

Ergonomics and the Classroom Teacher in Secondary Schools of Rivers State

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ANNOTATION: Ergonomics plays an important part in every aspect of life. In dealing with ergonomics, however, there is a lot of conception as to exactly what it involves. A lot of people are wrongly of the view that it is concerned with only physical things. This article has first tried to debunk that impression before going into the issues that concern the classroom teacher in secondary school of Rivers State. The study examined the age and number of students taught by the teachers. It also looked at the qualifications possessed by the teachers; the appropriateness of these qualifications and their suitability to the subjects and levels the teachers teach. The study showed that in all of the issues researched, there was no conformity with the provision of existing laws, and so it is safe to conclude that there was no ergonomic appropriateness on these issues. This was a descriptive survey which used questionnaire as the main instrument for collecting data from 3494 private and public secondary school teachers in Rivers State. It was guided by 6 research questions. The results were analysed using tables, charts and percentages.

Keywords: Ergonomics, Teachers' Qualifications, Secondary Schools.

Introduction

Trends in educational technology research emphasises Smart Learning Environments, Artificial Intelligence, Augmented/Virtual Reality, Learning Analytics, Adaptive and Immersive Learning. Still others are Gamification, Collaborative Learning, Seamless Resource Areas and Personalised Learning Management Systems (Jarman, 2019; Hitchcock, 2019; Kinshuk, 2013; LearnSafe, 2020). Irrespective of the name given to each of these areas, they are geared towards creating and adjusting the educational process according to the abilities of the students (Zunjic, Papic, Bojovic, Matija, Slavkovic & Lukic, 2015; Natividad, Spector & Evangelopoulos, 2018). When creating an environment that is comfortable and adjusted to the characteristics of the user is concerned, the field involved is Ergonomics.

Ergonomics

Ergonomics is derived from two Greek words – *ergon* and *nomos*. *Ergon* means work while *nomos* means

natural law. Thus, ergonomics can literally be defined as doing work according to natural law or what is naturally suitable for an individual. Work according to natural law or what is naturally suitable for the individual is work that meets the physical and mental characteristics and abilities of the individual concerned. This means that people should be given work that they can carry out comfortably and effortlessly. Something is comfortable to do if it is pleasing for the person concerned. It is pleasing if the individual likes doing it (Adams, 2019).

In other situations, *nomos* is said to simply mean the law (Middlesworth, 2019). In this light ergonomics can be said to do work according to the provisions of the law. It could be said to carry out the work people do according to what the law says. Ergonomics could thus be defined as the study of the work environment and the work people do in relation to their characteristics and provisions of the law. It is the study of workers and their environment in relation to their characteristics and the provisions of the law (Goodyear, 1997). Ergonomics is also known as Biotechnology, Human factors and Human Engineering of the human being is the centre of what it does.

Domains of Ergonomics

Ergonomics is usually viewed as something that is focused on the physical domain of the human being (Kramer, 2009). Thus, most studies and products of ergonomics are things that are focused on ensuring that they are physically comfortable and meet the anatomical, anthropometric, physiological and biometric aspects of the human being. Ergonomics goes beyond this dominant view that focuses on physical working environment. It is also concerned with the psychological and social characteristics of the workers. There are 3 domains of ergonomics. They are the Physical, Cognitive and Organisational Ergonomics (International Ergonomics Association, 2018).

Physical Ergonomics. Also known as Occupational Ergonomics, it is concerned with fitting the physical environment to meet the characteristics of the human body that use it. It is concerned with how the physical environment affects the performance of the people in it. It relates to the buildings, furniture, temperature, air quality, lighting, dust, noise, vibration, sitting position, overcrowding, smell and chemicals on the people in the environment (Kahya, 2007; Werezak, 2021).

Cognitive Ergonomics. Also known as Cognitive Engineering, it is concerned with ensuring that the work environment fits the cognitive characteristics of the user. It aims at ensuring that the work conditions and environment enhance the cognitive function and human performance at work in order to improve productivity, safety and health (Kalakoski, 2016). It is concerned with issues such as mental work load, decision making, skilled performance, human computer interaction, human reliability, work stress and training (Wilson, Helton & Wiggins, 2013).

Organisational Ergonomics. It is concerned with ensuring that organisational structures, policies and processes in the work environment are planned and managed to obtain maximum effect. It has to do with organising people and the work they do to achieve the best possible results. This involves scheduling job and time shifts, motivation, supervision, teamwork, job satisfaction and job ethics (Adams, 2018).

There are several domains of ergonomics. In order for work to be effective, ergonomics has to be looked at as system-oriented. It promotes a holistic approach in which all the various parts have to be fitted together properly for the system to be effective (IEA, 2018). For instance, the work an individual does should fit his physical characteristics, mental work load and be appropriately scheduled for it to be comfortable and enable him to be effective. If it meets his mental characteristics but does not meet his physical abilities, it will not

be effective. A proper work organisation involves a merge of both physical job demands and psychosocial work environment (Macdonald, Harenstam & Punnett, 2008).

Importance of Ergonomics

Ergonomics is quite frequently the focus in industry, public health and commercial ventures because of its many important functions. To ensure that these functions are performed effectively, ergonomic methods are applied early in the design system. This is because ignoring ergonomics can lead to designs that are commercial failures or systems and products that do not fit the characteristics of the user. Some importance of ergonomics in the workplace are the following:

- a. It contributes to understanding of work-related stress and solutions.
- b. It makes sure tasks, equipment, information and the environment suit each worker, increases productivity due to less fatigue, less accident due to safer working environments.
- c. It increases safety, comfort and performance of a product or environment.
- d. It ensures that the needs of the end users are kept in focus at all times.
- e. It is used to achieve greater efficiency for both man and his environment.
- f. It reduces individual accidents in the workplace.
- g. It contributes to the overall health and efficiency of work specialised areas (Duab, Ackermann & Kopp, 2019; Singh, Goyal and Singh, 2015).

Education

Ergonomics is important and applicable to all aspects of life, including education. Education is coined from two Latin words – educere and educare (Manilla, 2005). Educere means to lead out, draw out or bring out, while educare means to nourish, mould or bring up. Thus, education could be taken to mean to bring out or to nourish. This connotes two things. First it tells us that the individual that is being educated has certain innate qualities that the process of education tends to help bring out. Second, it tells us that what is being done when an individual is being educated is to provide ‘nourishment’ that is necessary to make the innate qualities that have been brought out of the individual to develop. Nourishment, according to the DK Illustrated Oxford Dictionary (2003) is the provision of intellectual, emotional and environmental substance to the individual. Thus, in educating the individual, there should be the provision of the right intellectual materials and challenges necessary to develop the individual’s capacities. The individual requires the right physical, psychological and social environment to carry out the intellectual activities he has to engage in.

The learning environment is the totality of the resources the learner can draw on. It plays an important part in the kind of education an individual receives. It determines if the learner develops physically, socially, emotionally or not. It determines if he acquires the knowledge, skills, values and attitudes necessary for responsible, active and productive citizenship or not. The environment provided for the learner has to be effective. To be the proper environment, it has to be able to lead out the learner’s innate qualities. To do this it has to be planned to meet the characteristics of the learners. Ergonomics deals with planning the environment to suit the user, which in the school system refers particularly to the learner and teacher.

Ergonomics is concerned with giving people the jobs they are capable of doing. This means that the people we give jobs to do should be those with the necessary qualification and the capacity to do the job. It also means that in the learning situation, the strategies we employ, the content we include, the instructional materials we use for our lesson are those learners will understand without too much stress. This is because the essence of ergonomics is to reduce stress on people by making them more comfortable, make fewer mistakes and do things more quickly and easily.

The Classroom

The purpose of the educational system of any country is to bring about the desired change in the behaviour of the learners. To bring about these changes the curriculum is planned to contain all that is required to help achieve them. To implement the curriculum and make use of all the necessary resources, the teachers need to interact with the learners. In modern society there are many meeting points for the teacher and learner to interact. These meeting points could be the Computer, Mobile phones, Internet, and so on. In spite of these modern meeting points between the teacher and learner, the most common meeting point for the teacher and learner the world over is still the classroom (Goodyear, 2007).

The classroom is a place to promote teaching and learning under the guidance of a teacher (Omieibi-Davids, 2019). It is the basic unit of the school system and is seen as the power house of formal education in which the success and failure of the educational system is generated and sustained. This is because all the lofty plans of the country's educational system are determined by what goes on in the classroom. It is a place where the learners for whom the educational system is planned and who have to participate in order to ensure the achievement or otherwise of the plans and the teacher who implements the plans, interact with the resources that have been planned for the achievement of desired objectives and behaviour (Sokari-Okujagu, 2011).

The classroom is important in the school system. Most of what goes on in the school takes place in the classroom and under particular teachers. To be effective in bringing about the desired changes in behaviour, the teacher has to properly manage the classroom. There is no classroom without problems no matter how well manages, but where good classroom management is lacking there is chaos and teaching and learning is disrupted, and the teacher is confronted with many problems. If a classroom is not properly managed and rid of such problems there is chaos and the students' resort to some behavioural problems (Berliner, 1988).

The Teacher

Teaching is involving individuals in activities that bring about desired changes in their behaviour. It is one of the most important activities that occur in any society. It is an activity in which people are helped to learn. It helps people gain the knowledge, skills and attitudes they need to be responsible citizens, earn a living and lead a useful rewarding life. It provides the chief means of passing knowledge on to the next generation and developing new ones. It brings about increased store of useful information and understanding of basic principles of the subject matter; acquisition of manipulative skills and possession of desirable attitudes and ideas in the subject area. The teacher is the individual that involves other people in activities that bring about desired changes in their behaviour. In traditional education every member of the society was the teacher. In modern society, however, most of what the child learns is taught in schools and the responsibility of arming the learner with the desired knowledge is entrusted in the care of people who have been specially trained to do so. They are the teachers.

Teaching is a complex activity that involves planning, implementation and evaluation of the effectiveness of what has been planned. Planning occurs before the teacher goes into the classroom to have contact with his students. It involves gathering information and resource materials, deciding on methods and materials to use and writing a lesson plan to guide implementation. Implementation is the stage where the teacher actually interacts with the students and puts his laid down plan in action by involving the students in various activities needed to bring about the desired changes in behaviour. Evaluation is the stage where the teacher uses different instruments to gather information from his learners to determine the effectiveness or otherwise of teaching (Victor-Ishikaku, 2014). The knowledge and skill required to do this and function as a teacher is acquired. They are the qualification required to become a teacher.

Qualifications are official documents that confirm people have undergone and completed training in skills and abilities to perform certain activities or partake in a job. To be qualified and have necessary competencies, abilities or attributes, an individual needs to have completed training and passed required examinations. These examinations differ from country to country. Irrespective of what is applicable in what country, when they have to do with the competencies to teach, they are known as teaching qualifications.

Teaching or teacher's qualification is the particular skill or type of experience, expertise or knowledge someone possesses to make him or her suitable to teach in a particular society (Aina & Olanipekun, 2015). These qualifications have varied over time in the Nigerian educational system, starting with the Portuguese merchants at the onset of formal education in the 15th century. In 1981 the government directed that the minimum qualification for entry into teaching should be the Nigeria Certificate in Education (NCE) (FRN, 2013). It also directed that all individuals are required to have training in education to teach in any level of the educational system. An individual who wants to teach after obtaining other qualifications that are not NCE or Bachelor of Education (B. ED) is required to go for a Post Graduate Diploma in Education (PGDE) to qualify to teach (Agabi, 2014; Okujagu, 2010). The minimum professional qualification for teachers in Nigeria is the Nigerian Certificate in Education (NCE). This is stipulated in the National Policy on Education (FRN, 2013). The National Commission for Colleges of Education plans the professional education courses for this programme. It is the body responsible for the NCE programme in Nigeria. The NCE programme is a programme, which is meant to give teachers professional education. NCE teachers are meant to teach learners who are at the Junior Secondary School level and below. They are not meant to teach students at the Senior Secondary level. While in their subject fields the content is meant to reflect the content of the levels they are supposed to teach, knowledge required to be effective teachers are not restricted to levels of education, so they take full professional courses especially because they deal with very young learners.

Quality in education is linked to how effectively learning occurs. Learning efficiency is strongly determined by the teacher's knowledge and pedagogical skills (Rao, 2011). Rao is of the opinion that teacher qualification in developing countries has been eroded since the 1960s as a result of rapid expansion in school enrolment and the introduction of poorly prepared teachers without the necessary qualification who are put in charge of overcrowded schools with very few textbooks. He said a lot of teachers in many developing countries have only secondary education certificate with very pedagogical training.

Jaiyeoba & Atanda (2005) assert that the quality of the educational system depends on the quality of the teachers because they have direct bearing on the quality of learning. Halluk (1990) says there is no dispute as to whether the quality of teachers has direct bearing on learning. This is in line FRN (2013) which states that no educational system can have a quality that is higher than the quality of its teachers. Obinaju (2013) says a quality teacher is a major stakeholder in ensuring minimum standards in the school system because he is in a better position than any other person to know the learners, their needs and characteristics. He also asserts that the qualified and professionally trained teacher is able to detect any organisational faults in the curriculum and is able to effect change.

The quality of teachers in the Nigerian school system has been questioned numerously. The responsibility of the poor performance of Nigerian students in national examination has been put on several factors, but particularly on the nation's teachers. A 2018 World Bank survey of 435 private and public schools in the country gave a damning verdict to the teacher quality and quantity. The study which involved 2,968 basic school teachers across the country revealed the following (Mba, 2019):

a. 50% of Nigerian Mathematics teachers could not achieve 80% or more of the mathematics test they gave their own students/pupils to solve.

- b. 60% of Primary 4 Mathematics teachers could not subtract double digit numbers.
- c. Only 26% of English teachers scored above 80% in English Language.

Ergonomics of Secondary School Teachers in Nigeria

The ergonomics of secondary school teachers in Nigeria are the provisions of various laws and regulations concerning the qualifications and practices of teachers and teaching in Nigerian secondary schools. These laws and regulations as found in various documents published by the Federal government of Nigeria, are as follows:

1. The minimum age of children for secondary school teacher is 12 years. The national policy on education (FRN, 2013) states that secondary education is for children from the age of 12, thus, teachers at this level should not have children that are younger than this age.
2. The minimum qualification for teachers is the Nigeria Certificate in Education (NCE). This means that no one with a qualification that is not equivalent to or above this level of education should be employed as a teacher. The NCE is a 3-year post-secondary qualification with the purpose of training teachers for basic education (NCCE/FME, 2013). Anything below the NCE level cannot be teachers at any level of the Nigerian educational system. This stipulation prevents students with the various secondary school certificates like WASC, SSCE, NABTAB and OND.
3. NCE teachers are produced to teach the basic education curriculum. They are not expected to teach beyond the basic education content, which ends with Junior Secondary School (JSS) 3. They are not qualified to teach senior secondary classes (NCCE/FME, 2013).
4. NCE teachers are trained to have a double major or two specialised teaching subjects that are obtainable in JSS curriculum. The degree students are trained to specialise in only one subject of the curriculum. These teachers are expected to teach the subjects they are trained to teach. This means that the maximum number of subjects anyone can teach is two for the teachers who have double majors like NCE English/Social Studies (FRN, 2014). One teacher cannot teach all subjects in primary school irrespective of their qualification. The national policy on education states that specialist teachers will be provided for particular teachers (FRN, 2013).
5. Only professional qualified and registered teachers will be allowed to practice at all levels of the educational system. This includes teachers of basic, post basic and tertiary levels. The national policy on education states all teachers in tertiary institutions will be required to undergo training in the methods and techniques of teaching, which can be obtained through a post graduate diploma in education (PGDE) (FRN, 2013; UBEC, 2010). This means that people with masters or doctorate degrees cannot teach if they do not have a certification a teaching certificate.
6. No teacher will teach more than 40 students in Nigerian basic and senior secondary schools. The number is 25 for pre-primary and technical school classes, 35 for primary and junior secondary classes and 40 for senior secondary classes (FRN, 2013)

Statement of Problem

The indictment of the quality of teachers in the Nigerian school system does not seem to be a surprise to most people in the country who follows happenings in the educational system. This is more so as the responsibility of the continuous abysmal performance in national examinations have been ascribed to the teachers. There is, however, no evidence to justify the accusation in basic schools in Rivers State. To verify or discard this constant accusation, this researcher decided to find out if the teachers in Rivers State, Nigeria, meet ergonomic provisions that guide their qualification and availability.

Aim and Objectives

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The aim of this study was to determine the ergonomic appropriateness of teachers in Secondary schools in Rivers State. The objectives of the study are the following:

- To determine the appropriateness of the age of children taught by secondary school teachers
- To determine the qualification of secondary school teachers in Rivers State
- To ascertain the adequacy of qualification of secondary school teachers in Rivers State
- To verify the suitability of subjects taught by secondary school teachers in Rivers State.
- To ascertain the appropriateness of the class size of secondary school teachers in Rivers State.
- To determine if teachers are teaching class levels that are commensurate with their educational qualification

Research Questions

The study was guided by the following research questions:

- Is the age of children taught by secondary school of Rivers State appropriate?
- What is the qualification of secondary school teachers in Rivers State?
- To what extent is the qualification of secondary school teachers in Rivers State appropriate?
- To what extent do the teachers teach subjects that are suitable to their qualifications?
- To what extent is the class size of secondary school teachers appropriate?
- To what extent is the educational qualification commensurate to the class level the teachers teach?

Research Methodology

The study employed descriptive survey research. This was because it sought to establish existing information. The survey method was used because it was needed to capture a large sample to generalise the findings. The population of the study was all secondary school teachers in Rivers State. The secondary schools involved are government and privately owned. Rivers State was chosen for the study because, according to existing statistics from the West African Secondary School Certificate Examination, it is one of the best performing states in Nigeria. The instrument of the study was a questionnaire which had the teachers as respondents. The findings of the study were presented using tables, charts and percentages. The sample was 3494 teachers who randomly responded to questionnaires that were shared directly and online in various teachers Meta (WhatsApp) pages.

Data Presentation

Research Question 1: Is the age of children taught by secondary school of Rivers State appropriate?

Table 1: Age of JSS 1 students in Secondary Schools of Rivers State

S/N	AGE	NUMBER	TOTAL	PERCENTAGE
1	Below 12 years	1132	1132	54.4%
2	12 years	332	947	45.6%
3	Above 12 years	615		
		2079	2079	

Table 1 presents data on the appropriateness of the age of children taught by secondary school teachers in Rivers State. It shows that out of the Two thousand and seventy-nine (2079) JSS 1 students used for this analysis, one thousand one hundred and thirty-two (1132) were below the recommended age of 12 and so did not meet the appropriate age for this class level. This represented 54.4%. The findings shown on this table is that Teachers in secondary school of Rivers State are teaching majority of students who do not meet the recommended age for this level of the educational system.

Research Question 2: What is the qualification of secondary school teachers in Rivers State?

Table 2: Qualification of Teachers in Rivers State

S/N	QUALIFICATION	NUMBER	PERCENTAGE
1	WASC/SSCE	62	1.8%
2	OND	71	2.0%
3	HND	322	9.2%
4	NCE (professional qualification)	372	10.6%
5	BA; BSC	1086	31.1%
6	BA, BSC; B. TECH; B.ENGR; LLB with PDGE (professional qualification)	96	2.7%
7	B.ED; BA.ED; BSC. ED (professional qualification)	1,485	42.5%
TOTAL		3494	

Table 2 presents information on the qualification of teachers in public and private secondary schools of Rivers State. It shows a total of Three thousand nine hundred and four (3494) students were used for the study. This table shows that there were 62 teachers with WASC/SSCE O'Level, representing. These are teachers that did not go beyond the secondary school level they are teaching in. There were 71 teachers with Ordinary national Diploma (OND) representing 2%; 322 teachers with Higher National Diploma (HND); and 372 representing 9.2 teachers with Nigeria Certificate of Education (NCE). There were Two thousand six hundred and sixty-seven (2667) teachers with Bachelor's degree and above. This represents 76.3% of the secondary school teachers in this study.

Research Question 3: To what extent is the qualification of secondary school teachers in Rivers State appropriate?

Table 3: Appropriateness of the Qualification of Secondary School Teachers in Rivers State

S/N	QUALIFICATION	NUMBER	PERCENTAGE	PROFESSIONAL QUALIFICATION	
1	WASC/SSCE	62	1.8%	44%	Not Professionally Qualified teachers
2	OND	71	2.0%		
3	HND; BA; BSC	1408	40.2%		
4	NCE	372	10.6%	56%	Professionally Qualified Teachers
5	BA, BSC; B.TECH; B.ENGR; LLB with PDGE	96	2.7%		
6	B.ED; BA.ED; BSC. ED.	1,485	42.5%		
TOTAL		3494		100	

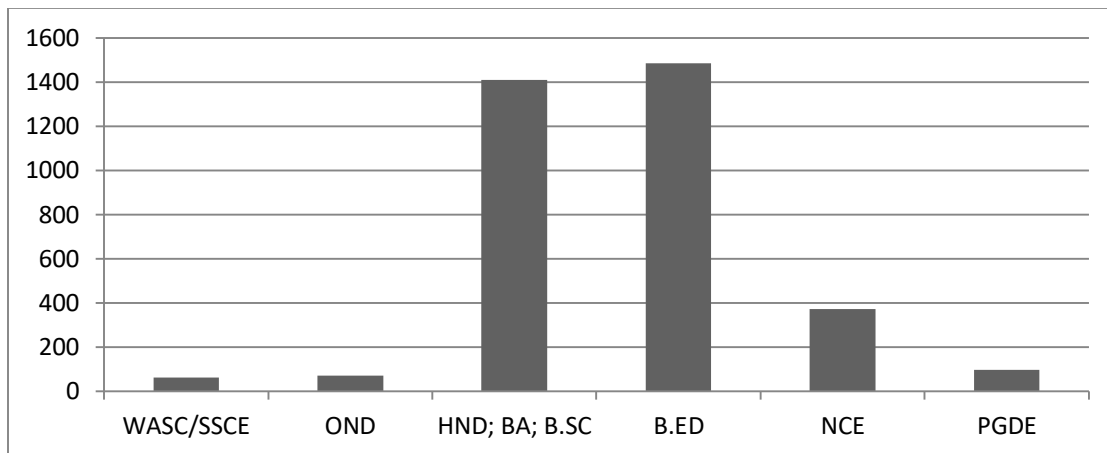


Fig. 1: Bar Chart of Qualification of Secondary School Teachers in Rivers State

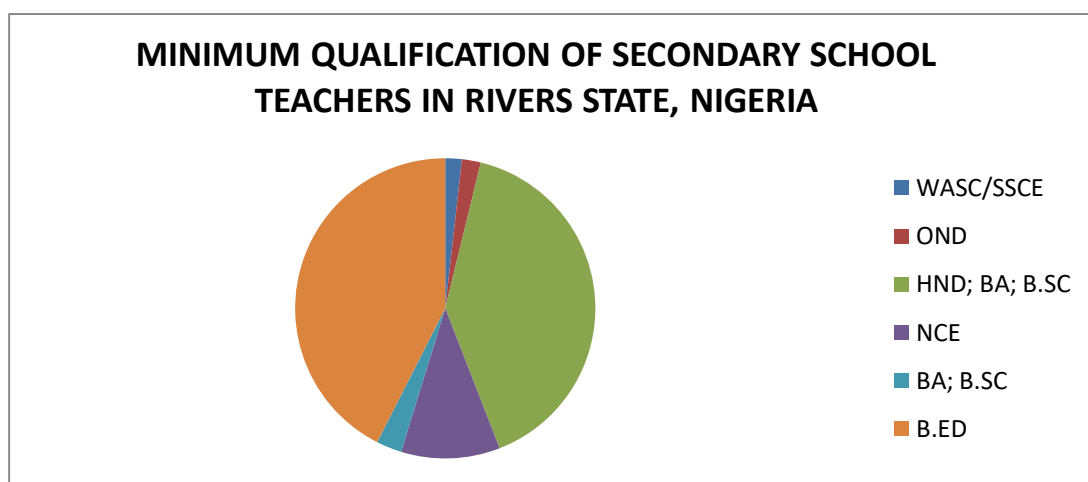


Fig. 2: Chart of Qualification of Secondary School Teachers in Rivers State

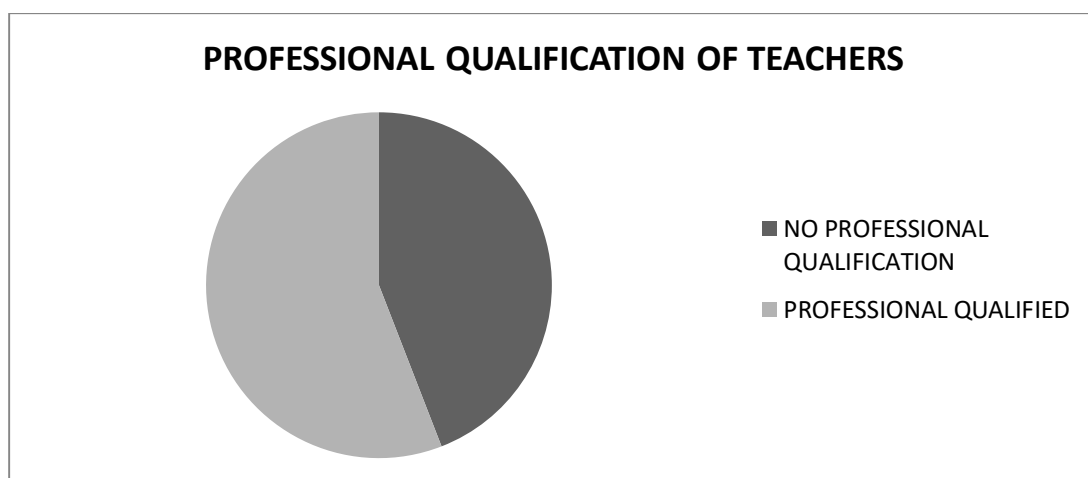


Fig. 3: Chart of Professional Qualification of Secondary School Teachers in Rivers State

Table 3, and Fig.1 to Fig.3 present data on the appropriateness of the qualifications of English teachers in secondary schools of Rivers State. It shows that one thousand, five hundred and forty-one (1541) teachers out of the Three thousand, four hundred and ninety-four (3494), representing 44% did not have a certification

to qualify them to be teachers. These teachers had WASC/SSCE' OND; HND, BA OR B.SC in various subjects. A slight majority of the teachers were professionally qualified to teach various subjects in secondary schools as they had teaching certification. This was One thousand, nine hundred and fifty-three (1953) representing 56% of the teachers.

Table 4: Summary of Professional and Non-Professional Teacher in Secondary Schools of Rivers State

S/N	QUALIFICATION	NUMBER OF TEACHERS	PERCENTAGE
1	PROFESSIONAL	1953	56%
2	NON-PROFESSIONAL	1541	44%
	TOTAL	3494	

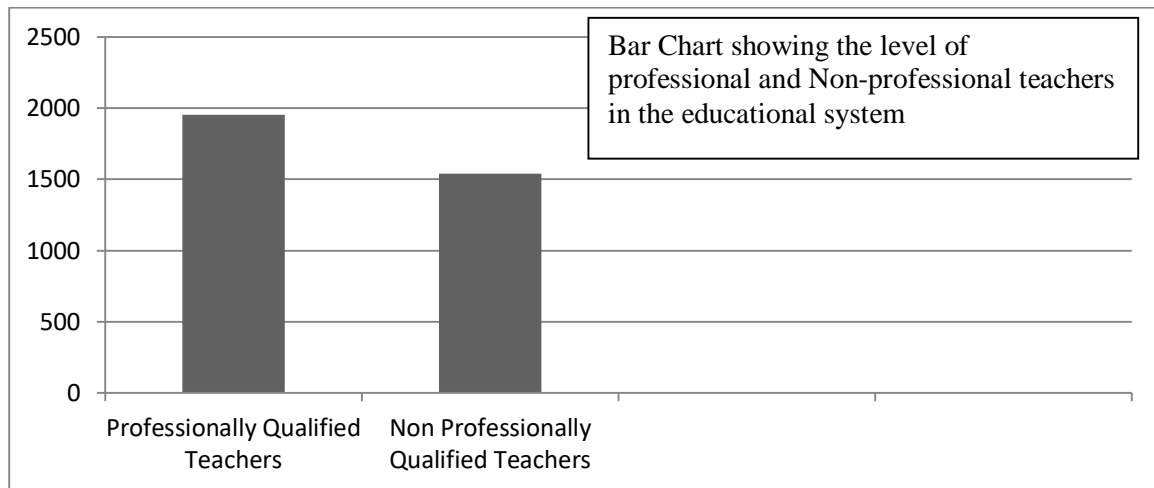


Fig. 4: Chart showing Summary of Professional and Non-Professional Secondary School Teachers in Rivers State

Table 5: Breakdown of Professional Teachers in Secondary Schools of Rivers State

S/N	PROFESSIONAL QUALIFICATION	NUMBER OF TEACHERS	PERCENTAGE OF TOTAL TEACHERS	PERCENTAGE OF PROFESSIONAL TEACHERS
1	NCE	372	10.6%	19%
2	B.ED	96	2.7%	5%
3	PGDE	1485	42.5%	76%
		1953		

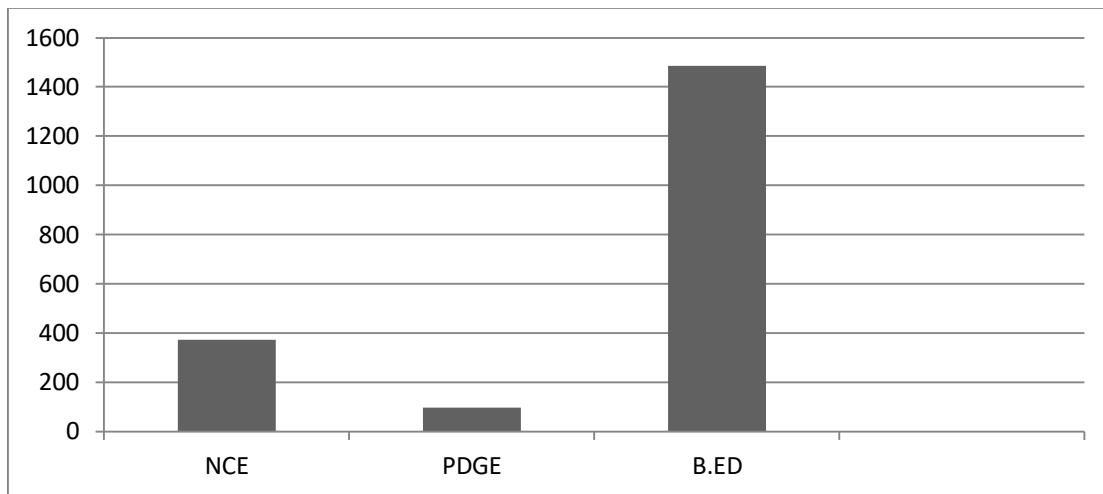


Fig. 5: Breakdown of Professional Qualifications of Teachers in Secondary Schools or Rivers State

Table 5 presents a breakdown of the One thousand, nine hundred and fifty-three (1953) professional secondary school English teachers in this study. It shows 372 teachers with NCE, which is the minimum teaching qualification for Nigerian teachers. They were 10.6% of the study sample and 19% of the teachers with professional teaching qualification. There were 96 teachers with post-graduate diploma in education (PGDE) representing 2.7% and 5% of the teachers with professional qualification. One thousand four hundred and eighty five teachers (1485) with Bachelor of Education (B.ED) represented 42.5% of the total teachers and 76% of the professional teachers. This is further illustrated with Fig. 5

Research Question 4: To what extent do the teachers teach subjects that are suitable to their qualifications?

To what extent do teachers teach what they are qualified to teach? (English)

Table 6: Qualifications of Secondary School English Teachers in Rivers State

S/N	Qualification	Subject	No Of Teachers	No of Qualified/ Unqualified Teachers	Percentage
1	B.ED English (including PGDE)	English	82	99	52.9%
2	NCE English	English	17		
3	BA English	English	19	88	47.1%
4	WASC/SSCE	English	11		
5	Med. Lab. Science	English	2		
6	LLB Law	English	4		
7	OND/HND/BA History	English	4		
8	BA French	English	3		
9	OND/HND/B.SC Mass Com.	English	11		
10	NCE Physical & Health Education	English	1		
11	B.SC Accounting	English	2		

12	B.SC Political Science	English	1		
13	NCE/B.ED Computer Science	English	3		
14	B.SC PHYSICS	English	1		
15	BA PHILOSOPHY	English	2		
16	OND Home Economics	English	3		
17	B. Engineering	English	2		
18	B.ED Business Studies	English	5		
19	B.SC Geography	English	1		
20	B.SC Physics	English	1		
21	OND/B.ED Biology	English	2		
22	BA Linguistics	English	8		
23	Teachers' Grade 11 Certificate	English	2		
	TOTAL		187		

Table 6 presents the qualifications of English teachers in secondary schools of Rivers State. It shows that out of the 187 English teachers that were used for this study, 99 representing 52.9% were professionally qualified to teach the subject, because they had a teaching qualification of NCE, PGDE or B.ED in English Language. From this data, 88 teachers representing 47.1% are not professionally qualified. 19 of these 88 English teachers studied English at degree level but were not qualified to teach the subject in Nigeria because they did not have a professional certificate in Education that qualifies them as teachers.

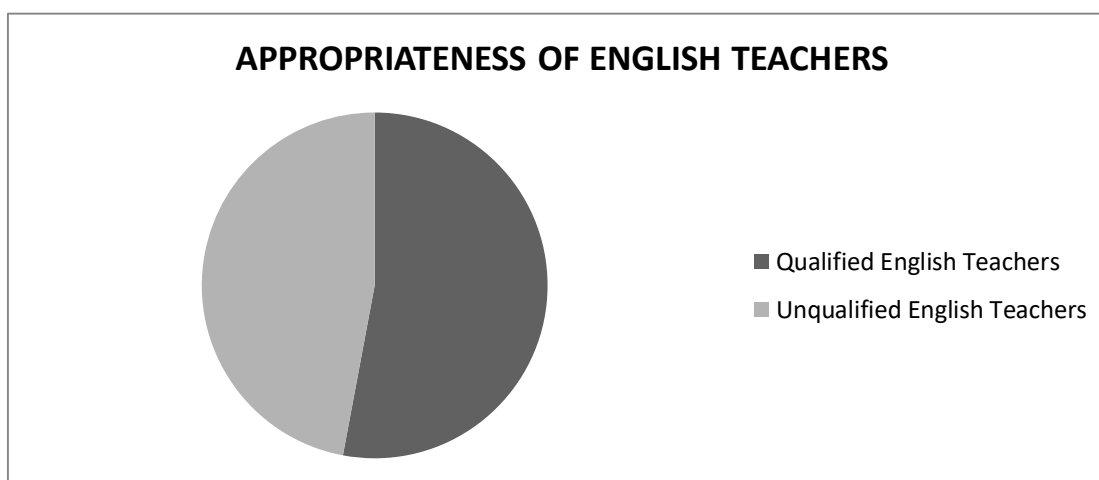


Fig. 6: Chart of Professional Qualification of English Teachers

Table 7: Qualifications of Secondary School Mathematics Teachers in Rivers State

S/N	Qualification	Subject	No Of Teachers	No of Qualified/ Unqualified Teachers	Percentage
1	B.ED Mathematics (including PGDE)	Maths	22	45	29%
2	NCE	Maths	23		

3	BA/B.SC Mathematics/Statistics	Maths	3	108	71%
4	WASC/SSCE/GCSE	Maths	12		
5	B.ED/B.SC Chemistry	Maths	3		
6	B.ED/B.SC Physics	Maths	9		
7	HND/B.SC/B.ED Computer Science/ICT	Maths	7		
8	Medical Sciences	Maths	1		
9	Architectural Design	Maths	1		
10	B.ED/B.SC Home Economics	Maths	5		
11	B.ED/B.SC Biology	Maths	2		
12	B.ED/B.SC Geography	Maths	4		
13	B.SC Banking and Finance	Maths	3		
14	B.ED Social Studies	Maths	3		
15	B.ED/B.SC Economics	Maths	10		
16	BA/B.ED Religious Studies	Maths	2		
17	BA/B.ED Music	Maths	2		
18	BA/B.ED History	Maths	3		
19	BA Philosophy	Maths	2		
20	B. Engineering (Chem, Elect, Civil, Mechanical)	Maths	21		
21	BED Marketing	Maths	4		
23	B.SC Public Administration	Maths	2		
24	B.SC/B.ED Accounting/Accountancy	Maths	4		
25	B.SC Agricultural Science	Maths	2		
26	B.SC Food Science & Tech	Maths	2		
27	BA Fine & Applied Arts	Maths	1		
	TOTAL		153		

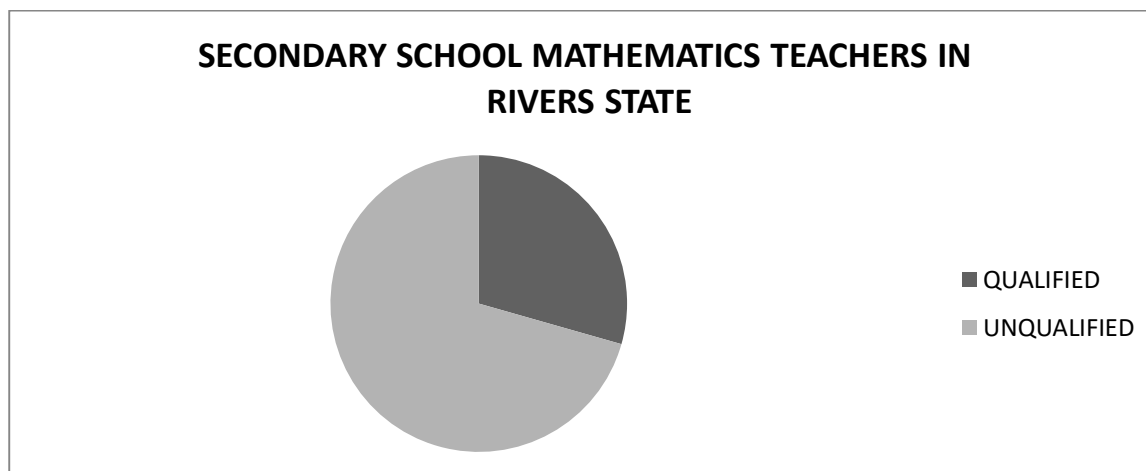


Fig. 7: Chart of Professional Qualification of Secondary School Mathematics Teachers

Table 7 and Fig. 7 presents the qualifications of secondary schools Mathematics in Rivers State. It shows

that there were 153 Mathematics teachers that were used for this study. 45 representing 29% were professionally qualified to teach the subject, because they had a teaching qualification of NCE, PGDE or B.ED in Mathematics. From this data, 108 teachers representing 71% were not professionally qualified. 3 of these 108 Mathematics teachers studied Mathematics at degree level but are not qualified to teach the subject in Nigeria because they did not have a professional certificate in Education that qualifies them as teachers.

Table 8: Professional Qualification of Teachers of Other Secondary School Subjects

S/N	SUBJECT	TOTAL NO OF TEACHERS	NO OF QUALIFIED TEACHERS	%	NO OF UNQUALIFIED TEACHERS	%
1	SOCIAL STUDIES	134	56	41.8%	78	58.2%
2	HISTORY	57	40	70.2%	17	29.8%
3	HOME ECONOMICS	101	63	62.4%	38	37.6%
4	RELIGIOUS STUDIES	79	37	46.8%	42	53.2%
		371	196	52.8%	175	47.2%

Research Question 5: To what extent is the class size of secondary school teachers appropriate?

Table 9: Class size of Secondary School Teachers in Rivers State (Mathematics)

S/N	Class size	NUMBER	TOTAL	PERCENTAGE
1	40 Students	6	42	27.5%
2	Below 40 Students	36		
3	Above 40 Students	111	111	72.5%
	TOTAL	153	153	

Table 9 shows the number of students taught in a class by secondary school mathematics teachers. It shows that in 42 classes, representing 27.5%, the teachers taught number of students within the stipulated 40. The majority of mathematics teachers, however, teach classes that have students who were way above the recommended number of 40. In the remaining One hundred and eleven (111) classes, representing 72.5% the population was above 40.

Table 10: Class size of Secondary School Teachers in Rivers State (English)

S/N	Class size	NUMBER	TOTAL	PERCENTAGE
1	40 Students	7	37	26.7%
2	Below 40 Students	30		
3	Above 40 Students	150	150	73.3%
	TOTAL	187	187	

Table 10 shows that there were 40 students and below in 37 classes representing 26.7% while there were above 40 students to a teacher in 150 of the 187 classes, representing 73.3% of the population of English teachers. This data shows that most teachers in secondary schools of Rivers State were teaching classes that were larger than the recommended number of students. This is supported by the pictures of secondary schools in Rivers State shown in Fig. 8 to 11 below.



Fig. 8: Secondary schools in Rivers State



Fig. 9: A Secondary School in Port Harcourt



Fig.10: A Secondary school in Port Harcourt, Rivers State



Fig. 11: A Secondary school in Port Harcourt, Rivers State

Research Question 6: To what extent is the educational qualification commensurate to the class level the teachers teach?

Table 11: Class Levels Taught by Teachers With NCE

S/N	LEVEL	NO OF TEACHERS	PERCENTAGE
1	JSS	178	47.8%
2	SSS	194	52.2%
3		372	100

Table 11 presents information on the class levels taught by NCE teachers whose training qualifies them to teach at the primary and junior secondary school levels of the educational system only. The data on this table shows that majority of them teach senior secondary classes against their training and regulations by the National Commissions for Colleges of Education which regulates the NCE programmes (NCCE/FME, 2013). This is 194 representing 52.2% of the 372 in the study. Only 178 representing 47.8% were teaching at the junior secondary school level their qualification requires them to teach. Table 12 below shows some of the qualifications of these teachers and what they teach in the school system.

Table 12: Qualifications of Teachers and what they teach in the School System

S/N	Qualification	Specialisation	Teaching Subject	Class Level
1	NCE	Home Economics	Physical & Health Education	SS I
2	NCE	History/Social Studies	Government	SS 1
3	NCE	Computer Studies	Geography	SS 1 & 2
4	NCE	Economics/Social Studies	Further Mathematics	SS 1 & 2
5	NCE	History/Social Studies	Physics	SS 1
6	NCE	Integrated Science/Primary Education Studies (PES)	Chemistry	SS 1 & 2
7	NCE	Integrated Science	Chemistry	SS 1 & 2

8	NCE	Primary Education Studies	History	SS 1, 2 & 3
9	NCE	Chemistry/Biology	Home Economics	SSS 1
10	NCE	Mathematics/Integrated Science	Chemistry and Biology	SS 1
11	NCE	Management Science	Government, Economics and Commerce	SS 1, 2 & 3
12	NCE	Mathematics/Biology	Geography and Basic Technology	

Findings and Discussions

The study examined the Ergonomics and The Classroom Teacher in Secondary School of Rivers State. In doing this it looked at the age of the children they teach, their academic and professional qualifications, the suitability of their qualifications to the subject they teach, the number of students they teach and whether their qualifications are commensurate to the class levels they teach. The study came up with the following findings:

1. The teachers were teaching students who were much younger than they were required to teach. The recommended age is 12 years (FRN, 2013) but 54% of the students taught by secondary school teachers in JSS 1, which is the starting class for this level of education in Nigeria, were found to be less than 12 years in the last term of the school session.
2. The minimum educational qualification and professional qualification for teaching in any level of Nigerian education is the NCE (FRN, 2013; NCCE/FME, 2013). This was not what this study discovered in the school system. There were 62 of the 3494 teachers who had only WASC/SSCE O'L certificate. These students who only had a secondary school leaving certificate were teaching in secondary schools and even teaching SS 3 students English and Mathematics which are compulsory subjects necessary for further studies. There are also a lot of OND, HND and BA and B.SC certificate holders who do not have the necessary professional teaching qualifications of NCE, B.ED or PGDE to enable them function effectively as teachers.
3. There was a mismatch between the subject specialisation of the teachers and the subjects they taught. This cut across all subject areas. Thus, it was common place to see a Physics graduate teaching History or English, and this was happening in schools that had History teachers teaching Physics. There is also the situation of NCE holders who are not supposed to teach beyond the junior secondary school level teaching SS 3 students. This, perhaps, explains why we have teachers who cannot answer examination questions that is set for their students as reported by Mba (2019).
4. The teachers were teaching classes were far above the maximum 40 students in a class. This corresponds to the study carried out by Kalagbor (2008) which says that Nigerian teachers teach too many students. Some classes were found to have as many as 298 students.

Conclusion

Ergonomics plays an important part in every aspect of life. In dealing with ergonomics, however, there is a lot of conception as to exactly what it involves. A lot of people are wrongly of the view that it is concerned with only physical things. This article has first tried to debunk that impression before going into the issues that concern the classroom teacher in secondary school of Rivers State. The study showed that in all of the issues researched, there was no conformity with the provision of existing laws, and so it is safe to conclude that there was no ergonomic appropriateness on these issues.

Recommendations

1. There is a need to make parents aware of the dangers of enrolling children in grades that are above their mental age, irrespective of how intelligent they believe their children are.
2. There is a need to have teachers who are professionally qualified in the school system. There is a big difference between having a BA/B.SC Mathematics and having a B.ED/B.SC ED in Mathematics. Those with the Education qualification are trained to teach these subjects in the school system.
3. Teachers without professional teaching qualifications should be encouraged to do so, especially because the PGDE they require to get professional certification is a one-year programme in most universities. Rivers State has 3 universities they can get this done.
4. Teachers should be given subjects that have been trained professionally to teach. The situation where people with qualification in History are made to teach Mathematics does not augur well for the educational system.
5. School proprietors and head teachers should be educated on the need to have teachers who are qualified to teach the various subjects.
6. School proprietors need to be enlightened to the fact that the coursework of the NCE programme is tailored to teach subjects at the primary and junior secondary school levels only. It is a disservice to the teachers and students to make teachers with this qualification teach at the senior secondary school level

List of Abbreviations

BA – Bachelor of Arts
WASC – West African Scholl Certificate
B.ED – Bachelor of Education
SSCE – Senior Secondary Certificate Examination
B.SC – Bachelor of Science
O’L – Ordinary Level
FME – Federal Ministry of Education
OND – Ordinary National Diploma
FRN – Federal Republic of Education
HND – Higher National Diploma
JSS – Junior Secondary School
PGDE – Post Graduate Diploma in Education
SSS – Senior Secondary School
B. Tech – Bachelor of Technology
NCE Nigerian Certificate of Education
B. Engr – Bachelor of Engineering

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