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**Research Article**

# ASSESSMENT of GROWTH in LITERACY and NUMERACY SKILLS of PRE-SERVICE TEACHERS in TERTIARY INSTITUTIONS in DELTA STATE, in their FIRST TWO YEARS.

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Numerous researches have demonstrated that admission requirements into teacher training institutions have influence on the quality of teachers produced and consequently on the achievement of students. In addition, the diversities in the quality of entrants into teacher training institutions provide reasonable divide between developed and developing nations of the world. This study aims to assess the pre-service teachers' competencies in literacy and numeracy skills at the entry point and at the end of their second year in tertiary institutions in Delta State of Nigeria. Two tests were used to assess the literacy and numeracy skills. The findings of this study suggest that the competencies of the pre-service teachers in literacy and numeracy skills were average and very low respectively both at the entry point and after the second year of their training. However, there was significant growth in the competencies of the pre-service teachers in both literacy and numeracy skills within the period. The results also suggest that secondary school location of the pre-service teachers had an influence on their level of competence in literacy unlike numeracy skills. These results indicate to a need to re-visit the quality of entrants into the teacher training institutions in order to produce high quality teachers.

**Keywords:** *Assessment, Literacy Skills, Numeracy Skills, Preservice Teachers, Tertiary Institutions*

## INTRODUCTION

The importance of education in raising the human capital for national development cannot be overemphasized. On the global scene, higher education obtained in tertiary institutions is believed to be the core of human resource development aimed at producing graduates who are ready for employment to contribute their quota in national development. The Colleges of Education, as tertiary institutions, had the mandate of producing quality teachers for the Basic Education Sub-sector of the Nigerian system of Education. The Nigeria Certificate in Education (NCE) is the recognized minimum teaching qualification in Nigeria. Criticism on the quality of basic and senior secondary education teachers had arisen in the past decade, due to the prevalent poor performance of their students in English and Mathematics subjects. In 2017, the WAEC, Chief examiner's report showed that only 17% of candidates had

credit passes (and above) in English Language and Mathematics, and four other subjects. (Adesulu, 2017). The WAEC Chief Examiner's report in 2018 showed that about 31% of candidates had D<sub>7</sub> and E<sub>8</sub> grades while 21.61% failed or had F<sub>9</sub> in English Language (Nwachukwu, 2018).

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In the same year, 2018, 30.1% had D<sub>7</sub> and E<sub>8</sub>, while 31.5% had F<sub>9</sub> in Mathematics. In fact, the mass failure in the two key subjects, English and Mathematics in that year was explained to result from the inability of the students to read extensively during their studies (Nwachukwu, 2018). There was an improvement in 2019 as 61.18% of candidates had five credit passes (and above) including English and Mathematics (Lawal, 2019). However, more than 33% could not obtain credit passes (and above) in both English and Mathematics and this implies a large number of candidates. The poor performance of Nigerian students in senior secondary schools has attracted the attention of various stakeholders and researchers in various parts of the country. Some of them surveyed the causes while others suggested strategies for improvement (Anaduaka & Okafor, (2013), Tata & Rabi (2014) and Udonsa (2015). The same pattern of performance exists at the basic education level which feeds the Senior Secondary School level with students, while the Senior Secondary School feeds the tertiary institutions with students.

There has been an outcry that the present system of admission into tertiary institutions, conducted by the Joint Admissions and Matriculation Board (JAMB), leaves the residue of the candidates (who are not very strong academically), as entrants into the Colleges of Education, with lower cut-off marks. The proven relationship between entry qualification and achievement in any academic programme makes this situation unhealthy for the production of high-quality teachers from the Colleges as expected. Moreover, numerous researches have shown that admission requirements into teacher training institutions have influence on the quality of teachers produced and consequently on the achievement of students. The study of Lukas & Samardzic (2015) showed that developed nations have strict entry requirements aimed at the selection of the best candidates for teacher colleges. Hence, developed nations produce high quality teachers. The development of Nigeria will be adversely affected if the quality of candidates admitted into the teacher training colleges is poor. Hence there is need for empirical evidence of the academic quality of the entrants into the teacher colleges. This study therefore is aimed at assessing the level of literacy and numeracy skills possessed by entrants into the colleges of education and the growth they achieved after their second year of training before they are posted to schools for their teaching practice. The influence of the background of students such as the location of the secondary schools (urban or rural) they attended will also be surveyed, in this study.

It has been observed that the quality of teachers, teaching and teacher training is on the decline, despite the large investment in Education in Nigeria. (Humphrey and Crawford, 2014). There is also a grave concern about the dwindling performance of serving teachers' literacy and numeracy skills from studies in some schools in Nigeria (Kaduna State Government, 2017). It is therefore necessary to assess the levels of literacy and numeracy

skills acquired by pre-service teachers as they train in the institutions, so as to ascertain how adequate it is for their job of building the literacy and numeracy skills of the basic education learners, as expected.

### **Statement of the Problem**

In the teaching profession in Nigeria, there is the concern that the academic requirements for gaining admission into education courses in tertiary institutions (especially Colleges of Education) are usually the lowest compared to other professional courses like Medicine, Engineering, and Law. The academic requirements specify compulsory credit (and above) passes in both English language and Mathematics at the ordinary level (i.e. Senior Secondary School Certificate (SSSC) level) in addition to an approved JAMB scores which are dependent on the levels of literacy and numeracy skills possessed by candidates. This study aims to obtain an empirical evidence of the level of literacy and numeracy skills of entrants into the teacher training institutions, and the growth in these skills as they are trained.

### **Purpose of the Study**

The purpose of this study is to determine an empirical evidence of the levels of competencies of pre-service teachers in tertiary institutions in Delta State, in literacy and numeracy skills at the entry point and at the end of their second year, before they go for teaching practice exercise. In addition, the influence of some non-cognitive background variables such as their secondary school location on their skills is also surveyed.

### **Significance of the Study**

The training of the teachers who should build the foundation of literacy and numeracy skills in the basic education learners is a significant issue in Nigeria's educational system. Hence, the results of this study will be very useful to all stakeholders in the education sector in the following ways. It is expected to inform the curriculum planners and supervisors of the tertiary institutions on the effectiveness of the training in growing the literacy and numeracy skills of trainees. The results obtained could suggest the influence of the levels of literacy and numeracy skills of entrants into these institutions, specifically.

Generally, the results are expected to aid the regular review of the curriculum of the tertiary institutions so as to evolve informed innovations which could raise the quality of teachers for the basic education level.

Finally, it is also expected to influence the current lower academic requirements for admission into the teacher education courses which has been criticized, so as to avoid the reality of the slogan "**garbage in, garbage out**" in the nation's teaching profession

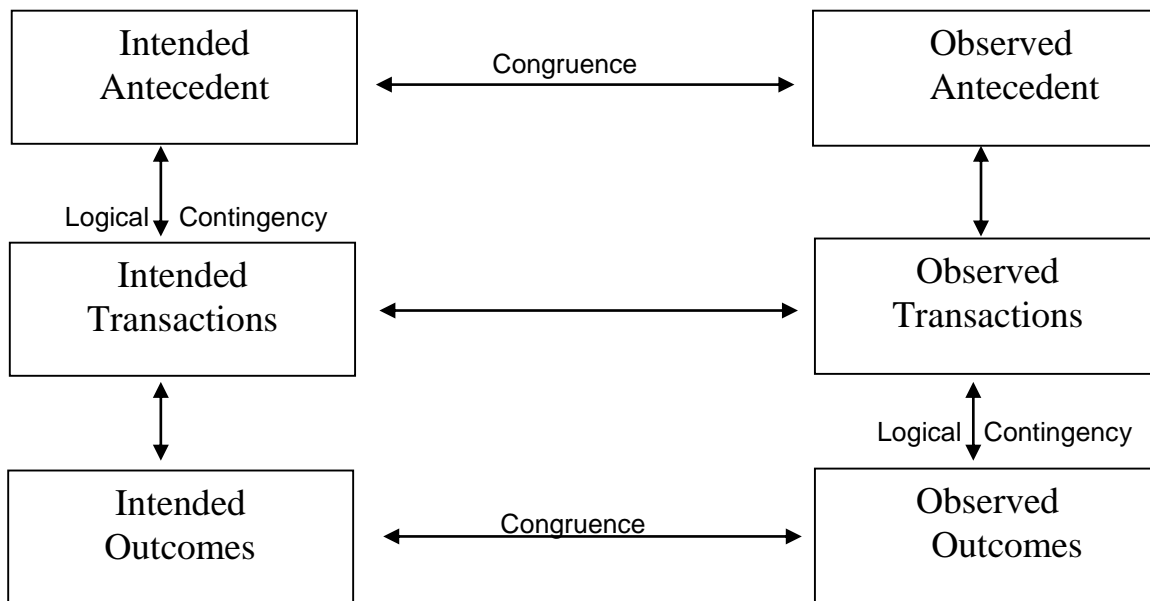
**Theoretical Background**

**The Antecedent, Transaction, Outcomes (A.T.O) Evaluation Model**

The basic purpose of the teacher education institutions used in this study is to produce quality teachers for the basic education level of Nigeria’s system of education. For this to be achieved, the right caliber of entrants, with prescribed entry qualifications are admitted into the training programme. The background variables of the pre-service teachers at the entry point constitute the antecedents. The training they received through the various courses taught and other learning experiences

constitute the transactions. The performance of the pre-service teachers at any point, in the training forms part of the outcomes. Assessment is considered as the second stage in the evaluation process. Hence a particular model of evaluation can be adopted as a framework in the assessment of any aspect of the educational process. This study is based on the A.T.O model ( Stakes, 1967), because the researchers desired to assess some outcomes of a training programme (i.e. Competence in literacy and numeracy skills at the end of second year) with respect to some antecedent variables ( their competence at the entry point and school location ). The data collected in this study corresponds to the layout in the Stake’s (A.T.O) model as shown in figure 1

**Figure 1: A.T.O. Model of Processing Descriptive data.**



In figure 1, congruence is established if data shows that intended A.T.O are fully the same as observed A.T.O. In this study data is collected and processed only at the antecedent (entry point) and the outcome stages to determine differences.

**The Literacy/Numeracy Skills linked to English Language and Mathematics**

Traditionally literacy is seen as the ability to read and write. At present, literacy, as an index of sustainable development is both dynamic and complex. Hence, the United Nations Educational Scientific and Cultural Organization (UNESCO, 2004), defined it as follows:

*“Literacy is the ability to identify, understand, interpret, create, communicate and compute using printed and written (visual) materials associated with 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 a wider society” p – 13*

This comprehensive definition enables literacy to be considered in varying contexts depending on the required aspect of skills. In this study, literacy skills are considered as the ability to read, write, speak, and listen in the English Language. This is also known as English literacy which is considered as a strong index of Nigerian education for development (Njoku, 2017, Eno (2016). English literacy should be attained by all and sundry in Nigeria, since it is also the language of instruction in all institutions. Hence in this study literacy skills are measured by an appropriate test in the English language.

Numeracy skill is the ability to access, use, interpret and communicate mathematical information and ideas in mathematical demands of various situations. The three basic components of numeracy; context, content, cognitive

and affective refer to the ability to make use of mathematical concepts in particular ways to solve real life problems (Eno,2016 ). Specifically, Thelma (2011) provided guidance for assessing numeracy skills to include a combination of mathematical skills and their daily application and this is the level of content of the mathematical subject at the secondary level of education in Nigeria. Hence an appropriate test in mathematics is used to assess numeracy skills in this study.

### **The Concept of Pre-Service Teachers' Competence at the Entry Point**

Competence is the ability of a person to perform optimally in a given job. Pre-service teachers are students who are undergoing professional training in teaching in an institution. They are admitted into tertiary institutions in Nigeria, if they possess a minimum of five credit passes (and above) in five subjects including English language and mathematics; at Senior Secondary School Certificate (SSCE) level. Having obtained at least credit passes in English language and mathematics, it is expected that pre-service teachers should exhibit the pre-requisite competence in basic literacy and numeracy skills. In this study, the actual literacy and numeracy skills possessed by the pre-service teachers at the entry point of their training is assessed.

### **Research Hypotheses**

1. There is no significant difference between the mean score of pre-service teachers in the literacy skills test at the entry point of their training and their mean score after the second year of their training.
2. There is no significant difference between the mean score of pre-service teachers in the numeracy skills test at the entry point and their mean score after the second year of their training.
3. There is no significant difference between the mean score of pre-service teachers who attended urban secondary schools and the mean score of those who attended rural secondary schools in a literacy skills test.
4. There is no significant difference between the mean score of pre-service teachers who attended urban secondary schools and that of those who attended rural secondary schools in numeracy skills

## **METHODOLOGY**

### **Research Design**

The research design adopted for this study was descriptive survey, in which the characteristics of the population were, described without altering the environment or the variables. (Martyn, 2008)

#### **Population**

The population of the study comprised of all the pre-service teachers who were admitted into the 2017/2018 academic session in all the four colleges of Education in the Delta State of Nigeria. In 2017/2018, the estimate of the population of the students admitted into the colleges was 1,150 distributed as follows.

1. College of Education, Agbor – 400 students
2. College of Education, Warri – 300 students
3. Federal College of Education (Technical) Asaba- 300 students
4. College of Physical Education, Mosogar – 150 students

### **Sample and Sampling Procedure**

Cluster sampling (Glen, 2019) was used to include 150 students from each of the colleges of Education totaling 600. A stratified sampling procedure (Glen, 2019) was used to include students from all the departments in each of the colleges so as to achieve a representative sample of 600 pre-service teachers in all the colleges.

### **Instrumentation**

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

1. Pre-service Teachers' Literacy Test (PTLT)
2. Pre-service Teachers' Numeracy Test (PTNT)

Each of these tests was constructed using a test blueprint, covering the scheme of work of ordinary level (or SSCE) literacy and numeracy skills. A test item has three distracters and a key (answer)

An initial 50 – item multiple choice test was constructed for each of the two skills. The two tests were validated by experts in Measurement and Evaluation, as well as experts in literacy and numeracy skills. They were administered to 50 pre-service teachers in a neighboring college of Education in Edo State (College of Education, Igueben). 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 of the final test. Items with difficulty indices in the range of 0.4 and below (too difficult) and 0.8 and above (too easy) are eliminated while others were retained. This yielded the final forty – items tests (PTLT) and PTNT). The computed Kuder-Richardson reliability coefficients for the tests are 0.83 for PTLT and 0.60 for PTNT, were judged as high enough for the instruments to be used. A separate answer sheet bore the serial number used to identify each student in the pre-and post-tests, and the address of the secondary school attended.

### **Data Collection Procedure**

The four colleges, (which agreed officially to participate in the research), were visited personally by the researchers to administer the tests to their students, under standard examination conditions, with the help of research

assistants (lecturers) from the Colleges. The students provided their responses in separate answer sheets which were collected by the researchers immediately after the test periods. In this way, the pre-tests and post-tests were carried out using the same students

**Analysis of Data**

The students' answers were computer analyzed using the Statistical Package for Social Sciences (SPSS) 23. In accordance with the research hypotheses, paired t-tests and independent t-test were carried out and interpreted as reported in tables 1, 3, 4 and 5. The associated correlation

coefficients for the paired t- tests were computed. Single t-tests were also performed to aid the discussion of the results (see tables 6 and 7)

**Results of Analysis**

**Research hypothesis one**

There is no significant difference between the mean score of pre-service teachers in the literacy skills test (PTLT) at the entry point of their training in tertiary institutions in Delta State and their mean score after the second year of their training.

**Table 1: Paired sample t-test for the mean scores in the literacy test.**

Skill	Group/Number	Mean (M)	S. E	t	Df	Sig.
					(p)	
Literacy Skill	Post- Test (599)	21.8	.186	11.42	598	.000 *
	Pre-test (599)	18.0	.270			

*\*Significant at 0.05 level*

**Table 2: Correlation Coefficients for the Post – test and Pre- test scores in Literacy Skills**

Group	Post – test	Pre –test	Significance
Post- test	1.000	0.436	.000 *
Pre-test	0.436	1.000	

*\*Significant at 0.05 levels*

The mean score of the preservice teachers' performance in literacy skills after the second year of their training (M= 21.8, S. E= .186), is higher than their mean score (M = 18.6; S.E = .270), at the entry point. The difference, 3.2 in the mean scores was significant (t (599) = 11.42; p= 0.000) at 0.05 level see table 1. Hence, the null hypothesis one is rejected. On the average the performance of the preservice teachers in literacy skills after their two years of training is significantly higher than their performance at the entry point. Table 2 showed that there is positive and significant relationship between the performance of the

pre-service teachers at the entry point and their performance after two years of their training (r = 0.436, p = 0.000).

**Research Hypothesis Two**

There is no significant difference between the mean score of pre-service teachers in the numeracy skills test (PTNT) at the entry point of their training in tertiary institutions in Delta State and their mean score after the second year of their training.

**Table 3: Paired Sample t-test for the mean scores in Numeracy test**

Skill	Group/Number	Mean	S. E	t	Df	Sig
Numeracy	Post-test (585)	13.3	.119	8.87	584	.000 *
	Pre-test (585)	11.4	.182			

*\*Significant at 0.05 level*

Table 3 showed that the mean score of the pre-service teachers' Performance in numeracy skills test after the second year of their training, (M= 13.3, S.E = .119) is higher than their mean score at their entry point, (M= 11.4, S.E = .182) the difference in the mean scores (1.9) is significant (t (584). = 8.87; p=0.000) at 0.05 level. Hence the null hypothesis two, is rejected. On the average the performance of the pre-service teachers in numeracy skills

test (PTNT) after their two years of training is significantly higher than their performance at the entry point

**Research Hypothesis Three**

There is no significant difference between the mean score of pre-service teachers who attended urban secondary schools and the mean score of those who attended rural secondary schools in literacy skills test (PTLT)

**Table 4: Independent t-test of difference between the mean scores of pre-service teachers who attended urban (1) and rural (2) schools in PTLT**

Test	Group/Number	Mean	S. E.	t	Df	Significance
PTLT	1(358)	22.5	.285			
	2 (235)	20.78	.285	4.57	591	.000*

\*Significant at 0.05 level

1. Pre-service teachers who attended urban schools.
2. Pre-service teachers who attended rural schools.

The mean score of the pre-service teachers who attended urban secondary schools (M=22.5, S.E = .242) is higher than that of the pre-service teachers who attended rural secondary schools (M=20.78, S. E= .285). The difference, 1.72 is statistically significant (t (591) = 4.57, P=0.000) at 0.05 level of significance (See table 4). The null hypothesis was rejected. The t-test revealed a statistically significant difference between the mean score (M=22.5, SE =.242) of

pre-service teachers who attended urban secondary schools and the mean score (M=20.78, SE=.285) of pre-service teachers who attended rural secondary schools (t(591)=4.57, p=.000).

#### Research Hypothesis Four

This suggests that the pre-service teachers who attended urban secondary schools performed better than those who attended rural schools in the literacy skills test.

**Table 5: Independent t-test of difference between the mean scores of preservice teachers who attended urban (1) and rural (2) Secondary schools in the numeracy skill test (PTNT)**

Test	Group/Number	Mean (M)	S. E	t	Df	Significance
PTNT	1 (354)	13.36	.161			
Numeracy				.59	583	.557 ■
Skill test	2 (231)	13.21	.171			

■ Not significant at 0.05 level

1. Pre-service teachers who attended urban schools
2. Pre-service teachers who attended rural schools

From table 5, the mean score (M = 13.36, S.E = .161) of pre-service teachers who attended urban secondary schools is higher than that (M= 13.21, S. E= .171) of those who attended rural secondary schools. However, the difference 0.15, is not significant at 0.05 level of significance. The null hypothesis was therefore accepted. On the average the pre-service teachers who attended urban secondary schools did not differ significantly from those who attended rural secondary schools in their performance in the numeracy skill test (PTNT)

## DISCUSSION OF RESULTS

### Growth in achievement in literacy skills

The result which suggests that there was significant growth in the achievement of the pre-service teachers in literacy skills after the second year of their training is expected. Since the language of instruction is in English, it is expected that with more exposure to lectures on various courses, the students' vocabulary in English will be enhanced. This result is in line with some research findings at various levels of schooling which indicated growth in achievement in literacy skills with greater number of years of study. Meiers, Khoo, Rowe, Stephanou, Anderson, & Nolan, . (2006) reported that all the students in the cohort group of their study made progress in literacy achievement

over the first three years of school. Building on this finding Meiers and Reid (2014) carried out researches which support continuous growth in literacy with years of schooling especially in early years. The views of Edem, E., Mbaba, Udosen, & Isioma. (2011), that improved teacher quality and more learning of new things enhances literacy skills, supports the result of this study from the entry-point to the second year of training the students have been exposed to teachers who were more qualified than those who taught them earlier. Hence their literacy skills increased. In addition, the pre-service teachers have taken four courses in General English (GSE 111- General English 1; GSE121- General English II; GSE 211- General English III and GSE 221-General English IV) which are aimed at enhancing their literacy skills (FGN, 2012). The question is whether the level of increase in achievement is commensurate with the expected competence in literacy skills of the pre-service teachers at that level.

### Growth in Achievement in Numeracy Skill

The results showed that there was a significant growth in achievement in numeracy skills just as in the case of literacy discussed earlier. This result is in line with that obtained by Meiers *et al* (2006) from their study of growth in acquisition of numeracy skills within the first three years of study. It also corroborates the result of Meiers and Raid (2014) and Pam (2017) for building the numeracy skills of

undergraduate and elementary school students. These studies obtained results which suggest that learners make progress in their performance in numeracy skills when they are exposed to learning experiences designed to build numeracy skills over years of study. This result is also expected from the subjects of this study, because they were steadily taught courses aimed at enhancing their competence in numeracy skills. The pre-service teachers

offered four (4) basic mathematics courses are coded GSE 113, GSE 122, GSE 212, and GSE 222, titled Basic General Mathematics.(FGN,2012). However, the mean difference 1.9 does not ordinarily indicate a high level of change in the mean achievement in numeracy. Hence a further analysis of the mean scores of the pre-service teachers in both literacy and numeracy was done to explain the results more vividly (See tables 6 and 7)

**Table 6: One sample t-test for the post-test mean score for literacy skills**

Criterion value	Mean	S. E	Mean difference	T	Df	Significance
16.0	21.8	.186	5.8	31.0	584	.000 *

*N = 600 \* Significance at 0.05 level*

**Table 7: One sample t-test for the post-test mean score for numeracy skills**

Criterion value	Mean	S. E	Mean difference	T	Df	Significance
16.0	13.3	.118	-2.7	-22.9	584	.000 *

*N = 585, \* Significant at 0.05 level*

#### **Growth in Literacy and Numeracy Skills from the Entry point to the second year of their training (Hypotheses 1 & 2)**

The results for the paired t-tests for hypotheses 1 and 2 are discussed in terms of the expected levels of growth relative to a criterion performance in the college setting. The minimum 'pass' score (i.e. the criterion score) for similar tests in the institutions used for this study is 16 (40%) (Federal Government of Nigeria, FGN, 2012). Using this criterion, tables 6 and 7 showed significant differences between the post-test mean scores ( $M=21.8$ ,  $SE=.186$ ), for literacy skills, ( $M=13.3$ ,  $SE=.118$ ), for numeracy, and the criterion value ( $M=16$ ),  $t(599)=31.0$ ,  $p=.000$ ;  $t(584)=-22.9$ ,  $p=.000$ . This indicates that the performance of the pre-service teachers is higher than minimum pass level for literacy skills and lower than the minimum pass level for numeracy skills at the end of the second year of training. Similar pattern of performance was obtained for the pre-service teachers' levels of achievement in literacy and numeracy skills at the entry point as reported in Egede, Chukwumah, Omiegbe, Oji, Idialu, Ajudeon & Ofuonyebuzor (2020). This implied that on the average the pre-service teachers' performance in literacy skill is significantly higher than the minimum level required in the tertiary institutions. But in the case of numeracy, their performance is significantly lower than the minimum level required in the institutions, after the second year of their training, just as at the entry point. Although there is significant increase in the achievement index of the pre-service teachers from their entry point to the second year of their training in both literacy and numeracy skills, their average achievements remained average (for literacy) and very low (for numeracy).

#### **Rural/Urban Location of Secondary Schools and Achievement in Literacy & Numeracy Skills (Hypotheses 3 & 4)**

The result of this study supported those of similar studies which were carried out in Nigeria, and showed that students in urban schools performed significantly better than those in rural schools, in literacy skills.( Oyeromi, Omiyale ,Lato, & Oyebamiji (2018), Akinwumi ( 2017), Onwuameze (2013), Idoli & Ummanah (2011) and Aderinoye (2002). The results of these studies showed a trend of higher achievements in literacy for learners in urban location. This trend is one of the challenges in the Nigerian educational system, where majority of the secondary school learners live in rural regions. In this study, about 40% of the subjects' used attended secondary schools which are located in the rural areas. Olojede, Adekunle, & Samuel (2013) attributed this trend to disparity in access to literacy between urban and rural communities in Nigeria. But Adepoju & Oluchukwu (2011) opined that the trend resulted from non-usage of effective methods of teaching in rural schools. In this vein, Osuchukwu, Edewor, & Onyenaucheya (2018) found that good practices of community engagement on literacy enhanced learning in rural communities. In an experimental study, this trend was reversed when rural students were taught with an effective method of teaching unlike the urban students (Adepoju & Oluchukwu, 2011).

It is expected that students who attended rural secondary schools already possess lower literacy background in the prevailing trend, on entry into the tertiary institutions. That



this trend persisted to the end of the second year of their training suggests that the teachings in the tertiary institutions did not effectively alter it.

The low achievement in numeracy skills cut across school location equally as seen in this study, and this contradicts the findings of Adepoju & Oluchukwu (2011), Oyeromi *et al.* (2018) and Aderinoye (2002), which showed higher achievement in numeracy for urban students. Research findings in Nigeria portray the prevalence of low levels of numeracy skills among learners and even teachers. Ogbonna (2016) reported that greater majority of teachers surveyed lacked basic teaching skills and performed abysmally in tests in numeracy set at the level of the students they teach. Adult learners have been found to exhibit only average numeracy strength (Awofala & Anyikwa (2014). Beyond Nigeria, Lefevre, Douglas & Whyllie (2017) found that universities students' arithmetic skills are on the decline in Canada. A survey report showed that many students entering the Vocational Education Training (VET) system in Egypt have weak numeracy skills just as was found in this study OECD (2015). Furthermore, Brandy (2016), stated that research had found low numeracy to be more problematic than low literacy with regard to successfully undertaking higher education studies. The results of this study which suggest low numeracy skills possessed by both urban and rural students even after two years of their training in the tertiary institutions portray an unpleasant reality. In addition, the effect of this background factor, secondary school location (in terms of rural or urban) on the level of numeracy skills of preservice teachers was not altered within their two-year experience in the institutions.

Research has shown that countries which made progress in literacy and numeracy suggest that it is teachers who made the difference (Meeks, Kemps & Stephenson(2014). The report of the vision 2020 National Technical Working Group on Education Sector showed a dearth of qualified and motivated teachers in Nigerian rural schools (FRN, 2009). The tertiary institutions used in this study are for teacher preparation for basic education level in Nigeria. The suggestions that students should be screened on entry into schools to identify their weaknesses so as to offer targeted help to enhance learning, by OECD (2015), could be recommended for the institutions of this study so as to produce teachers who are polished in literacy and numeracy skills required in the profession.

## CONCLUSION

In this study, the pre-service teachers' competence in literacy and numeracy skills at the entry point and after the second tier in tertiary institutions in Delta state was assessed. The results suggest that there was significant growth in the competence of the pre-service teachers in their literacy and numeracy skills. However, their levels of competence in literacy and numeracy skills, are only

average and very low respectively, both at entry point and after second year of training. Moreover, the results also suggest that the secondary school location of the pre-service teachers (terms of rural or urban) had influence on their level of competence in literacy unlike in numeracy. The pre-service teachers are far from possessing outstanding competencies in literacy and numeracy skills both at the entry point and after the end of the second year of their training.

## Limitations of the Study and Recommendations for further research

As a longitudinal study in educational research, the usual limitation of attrition of participants was experienced especially in the numeracy tests where the number reduced from 600 to 585. This limits the generalization of the results of this study. Since the findings are similar to those of other studies which were carried out using in other institutions using other methods, it is recommended that assessment of both pre-service and serving teachers should be carried out regularly in various institutions so as to minimize the effect of attrition and obtain a more valid and generalizable results across teacher training institutions.

## Recommendations

- ❖ The post UTME test taken by pre-service teachers prior to their admission into the institutions could be designed to be diagnostic, for determining their levels of need in literacy and numeracy skills.
- ❖ The General Studies in Education (GSE) courses, (The basic English and Mathematics courses) could be structured to offer them remediation for the identified needs.
- ❖ Studies aimed at enhancing the preservice competence in literacy and numeracy skills should be carried out to inform curricular review in teacher education institutions in Nigeria.

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