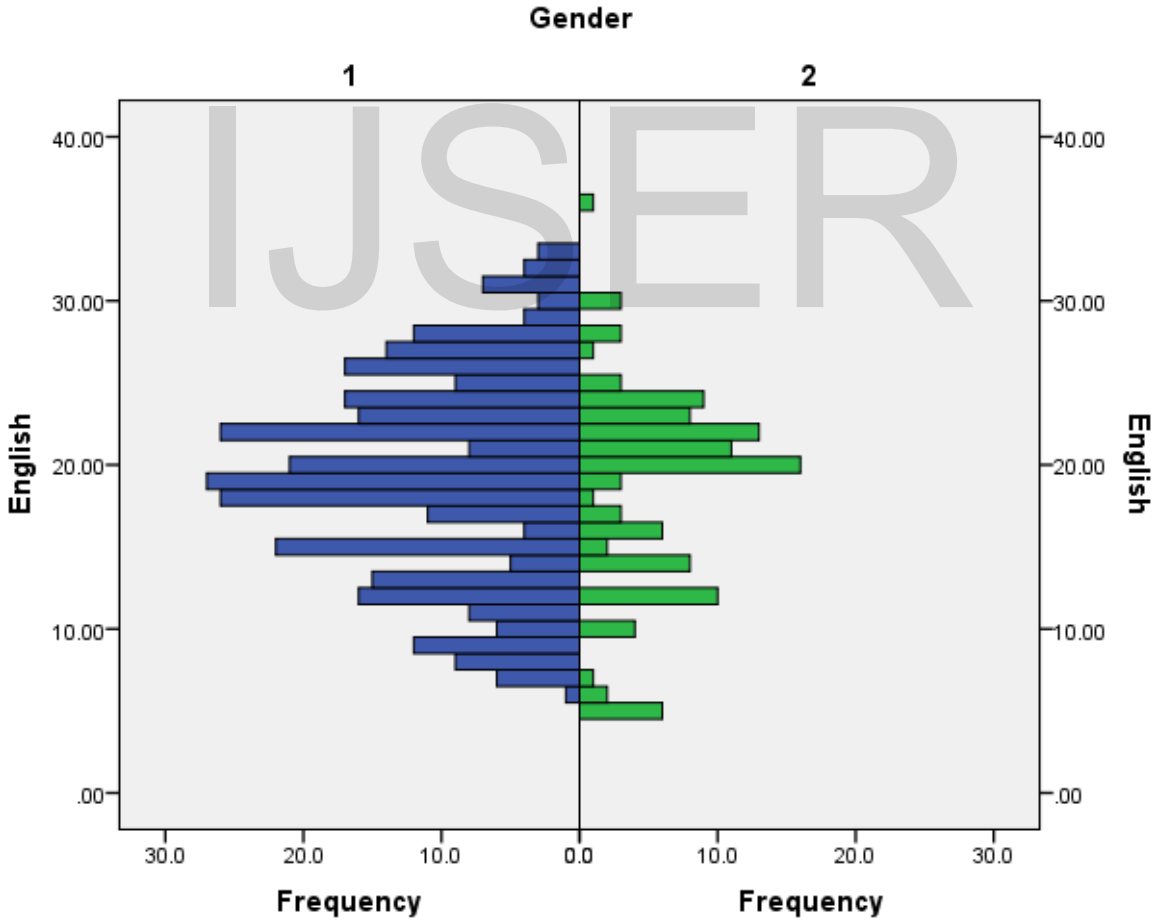


Figure 3. Pyramid for the performance of the male and female pre-service teachers in literacy test.

Hypothesis 1: From table 6 above, the female pre – service teachers had a higher mean score (M = 19.34, SE = 0.34) than the mean score of the male pre – service teachers in the literacy test. (M = 18.61, SE = 0.581). The difference in their mean scores was not significant [t (441) = 1.06, p = .614] at 0.05 level. The null hypothesis is therefore accepted. There is no significant difference between the literacy skills of male and female pre – service teachers at the entry point of their training in the tertiary institutions in Delta State. Figure 3 gives a vivid picture of the relative performances in the Literacy test by gender.

Table .7. T – test for the performance of male (2) and female (1) pre - service teachers numeracy test.

Test	Gender	N	Mean score	Standard deviation	Standard error of mean	test observation	significance	D.F	Significance
PTNT	1	323	12.13	4.591	0.255	0.709	0.478	427	•
	2	106	11.75	5.117	0.497				

- Not Significant At 0.005 Level

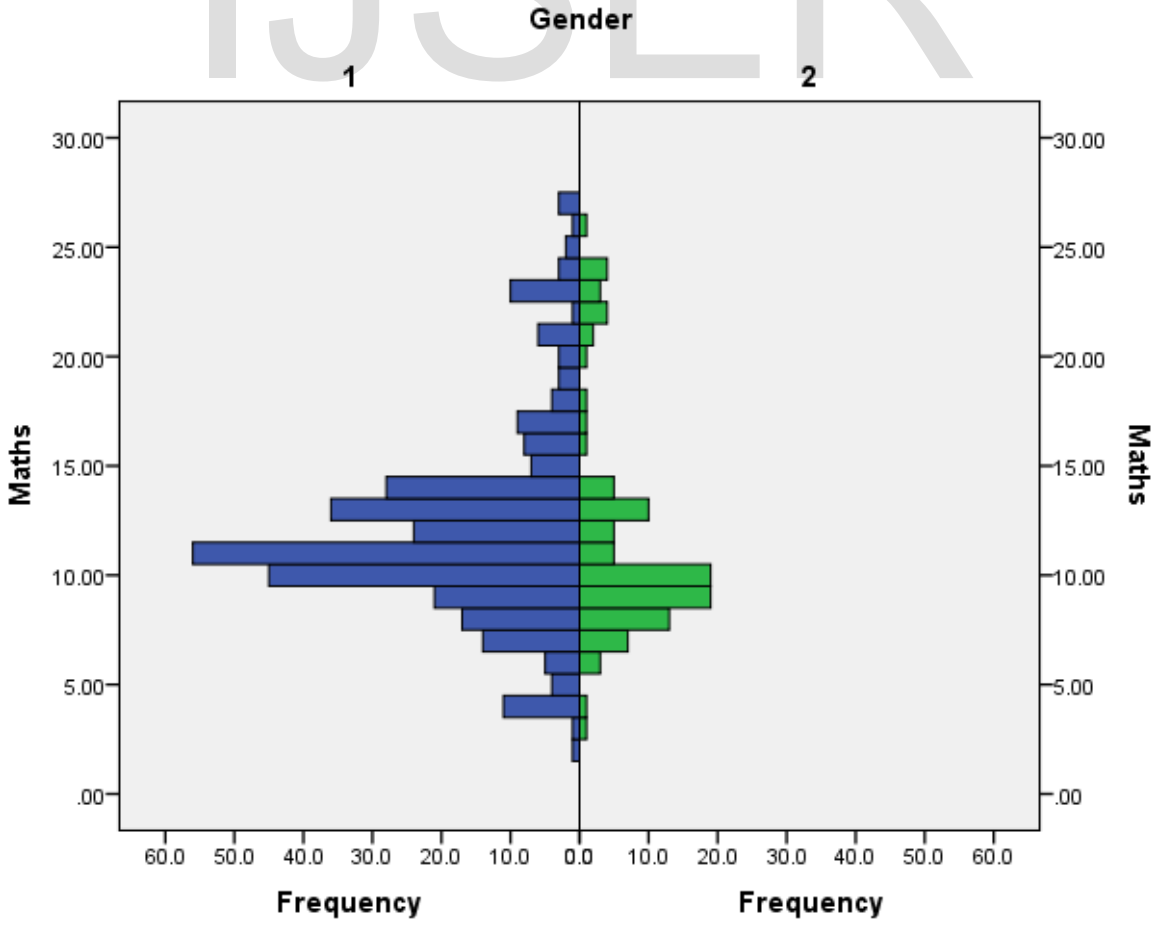


Figure 4. Pyramid for the performance of male and female pre-service teachers' in Numeracy test.

Hypothesis 2: Table 7 above Showed that female pre – service teachers had higher mean score. (M = 12.13, SE = 0.225) than the male pre – service teachers mean score (M = 11.75, SE = 0.497) in the numeracy test. The difference in their mean scores was not significant, [t (427) = 0.709, p = 0.478,] at 0.05 level. Hence the null hypothesis is accepted. There is no significant difference between the numeracy skills of male and female pre – service teachers at the entry point of their training in the tertiary institutions in Delta State. Figure 4 gives a vivid picture of the relative performances in Numeracy test by gender.

Table 8: t – Test for the performance of pre – service teachers studying math – related courses (2) and that of those studying non-math – related courses (1) in the literacy test.

Test	Course	N	Mean score	Standard deviation	Standard error of mean	test observation	Significance	D.F	Significance
	2	70	23.00	5.36	1.24				
PTLT	1	529	18.00	6.17	0.53	3.47	0.001	598	*

* Significant at 0.05 Level.

Hypothesis 3: Table 8 above showed that the mean score (M = 23.00, S.E = 1.24) of pre – service teachers admitted into mathematics – related courses is higher than that (M = 18.00, S.E = 0.53) of those admitted into non – mathematics related courses in the literacy test. The difference in their means was significant, [t (598) = 3.47, p = 0.001] at 0.05 level. The null hypothesis 3 is therefore rejected. The pre – service teachers studying mathematics – related courses exhibited higher literacy skills than those admitted into non – mathematics– related courses.

Table 9: T – test for the performance of pre – service teachers studying math – related courses (2) and that of those studying non-math – related courses (1) in the numeracy test.

Test	Course	N	Mean score	Standard deviation	Standard error of mean	test observation	Significance	D.F	Significance

PTNT	2	59	11.72	3.72	0.877	1.780	0.077	583	•
	1	526	10.23	3.28	0.287				

- Not Significant at 0.05 Level.

Hypothesis 4: Table 9 above showed that the mean score (M = 11.72, SE = 0.877) of pre – service teachers studying mathematics– related courses is higher than the mean score (M = 10.23, SE = 0.287) of those studying non – mathematics – related courses in the numeracy test. The difference in the mean scores was not significant, [t (583) = 1.780, p = 0.077,] at 0.05 level. Hence the null hypothesis 4 is accepted.

- There is no difference between the numeracy skills of the pre – service teachers studying mathematics – related courses and that of those studying non – mathematics – related courses.

Table 10: T – test for the performance of pre – service teachers studying English language – related courses (2) and that of those studying non-English language – related courses (1) in the literacy test.

Test	Course	N	Mean score	Standard deviation	Standard error of mean	test observation	significance	df
PTLT	2	93	18.2	6.66	1.360	-0.084	• 0.933	597
	1	506	18.3	6.30	0.549			

- Not Significant at 0.05 Level.

Hypothesis 5: The results in table 10 above showed that there is no significant difference in the mean score (M = 18.2, SE = 1.360) of pre – service teachers studying English language related courses and that (M = 18.3, SE = 0.549) of those studying non – English language related courses in the literacy test, [t (587) = -0.084, p = 0.933] at 0.05 level. The null hypothesis is accepted.

- The pre – service teachers studying English language related course did not exhibit significant higher literacy skills than those studying non – English language related courses.

Table 11: T – test for the performance of pre – service teachers studying English language – related courses (2) and that of those studying non-English language – related courses (1) in the numeracy test.

Test	Course	N	Mean score	Standard deviation	Standard error of mean	test observation	Significance	df
PTNT	2	94	10.8	4.22	0.862	0.541	• 0.590	583
	1	491	10.3	3.19	0.285			

- Not Significant at 0.05 Level.

Hypothesis 6: the results in table 11 above showed that there is no significant difference between the mean scores (M = 10.80, SE = 0.862) of pre – service teachers studying English language related courses and that (M = 10.30, SE = 0.285) of those studying non English language related courses, [t (583) = 0.541, p = 0.590] at 0.05 level. The null hypothesis is accepted.

- Those studying English language related courses did not exhibit a significant difference in numeracy skills from those studying non – English language related courses.

Discussion of results

Poor literacy and numeracy skills: These results portray the reality experienced in teaching at present in the Colleges of Education in Delta State, Nigeria. The students who possess credits in English language and Mathematics and are admitted into the colleges on that basis hardly exhibit the expected competences in literacy and numeracy as they are taught. The results are also in line with the current predicament in the educational system which manifests in poor performance in English language at the Senior School Certificate (SSCE) examinations (WAEC, 2018; Ogundare (2019) [24], Khad (2019) [19], Idowu (2015) [14] Tata and Rabui (2014) [27] to mention a few. Similar poor performance is obtained for mathematics subject at that level also (Ogundare 2019, Khad 2019, Anaduaka & Okafor 2013[4], Ajayi et al 2013[3], Duruyi et al 2014) [9]. In this study some of the students dodged the submission of their mathematics test answer sheets because of their inability to tackle the questions.

Gender- literacy and numeracy skills: The results of this study is also in agreement with past findings on the relationship between gender and performance in English language and mathematics at SSCE level. Although more female students failed to obtain credit passes in English and mathematics subjects (Khad, 2019), there was no significant difference between percentages (%) of male and female students among those who had credit passes in the two subjects (Ogundare

2019). The subjects of this study fall into the second category since they all possess credit passes and above in the two subjects before they were admitted into the College. Among those who already possess credit – pass (and above) in English language and mathematics, there is no difference between the male and females in their competence in literacy and numeracy skills.

Literacy and numeracy skills and courses of study: It would have been expected that the students studying English language – related courses would have performed better in the literacy test than others, while those studying mathematics – related courses perform better in the mathematics test, but the results of this study proved otherwise. Apart from the result that the students studying mathematics – related courses performed better in the literacy test than others, course of study didn't make any significant difference in the competence exhibited by the subjects of this study in their literacy and numeracy skills. However, it provided an indication that those who demonstrated higher competence in numeracy skills also demonstrated higher competence in literacy skills which was vividly shown in the correlation between the performances in the two tests.

Relationship between competences in literacy and numeracy skills: The result obtained in this study which showed a significant relationship between performances in the literacy and numeracy tests is in agreement with the results of functional researches (Jayaraman, 2018) [16] and Purpura & Napoli (2015) [25]. It has been clearly shown that acquisition of numeracy skills is influenced by early acquisition of literacy skills. Ability to read and understand will surely enable a student to understand and solve mathematics problems, hence those who possess higher literacy skills will likely be more competent in numeracy skills as obtained in this study.

The relationship between entry qualification of candidates and their overall achievement in any course of study is well established in research. Hence there are minimum entry requirements for entrants into educational institutions. The results of this study showed that the entrants into the tertiary institutions are weak in both literacy and numeracy skills despite the credit passes in both English language and mathematics subjects which they possess. The following recommendations are made to ensure that the caliber of teachers which is expected from these institutions is produced.

Recommendations:

1. The teaching of the General studies courses for English language and mathematics should be geared towards a remedial purpose so as to make up the required literacy and numeracy skills pre – service teachers should possess as entrants.
2. Post Unified Tertiary Matriculation Examinations (UTME) can be used to determine the initial strengths and weaknesses of entrants in literacy and numeracy skills so as to know the areas requiring remediation.

3. Since the problem of competence in literacy and numeracy skills in Educational system is a vicious circle, the aspect of the teachers from Colleges of education could be solved by appropriate curriculum reform in that area.
4. Subsequent review of General Studies in Education (GSE) courses by the National Commission for Colleges of Education (NCCE) should make use of research results such as this one to achieve richer and informed curriculum to enhance the literacy and numeracy skills of NCE teachers.

Conclusion

In this study, the pre – service teachers' competences in literacy and numeracy skills at the entry point into the Colleges of education in Delta State were assessed.

Their literacy skills were found to be average while their numeracy skills were below average.

This implies that there is need to remedy the incompetence in these skills during their study so that they do not carry it over to the students they would teach in the future.

**This study is the first part of the research which is aimed at assessing the extent these same students have improved on their competence in literacy and numeracy skills after the second tier of their Programme in the Colleges.* *

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References

[1] Adegoke, B.A (2013). Modelling the relationship between mathematical reasoning ability and mathematics attainment. Journal of education & practice. Vol. 4, No. 17.

[2] Adekola, O.A (2009). Language, literacy and learning in primary schools: Implications for teacher development Programmes in Nigeria. documents.worldbank.org/curated/pt/332731468110653011/ Retrieved on the 05/11/19.

[3] Ajayi, I.A. & Osalusi, F.M (2013). Mass failure of students in West African senior school certificate examinations (WASSCE) in Nigeria: the teachers' perspective. case studies journal, Vol 2, issue 4.

[4] Anaduaka, U.S. & Okafor, C.F (2013). Poor performance of Nigerian students in mathematics in senior certificate examination (SSCE). What is not working? www.transcampus.org/ JORINDVII Dec 2013/Jorind %20 Vol 11 %20 Dec % 20 Chapter 1. Pdf Retrieved on 05/11/19.

[5] Auguste, N, Kihn, P & Miller M. (2010). Closing the talent gap: attracting and retaining top third graduates to careers in teaching. https://www.mckinsey.com. Retrieved on 5th November, 2019.

[6] Awofala, A.O.A (2017). Assessing senior school student's mathematical proficiency as related to gender and performance in mathematics. Retrieved on 05/11/2019.

[7] Baer, J. Kunter, M. & Sabatini, J. (2009). Basic reading skills and the literacy of the lease literate. Adults: national assessment of adult literacy. (Naal). Supplemental studies. Washington D.C. U.S.

[8] Commonwealth of Australia (2012). Core skills framework. Https://ontargetworkskills.files.wordpress.com/2017/11/australian-core-skills-framework-2012. pdf. Retrieved on 06/11/2019.

[9] Duruji, M.M, Azuh, D. & Oviasojie, F. (2014). Learning environment and academic performance of secondary school students in external examinations. A case study of selected school in Ota. eprints.covenantuniversity.edu.ng3236/1/learning%20 Env and %20 Acad %20 Perf %20 Edu learn % 2014 pdf.

[10] Eno, D.J. (2016). Role of numeracy skills in graduate employment in Nigeria. International journal of economic development research and investment. Vol 7, No 2.

[11] Feget, et al (2004). Pre – service teacher's perceptions in beginning education classes. University of Miami. U.S.A. www.elseviercome/locate/tate Retrieved on 05/08/2019.

[12] Greenberg, J, Mckee, A & Walsh, K. (2013). Teacher prep. Review. National council on teacher quality. Https://media.npr.or/assests/news2013/teacherprep.pdf. Retrieved on 5/11/2019.

[13] Humphrey S. & Crawford L. (2014). Review of the literature on basic education in Nigeria.

[14] Idowu, S. (2015). Poor performance of students in English language in neco examination among secondary schools in Awka. Https://www.academia.edu17918778/poor. Retrieved on 05/11/2019.

[15] Industry skills Council (2018). No more excuses: an industry response to the language, literacy and numeracy challenge. Https://www.readingwritinghotline.edu.au/wp-content/upload/2018/08/ Retrieved on 05/11/2019.

[16] Jayaraman, J.D. (2018). The connection between financial literacy and numeracy. A case study from India. Numeracy advancing education in qualitative literacy. Vol. 11, Issue 2, Article 5, pp.1 – 21.

[17] Kaduna State Government (2017). The poor are entitled to equal opportunity!! Https://kdsg.gov.ng/ the poor – are – entitled - to equal – opportunity. Retrieved on 05/11/2019.
[18] Kingston, P. (2009). Adult Literacy: Can you teach and old dog with young tricks? Https://www.theguardian.com/education/2009/apr/14/litearcy adult- education – phonics.
[19] Khad, M. (2019). NECO Releases 2018 Nov/Dec SSCE results. Https://arewa.ng/neco-releases-2018-nov-dec-ssceresults/ Retrieved on 04/11/2019.
[20] Njoku, J.C. (2017). 211 English language, the Nigerian Education System & Human Development. Https://dx.doi/org/10.4314/ujah.V.18.issue2.12. Retrieved 05/11/2019.
[21] O'Donoghue. (2002). Numeracy and mathematics Irish math soc. Bulletin, 48 pp. 47 – 53 https://www.maths.tcd.ie>ims Retrieved on 05/11/2019.
[22] OECD (2010). The high cost of low educational performance. The long – run economic impact of improving Pisa outcomes, Paris, France. Https://www.oecd.org/dataoecd./11/28/44417824pdf. Retrieved 04/11/2019.
[23] Office for Standards in Education (2011). Tackling the Challenges of Low Numeracy Skills in Young and Adults: Report Summary, Manchester, U.K.
[24] Ogundare, F. (2019). WASSCE: reviewing stake holders' role in students' performance. Https://thisdaylive.com/index.php/2019/07/31/wassce-reviewing-stakeholders-role-in-students'-performance/ Retrieved on 05/11/2019.
[25] Purpura, D.J & Napoli, A.R. (2015). Early numeracy & literacy: untangling the relation between specific components. Mathematics thinking and learning. Vol 17, issues 2 – 3, pp. 197 – 218.
[26] Siddiki, Z.R. (2017). What is the difference between Numeracy and mathematics? Https://specialties.bayt.com. Retrieved on 05/11/2019.
[27] Tata, U.S. & Rabiu, U. (2014). The causes of poor performance in English language among senior secondary school students in Dutse metropolis of Jigawa state, Nigeria. Journal of research & methods in education, Vol .4. Issue 5, pp. 41 – 47.
[28] Thelma, P. (2011). Assessing numeracy and NAPLAN. The Australian mathematics teacher. Vol 67, No 4 pp. 32 – 35.
[29] Thomson, S. (2008). International league: Australia's standing in international tests teacher. Https://works.bepress.com/suethomson/36. Retrieved 05/11/2019.

[30] Toppo, G. (2009). Literacy study: 1 in 7 U.S adults are unable to read this story. USA Today. Https://www.usatoday.com/news/education/2009 01 – 08 – adult – literacy~N:htm. Retrieved on 06/11/2019.
[31] UNESCO (2004). UNESCO Definition of literacy. Https://www.glea.edu.au/documents/items/1197. Retrieved on 05/11/2019.
[32] WAEC (2018). Chief examiners report for English language. Https://waeconline.org.ng/e-learning/english/eng/227mc. Retrieved on 04/11/2019.