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DEVELOPMENT AND VALIDATION OF INSTRUMENT FOR STUDENTS' APPRAISAL OF TEACHERS' INSTRUCTIONAL EFFECTIVENESS IN SECONDARY SCHOOLS IN AKWA IBOM STATE

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ABSTRACT: *This study was conducted to develop and validate instrument for students' appraisal of teachers' instructional effectiveness in secondary schools in Akwa Ibom State. Two research questions were raised to guide the study. The population of the study was 50914 SS2 students in public secondary schools in Akwa Ibom State. A sample of 1021 students was selected for the study using multi-stage sampling technique. The instrument developed by the researcher was titled Students' Appraisal of Teachers' Instructional Effectiveness Scale (SATIES). Subtest- total correlation was used to establish construct validity for the instrument. Cronbach Alpha statistics was used to establish the reliability of the instrument which yielded a coefficient of 0.882. It was recommended among others that school supervisors should make use of the instrument in appraising teachers to get a clear picture of the classroom activities of a particular teacher.*

KEYWORDS: development, validation of instrument, students' appraisal, teachers' instructional effectiveness, secondary schools, Akwa Ibom State.

INTRODUCTION

Teaching is a complex and multidimensional process that requires deep knowledge and understanding in a wide range of areas. It entails the ability to synthesize, integrate, and apply knowledge in different situations, under varying conditions, and with a wide diversity of groups and individuals. In effective teaching, this knowledge is applied in ways that provide equitable access and opportunities about what learners already know before facilitating the ability to acquire, construct, and create new knowledge. Access to effective teaching is unequally distributed among public schools to serve different students.

Effective teaching requires deep knowledge of the learning process, especially theoretical perspectives on learning. Deep knowledge of the learning process includes the ability to identify the basic principles and tenets of particular perspectives, to recognize different perspectives in practice, and to use different perspectives in planning learning experiences and the social context for learning and in solving learning and instructional problems. It is important to understand how specific pedagogical approaches and social arrangements for learning are associated with particular theoretical perspectives on learning, and that learning experiences are more powerful when organizing ideas are integrated across subject matter over time where there is coherence, consistency, and continuity in the application of a theoretical perspective (Hollins, 2011).

Meaningful assessments provide evidence that learners are able to (a) make meaningful connections between their everyday experiences and discipline-specific knowledge and practices, (b) link organizing ideas across disciplines and make applications in new and novel

situations, (c) engage in discipline-specific practices of inquiry and determine the legitimacy of particular claims and evidence, and (d) communicate and represent ideas using the discursive practices of the discipline (Duschl, 2008; Ford and Forman, 2006; Jordan, 2010). The purpose of this type of assessment is to ensure that students develop deep understandings of discipline-specific knowledge and practices, which they can apply to what they know in different situations, and that teachers have important information on which to base interventions for supporting the correction of misconceptions and misunderstandings. Teachers should be able to identify and develop appropriate approaches to assessment that will provide the evidence necessary to determine the integrity and trustworthiness of their everyday classroom practices and allow their students to make consistent progress in meeting expected learning outcomes (Graue and Johnson, 2011).

As the intensity of change quickens and the emphasis on keeping up with it heightens, greater transparency demands that school systems compete in a global economy. An effective performance appraisal system will, ideally, assist in meeting these demands by holding employees' accountable, addressing underperformance and enhancing performance and practice (Zbar, Marshall, and Power, 2007).

Performance appraisal can be defined as the on-going process used for identifying, measuring and developing an individual's performance in accordance with an organisation's strategic goals (Aguinis, 2009). Appraisal may involve formative aspects that focus on developing performance, such as career development, professional learning and feedback. Summative aspects, on the other hand, evaluate performance for career progression, possible promotion or demotion and termination purposes.

The use of Students' Appraisal is a relatively new innovation in the Nigerian context and has not been generally accepted. Arubayi, (2003) observed that there has been a lot of resistance to the use of Students in appraising teacher's effectiveness and quality of instructions. Some of the critics opposed to the use of Students' appraisal of instructions are of the opinion that Students' are not matured enough to make judgement on instructional effectiveness. Contrary to the views of these critics, Arubayi (2003) and Fauzier (2009) were of the opinion that students, irrespective of academic level and school background, are in the best position to appraise the effectiveness of instruction. Seldin (1996) stated that, "the opinion of those who eat the dinner should be considered, if we want to know how it tastes" (p. 12). The implication here is that students are in a better position to determine the effectiveness of the quality of instruction they are getting. Students' appraisal of instruction in secondary school is one of the vital tools for the improvement of instruction. Arubayi (2003) is of the opinion that students' appraisal of the quality of instructions in higher institutions may serve three purposes.

1. Aiding administrative evaluations of instructional effectiveness for decisions concerning pay increase, promotion and tenure.
2. Providing feedback to teachers for the purpose of improving Instructions; and
3. Helping students' select courses and instructions.

It is essential to know the strengths of teachers and those aspects of their practice which could be further developed. From this perspective, the institution of teacher evaluation is a vital step in the drive to improve the effectiveness of instruction and learning so as to raise educational

standards. Considering the importance of students' appraisal of their teachers instructional effectiveness in determining the true picture of the classroom teaching, which could be used to improve the quality of instruction, this research is aimed at the development and validation of instrument for students' appraisal of their teachers' instructional effectiveness in secondary schools.

Statement of the Problem

As the most significant resource in schools, teachers are critical to raise education standards. Improving the efficiency and equity of schooling would require that teachers are highly skilled, well resourced, and motivated to perform at their best. It is essential to know the strengths of teachers and those aspects of their practice which could be further developed. From this perspective, the institution of teacher evaluation is a vital step in the drive to improve the effectiveness of instruction and learning and raise educational standards.

The government, through the Ministry of Education has made arrangement for supervisors to be visiting schools, so as to monitor and evaluate the work done by each teacher in promoting learning. These supervisors from time to time have been visiting schools to monitor what is going on, but it is difficult, if not impossible for the supervisor to have all the teachers in all subject areas and classes to teach for him/her to observe and evaluate the quality of their instruction. To ease their work, they prefer looking at the teachers' records like lesson note, whether it is up-to-date, time book, whether the teacher used to be punctual and regular at school, registers, diaries and other available records. These records are usually referred to when evaluating teachers' effectiveness by educational supervisors. In the real sense, these records cannot give a clear picture of what really goes on in the classroom during the teachers' interactions with the students.

Aside from drawing conclusions based on school records, different instruments have been designed for use for measuring teachers' instructional effectiveness. These instruments are designed to be used by supervisors and educational administrators, or by the teachers to rate their effectiveness. It is very obvious that the teacher will be aware of being evaluated, which could lead to false impression so as to please the supervisor. On the other hand, when teachers are to rate their effectiveness, it is very certain that most of the teachers will rate themselves very high, thus making it difficult to really get the true picture of the instructional effectiveness in the classroom.

On the other hand, many researchers have considered students' appraisal of their teachers' instructional effectiveness as a means of getting the true picture of how the classroom instruction looks like. This researcher is also of the opinion that students are in a better position to evaluate their teachers' instructional effectiveness, since they have been with the teacher more than any other person.

Although there are existing instruments for students' evaluation of their teachers' instructional effectiveness, some of them are old and scarce. To promote students' evaluation of teachers' instructional effectiveness as a means of getting the true picture of the teachers' instructional effectiveness, the researcher was motivated to carry out this present research on the development and validation of instrument for students' appraisal of teachers' instructional effectiveness in Akwa Ibom State.

Purpose of the Study

The main purpose of the study was to develop and validate instrument for students' appraisal of teachers' instructional effectiveness in secondary schools in Akwa Ibom State, Nigeria. Specifically, the study was designed to:

1. Develop and instrument for students' appraisal of instructional effectiveness in secondary schools.
2. Establish the construct validity of the instrument.
3. Apply the instrument to determine the reliability of the instrument.

Research Questions

Two research questions were developed to guide the study. They were stated thus;

1 How valid is the developed instrument with respect to construct validity?
2 How reliable is the developed instrument?

RESEARCH METHODS

The study employed instrumentation research design. Instrumentation research is used for development and validation of a test by establishing unquestionable reliability and validity of the test for effective, efficient, accurate and feasible measurement of a particular variable, construct, trait, attribute, concept or phenomenon in the social or behavioural science (Kpolovie, 2010). The study was conducted in Akwa Ibom State, Nigeria. Akwa Ibom State is located in the Coastal Southern part of Nigeria, lying between latitudes $4^{0}32^{1}$N and $5^{0}33^{1}$N, and longitudes $7^{0}25^{1}$E and $8^{0}25^{1}$E. With interest in contributing to teachers' instructional development in the state, the researcher was moved to conduct this particular study on the development and validation of instrument for students' appraisal of their teachers' instructional effectiveness in Akwa Ibom State. The population of the study was made up of all Senior Secondary Two (SS2) students in Public Secondary Schools in Akwa Ibom State. According to the State Ministry of Education, There were 50914 students in 237 public secondary schools in Akwa Ibom State as at 2019/2020 session. The choice of SS2 students for this study was based on the fact that SS2 students had been exposed to several teachers and teaching patterns, and were matured enough to evaluate a particular teachers' instructional process. The sample for this study comprise 1021 SSII students in public secondary schools in Akwa Ibom State. Multi-stage sampling technique was used in selecting the sample for the study. At the first stage, a proportion of 20 per cent of the Local Government Areas was randomly selected from the 31 Local Government Areas in Akwa Ibom State. In the second stage, a proportion of 10 per cent of the schools was randomly selected from each of the Local Government Areas. From each of the school, a proportion of 40 per cent of students was randomly selected to form the sample for the study. The researcher constructed the instrument titled; "Students' Appraisal of Teachers' Instructional Effectiveness Scale (SATIES)".

Most of the items were developed by the researcher based on information gotten from teachers and students on what constitute instructional effectiveness while other items were developed based on an extensive review of literature that provided the most important aspects of teachers' instructional effectiveness such as lesson introduction, lesson presentation, communication, class management, time management, and evaluation practice by teachers. The instrument consisted of two sections. The first section was designed for collecting demographic

information. This section consisted of five items which are; name of school, subject taught by the teacher, gender of the teacher and class. The second part of the instrument was designed to measure different aspects of teachers' instructional effectiveness such as; lesson presentation, motivating students, students' teacher relationship, evaluation of students' learning, time management and communication. Each section of the instrument contains different number of items depending on the scope of each variable. The instrument was scored using a five-point scale as follows; 1= rarely, 2 = once in a while, 3 = sometimes, 4 = most of the time and 5 = always. The judgement and quantification stage of the instrument began with face validation and establishment of reliability of the instrument. Research Question 1 was answered using Pearson Product Moment Correlation (PPMC), while Research Question 2 was answered using Cronbach Alpha Statistics.

RESULT

Research Question 1

How valid is the developed instrument with respect to construct validity?

The construct validity of the instrument was determined using subtest-total correlation technique. This technique requires that scores on the various subtests be correlated with the total scores on the test (Kpolovie, 2010). The summary of the result is shown in Table 1.

Table 1: Summary of the subtest-total correlation of the Students' Appraisal of Teachers Instructional Effectiveness Scale

Variables	$\sum X_i$ $\sum Y$	$\sum X_i^2$ $\sum Y^2$	$\sum X_i Y$	r-value
Lesson Introduction (X_1)	25138	640310	8444634	.353
Lesson Presentation (X_2)	47273	2279603	15876218	.307
Communication (X_3)	40399	1658961	13541118	.241
Time Management (X_4)	26011	688625	8732598	.303
Motivating (X_5)	68095	4671353	22963428	.588
Class Management (X_6)	41054	1710594	13780894	.311
Teacher- Students Relationship (X_7)	38698	1520444	13030057	.442
Evaluating Student Learning (X_8)	70159	4941191	23568150	.429
SATIES (Y)	338606	115000000		

The summary of the result in Table 1 indicated the correlation between each of the subtest and the total test. As shown in the table, the correlation between lesson introduction and SATIES is .353, that correlation between Lesson Presentation and SATIES is .307, that of communication and SATIES is .241. Also, the correlation between time management and SATIES is .303, that of motivating Students and SATIES is .588, that of class management and SATIES is .311, that of teacher-student relation and SATIES is .442, that of Evaluating Student Learning and SATIES is .429. The correlation among the eight sub-variables and the total test indicated a moderate positive relations. Therefore, all the moderate r-value recorded for each correlation is an evidence of high construct validity of the instrument.

Research Question 2

How reliable is the developed instrument?

This research question was raised to determined how consistent the instrument (Students' Evaluation of Teachers' Instructional Effective Scale) is in producing consistent result when use for teachers' appraisal by their students. Cronbach Alpha Statistics was used in determining the reliability of the instrument. Cronbach Alpha was considered appropriate since the researcher was interested in determining the internal consistency reliability of the instrument. The summary is presented in Table 2.

Table 4.2: Summary of Cronbach Alpha Reliability Test

Reliability Statistics	
Cronbach's Alpha	N of Items
.882	84

The summary of the result in Table 2 indicated that Cronbach Alpha Statistics yielded an internal consistency reliability coefficient of 0.882 for the Students' Evaluation of Teachers' Instructional Effectiveness Scale (SETIES). According to Nachmias and Nachmias (2009), with reliability coefficient of 0.7 and above, an instrument is considered reliable and the higher the coefficient, the more reliable the instrument. Therefore, the instrument was considered reliable for use by students in evaluating teachers' instructional effectiveness.

DISCUSSION OF FINDINGS

The result of the subtest-total correlation in Table 1 indicated moderates correlation coefficient between the subtest and the total test. This is an indication of evidence of construct validity in the instrument. According to Kpolovie (2010), unlike the correlations found in or required for criterion related validity, the correlation evidence for construct validity should be moderately high, but not too high. Hence, the correlation coefficients observed among the subtest and the full test indicate that the instrument exhibit construct validity.

Cronbach Alpha was used to determine the reliability of the instrument, which yielded a coefficient of 0.88. According to Nachmias and Nachmias (2009), positive coefficient of over 0.7 is considered to be reliable, and the higher the coefficient the more reliable the instruments. Therefore, with a coefficient of 0.882, the instrument was considered reliable for use in appraising teachers' instructional effectiveness by their students. This result is similar to that of Akram and Zepeda (2015), who conducted a study to develop and validate a Self-assessment Instrument for Teacher Evaluation (SITE II) based on five National Professional Standards for Teachers developed by the Ministry of Education, Pakistan: subject matter knowledge, instructional planning and strategies, assessment, learning environment, and effective communication. The overall reliability of the questionnaire was found high (α=.94), and the instrument was considered reliable for use.

CONCLUSION

Based on the findings of the study, it is concluded that the instrument, Students' Appraisal of Teachers' Instructional Effectiveness is a validated and reliable instrument for use in appraising teachers' instructional effectiveness in secondary schools in Akwa Ibom State.

Recommendations

Based on the findings of the study, the following recommendations were made;

1. School supervisors should make use of the Students' Appraisal of Teachers' Instructional Effectiveness Scale in appraising teachers to get a clear picture of the classroom activities of a particular teacher.
2. School principals should use the SATIES to appraise their teachers from time to time to know areas in which the teacher needs improvement.

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STUDENTS' APPRAISAL OF TEACHERS' INSTRUCTIONAL EFFECTIVENESS SCALE (SATIES)

Name of School: _____

Subject Taught by the Teacher: _____

Gender of Teacher: _____

Class: _____

SECTION B

This is a rating scale consisting of items about your teachers' activities and behaviour in class. There is no right or wrong answer. You are please requested to read each statement and respond on what you know about your teacher. The number rating stands for the following: 1 = rarely, 2 = once in a while, 3 = sometimes, 4 = most of the time, 5 = always. If it doesn't apply, leave it blank. Circle the answer that fit with your experience of this teacher for each item.

S/N	ITEMS	1	2	3	4	5
	LESSON INTRODUCTION					
1	Introduction session of our lesson is always motivating					
2	Teacher use interesting activities to start each class					
3	Teachers' introduction of the lesson promote my alertness in class					
4	Teacher reviews previous lesson					
5	Teacher states the objective of the lesson at the beginning the lesson					
	LESSON PRESENTATION					
6	The teacher asked us to give our own interpretation of concepts					
7	The teacher uses different teaching methods in class					
8	The teacher ask us to come up with our own ideas					
9	The teacher asks whether we understand him/her					
10	The way the teacher teaches challenge me to think					
11	The teacher use audio/visual materials for explanation in class					
12	The teacher uses example to illustrate major point during lesson					
13	The teacher helps me to understand the relevance of the taught material to the real world.					
14	The teacher demonstrates what to do for us to learn					
15	The teacher used to present the lesson in a way that challenges me to think					
16	The teacher uses illustrations and examples that aid my understanding of the subject					
17	The teacher provides activities that make the subject matter meaningful					
18	The teacher teaches us strategies for remembering					
19	Teacher used physical objects for explanation in class					
	COMMUNICATION					
20	The teacher is very audible in class					
21	We struggle to hear our teacher in class					
22	The teacher gesture while talking in class					
23	The teacher notices confusion in our facial expression					
24	The teacher patiently listens to us when it is our turn to talk					

25	The teacher maintain eye contact with me in class					
26	Our teacher use words that we must check the dictionary before we understand					
27	The teacher repeat correct answers for us to note					
	TIME MANAGEMENT					
28	Teacher usually completes his/her lesson on time.					
29	Teacher is usually punctual to the class.					
30	Teacher usually completes his or her lesson before time					
31	The teacher do not miss classes					
32	Teacher uses most of the class period to crack jokes that do not relate to the lesson					
33	Teacher used to complete the scheme of work for the term					
	MOTIVATING STUDENTS					
34	The teacher encourage us to ask questions in class					
35	The teacher rewards us when answering question correctly					
36	I will be happy be happy if the teacher use less of the time allotted for the lesson					
37	My interaction with the teacher encourages me to learn					
38	The teacher makes the class very interesting					
39	I feel sleepy in this class.					
40	The class atmosphere supports my learning.					
41	The way the teacher teaches makes me like the subject					
	TEACHER - STUDENT RELATIONSHIP					
42	The teacher is approachable					
43	The teacher call me by name when talking to me					
44	The teacher is flexible in accommodating for individual student needs					
45	The teacher makes the class comfortable for me to participate in class activities					
46	The teacher is receptive to suggestion from students.					
47	The teacher provides me with the information I needed to seek help					
48	I think the teacher cares about my learning					
49	The teacher knows me by name					
50	The teacher uses instructional materials to aid explanation of the lesson					
51	The teacher helps me when I ask for help					
52	The teacher is fun to be with.					
53	I used to be treated with respect in this class.					
	CLASSROOM MANAGEMENT					
54	Teacher strictly enforces rules					
55	There is polite manner in class					
56	There is quietness in class					
57	Teacher stand on breaking rule is consistent					
58	Teacher properly briefs us on the consequences of breaking rules					
59	Students feel threatened in the class					
60	There is orderliness in class					

61	Rules breakers are strictly punished by the teacher					
62	Class regulations are made clear by the teacher					
	EVALUATING STUDENTS					
63	The teacher does mark me wrong even when my answer was right.					
64	The teacher makes it clear how our work would be evaluated in the subject.					
65	I don't really understand most of the assignments.					
66	The assignments are always different from what is taught in class.					
67	The teacher takes time to explain the assignment when we don't understand it.					
68	The teacher does not mark our assignment.					
69	I used to be satisfied with the time it took for the teacher to return graded materials.					
70	The teacher does not do correction after marking our assignments.					
71	It takes too long for the teacher to mark and return assignments.					
72	The teacher asks questions based on content taught.					
73	The teacher returns homework in a timely manner.					
74	The teacher do give us impromptu test.					
75	The questions are always difficult					
76	The teacher inform us in advance whenever test/exam is coming					
77	The teacher refers any question we asked in the class as an assignment.					
78	The teacher asks questions that call for recall of what was learned					
79	I normally don't understand the assignment given by the teacher					
80	Teacher promptly give answer to incorrect response					