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PRINCIPALS' PERCEPTION OF EDUCATIONAL MEASUREMENT AS A PIVOT FOR QUALITY PEDAGOGY IN THE 21ST CENTURY SECONDARY SCHOOL SYSTEM IN IMO STATE

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ABSTRACT

The overall purpose of this study was to assess educational measurement as a pivot for quality pedagogy in the 21st century with regard to the secondary school system. Ex post-Facto research design was adopted for the study conducted in Imo State. The target population for the study comprised some selected secondary school teachers, school administrators and education stakeholders in Imo State numbering 2350. Stratified random sampling technique was used to select 30 school administrators and 10 teachers each from ten secondary schools chosen from each of the three education zones of Imo State. Plus, 5 education stakeholders totalling 335 instrument used for data collection was a questionnaire titled "Educational Measurement and Quality Pedagogy Questionnaire (EMQPQ). Face and content validation of the instrument was carried out by two experts in test, measurement, and evaluation. The reliability coefficient obtained was 0.83. Descriptive statistics of frequency, percentage and mean score were used to answer the research questions while simple regression analysis was used to test the hypothesis. The test for significance was done at 0.05 alpha levels. From the findings it was concluded that there is dire need for quality pedagogy in the 21st century in the state secondary schools and educational measurement has become quite imperative for use quality pedagogy in the State Secondary school system. One of the recommendations made was that only qualified teachers should be allowed to teach and train students to yield optimum results in our schools.

Keywords: Educational Measurement, Quality Pedagogy, 21st Century, Secondary Schools.

Introduction

Educational Measurement is the assigning of numerals to traits such as achievement, interests, attitudes, aptitude intelligence, behavior, performance and so on. Backer (2017) sees educational measurement as the use of educational assessment and analysis of data such as scores obtained from educational assessment to infer the abilities and proficiencies of students. Furthermore, study Note (2022) posits that educational measurement refers to any device for the general study and practice of testing/scaling and appraising the outcomes of the educational process. This includes administration and scoring of tests, scale construction validation and standardization as well as application of statistical techniques in the interpretation of obtained measures or test results. Educational measurement is typically to measure abilities and levels of attainment by students in areas such as reading, writing, mathematics, science and so on. Educational measurement process looks at all types of materials and intangible elements, teaching methods, books, curricula, educational aids and activities in addition to paying attention to the students knowledge, skills and responsiveness to the academic content. The above approaches overlap with those in psychometrics. Measurement is strongly related to testing assessment and evaluation. Meanwhile assessment is a primary measurement tool in education where teachers gather information by giving tests, conducting interviews and monitoring behaviours. Assessment is often carefully prepared and administered to ensure its validity and reliability (Stu Online, 2022). In other words, assessment must provide consistent results and it must measure what it intends to measure. On the other hand, evaluations is the process of using the measurement data gathered in assessment. Teachers use the information to judge the relationship between what was intended by the instruction and what was learned. They evaluate the information gathered to determine what students know and understand, how far they have progressed and how fast their scores and progress compare to those of other students.

However, the universal educational methods that fall under the teacher's locus of control on the classroom are referred to as quality pedagogy. Pedagogy is a term that refers to the method by which teachers teach both theoretically and practically. It is the development of an educational process that helps learners gain knowledge. Pedagogy stimulates the unique interaction between teachers and students. It is shaped by an educator's teaching beliefs and involves their understanding of culture and different learning styles. According to Shirke, (2021) pedagogy is a relationship between the culture and techniques of learning. The pedagogy adopted by teachers often shape their action judgments and teaching strategies by taking into considerations, ttheories of learning, understanding of students and their needs, as well as the backgrounds and interests of individual students. Pedagogy allows teachers to regularly evaluate individual learner performance, help teachers understand if a student is moving towards his target outcome or not. This method of learning encourages teamwork and collaborative learning among students. Pedagogy in the teaching sector can play a game-changer role. Many studies have shown that pedagogy can support the high-level initiatives and resources required to prepare fearless learners for tomorrow (Splashlearn, 2022).

It is pertinent to state some of the benefits of pedagogy in learning to include as follows: improvement in quality of education, encouragement of cooperative learning environment, improvement of students and teachers' communication and convenient learning approach for all. Nonetheless educators and secondary school principals alike have the perception that high performance in the education system is dependent on the quality of teaching. So quality pedagogy refers to the universal instructional practices that are within the locus of control of teacher in the classroom Barber et al (2007) posit that the quality of an education system cannot exceed the quality of its teachers. Hence it is said that the best school systems are those that have the best teachers. In the process of articulating the dimensions of a quality learning environment, the word "domain" is used to describe the identified categories of quality pedagogy and was selected intentionally as it refers to "field of action" and "realm of personal responsibility". In essence, its best to say that good teachers are those who produce good outcomes and that those pupils with good outcomes must have been taught by good teachers.

So far, some of the features of quality pedagogy include;

- It involves a range of techniques, including whole-class and structured group work, guided learning and individual activity.
- It give serious consideration to pupils' voice.
- It depends on behavior (what teachers do), knowledge and understanding (what teachers know) and beliefs (why teachers act the way they act).
- It involves clear thinking about longer term learning outcomes as well as short-term goals.
- It builds on pupils prior learning experience.
- They are inclusive as they take the diverse needs of a range of learners as well as matters of students' equity into account.
- The embed assessment for learning
- They focus on developing higher-order thinking and meta cognition as well as make good use of dialogue and questioning in order to do so.

Furthermore, some of the approaches to quality pedagogy that teachers can apply in their teaching and learning process include; constructivist approach, collaborative approach, reflective approach, and inquiring-based learning approach.

Meanwhile, it is one thing to plan education and another to executive the planned activity or process. It is the duty of the educational planners to plan the educational programme while the Principals of Secondary Schools owe it a duty to execute the planned programme. Educational planning is the process of determining the objectives of education, educational institutions or educational programs and the means (activities, procedures, resources) for attaining them. In its broad sense, Learning Portal (2017) sees educational planning as the application of rational, systematic analysis to the process of educational development with the aim of making education more effective and efficient in responding to the needs and goals of its students and society. It further involves many important tasks that eventually incorporate a set of short-term and long-term goals. At minimum, such tasks include: linking education to economy, culture and society, maintaining the integrity of the system in order that the different levels and kinds of education reinforce one another, and developing a system which monitors its own performance and responds accordingly (Ahmed, 2019).

Once the programme has been planned and forwarded to schools, it beholds on the principals to ensure that the contents are implemented to achieve the desired results. Educational planning in the interim give teachers the opportunity to think deliberately about their choice of lesson objectives, types of activities that will meet these objectives, the sequence of activities the materials needed, how long each activity, might take and how students should be grouped.

Quality Pedagogy in the 21st Century

The 21st Century has witnessed significant changes in didactic teaching methods. The 21st century pedagogy differs from that of the 20th century. Since the beginning of the 21st century, there have been changes/reforms in the development of national and international education. The most observable is the internalization of society and the penetration of digital technologies into learning (Hietajavi, 2015). Ikegbusi (2016) explained that the presence of the internet in the 21st century affects every aspect of life, especially the educational system. It has changed people's ways of reading, writing communicating and social behaviours (Ikegbusi et al, 2021). No wonder Myanmesheva (2015) states that the high-tech environment – computers, smart phones, video games and internet search engines reshapes the human brain". The significance of 21st century educational pedagogy is not only what students learn, but also how well today's schooling prepares students for the skills required by the 21st century programme. The role of the principals is to help improve student's employability through teaching so that they are prepared to deal with the complexity of today's world, where education plays a major role in everyday life. Khairi (2021) explained that a 21st century education is one that responds to the economical, technological and societal shifts that are taking place at an ever-increasing pace. Sing (2022) recommends the following teaching strategies for the 21st century experimental learning: storytelling, value education, inquiry learning, appropriate assessment, future problem-solving, outside classroom learning and community problem solving. With the ability to access almost any information at any time from an early age, the educational space has expanded beyond the classroom (Singh, 2022). Learning has been transformed. This has occurred because of the flexibility offered by digital media as opposed to traditional media, the ability to multitask the use of intellectual ICT tools versus pure mental performance, easier access to textbook content with one-click internet searches and fewer classroom interactions due to the use of digital media. The result has been a scenario in which knowledge acquisition has evolved into knowledge creation.

Roles of Principals of Schools in maintaining or creating quality pedagogy in the 21st century

The progress of any educational system depends greatly on planning and implementation. Educational planning involves the setting of educational goals and objectives, formulation of educational policies and coordination of educational programs and activities that would lead to the accomplishment of the set goals and objectives To this effect, educational planners and heads of schools have huge roles to play in the promotion of quality pedagogy in the 21st century. One of such roles is ensuring that proper interpretation and implementation of syllabuses used in teachers' education and instilling dedication of trainers to duty so as to bring about right teaching and good quality students produced (Nasiru, 2011). Principals of schools are to ensure that teachers' education climate is positive and conducive to collaboration in matters pertaining to teachers development.

Effects and Challenges of Educational Measurement on Quality Pedagogy

Measurement in education includes the development of instruments or protocols for obtaining information, procedures for analyzing and evaluating the quality of that information, and strategies for communicating the information to audiences, such as educators, policy makers, parents and students (Gregory, 2019). In educational measurement, the "events" under consideration are students test performances and in the simplest case the numerals assigned might be the students, numbers of correct responses. The effects of educational measurement on quality pedagogy are:

(a) the effects of the efficiency of teachers and of the school
(b) to act as an incentive
(c) to measure fitness for admission to higher courses
(d) to help in selection by competition
(e) study every subject and
(f) to measure the achievement of the students.

Furthermore, some of the educational measurement challenges on quality pedagogy as perceived by school – principals include improper planning, budgetary constraints, lack of human resources, and inability to respond to changes quickly enough by learners, among others.

Statement of the Problem

The educational pedagogy of the twenty-first century is designed to guarantee that students are taught the fundamental abilities needed to achieve collaborative teamwork, problem solving, communication, establishing connections, creativity, and several forms of self expression. However, the majority of the secondary schools in Imo state seem to be lagging behind in achieving these skills as a result of lack of reliable educational measurement and quality educational planners. This is evidenced by inadequate facilities in schools to carry out the function.

Objectives

The objectives of this research are:

1. to find out the extent of implementation of educational measurement in secondary schools in Imo state
2. to examine the standard of education in Imo state
3. to determine the effect of educational measurement on quality pedagogy in the state
4. to find out the extent of secondary school principals involvement in promoting quality education in the state

Research Questions

1. To what extent is educational measurement carried out in secondary schools in Imo state?
2. What is the standard of education in the state?
3. To what extent does educational measurement affect quality pedagogy in Imo state?
4. To what extent does secondary school principals involve in promoting quality education in the state?

Hypothesis

1. There is no significant influence of education measurement on quality pedagogy in Imo state?
2. There is no significant influence of secondary school principals involvement on the promotion of quality education in state secondary schools

Methods

Ex post-facto research design was adopted for the study conducted in Imo state. The target population for the study comprised some selected secondary school teachers, school administrators and education stakeholders numbering 2,350 stratified random sampling technique was used to select 30 school administrators and 10 teachers each from ten secondary schools each chosen from the three education zones of the state. Also, 5 education stakeholders were also randomly selected for the study. This gave a total of 335 respondents used for the study. The instrument used for data collection was a researcher made questionnaire titled "Educational Measurement and Quality pedagogy Questionnaire (EMQPQ). Face and content validation of the instrument was carried out by two experts in test, measurement, and evaluation in order to ensure that the instrument has the accuracy, appropriateness, and completeness in content. The reliability coefficient obtained was 0.83 using Cronbach Alpha reliability method. and this was high enough to justify the use of the instrument. The researcher subjected the data generated for the study to appropriate statistical techniques such as descriptive statistic meant to answer the research questions and simple regression analysis meant to test the hypothesis. The test for significance was done at 0.05 alpha levels.

Results and Discussions

Research Question One: The research question sought to find out the extent of implementation of educational measurement in secondary schools in Imo State.

Table 1: Percentage analysis of the extent of implementation of educational measurement in secondary schools in Imo State.

EXTENT	FREQUENCY	PERCENTAGE
VERY HIGH EXTENT	172	51**
HIGH EXTENT	119	35
LOW EXTENT	29	8
VERY LOW EXTENT	15	4*
TOTAL	**335**	**100%**

**** The highest percentage frequency**
*** The least percentage frequency**
Source: Field Survey

The table 1 above shows that the highest percentage of the respondents (51%) affirmed that the extent of implementation of educational measurement in secondary schools in the State is very high, while the least percentage (4%) response shows that the extent of implementation of educational measurement in secondary schools in the State is very low. The result therefore means that there is remarkable high extent of adoption of educational measurement in secondary schools in the State of Imo.

Research Question Two: The research question sought to find out the standard of education in Imo State.

Table 2: Percentage analysis of the responses on the standard of education in the state

EXTENT	FREQUENCY	PERCENTAGE
VERY HIGH EXTENT	53	15.82*
HIGH EXTENT	282	84.18**
TOTAL	**335**	**100%**

** The highest percentage frequency
* The least percentage frequency
Source: Field Survey

Table 2 above presents the percentage analysis of the standard of education in Imo State. From the result of the data analysis, it was observed that the highest percentage of the respondents (84.18%) affirmed that the standard of education in Imo State is of High extent, while the least percentage (15.82%) of the responses express very low extent. The result therefore means that there is high standard of education in Imo State.

Research Question Three: The research question sought to find out the effect of educational measurement on quality pedagogy in Imo State Secondary Schools.

Table 3: Descriptive statistics of the effect of educational measurement on quality pedagogy in Imo State.

Variables	N	Arithmetic Mean	Expected Mean	R	Remarks
Quality pedagogy	355	13.34	12.5	0.82*	*strong perfect Relationship
Educational Measurement		17.08	12.5		

Source: @ 0.05 alpha level

Table 3 presents the result of the descriptive analysis of the effect of educational measurement on quality pedagogy in Imo State. The two variables were observed to have strong perfect relationship of 82%. The arithmetic mean for educational measurement (13.34) was observed to be greater than the expected mean score of 12.5. In addition to that, the arithmetic mean as regards quality pedagogy (17.08) was observed to be higher than the expected mean score of 12.5. The result therefore means that there is remarkable effect of educational measurement on quality pedagogy in Imo State Secondary Schools.

Research Question Four: The research question sought to find out the extent of school principals involvement on promotion of quality education in the State.

Table 4: Descriptive statistics of the extent of secondary school principals' involvement on promotion of quality education in the State.

Variables	N	Arithmetic Mean	Expected Mean	R	Remarks
Quality Education	335	13.47	12.5	0.80*	*strong to perfect Relationship
Educational Planners		15.08	12.5		

Source: Sig @ 0.05 alpha level

Table 4 presents the result of descriptive analysis of the extent to which educational planners' involvement promotes quality education in the State. The two variables were observed to have strong perfect relationship of 80%. The arithmetic mean for principals involvement in the educational system (15.08) was observed to be greater than the expected mean score of 12.5. In addition to that, the arithmetic mean as regard promotion of quality education (13.47) was observed to be higher also than relationship between principals' involvement in secondary education system of Imo State and quality education in the State.

Hypothesis I

There is no significant influence of educational measurement on quality pedagogy in Imo State Secondary Schools system. In order to test the hypothesis simple regression was used to analyze the data,

Table 1: Simple regression analysis of the influence of educational measurement on quality pedagogy in Imo State.

Model	R	R Square	Adjusted R Square	Std. error of the Estimate	R Square Change
1	0.817a	0.668	0.667	0.93706	0.668

*** Significant at 0.05 level, df = 333; N = 335; critical R-value = 0.113**

The table above discusses the influence of educational measurement on quality pedagogy in Imo State. The calculated R value (0.817) was greater than the critical R value of 0.113 at 0.5 alpha levels with 333 degrees of freedom. The R square value of 0.668 predicts 66.8% of the influence of educational measurement on quality pedagogy in Imo State. This rate of percentage is highly positive and therefore means that there is a significant influence of educational measurement on quality pedagogy in Imo State. The result of the data analysis agrees with the opinion of Gregory, (2019) which stated that Educational Measurement is the science and practice of obtaining information about characteristics of students, such as their knowledge, skills, abilities, and interests. Also that measurement in education includes the development of instruments or protocols for obtaining information, procedures for analyzing and evaluating the quality of that information, and strategies for communicating the information to audiences, such as educators, policymakers, parents, and students. The significance of the result caused the null hypothesis to be rejected while the alternative hypothesis was upheld.

Hypothesis 2

There is no significant influence of secondary school principals' involvement on the promotion of quality education in the State Secondary school system.

Model	R	R Square	Adjusted R Square	Std. error of the Estimate	R Square Change
1	0.817a	0.642	0.641	1.04816	0.642

*** Significant at 0.05 level, df = 333; N = 335; critical R-value = 0.113**

The above table discusses the influence of secondary school principals' involvement on the promotion of quality education in the state secondary education system. It was found out that the calculated R value 0.801 was greater than the critical R value 0.113 at 0.05 alpha levels with 333 degree of freedom. The R square value 0.642 predicts 64.2% of the influence of principals' involvement on the promotion of quality education in the state. The rate of percentage is highly positive and therefore means that there is a significant influence of secondary school principals' involvement on the promotion of quality education in secondary schools in the State. The result was in agreement with the findings of Nasiru (2011) who said that secondary school principals' have huge roles to play in the promotion of quality pedagogy in the 21st century. One of such role is ensuring that proper interpretation and implementation of syllabuses used in teachers' education and instilling dedication of trainers to duty so as to bring about right teaching and good quality of teachers are produced. Educational planning specifies the goals, values and practices and gives the direction for future educational development of a country. The significance of the result caused the null hypothesis to be rejected while the alternative hypothesis was upheld.

Conclusion

The study concludes that educational measurement is used for the general study and practice of testing, scaling, and appraising the outcomes of educational processes. The role of educational planners and heads of institutions is to improve students' employability through teaching so that they are prepared to deal with the complexity of today's world, where education plays an important role in everyday life. A 21st century education is about giving students the skills they need to succeed in this new world and helping them grow the confidence to practice those skills. The study also concludes that there is remarkable high extent of adoption of educational measurement in secondary schools in the State and that the standard of education in Imo State is of high extent. The results also help to conclude that there is remarkable effect of educational measurement on quality pedagogy in Imo State and that secondary school principals' involvement in educational system of Imo State really promotes quality education in the State.

The impact of information and communication technology which has turned the entire world into a global village calls for the restructuring and effective planning of education in order to equip learners with current scientific and technological development all over the world. These will make our graduates to acquire scientific and technological knowledge that can make them to be global citizens that can compete globally.

Recommendations

1. The government should adapt change in the educational process in order to improve quality pedagogy among students in secondary school in Imo State.
2. Different useful and implementable strategies such as, teachers being made to follow school curriculum, school policies being made to be strictly adhered to, modern technology being used in teaching and learning and school funding being made a priority should be adopted by education planners and heads of schools for effective administration of schools.

3. Only qualified teachers should be allowed to teach and train students to yeidl optimum results.

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