TEACHERS' DEMOGRAPHIC VARIABLES AND COGNITIVE DEVELOPMENT OF PRE-PRIMARY PUPILS IN OGBA/EGBEMA/NDONI LOCAL GOVERNMENT AREA OF RIVERS STATE.

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Abstract

This study investigated teacher demographic variable and cognitive development of pre-primary pupils in Ogba/Egbema/Ndoni Local Government Area, Rivers State. Specifically, the study

examined how teacher educational level and age influences pupils' cognitive development. Two hypotheses guided the study. Descriptive survey design was adopted for this study. The population of the consisted of 1,121 teachers. Simple random sampling technique was used to select 10 teachers from 10 private nursery schools, making the sampling size 100 respondent of the study. Analysis of variance (ANOVA) was used to test the hypotheses at 0.05 level of significance. Face and content validation was used to validate the questionnaire for instrumentation while Cronbach's Alpha statistics was used to test the internal consistency of the instrument which yielded the coefficient index of 0.15. This indicated that the instrument was reliable and suitable for the study. The result of the analysis revealed that teachers' educational level and age influence pupils' cognitive development. Recommendations were made which included that government should improve teacher's salary to encourage teachers in advancing their education and employ professional teachers especially for the pre-primary level of education.

Keywords: Demographic Variables, Cognitive Development, Pre-Primary Pupils.

Introduction

Cognitive development refers to the mind and how it works. It involves how children think, how they see their world, and how they use what they learn, Dodge (2016). Who children become has everything to do with the experiences they have early in their lives. Cognitive development is all about learning and reasoning. When a child imitates an adult, that's cognitive development; when a child makes a "ruff" sound when they see a dog, that's cognitive development; and when a child smiles upon hearing a familiar voice, that's cognitive development. Cognitive development happens all the time and is influenced by both genes and experiences. Brain is built over times, and each experience affect growth and development. While genetics is important, the interplay between genes and experience is the focus of research today. Although the brain can be influenced at any age, it is most pliable in the early years (Heroman, 2019).

Cognitive development is the emergence of ability to consciously recognize, understand and articulate their understanding in adult terms. It is a field of study in neuroscience and psychology focusing on a child's development in terms information processing, conceptual resources, perceptual skill, language learning and other aspects of the developed adult brain (Ordua,2016). Cognitive development is how a child perceives, thinks and gain understanding of their world through the relations of genetic and learning factors. There are four stages to cognitive information development. They are reasoning, intelligences, language and memory. These stages start when the baby is about 18 months old, they play with toys, listen to their parent speak, they watch TV, anything that catches their attention help their cognitive development.

As a parent, it is important to foster your child's cognitive development as soon as he/she is born because doing so provides the foundation for their child's success in school and later in life.

For example, research shows that children who can distinguish sounds at six months of age are better at acquiring the skills for learning to read at four and five years of age (Ma-kellam, 2016).

As a child's brain is developing, it is constantly going through stages of metacognition, which is the abilities toward attaining a goal. Learners can improve their cognitive development when they receive explicit teaching and practice in the areas of goal setting, monitoring performances, motivation and self-evaluation. Research (for example, Patricia, 2021) shows that pupils who receive consistent, research-based instruction and modeling by a teacher are able to strengthen their cognitive regulation, which in turn leads to better academic performance and greater success school. These benefits open doors to post-secondary opportunities, allowing students to further their education, vocational or employment opportunities, Patricia (2021).

Pre-primary pupils are children ages 3-5 who many times are experiencing school for the first time, often presenting challenges for teachers. Explore the characteristics and school readiness of preschoolers and learn about their physical, cognitive, social and emotional development. The formal schooling starts with pre-primary education also known as early childhood education. Pre-primary education means the education of children aged between three and four years. Its major objective is simply to tune the child to like schooling. Hence, programme provisions include plays, oral language development, arts and music Aguokogbuo (2015).

Cognitive development has great impact in our educational system. And importance cognitive development stated by (Dee, 2019) that cognitive development improves learner's comprehension when attempting new subjects or tasks. With cognitive learning, learners learn by doing this hands-on approach allow learners to gain a deeper, more comprehensive understanding of new materials. Cognitive learning theory helps us to learn as such, learners are better equipped to deep problem-solving skills that they can deploy later to think through challenging situation. It boosts confidence, by promoting problems-solving and improving comprehension, cognitive development through learning can also boost learner's confidence. It equips learners with skills to handle challenging and complex problems, thereby making new subjects seem less daunting and empowering learners with the confidence they need to branch out.

Teachers' variable has been the focus of considerable debate worldwide since the middle of 20^{th} century. Roykin (2018) demonstrated in a study that, the influence of teachers' variable on pupils' achievement is many times greater than any other commonly observed variable such as home background, conducive class environment and others. Lew (2019) defined a teacher as a person engaged in interactive behavior with one or more pupils for the purpose of effecting a change in Pupils. The change be it in any of three domain of learning, cognitive, psychomotor and affective. According to Ingersoll (2016) teacher's variable was defines as a "means of teachers' qualification, teaching practice, teaching' certification, teachers' experience and teaching preparation. Shulman (2017) identified seven areas of professional for quality teaching which are academic subject, knowledge of teaching strategies, knowledge of pupil's characteristic and

cultural background, knowledge of curriculum materials and programs, knowledge of teaching environment, subject of specific knowledge of teaching specific strategies and knowledge of the goals and purpose of teaching.

The cognitive development of pre-primary school pupils is influenced by various factors and one important factor is the teacher. The teachers' demographic variables such as; age, sex, income level, educational background, experience and cultural background, employment location can potentially impact the learning outcomes and cognitive development of pupils. education understanding the relationship between these the variables and cognitive development is crucial for educational policy makers, school administrators and teachers to design effective strategies and interventions to support pupil's learning and development. The teacher demographic variables can have impact on the cognitive development of primary school pupils. Some of the key variables that can influence cognitive development are:

1. **Education level**: the education level of teachers can play a significant role in promoting cognitive development. Teachers with highest levels of education are likely to possess a deeper understanding of pedagogy and child development, leading to more effective instructional strategies.
2. **Experiences:** the years of experience a teacher has, can also impact cognitive development. Experience teaches tend to have a stronger knowledge base, better ability to adapt teaching methods to individuals' pupil needs.
3. **Cultural background and diversity:** teachers from diverse cultural background can bring unique perspectives and experiences to the classroom, which can enrich cognitive development.
4. **Socio-economic status:** the socio-economic background of teachers can influence their instructional practice and resources available in the classroom. Teachers from higher socio-economic backgrounds may have access to more teaching materials and resources, which can positively impact cognitive development.
5. **Language proficiency**: teachers who share the same ethnicity, language or dialect as the pupils can facilitate better communication and understanding in the classroom. This can help pupils comprehend instructions, participate actively in discussions and develop language skills, ultimately supporting their cognitive development.
6. **Access to resources:** teachers demographic variable can also influence the availability of resources such as literature teaching materials or role models. For example, having diverse literature and resources can promote a more inclusive curriculum and expose pupils to a wider range of ideas, enhancing their cognitive development (Wayne,2013).

It is important to note that while these demographic variables can have an impact on cognitive development, other factors such as parental autonomy, the quality of instruction, teaching strategies, school resources and the overall quality of the educational environment as play significant roles. The interplay of these factors ultimately shapes the cognitive development of primary school pupils.

Research has shown that teachers, age, sex, educational level and other factors can have influence on cognitive development of pre-primary school pupils. Based on the above, the researcher deems it necessary to investigate the influence of teachers' demographic variable and cognitive development of pre-primary pupils in Ogba/Egbema/Ndoni Local Government Area of Rivers State. Several studies have examined the relationship between teacher age and pupil cognitive outcomes. Some research found that younger teachers tend to use more innovative teaching methods that promote active learning compared to older teachers (Evertson,2009). However, other studies found no significant differences in teacher effectiveness based on age alone (Youngs, 2013). Age is similarly considered an independent variable that may likely affect academic performance among the trainees. Cognitive development and maturity which are associated with age are necessary for a worthwhile performance of students. Age of the individual as it increases, usually affects the various developmental stages including the area of performance (Ukueze,2017). Overall, the existing evidence is mixed, with age likely interacting with other factors like experience. It is therefore necessary to examine the extent to which age affects the academic performance of teacher trainees.

Statement Of Problem

The cognitive development of pre-primary school pupils is a critical foundation for future academic success. This is how children think, explore and figure things out. It is also the development of skills, knowledge, problem solving and dispositions, which help children to think about and understand the world around them. However, research suggests that teacher demographic variables, such as socio-economic background, age, experience and educational level may influence instructional quality and pupils' outcomes. Despite the importance of this issue, there is limited understanding of the specific relationship between teacher demographics and pupil cognitive development in pre-p3rimary settings. This knowledge gap hinders efforts to optimize teacher recruitment, training, and support, ultimately affecting pupils learning and development. This study aims to bridge the gap by investigating the influence of teacher demographic variables on pupils' cognitive development with the focus on teacher's educational level and age.

Research Questions

The following questions were stated to guide the study:

1. How does teacher's educational level influence pupil's cognitive development?
2. To what extent does teacher's age influence pupil's cognitive development?

Research Hypotheses

The following null hypothesis were formulated to guide this study and tested at .05 level of significance:

1. There is no significant influence of teacher's educational level on pupil's cognitive development.

2. There is no significant influence of teachers' age on pupils' cognitive development.

Methodology

This study was concluded in Ogba/Egbema/Ndoni Local Government Area of Rivers State, Nigeria (Old Ahoada Local Government Area) under Rivers West Senatorial District, with its headquarters at Omoku with about 258,700 people according to 2006 census, it is bounded by Imo, Delta, Bayelsa and Anambra States and also by Ahoada West, Ahoada East and Emohua Local Government Areas of Rivers State. They are part of the Igboid speaking areas of Rivers State with three tribes starting with Ogba as dominant tribe with 12 legislative wards and the Egbema and Ndoni tribes with 2 and 3 legislative wards respectively. It is majorly upland and home to the highest upstream oil and gas exploration/exploitation activity in the state since early 1960's with about1 12 mining/producing fields operated by AGIP, Total Energies and Shell/NPDC with many other reserved untapped fields. It is part of the Ogba/Egbema/Ndoni/ Ahoada West Constituency of the Nigerian House of Representatives.

This study was narrowed to Omoku which is the head quarter of Ogba/Egbema/Ndoni Local Government Area of Rivers State. It is close to the boundary of Delta and Imo States. In an estimated population of over 200,000 people. Omoku covers a total land space of 52km^2 (20 square millimeters). It is blessed with both human and natural resources. Key among the natural resources are crude oil and natural gas. The abundance of these resources earned it the nick name "oil city". Omoku is host to Shell Petroleum Development Company (SPDC), Nigerian Agip Oil Company (NAOC), National Independent Power Plant (NIPP), Federal College of Education (FCE) and a host of other organization

The research design of the study was descriptive survey design. Descriptive survey design is a qualitative or quantitative approach that feature the use of self-report, measures on carefully selected sample (Converse, 2015). This is used because it collects detailed and accurate information that describes the nature of existing conditions as it concerns teachers in Omoku.

The population of this study consisted of all the pre-primary school teachers in Omoku. It has an estimated at 1121 teachers from pre-primary school in Omoku metropolis Rivers State, Association of Private School Owners (APSO).

The total number of 100 teachers was randomly selected from ten private nursery school in Omoku. This study used simple random sampling techniques.

For the purpose of this study a researcher-made instrument titled "Teachers' Demographic Variables and Pupils' Cognitive Development Questionnaire" (TDVPCDQ) was the instrument for the study. The instrument has two sections A and B. Section A consisted of Teachers' Demographic Variables which was used to elicit information from on teachers' socio-economic status, teachers' educational level, teachers' years of teaching experience and teachers' age, while

section B elicited information on Cognitive Development of pupils with a total of 10 items. The instrument was structured on 4-point type Likert Scale of strongly agree (4 points), Agree (3 points), Disagree (2 points) and strongly disagree (1 point). The instrument was validated by my supervisor and two experts in the field of pre-primary and primary education. Considering, face and content validity of the instrument. The final instrument was approved by the researcher's supervisor before its final administration. Take decision as regards the research questions any mean difference of 2.50 and above were said to be an influence and any mean difference of below 2.50 were said to be no influence,

Results

Research Question one

How does teacher's educational level influence pupil's cognitive development?

Table 1: Mean and Standard Deviation on the Influence of Teachers' Educational Level on Pupils' Cognitive Development

n=100

Variable	Teachers' Educational Level	N	$\bar{X}$	SD
Pupils' cognitive development	NCE	43	21.04	4.79
	B. Ed	32	24.82	5.97
	PGDE	14	24.50	6.80
	Masters and above	11	26.90	4.52

Table 1 shows that the mean response of teachers who had NCE in relation to the pupils' cognitive development was 21.04 with a standard deviation of 4.79. The means response of teachers who had B.Ed**.** in relation to pupils' cognitive development was 24.82 with a standard deviation of 5.97. The means response of teachers who had PGDE in relation to the pupils' cognitive development was 24.50 with a standard deviation of 6.80**.** The mean response of teachers who had Masters and above in relation to pupils' cognitive development was 26.90 with a standard deviation of 4.52. Based on the criteria set in method of data analysis, result in Table 1.1 indicated variance in pupils' cognitive development meaning that teachers' educational level influences pupils' cognitive development in Ogba/Egbema/Ndoni Local Government Area of Rivers State**.**

Research Question Two

To what extent does teachers' age influence pupils' cognitive development?

Table 2: Mean and Standard Deviation on the Influence of teachers' Age influence pupils' cognitive development

n=250

Variable	Teachers' Age	N	$\bar{X}$	SD
Pupils' cognitive development	20 – 34	26	20.07	4.44
	35 – 49	61	25.01	6.21
	50 and above	13	26.14	4.25

The result in Table 2 indicates the mean response of teachers who are between the age of 20 – 34 is 20.07 with a standard deviation of 4.44, mean of those who are between the age of 35 – 49 is 25.01 with a standard deviation of 6.21 and mean of those who are between the age of 50 and above is 26.14 with a standard deviation of 4.25. The result indicates variance between groups which implies that teachers' age influence pupils' cognitive development in Ogba/Egbema/Ndoni Local Government Area of Rivers State.

Hypothesis One

There is no significant influence of teacher's educational level on pupil's cognitive development.

Table 3: Analysis of Variance (ANOVA) of significant influence of Teacher's Educational Level on Pupil's Cognitive Development

Source	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	447.587	3	149.196	4.930	.003
Within Groups	2905.253	96	30.263		
Total	3352.840	99			

The result in Table 3 showed that an F-cal of 4.930 with an associated probability value of 0.003 was obtained with regards to the, significant influence of teacher's educational level on pupil's cognitive development. Since the associated probability of 0.003 was less than 0.05, the null hypothesis two which states that there is no significant influence of teacher's educational level on pupil's cognitive development was rejected. This implies that there is a significant influence of teacher's educational level on pupil's cognitive development. The significance of the result caused Post Hoc Scheffe test to be conducted in order to find the independent groups between which the significant difference lie.

Table 4 Scheffe Test Analysis of the Difference in Influence of Teacher's Educational Level

(I) Educational Level	(J) Educational Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
NCE	B.Ed	-3.77475	1.27601	.038	-7.4059	-.1436
	PGD	-3.45122	1.70287	.257	-8.2971	1.3947
	Masters and Above	-5.86031	1.86797	.024	-11.1760	-.5446
B.Ed	NCE	3.77475	1.27601	.038	.1436	7.4059
	PGD	.32353	1.74692	.998	-4.6477	5.2948
	Masters and Above	-2.08556	1.90821	.755	-7.5158	3.3447
PGDE	NCE	3.45122	1.70287	.257	-1.3947	8.2971
	B.Ed	-.32353	1.74692	.998	-5.2948	4.6477
	Masters and Above	-2.40909	2.21649	.758	-8.7166	3.8984
Masters and Above	NCE	5.86031*	1.86797	.024	.5446	11.1760
	B.Ed	2.08556	1.90821	.755	-3.3447	7.5158
	PGD	2.40909	2.21649	.758	-3.8984	8.7166

The mean difference is significant at the 0.05 level.

The Scheffe's test analysis as indicated in Table 4 shows six possible pair-wise comparison of mean difference in NCE (1), B.Ed. (2), PGDE (3) and Masters and above (4) at the 0.05 level. There is a significant mean difference between groups 1 and 2 (3.77) and group 1 and 4 (5.86). Summarily, significant mean difference existed in two groups while other groups where significant mean difference not existed. The largest mean difference was between group 1 and 4.

Hypothesis Two

There is no significant influence of teachers' age on pupil's cognitive development.

Table 5: Analysis of Variance (ANOVA) of Significant Influence of Teachers' Age on Pupil's Cognitive Development

Source	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	525.246	2	262.623	8.467	.000
Within Groups	3008.544	97	31.016		
Total	3533.790	99			

The result in Table 5 showed that an F-cal of 8.467 with an associated probability value of 0.000 was obtained with regards to the, significant influence of teachers' age on pupil's cognitive development. Since the associated probability of 0.000 was less than 0.05, the null hypothesis three which states that there is no significant influence of teachers' age on pupil's cognitive development was rejected. This implies that there is a significant influence of teachers' age on pupil's cognitive development. The significance of the result caused Post Hoc Scheffe test to be conducted in order to find the independent groups between which the significant difference lie.

Table 6: Scheffe Test Analysis of the Difference in Influence of Teachers' Age

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
20 -43	35 – 49	-4.93974	1.30761	.001	-8.1905	-1.6890
	50 and above	-6.06593	1.84617	.006	-10.6556	-1.4763
35 – 49	20 -43	4.93974	1.30761	.001	1.6890	8.1905
	50 and above	-1.12619	1.65298	.793	-5.2356	2.9832
50 and above	20 -43	6.06593	1.84617	.006	1.4763	10.6556
	35 - 49	1.12619	1.65298	.793	-2.9832	5.2356

The mean difference is significant at the 0.05 level.

The Scheffe's test analysis as indicated in Table 6 shows three possible pair-wise comparison of mean difference in 20 -43 (1), 35 - 49 (2) and 50 and above (3) at the 0.05 level. There is a significant mean difference between group 1 and 2 and group 1 and 3. Summarily, significant mean difference existed in only two groups while other one group significant mean difference not existed. The largest mean difference of 6.06.

Discussion of Findings

The research questions and hypothesis are discussed in the order which they appear in the study. The summary of data analysis for research question 1 in Table 1 which indicates that teachers' educational level influences the pupils' cognitive development to a high extent. This is possible because there is variance in mean at different educational level. Similarly, the analysis of hypothesis one indicates a significant influence of teachers' educational level on pupils' cognitive development. The above finding is in line with Funmilola, Eunice, Olufunmilayo and Emmanuel (2013) who discovered that significant difference between academic performance of students from teachers with high educational background and students from teachers with low educational background. In the same, vein the finding of this study agrees with that of Garba (2019) who found that teachers' level of education played a significant role in enhancing school children educationally.

The findings obtained in research question two revealed that teachers' age influences pupils' cognitive development. This finding was possible because of the variance found between groups. In testing the null hypothesis two, the result revealed that there is a significant influence of teachers' age on pupils' cognitive development. This is so because Sceffe's test indicated a significant mean difference existed in only two groups while other one group significant mean difference not existed. The findings of this study are in line with the work of Ismail (2018) who researched on can age and experience influence teacher effectiveness. The finding showed that there is significant difference between age, experience and teacher effectiveness.

In contrary to the finding of this study, Sivasakthi and Muthumanickam (2012) found that younger teachers of age 30 years and below, mature or middle age teachers of between 30 years to 40years and older teachers above 40 years do not differ significantly in their teacher effectiveness which indicates that age, regardless of young mature or older teachers does not make any difference to teacher effectiveness.

Conclusion

Based on the findings of this study, the following conclusion were reached:

i. There is a significant influence of teachers' socio-economic status on pupils' cognitive development in in Ogba/Egbema/Ndoni Local Government Area of Rivers State.
ii. A significant influence of teachers' educational level on pupils' cognitive development in in Ogba/Egbema/Ndoni Local Government Area of Rivers State was found.

Recommendations

Based on the conclusion of the study, the following recommendations were made:

i. Government should endeavour to improve on teachers' salary regarding the economic situation of the nation.
ii. Government as well should encourage teachers to make an advancement in terms of their educational attainment.
iii. School authorities should endeavor employ well experienced teachers especially for pre-primary level of education.
iv. School authorities should also consider teacher age and maturity when assigning classes.

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