RESEARCH ARTICLE

MATHEMATICS ASSESSMENT SKILL NEEDS OF ECONOMICS TEACHERS FOR EFFECTIVE INSTRUCTIONAL DELIVERY

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ABSTRACT

This study examined mathematics assessment skills needs of Economics teachers for effective instructional delivery in Public secondary schools in South East, Nigeria. The population of the study was 730 with a sample of 258 comprising 47 Mathematics Educators and 211 Economics teachers drawn from public universities and secondary schools in the south East respectively using multistage sampling technique. The research design was descriptive research design. The instrument for data collection was a 53-item researcher developed questionnaire titled: Mathematical Skill Needs of Economics Teachers for Effective Instructional Delivery Questionnaire (MSNETEIDQ). Weighted mean and Improvement Need Index analysis were used to answer the research questions raised for the study while t- test statistic was used to test the hypotheses that guided the study at 0.05 level of significant. The results found out that the mathematics assessment skill needs of Economics teachers for effective Economics instructional delivery include the analytical skills, critical thinking skills, and differentiated instruction skills. Based on the results, it was recommended that school administrations should organize regular training for teachers on the effective use of assessment skill in instructional delivery.

Keywords: Skill needs, economics teachers, mathematical assessment, instructional delivery.

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1.0. INTRODUCTION

Effective implementation of teaching skills creates an avenue for effective instructional delivery of the Economics teachers, as should have been reflected in the performances of students after internal and external examinations. Every instructional delivery aims at making an improvement from the existing results. Economics teachers are expected to carry out effective instructional delivery as it enables Economics concepts to be easily understood by the Economics students. Instructional delivery of Economics in our public secondary schools has not been effective as results by the students after internal and external examinations are poor. The poor instructional delivery of Mathematics concepts in Economics in public secondary schools has led to poor performance of students in Economics especially in internal and external examinations such as General Certificate Examination, National Examination Council, West African Examination Council, Joint Admission Matriculations Board (JAMB) and others. The poor delivery has engaged the concerns and interests of the stakeholders as well as the public.

Following the poor performance of students in Economic, which points to the inadequate delivery of Economic teachers, therefore, this study was aimed at examining the Mathematics skill needs of Economics teachers for effective instructional delivery of Economics in public senior secondary schools. The need to study how Mathematics skill needs can aid Economics teachers in instructional delivery prompted this study. It was yet to gather adequate research evidence to prove that poor Mathematics skills of Economics teachers are the major problems. The above problems notwithstanding, Mathematics skills, appear not to be effectively utilized in the classroom when teaching Economics though little is known about the skills, the problems and solutions. One question relevant to school administrators, have always been how can economics be taught in schools effectively? George (2018), argued that teachers need assessment skills such as critical thinking, analysis skills and differentiated instructional skills to effectively deliver their teaching curriculum.

Assessment skill according to George (2018) is a character of making oneself assessable by all no matter the status or the position. It is believed according to Uzoma (2017) that assessment means weighing or valuing the extent an event has been achieved and the purpose. This means to value and know the next thing to do using educational concepts. Jackson (2020) stated that assessing or valuing the level of progress teaching and learning have been achieved depends on the specific objectives of the contents delivered. George (2018) reported the ugly part of a teacher is the habit of not assessing the learners after teaching. To this end, assessment skill is a

skill a Mathematics teacher possesses which enables him or her to ascertain the level of achievement or progress he or she has made or impacting on the students or learners under his or her care. Uzoma (2017) identified two ways a Mathematics teacher can be seen as having assessment skill as allowing himself or herself to be assessed and ability to assess the learners always after impactful teaching. Good implementation of assessment skills encourages analysis skills of students.

Analysis skill according to Joseph (2021), is the ability to break down materials into component parts and understand its organizational structure. The emphasis is on the ability to breakdown material and comprehend the stated structure. The ability of breaking down concepts, content and information to the understanding of the learners should be observed in every Mathematics teacher. He believed that this is a serious problem and needs to be investigated the gap the present study hopes to cover or bridge. George (2018) opined that analysis skill requires the ability to harmonize the understanding of different part separated from a whole or material. Uzoma (2017) identified analysis skill as breakdown diagrammatize, differentiate, distinguish, illustrate, outline and point out or separate. An Economics teacher with analysis skill should be able to separate positive and negative numbers from this arrangement: 3 ,2-4 – 10, 8 – 9, 3, 4, 8, 8 as positive numbers are 8, 3, 2 and as negative numbers are 10, 5, 4 and 9. Egbo (2018) believed that analysis skill can be applied in Economics on the following concepts: cost analysis, plotting of graph, the law of diminishing returns and others.

Critical thinking is an individual skill that allows rational thinking which will lead into achieving the stated goals. Saas (2017), is of the opinion that a good Mathematics teacher can sometimes use his reasoning ability to detect the next action without following already existing protocols. Uzoma (2017), reported that consultations, references and more researches create avenue for knowledge increase but in some situations these factors might be irrelevant. Hence, the need for critical thinking that will lead to the immediate solution at the moment. He further stated that there are Mathematics topics during teaching that negates the rules and the teacher through critical thinking discovers the root of the problems. Eze (2017) reported the ability to think deeply as Economics teacher creates an avenue for mastery of perceived Mathematics concepts in Economics paving way for effective instructional delivery. Daniel (2020) opined that critical analysis or thinking means ability to sort out the easiest possible solutions for an individual to create behavior that encourages critical approach to issues and harmonizes challenging factors that lead to effective instructional delivery of Mathematics concepts during classroom activities.

Differentiated instructional skill means to recognize, separate, breakdown and recognize the structure. It is a skill Economics teachers are expected to possess for effective instructional delivery. Saas (2017) described differentiated instructions as the ability of a teacher to state clearly the objectives or aims of a packaged instruction and differentiate them in stages. He maintained that differentiated instruction skill determines the level of the intellectual capacity of the mathematics teacher. Akpan (2021) reported that a Mathematics teacher stands in a better position to state clearly the different functions of x and y in an equation outlining the categorical level of each other. Differentiated instruction skill as one of the mathematics skills requirement of Economics teachers and this means the ability to differentiate instructional delivery or packages tailored for learning. Cadi (2018) emphasized that differentiated instruction skill will reshape the Economics teachers for proper consciousness of the learners, on the learning stages of instructional packages. Allowing pre-evaluation and proper evaluation of teaching and learning activities within a defined system. Stating that pre-evaluation allows the teacher to ascertain the instructional packages to be delivered. The study at hand stands to assess Mathematics differentiated instruction skill as one of the skills that encourages Economics teachers for effective instructional delivery in public secondary schools in South East Nigeria. Effective communicative skill of the mathematics teachers is an important pace to performance of students.

In order to fill the identified academic gap, the purpose of this study is to examine how Mathematics assessment skills needs of Economics teachers will influence effective instructional delivery of Economics in public secondary schools in South East Nigeria, with these specific objectives:

- Examine the critical thinking skill needs of Economics teachers for effective instructional delivery of Economics in public secondary schools.

- Determine the analysis skill needs of Economics teachers for effective instructional delivery of Economics in public secondary schools.

- Ascertain the differentiated instructional skill needs of Economics teachers for effective instructional delivery of Economics in public secondary schools.

2.0. CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

ASSESSMENT SKILLS

Assessment skill is one of the skills a Mathematics teacher possesses as a result of trainings he/she has undergone, the skills are: work sample test skill, cognitive ability skill, personality test skill, interview skill and combination approach skill (Avilar, 2021). He further opined that assessment is an evaluation of individual ability to perform a specific task or set of tasks in Mathematics. It is an evaluation of skills specific for a particular job. The assessment captures the level of proficiency for each skill. He further stated that assessment is the systematic basis for making inferences about learning and development of students. It is the process of defining, selecting, designing, collecting, analyzing, interpreting and using the information to increase students learning and development. Sosas (2016) outlined that assessment is an inference that draws closer the evaluation of classroom activities, task and programmed activities for the purpose of ascertaining the level it has progressed. Assessment, he further explained enables teachers to implement action reports emanating from the assessment. Every educational activity requires effective assessment as it will be compared with actions already performed in the classroom. Assessment in education setting according to Kindness (2018) assesses three categories of people they are the management, teachers and students who are active participants during and after classroom activities. Assessment is a process of interpreting, analyzing using information obtained to define actions to be taken after total evaluation focusing on the weakness and strong factors discovered. However, Avilar (2021) stated that assessment is a skill that teachers should possess for effective instructional delivery. Hence, not even all the qualified teachers possess or talented in using assessment skill. Assessment skill is a habit that teachers possess which reflect positively during and after classroom activities through total evaluation of individuals abilities to carry out already learnt materials.

Sofa (2020) believed that the acquisition of assessment skill engineers and defines the instructional objectives or specific objectives aimed at achieving classroom objectives. That is to impart into students the desired attitudes required of them to function effectively in the society. Assessment skill according to Geoffrey (2017) allows teachers place the students according to their academic achievement. A teacher assesses the students per topic, end of term and end of session while the management assesses the students-teacher interactions using evaluation reports per students. Geoffrey believed that an effective teacher who assesses students per term and session should possess assessment skill especially in teaching Chemistry, Physics, Mathematics, Basic technology, Economics and ICT. More attention on Mathematics as the teacher assessment skill allows the students to be familiar with core mathematics concepts.

Assessment skill is one of the Mathematics skills necessary for Economics teachers to possess. Hence, the need to assess the Mathematics assessment skill needs of Economics teachers for effective instructional delivery in public secondary schools.

Critical Thinking Skill

Critical Thinking Skill and Teachers Effective Instructional Delivery is crucial skill that should be considered. Val (2018), identified critical thinking as Mathematics skill applied by Mathematics teachers in solving difficult concept such as angle, probability and sets, the skills are: observation skill, analysis skill, communication skill, inference skill and problem-solving skill. Moses (2017) stated that critical thinking is the analysis of available facts, evidence, observations and arguments. This is to form a judgment by the application of rational, skeptical, unbiased analysis and evaluation. Moses believed that it is a self-guided, self-disciplined, thinking which attempts to reason at the highest level of quality in fair minded way. Critical thinking is a Mathematics skill that postulates facts according to its merits. It enhances the ability to make rational decisions that will create positive attempts aim at achieving the desired results. Oge (2018) stated that critical thinking is a deep consideration of available facts through rational reasoning that helps an individual to arrive at a befitting decisions or final decisions capable of making a big difference from the present situation.

It is a skill that analyses facts of the present situation. It is a skill that analyses facts without bias or statement but purely on merits. It is a skill that defines set of human beings as rational and reasonable during and after instructional delivery. Teachers always apply critical thinking about the suitable approach, skill to apply especially on critical issues or topics in Economics and Mathematics considering learners needs and interest. Val (2018), stated that critical thinking defines the effectiveness of the teachers in solving classroom challenges as the teachers vent into self-guided approaches in thinking and attempts to reason at the highest level of result. This skill, critical thinking leads to positive judgment, unbiased analysis as evaluation that aimed at solving educational problems.

Analysis Skills

Analysis Skill and Teacher Effective Instructional Delivery consider topic or content by step-to-step analysis. Moses (2017) identified analysis skill as a primary requirement for Mathematics teachers especially when they are teaching statistics concepts, the skills are: identifying problem skill, investigating skill, logical solution skill, collecting of data skill, synthetizing of information

skill. According to Oni (2019), analysis skill means an intellectual approach. That is, the ability to breakdown instruction packages into divisions according to its structure and understandings in its organizational structure. Favor (2019) defined analysis skill as the ability to deconstruct information in smaller categories in order to draw conclusions. It includes logical reasoning, critical thinking, communications, and research. Data analysis skill is a skill that allows information and data to be deconstructed in smaller parts and structure without recognition difficulties. Analysis is a holistic inference of materials, data and processed information into relevant sections and ability to extract them easily. John (2021) stated that analysis means an act of separating, differentiating and distinguish facts and able to identify and outline their structure. Distinguish simply means that analysis is an ability to recognize facts, its source, origin, relevant, parts and nature of it application. Moses (2021) stated that analysis draws the discrimination, relationship and subdivide of information extensively in its educational important and having willed to retrieve in line with educational goal. Analysis skill according to kindness (2018) is an ability of a teacher to deconstruct available facts through critical thinking. Analysis skill promotes cleverness in interpreting the necessary factors available to be worked upon. There are topics in Mathematics and Economics that need critical analysis and require analysis for effective instructional delivery in secondary schools. Kindness further itemized the topics as statistics equations, percentages, set, probability and quadratic functions. Some topics are found in Economics as Mathematics concepts. Hence, the need to assess Mathematics analysis skill needs of Economics teachers for effective instructional delivery of Economics in public secondary schools.

Differentiated Instructional Skill

Differentiated Instruction Skill and Teachers Effective Instructional Delivery are factors that an Economics teacher must consider during instructional delivery. Dills (2022) identified differentiated instruction skill as a mathematics skill utilized when the teacher separates the weak and intelligent students using topics, the skills are, teaching option skills, providing multiple material skills, utilizing multiple material skill, student assessment skill and teaching to suit multiple forms of intelligent skill. According to Carol (2019) differentiated instruction means tailoring instructions into parts to meet up individual needs. This is where the teachers' differentiated contents, process, assess, flexible grouping to make a successful impact to instruction. Differentiated instruction is the process of tailoring lessons to make each topic meet individual interests and needs. The strength or technique in teaching using differentiated instruction skill leads to effective instructional delivery. Linson (2018) described differentiated

instruction skill as factoring student's individual learning styles and levels of readiness first before designing a lesson. In a differentiated classroom, the teacher closely assesses and monitors skills, knowledge levels, and interests to determine effective ways for all students to be realigned according to their assessment level. Differentiated instruction is concerned with students grouping based on similar learning styles rather than the ability or level of understanding which promotes collaboration through common work. Mathematics concepts according to Moses (2021) are not taught without in-depth consideration of the learners needs and differentiated instruction skill is an important skill that creates room if properly used for effective instructional delivery. Hence, the need to assess its relevant to Economics teachers

Effective Delivery

Effective Instructional Delivery According to Kelvin (2021) instructional delivery refers to the interaction among the students, the teacher, the content, the knowledge, the skills, the disposition, the intellectual quotient of the students and collaboration of students that will be needed for teaching and learning, the collaboration of management, parents and community. Val (2018) opined that effective instructional delivery refers to the ability of the teacher to build an existing knowledge, differentiated instruction and incorporate skills into lessons. Val defined instructional delivery as the interaction between a teacher, a student, content and specific knowledge and skills for carrying out classroom activities. Instructional competencies are essential practices that teachers must master or focus effectively while instructing students to maximize knowledge and skill acquisition knowledge. According to Ola (2018), it is described as an act of performing or delivering of lesson content that is delivered in person in classroom meeting times as planned. It is believed that an instruction in education means teaching and it is an act of impacting knowledge from the teacher to the students. He identified the gap between the students and the teacher as the interaction that exists as a result of content of the materials available. Greg (2016) stated that instructing relates to all the factors that will aid teaching and learning. Its effects specifically considering the interaction effects of students and textbook, library, laboratory and classroom conduciveness are to be considered. A student who has enough learning materials stands in a better position to understand the teachers' scheme of work. The interaction effect between teacher's skill and assimilation skill of students and assessing its arrangement outside and within the environment are important. Frank (2018) maintained that the specific objectives of lessons if met defined the level of effectiveness of the instructional delivery. Pointing that not all lessons meet or achieve the stated goals or objectives as it bothers on why instructional delivery lacks effectiveness. Kindness (2018) suggested that assessing the

effectiveness of the lessons demand creating awareness what it means to achieve effective instructional delivery during and after classroom activities. She identified the features of effective instructional delivery as academic high achievement of students, management and students' cooperation, achieving classroom specific firm and control of the classroom management. Greg (2016) also pointed out that for instructional delivery to be effective, to be perfectly carried out; teaching and learning must be planned. Hence, the need to assess the Mathematics skill needs of Economics teachers for effective instructional delivery of public secondary schools.

Mathematics Assessment Skills and Effective Delivery of Economics Teachers

Effiong (2016) examined assessment skill needs of Mathematics teachers of lkot Ekpene axis in Akwa Ibom State in five public secondary schools. The study was guided by three research questions and three hypotheses at 0.05 level of significance. The study made use of descriptive survey research design. The population of the study was 36 Mathematics teachers which comprised of 10 senior secondary schools and 16 junior secondary schools' Mathematics teachers within lkot Ekpene. The instrument for data collection was the researcher designed instrument title "Assessment Skill Needs of Mathematics Teachers. The instrument was face validated by three experts. The reliability of the instrument was 81.08. The research questions were answered using mean and standard deviation while the null hypotheses were tested using t-test statistics. The result revealed that these skills after classroom evaluation, topic evaluation, and termly evaluation or assessment it would lead to effective instructional delivery of Mathematics concepts in Akwa Ibom State. The topic was assessment skill needs delivery of Mathematics teachers for effective delivery of Mathematics objectives. In the same direction, while the present study is on the Mathematics skill needs of Economics teachers for effective instructional delivery in public secondary schools in South East Nigeria. The dissimilarities are on the scope, objectives and contents.

Powerful (2016) carried out research to evaluate analysis skill requirement of Biology teachers in teaching and learning of Biology concepts in Senior Secondary Schools in Free Town. Five research questions were considered for this study. The population was 202. The entire population answered the questionnaire. Ten item skill requirements was developed for data collection base on the literature reviewed. The questionnaire was validated by two experts. The reliability coefficient of 0.73 was established. Findings revealed that Biology teachers require analysis skills like; reading and understanding, interpreting effectively, reasoning ability, identifying

causes and drawing conclusions from objects. The finding further showed that if these skills are effectively applied, it would enhance effective delivery of Biology concepts.

The study recommended amongst others annual training of Biology teachers on analysis skill perfection. This study is absolutely different from the present study in terms of the population scope, content and subject. The topic was analysis skill requirements of Biology concepts in senior secondary schools in free town. While the present study is our assessment of Mathematics skill needs of Economics teachers for effectives instructional delivery in public secondary school in South East of Nigeria. The similarities are on the analysis skill requirements, which is one of the purposes of the present study.

Kindness (2018) carried out a study on different skill applications of instruction in hospital management and nursing trainings in Rivers State. The study was of great important for effective administration of drugs to patients, mode of treatment, how to attend to patients and handling of emergencies. In order to enhance the students-nursing teaching, the study had a total population of 69 senior medical personnel from six different hospitals in Rivers State. The differentiated institution skill reviewed were identification ability, differentiating ability, grading ability, sensing ability, application ability and minimizing error ability. The reliability coefficient of 0.74 was established. Mean and standard deviation analyses were used for analysis. The study revealed that the differentiated instructional skills if well applied would perfect the nursing profession in dealing with different ailment and professionalism in services. This would also increase effective delivery services since the nurses are the engine room of the hospitals. The research has some attributes of the present study, the differentiated instruction skills and effective delivery services are the major identities. However, the major dissimilarities are on the study scope and motive. The motive was to improve nursing services while the present is Mathematics skill needs of Economics teachers for effective instructional delivery in public secondary schools in South East Nigeria.

3.0. METHODOLOGY

The study used descriptive survey design. Descriptive survey is a form of planned collection of data from a well-articulated sample of the large population for the purpose of critically analyzing the relationship between variables (Ogunode, 2022). The area of the study was South East Nigeria, a geopolitical area that is made up of five states. The South East Nigerians are the Igbo speaking ethnic group. The states are Abia, Anambra, Ebonyi, Enugu and Imo. The population of the study was 730 respondents. This comprised 666 Economics teachers in the public secondary

schools in the South East and 64 Mathematics educators in the public universities in the South East. The choice of these two sets of respondents was because Economics teachers were those who needed the skills whereas the mathematics educators already possess those skills as they teach graduate teachers of mathematics at secondary school levels.

The sample for the study was 258 respondents which comprised 211 Economics teachers and 47 mathematics educators drawn from three out of five States in the South East. The sample was drawn using multistage sampling. In the first stage, simple random sampling technique was used to select three out of the five States in the South East. The research instrument used for data collection was questionnaire. This was prepared by the researcher and titled "Mathematics Skill Needs of Economics Teachers for Effective Instructional Delivery Questionnaire" (MSNTEIMDQ). The questionnaires consisted of 53 items respectively which would be used to edict information from the respondents. The instrument was structured along the four-point item scale; Very Highly Needed (VHN), Highly Needed (HN), Slightly Needed (SN), Not Needed (NN). The research questions were answered using weighted mean and improvement need index. This was obtained by subtracting the mean performance (XP) from the mean needed (Xn) in order to get the performance gap (Ng) (performance gap= Xn –Xp). The skill was needed when the performance gap value obtained was negative. The hypotheses were tested using t-test statistic. The null hypotheses were not rejected when the probability values (P-value) were greater than 0.05 alpha value, otherwise, the null hypotheses were rejected.

4.0. ANALYSIS RESULTS AND DISCUSSIONS

The analysis was done and computed from the responses obtained from the field study by the respondents. The mean and t-test results were employed to give answers to the formulated hypotheses.

Research Question 1:

The mean ratings on the critical thinking skill needs of Economics teachers for effective instructional delivery in public secondary schools?

The results in Table 1 showed the performance gap values for all the items as rated by Economics teachers and Mathematics teachers on the critical thinking skill needs of Economics teachers for effective instructional delivery in public secondary schools South-east Nigeria. The results showed that the performance gap mean values for all the items (24-28) ranged from 0.13

12

to 0.74 which were positive indicating needed skills. This shows that Economics teachers need critical thinking skills to analyze information correctly, identify evaluation evidence easily, apply critical thinking in solving problems and a well show deep reflection in decision making among others. The performance gap cluster mean value of 0.36 which is also positive, indicated that Economics teachers need the critical thinking skill for effective Economics instructional delivery in public secondary schools.

Table 1: **Mean of Ratings of Economics teachers and Mathematics Educators on the Critical Thinking skill needs of Economics teachers for effective Economics instructional delivery in public secondary schools South-east Nigeria (N=239)**

S/N	Critical thinking skills for effective instructional delivery involve ability to:	Xn	Xp	Xn-Xp [Ng]	Remarks
1	Analyze information correctly	3.65	3.43	0.22	SKN
2	Identify evaluation evidence easily	3.63	3.50	0.13	SKN
3	identify biases	3.60	3.45	0.15	SKNN
4	Solve difficult problems	3.83	3.30	0.53	SKN
5	Apply critical thinking in solving problems	3.74	3.00	0.74	SKN
6	show deep reflection in decision making	3.60	3.19	0.41	SKN
	Cluster Mean	**3.68**	**3.31**	**0.36**	**SKN**

Xn= Mean of Needed, Xp= Mean of Performance, Ng=Performance Gap, SKN=Skill Needed, SKNN=Skill Not Needed
Source: Authors' Analysis (2025).

Hypothesis 1: There is no significant difference between the mean ratings of Economics teachers and Mathematics Educators on the critical thinking skill needs of Economics teachers for effective instructional delivery in public secondary schools.

Table 2: t-test Analysis of mean ratings of Economics teachers and Mathematics Educators on the Critical thinking skill needs of Economics teachers for effective Economics instructional delivery

Status	N	X	Sd	df	t-cal.	P-value	Remark
Ecn. Teach.	196	3.68	0.76				
				237	3.03	0.069	NS
Mth. Edu.	43	3.31	0.71				

Ecn. Teach. =Economics Teachers, Mth. Edu. = Mathematics Educators
Source: Authors' Analysis (2025).

13

Data in Table 2 showed a significant P-value of 0.069 which is greater than the alpha value of 0.05. Since the P-value of 0.069 is greater than the alpha value of 0.05, the hypothesis of no significant difference was not rejected. Therefore, there is no significant difference between the mean responses of Economics teachers and Mathematics Educators on the critical thinking skill needs of Economics teachers for effective instructional delivery in public secondary schools South-east Nigeria.

Research Question 2: What are mean ratings on the analytical skill needs of Economics teachers for effective instructional delivery in public secondary schools?

Table 3: **Mean of Ratings of Economics teachers and Mathematics Educators on the Analytical skill needs of Economics teachers for effective Economics instructional delivery in public secondary schools South-east Nigeria**

S/N	Analytical skills for effective instructional delivery involve ability to:	Xn	Xp	Xn-Xp [Ng]	Remarks
7	Classify information or data appropriately	3.63	3.22	0.41	SKN
8	Set or ask questions that measure analytical skill	3.61	3.29	0.32	SKN
9	show mastery of principle or theories of learning and teaching	3.67	3.25	0.42	SKN
10	Differentiate data made available	3.65	3.21	0.44	SKN
11	Appraise class performance or situation	3.62	3.26	0.36	SKN
12	Break information into components before drawing conclusion	3.88	3.27	0.61	SKN
	Cluster mean	**3.68**	**3.25**	**0.43**	**SKN**

Xn= Mean of Needed, Xp= Mean of Performance, Ng=Performance Gap, SKN=Skill Needed, SKNN=Skill Not Needed

The results in Table 3 revealed that the mean performance gap values for all the items as rated by Economics teachers and Mathematics teachers on the analytical skill needs of Economics teachers for effective instructional delivery in public secondary schools South-east Nigeria. The results showed that the performance gap mean values for all the items (18-23) ranged from 0.41 to 0.61 which were positive indicating needed skills. This indicates that Economics teachers need analytical skills to classify information or data appropriately, Set or ask questions that measure analytical skill, show mastery of principle or theories of learning and teaching as well as to break information into components before drawing conclusion among others. The performance gap cluster mean value of 0.43 which is equally positive, indicated that Economics teachers need the

analytical skill for effective instructional delivery in public secondary schools South-east Nigeria.

Hypothesis 2

There is no significant difference between the mean ratings of Economics teachers and Mathematics Educators on the analytical skill needs of Economics teachers for effective instructional delivery in public secondary schools South-east Nigeria.

Table 4: **t-test Analysis of mean ratings of Economics teachers and Mathematics Educators on the Analytical skill needs of Economics teachers for effective Economics instructional delivery**

Status	N	X	Sd	df	t-cal.	p-value	Remark
Ecn. Teach.	196	3.68	0.72				
				237	3.52	0.302	NS
Mth. Edu.	43	3.25	0.73				

Ecn.Teach. = Economics Teachers, Mth. Edu. = Mathematics Educators

Data in Table 4 indicated a significant P-value of 0.302 which is greater than the alpha value of 0.05. Since the P-value of 0.302 is greater than the alpha value of 0.05, the hypothesis of no significant difference was not rejected. Therefore, there is no significant difference between the mean responses of Economics teachers and Mathematics Educators on the analytical skill needs of Economics teachers for effective instructional delivery in public secondary schools South-east Nigeria.

Research Question 3

What are mean ratings on the differentiated instruction skill needs of Economics teachers for

effective instructional delivery in public secondary schools?

15

Table 5: **Mean of Ratings of Economics Teachers and Mathematics Educators on the Differentiated instruction skill needs of Economics teachers for effective instructional delivery in public secondary schools South-east Nigeria (N=239)**

S/N	Differentiated instruction skills for effective instructional delivery involve ability to:	Xn	Xp	Xn-Xp [Ng]	Remarks
13	Carry out centered learning	3.75	2.88	0.87	SKN
14	Create a flexible group for learning setting	3.66	2.94	0.72	SKN
15	Use multiple materials in classroom	3.70	2.80	0.90	SKN
16	Implement technology integration in learning	3.63	3.81	-0.81	SKNN
17	articulate good formative and summative evaluation	3.67	2.83	0.84	SKN
18	Reorganize methods to suit a particular learning situation	3.78	2.88	0.90	SKN
	Cluster Mean	**3.70**	**3.02**	**0.84**	**SKN**

Xn= Mean of Needed, Xp= Mean of Performance, Ng=Performance Gap, SKN=Skill Needed, SKNN=Skill Not Needed

The results in Table 5 indicated the performance gap values for all the items as rated by Economics teachers and Mathematics teachers on the differentiated instruction skill needs of Economics teachers for effective instructional delivery in public secondary schools in the South-east Nigeria. The results showed that the performance gap mean (Ng) values for all the items except item 39, ranged from 0.72 to 0.90 which were positive indicating needed skills. This implies that Economics teachers need differentiated instruction skills to carry out centered learning, create a flexible group for learning setting, use multiple materials in classroom and articulate good formative and summative evaluation among others. Item 39 had a performance gap mean (Ng) value of -0.81 which is negative indicating that Economics teachers do not need to implement technology integration in learning as a differentiated instruction skills. The performance gap cluster mean value of 0.84 which is positive, indicated that Economics teachers need the differentiated instruction skills for effective Economics instructional delivery in public secondary schools.

Hypothesis 3

There is no significant difference between the mean ratings of Economics teachers and Mathematics Educators on the differentiated instruction skill needs of Economics teachers for effective instructional delivery in public secondary schools.

Table 6: t-test Analysis of mean ratings Economics teachers and Mathematics Educators on the Differentiated Instruction skill needs of Economics teachers for effective Economics instructional delivery

Status	N	X	Sd	df	t-cal.	P-value	Remark
Ecn. Teach.	196	3.70	0.81				
				237	5.07	0.099	NS
Mth. Edu.	43	3.02	0.79				

Ecn. Teach. =Economics Teachers, Mth. Edu. = Mathematics Educators

The results in Table 6 revealed a significant P-value of 0.099 which is greater than the alpha value of 0.05. Since the P-value of 0.099 is greater than the alpha value of 0.05, the hypothesis of no significant difference was not rejected. Therefore, there is no significant difference between the mean responses of Economics teachers and Mathematics Educators on the differentiated instruction skill needs of Economics teachers for effective instructional delivery in public secondary schools South-east Nigeria.

The results indicated that Economics teachers need analytical skills to: classify information or data appropriately, Set or ask questions that measure analytical skill, show mastery of principle or theories of learning and teaching as well as to break information into components before drawing conclusion among others. This means that Economics teachers need analytical skills to teach Economics very effectively. The results agreed with Moses (2021) who identified analysis skill as a primary requirement for mathematics teachers especially when they are teaching. The results equally supported Ngozi (2018) who found from a similar study that analysis kill is needed by every teacher to be able to teach very well. The result also supported Obadu (2018) who found from a similar study that analysis skill is one of the skill acquisition needs of Economics teachers for effective instructional delivery. There is no doubt that Economics like Mathematics involve the ability of a teacher to deconstruct available facts (Kindness, 2018) which require high order skills like the analytical skills to accompanied.

It was found from the study that Economics teachers need critical thinking skills to: analyze information correctly, identify evaluation evidence easily, apply critical thinking in solving problems and a well show deep reflection in decision making among others. This implies that Economics teachers need critical thinking skills in order to achieve effective instructional effectiveness. The result supported the results from the earlier study by Gina (2018) who carried out a similar study and found that critical thinking skill is one of the motivating factors for

effective instructional delivery. The result equally collaborated Ngozi (2018) who in a similar study discovered that critical thinking skill needs of Mathematics teachers for effective instructional delivery. The result is not surprising as there is no doubt that every school subject that involves calculation, needs critical thinking. According to Val (2018), critical thinking is a mathematical skill which every teacher that teaches mathematics and mathematics related subjects must adopt to attain effective instructional delivery. Economics as a school subject has so many components of mathematics and statistics as its contents which should as well require the teachers that teach them to possess critical thinking skill to ensure its effective delivery.

5.0. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

This study examined mathematics assessment skill needs of Economics teachers for effective instructional delivery in public secondary schools in South east Nigeria. Based on the findings, it was concluded that the mathematic assessment skill needs of Economics teachers for effective Economics instructional delivery include the analytical skills, critical thinking skills, and differentiated instruction skills.

5.2. Recommendations

Based on the findings and conclusions of the study, the following recommendations were made:

- School administrations should organize regular training for teachers on the effective use of critical thinking skills in instructional delivery.

- Government through the ministry of Education should organize workshops for teachers to enable them acquire the modern differentiated instructional skills which they can use during instructional delivery.

Competing Interest

The authors have declared that no competing interest exist in the paper.

18

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20

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