SENIOR SECONDARY SCHOOL STUDENTS' PERCEPTION OF MATHEMATICS TEACHERS' PEDAGOGICAL CONTENT KNOWLEDGE AND ASSESSMENT COMPETENCY

Osakuade Joseph Oluwatayo (Ph.D)
Department of Guidance and Counselling
Faculty of Education
AdekunleAjasin University, Akungba-Akoko, Ondo State, Nigeria
Osakuade_tayo@yahoo.co.uk
+2348067394114
&
Fakinlede, Gabriel Olugbenga (Ph.D)
Planning, Research and Statistics Department
Ondo State Ministry of Education, Science and Technology, Akure
olufakinlede@gmail.com
+2348139118810

Abstract

This study investigated the perceptions of senior secondary schools' students on their mathematics teachers` pedagogical content knowledge and assessment competency. The study employed descriptive research design of the survey type. The population consisted of entire senior secondary school students in Ondo state, Nigeria. Multistage and stratified random sampling techniques were used to choose a sample of 900 students. A questionnaire was developed and validated by the researcher's to gather data. The questionnaire consists of 40 items. Students were asked to rate the questionnaire on a 4-point likert scale. Negative statements were reversed during collation. Descriptive statistics was used to answer two research questions raised while one way analysis of variance (ANOVA) and t-test statistics were used to test the four hypotheses generated. Findings showed that:(1) Mathematics teachers in Ondo state senior secondary schools were rated high in their pedagogical content knowledge by their students while teachers were rated low in their assessment competency (2) There is a significant difference in the class ratings of mathematics teachers` pedagogical content knowledge and assessment competency (3) There is no significant gender difference on the students' ratings of their mathematics teachers' pedagogical content knowledge but there is a significant gender difference on the ratings of mathematics teachers' assessment competency. It is recommended that in-service training and seminars should be organized for senior secondary school mathematics teachers to improve on their assessment practices.

Keywords: Perception, Pedagogical content knowledge, Assessment competency

Introduction

The importance of mathematics to the growth and development of mankind is a universally held assumption. Mathematics is a fundamental subject which functions as a basic index for understanding and

mastering of various aspects of science as well as the complexity of modern technology. Emphasizing the importance of mathematics to the society, Igbokwe (2003) highlighted the linkages of mathematics to science and technology and contends that without mathematics there will be no science and without science there will be no technology and without technology there will be no modern society. Having realized the laudable objectives of mathematics to national development, its learning is made compulsory both at the primary and secondary levels in Nigeria. Besides, it is also made a pre-requisite for the learning of social, management, and pure science courses in tertiary institutions. The perennial decline in the performance of students in mathematics at senior school certificate examination (SSCE) in recent time has been an issue of concern to all the stakeholders in education. A 26-year exploratory survey of students' performance in Mathematics in Nigeria as shown in Table 1 is a clear testimony.

Table 1: Trends of students' performance in WASSCE Mathematics in Nigeria

Year	% pass		Year	%pass
1991	11.00		2004	58.80
1992	21.90		2005	35.55
1993	10.90		2006	39.94
1994	16.10		2007	15.56
1995	16.50		2008	23.00
1996	10.00		2009	31.00
1997	7.70		2010	33.55
1998	11.10		2011	38.93
1999	9.00		2012	49.00
2000	32.80		2013	36.00
2001	41.60		2014	31.30
2002	15.00		2015	34.18
2003	45.80		2016	36.68
			Mean %	27.31%

Source: Test Development Division, WAEC, Lagos as cited in Zalmon & Wonu, 2017.

From Table 1, for the period of 26 years, students in Nigeria performed below average in SSCE Mathematics except in 2004.Over the years, investigations of the

factors that affected students' performance in mathematics revealed that teachers are the major causes of poor performance of students in mathematics (Alonge, 2004; Air, 2007; Schmidt, Houang & Cogan, 2002: Opolot-Okurut et al., 2008). A study was conducted by Opolot-Okurut et al. (2008) on the factors that hinder pupils' opportunity to learn mathematics in primary schools. Findings revealed that 83% of the factors that hinder mathematics learning are teachers-related factor which include poor teaching method, lack of teaching experience, teachers weak academic background,poor teachers attitude towards mathematics and lack of teachers professional development. The poor performance of students in mathematics to Abimbade (1996) resulted from the fact that most mathematics teachers still communicate knowledge via the conventional talk and chalk method. Evidence shows that most mathematics teachers are deficient in the area of item construction, item sampling, test administration, test scoring and giving reports of the test. Alonge (2004) further confirmed that the test conducted by the teachers do not cover the range of objectives specified in terms of course content and educational objectives.

In view of the above background information, mathematics teachers Pedagogical Content Knowledge (PCK) are integrated parts of effective mathematics instruction. In order to construct mathematics concepts in students' mind, pedagogical knowledge as well as mathematics content knowledge areneeded. Kahan, Cooper and Bethea`s (2003) argued that students would learn more mathematics better if their teachers are knowledgeable in mathematics content and pedagogical practices. Level of mathematics teachers' competency in assessment is also central to students' achievement in mathematics. Accurate assessment of students' academic abilities have been identified as one of the most crucial variables related to effective instructional planning and positive students' learning outcomes (Shinn, as cited in Lazarus, Role, Jackson& Paul, 2012). Martens and Witt(2004) argued that without a valid assessment of students' academic skills, instructional decision making is unlikely to promote academic competence.

Abundant studies exist in Nigeria on teachers' pedagogical and assessment competencies (Asim, Kalu, Idaka & Bassey, 2007; Asim, Ijente & Bassey, 2010). In most of these studies, teachers claimed they were competent both in mathematical pedagogical content knowledge and assessment practices.

Osunde (2008) faulted these self acclaimed competency of mathematics teachers PCK and assessment practices. Osunde posited that most of the teachers in Nigeria primary schools lack adequate skills to develop and validate teachers' made test for use in school-based assessment. This indeed is true for a majority of teachers in secondary schools. Omo-egbekuse, Afemikhe and Imobekhai(2010) in a study on teachers' expressed competency on assessment issues found that many teachers claimed that they are competent on almost all issues raised but experience on the field finds no match between what is claimed and what actually is observed. This is the kind of research with human beings in which findings will yield reliable scores but will lack experimental validity. The scenario in which Lamidi (2012) expressed as a blind man leading another blind man. The methods of assessment and types of tests when not fully understood may not be able to lead expected outcomes for the learners.

Statement of the problem

Some fundamental questions people still ask up to date in Nigeria are why do students who are certified successful by internal examiners (teachers) and get promoted to higher classes fail in external examinations? Or why do many students graduate from school and are unable to exhibit the minimum competencies expected of them by the society? Ehindero & Ajibade (2002) asserted that students have long suspected and speculated that some of their teachers lack necessary pedagogical skills, although teachers claimed competent in PCK in some self expressed measures. The way students perceive the teachers in terms of PCK and assessment strategies may significantly affect the students' academic performance . There is paucity of studies on students evaluation of their mathematics teachers PCK and assessment practices. The few existing studies were only focusing on teachers PCK. Thus, the present study not only aims at filling vacuum, but also sought to provides solutions to these research questions:

1. What is the level of PCK demonstrated by mathematics teachers as rated by the students?
2. What is the level of assessment competency demonstrated by mathematics teachers as rated by the students?
3. Will there be any class/grade influence on students' ratings of their mathematics teachers PCK and assessment practices?
4. Will there be any gender influence on students' ratings of their mathematics

teachers PCK and assessment practices?

Research Hypotheses

The following hypotheses were generated to guide the study.

1. There is no significant difference in the ratings of SSS1, SSS2 and SSS3 students of their mathematics teachers' pedagogical content knowledge.
2. There is no significant difference in the ratings of SSS1, SSS2, and SSS3 students of their mathematics teachers' assessment competency.
3. There is no significant gender difference in students' perception of mathematics teachers' in-depth mathematics pedagogical content knowledge.
4. There is no significant gender difference in students' perceptions of their mathematics teachers' assessment competency.

Literature Review

Many educators and researchers have shown interest in investigating the influence of teachers PCK and assessment competency on students academic performance. Research is as well documented on influence of students assessment of their teachers PCK and assessment competency on their performances.

Teachers' PCK and Students Performance

Teachers' knowledge of the subject matter can be grouped into three according to Eggen and Kauchak(2001) they are; knowledge of content, knowledge of pedagogy and pedagogical content knowledge. Teachers' knowledge (mastery) of subject is highly necessary and essential but not sufficient for effective teaching. For effective teaching to take place, teachers need PCK. PCK is a composite function of content knowledge and knowledge of pedagogy. PCK depends on an understanding of a particular topic and how to explain it in a way that will make sense to the students. Eggen and Kauchak (2001) were of the opinion that where PCK is lacking, teachers commonly paraphrase information in learners textbooks or provide abstracts explanation that are not meaningful to their students. Research findings have shown that there is a positive correlation between teachers PCK and their students' success in learning mathematics (Adediwura & Bada, 2007; Darling-Hammond, 1999; Adedoyin, 2011). In view of this therefore, in order to be an effective mathematics teacher, a teacher needs both a strong

background in mathematics and a thorough understanding of pedagogy.

Teachers' Assessment Practices and Students Performance

Educational assessment is the process of collecting information for making decisions about students, curricular, programs and educational policy(Nitko & Brookhart, 2007).Educational decisions made about students include instructional, selection, placement, classification, guidance and counselling, credentialing and certification(Nitko & Brookhart 2007). Assessment can be said to play a vital role in decision making about students. No wonder, Ojerinde (2009) posited that assessment is at the earth of education as test scores of assessment are used to gauge students' academic strength and weaknesses. Accurate assessment of students' academic ability has been identified as one of the most crucial variables related to effective instructional planning and positive students' learning outcomes (Shinn, 1998).

It has been argued that without a valid assessment of students' academic skills, instructional decision making is unlikely to promote academic competence (Martens & Witt, 2004). Two types of assessment during instruction according to Stiggins et al. (2007) are assessment for learning and assessment of learning. Assessment for learning is student centered and promotes learning while assessment of learning is teacher centered for they are meant to inform the final grade of the students. Positive significant relationship has been established between teachers' assessment competence and students' performance (Bipoupout & Nguefo, 2011). Lazarus et al. (2012) further ascertained that the mathematics teachers in high performing schools often use assessment and evaluation than their colleagues from low performing schools.

Validity and Reliability of Students' Assessment of Teachers

Students' ratings of their teachers have been an area of interest for many researchers (Young, Rush& Shaw, 2009; Kozub, 2010). Some studies have challenged the validity and reliability of students' evaluation of their teachers . They opined that due to many factors affecting students' assessment, students' evaluation of teaching does not adequately measure teaching effectiveness(Weinberg, Hashimoto&Fleisher,2009;Brockx,Spoore n&Mortelmans, 2011). Some factors noted to influence students' ratings of teachers are: students' current and expected grade (Kidd & Latif, 2004; Weinberg et al., 2009); course type (Kozub, 2010& Darby, 2006); gender (Young et al., 2009); class

size (Fourie, 2000); time of the day at which a course is taught (Murkison et al., 2001) and students' levels (Pohlmar, 1975; Aleamoni& Graham, 1974). Some studies indicated positive validity and reliability of students' assessment of teachers (Centra, 2003; Thornton, Adams & Sepehri, 2010). Arubayi as cited in Arubayi(2003) cautioned that although these potential biases of students' ratings exist, their effect on the reliability and validity of students' ratings is very low. These extraneous variables are believed to be unrelated to effective teaching. In view of many studies reported in Arubayi (2003), students' evaluation of instruction is the most valid reliable and defensible tool for faculty appraisal. Arubayi buttressed this claim when he asserted that students observe the teachers in the classroom, other evaluation of instruction or academic programs should be treated with great caution. Arubayi further established that students' evaluation of teachers brings about improvement of instruction and teacher effectiveness.

Methodology

This study is a descriptive research of the survey type. The entire senior secondary school students in Ondo state formed the sample used for the study. Multistage and stratified random sampling techniques were used to select the sample from the population. The first stage involved the stratification of the entire geographical area of Ondo stateinto three senatorial districts (Ondo north, Ondo south, and Ondo central).The second stage involved the random selection of two local government areas in each of the three senatorial districts. The third stage involved the selection of 5 schools from each of the local government area chosen for the research.The fourth stage involved the selection of 30 students from each of the 30 schools selected. The composition of the students involved were selected using stratified random sampling technique(10 SSS1, 10 SSS2, 10 SSS3). While in terms of gender, 15 of the students were male and 15 were female from each of the schools.

A questionnaire containing 20 statements on mathematics teachers' pedagogical content knowledge and 20 statements on mathematics teachers' assessment skills was developed and administered on the 900 students. The students were asked to rate the statements on a four point likert scale on how they perceive their mathematics teachers' pedagogical content knowledge and assessment skills. The questionnaire consisted of two sections. Section A deals with students' demographic information while section B consisted of 40 items on how they perceive

their mathematics teachers` pedagogical content knowledge and assessment skills. The developed questionnaire was validated by two colleagues in the area of test and measurement and pilot tested on 20 students that were not part of this study. A Cronbach alpha analysis of the reliability of the questionnaire was found to be 0.873. After the initial validation of the questionnaire the questionnaire was then administered on the sampled students. The students were asked to rate their mathematics teachers' pedagogical content knowledge and assessment skills. The data collected were analyzed using both descriptive and inferential statistics. Specifically, frequency counts, mean and standard deviation were used to answer the research questions, while Analysis of Variance (ANOVA)and t-test statistics were used to test the four hypotheses generated. All the hypotheses were tested at 0.05 level of significance. In scoring of the questionnaire items, a tick in Strongly agree is 4 points, Agree is 3 points, Disagree is 2 points and Strongly disagree is 1 point. In case of negatively worded items, the scoring procedures were reversed.

Results

Research Question 1: How do secondary school students perceive their mathematics teachers' in-depth pedagogical content knowledge?

Table 2: Students' perception of their mathematics teachers' pedagogical content knowledge.

SN	STATEMENTS Our mathematics teacher	SA	A	D	SD	$\overline{X}$	SD	REMARK
1	Shows good knowledge of the subject	345	525	15	15	3.33	0.60	Knowledge
2	Tries all possible means to make difficult topics simpler to the students	300	465	75	60	3.12	0.83	Knowledge
3	Teaches the students regularly	525	330	15	30	3.50	0.70	Knowledge
4	Shows interest in imparting mathematical knowledge to the students	335	445	75	45	3.19	12.8	Knowledge
5	Makes mathematics lesson interesting and enjoyable	300	480	90	30	3.17	0.74	Knowledge
6	Makes lesson students' centered	285	405	135	75	3.0	0.90	Knowledge
7	Spends extra period in the coaching of students	270	255	210	165	2.73	1.09	Knowledge
8	Explains mathematical concepts clearly	360	345	120	75	3.12	0.93	Knowledge
9	Gives detailed examples in the	330	405	135	30	3.21	0.82	Knowledge

	class							
10	Uses concrete objects to demonstrate mathematical ideas	150	270	150	330	2.30	1.13	No knowledge
11	Motivates students to perform well in Mathematics	345	375	105	75	3.13	0.92	Knowledge
12	Allows students to take part in solving Problems in the class	315	420	60	105	3.12	0.95	Knowledge
13	Explains difficult topics very clearly	405	315	120	60	3.22	0.91	Knowledge
14	Uses pictures/charts/tables to show mathematical ideas	330	405	120	45	3.11	0.83	Knowledge
15	Asks many questions to aid students' Understanding	270	285	225	120	2.78	1.03	Knowledge
16	Takes note of students that are not around during mathematics lesson	150	300	285	165	2.48	0.98	No Knowledge
17	Dictates mathematics note during lesson	255	210	255	180	2.60	1.11	No Knowledge
18	Gives fewer examples on the board	330	330	120	120	2.97	1.02	No Knowledge
19	Always lifts class work from textbook Examples	345	285	165	105	2.97	1.02	No Knowledge
20	Uses textbook examples as his own Examples	390	285	135	90	3,08	1.00	No Knowledge

From table 2 it can be observed that students rated their mathematics teachers positive in twelve out of twenty items (that is having knowledge in 12 out of 20 items). This implies that senior secondary school students perceive their mathematics teachers as having in-depth pedagogical content knowledge expected of them.

Research Question 2: How do secondary school students perceive their mathematics teachers' in-depth assessment practices?

Table 3: Students' perception of mathematics teachers' assessment competency.

SN	STATEMENTS Our mathematics teacher	SA	A	D	SD	$\overline{X}$	SD	REMARK
1	Gives notices of tests	165	345	90	300	2,40	1.11	Not competent
2	Gives take-home assignments as tests	225	195	255	225	2.47	1.13	Not competent
3	Encourages students to exchange their test scripts / assignments for marking	255	270	210	165	2.68	1.08	Not competent
4	Gives tests that cover all the	195	240	135	330	2.33	1.19	Not

	topics taught							competent
5	Collects exercises for marking	345	390	90	75	3.12	0.91	Competent
6	Shows appreciation of students performance and achievement	345	405	45	105	3.10	0.95	Competent
7	Does the correction promptly	405	285	120	90	3.12	0.99	Competent
8	Gives home work regularly	360	315	120	105	3.03	1.01	Competent
9	Corrects students' mistakes	420	330	60	90	3.20	0.95	Competent
10	Penalizes students that engage in examination malpractice	120	315	120	345	2.23	1.11	Not Competent
11	Discusses students' progress with their parents on regular basis	195	255	225	225	2.47	1.11	Not Competent
12	Marks assignments and allows students to see their scores	240	480	90	90	2.97	0.88	Competent
13	Gives test scripts to students to mark	360	360	165	15	3.18	0.79	Not Competent
14	Takes note of students that are slow, neat and punctual in the class	195	300	180	225	2.52	1.10	Competent
15	Conducts a single test and divides it into three places as test1, test2, and test3	225	300	270	105	2.83	0.98	Not Competent
16	Announces regularly the remaining time while supervising a test	375	330	135	60	3.13	0.91	Not Competent
17	Always ask of cheap questions in the test	285	330	255	30	2.97	0.86	Not Competent
18	Always ask difficult questions in the test	300	300	150	150	2.83	1.08	Not Competent
19	Uses languages that confuse students in the test	255	270	210	165	2.68	1.08	Not Competent
20	Awards marks to students arbitrarily	195	345	210	150	2.87	1.01	Not Competent

Table 3 revealed that students perceive their mathematics teachers to be competent in only 7 out of 20 assessment skills. It can be inferred from this table 3 that the competency required in the assessment of senior secondary school students were not demonstrated by mathematics teachers.

Hypothesis 1: There is no significant difference in the ratings of SSS1, SSS2 and SSS3 students of their mathematics teachers' pedagogical content knowledge.

Table 4a: Analysis of variance (ANOVA) showing mathematics teachers' pedagogical content knowledge as perceived by their students.

Source of Variation	Sum of Squares	Df	Mean square	Fcal	Sig
Between Groups	4418.000	2	2209.000	47.28	.00
Within Groups	41910.750	897	46.723		
Total	46328.750	899			

P<0.05

The result presented in Table 4a showed that F calculated value (47.28) is significant at p value of 0.00. This implies that significant difference exists among SSS1, SSS2 and SSS3 students' ratings of their mathematics teachers' pedagogical content knowledge. In order to further ascertain the pair of groups that is significantly different at 0,05 levels, Schefee's post-hoc multiple range comparison test among the groups was carried out. The result is presented in Table 4b.

Table 4b: Schefee's post-hoc multiple range comparisons of students' perception of their mathematics teachers' pedagogical content knowledge.

Groups	N	Mean	SSS1	SSS2	SSS3
SSS1	300	58.15			
SSS2	300	58.19	*		
SSS3	300	53.45	*	*	

Table 4b shows post hoc mean ratings of 58.15, 58.19 and 53.45 for SSS1, SSS2 and SSS3 respectively. Significant difference exists between SSS1 and SSS2; SSS1 and SSS3; and SSS2 and SSS3.

Table 4b shows post hoc mean ratings of 58.15, 58.19 and 53.45 for SSS1, SSS2 and SSS3 respectively.

Significant difference exists between SSS1 and SSS2; SSS1 and SSS3; and SSS2 and SSS3.

The result presented in Table 5a showed that F calculated value (15.95) is significant at p value of 0.00. This implies that significant difference exists among SSS1, SSS2 and SSS3 students' ratings of their mathematics teachers' assessment competency. In order to further ascertain the pair of groups that is significantly different at 0,05 levels, Schefee's post-hoc multiple range comparison test among the groups was carried out. The result is presented in Table 5b.

Table 5b: Schefee's post-hoc multiple range comparisons of students' perception of their mathematics teachers' assessment competency.

Groups	N	Mean	SSS1	SSS2	SSS3
SSS1	300	51.65			
SSS2	300	49.90	*		
SSS3	300	48.80	*	*	

Table 5b shows post hoc mean ratings of 51.65, 49.90 and 48.80 for SSS1, SSS2 and SSS3 respectively. Significant difference exists between SSS1 and SSS2; SSS1 and SSS3; and SSS2 and SSS3.

Hypothesis 3: There is no significant gender difference in students' perceptions of mathematics teachers' in-depth mathematics pedagogical content knowledge.

Table 6: t-test statistics showing the difference in the ratings of male and female students on perception of their mathematics teachers' pedagogical content knowledge.

Variables	N	Mean	SD	df	t-cal	sig
Male	450	53.13	6.52	898	16.43	0.467
Female	450	60.03	6.07			

Table 6 shows t-calculated value of 16.43 and not significant at p value of 0.467. It shows that sex of the students has no significant influence on the ratings of their mathematics teachers' pedagogical content knowledge.

Hypothesis 4: There is no significant gender difference in students' perceptions of their mathematics teachers' assessment competency.

Table 7: t-test statistics showing the difference in the ratings of male and female students on perception of their mathematics teachers' assessment competency.

Variables	N	Mean	SD	Df	t-cal	sig
Male	450	52.30	5.70	898	11.00	0.47
Female	450	47.93	6.20			

P<0.05

Table 7 shows t-calculated value of 11.00 and significant at p value of 0.047. It shows that sex of the students has significant influence on the ratings of their mathematics teachers' assessment competency

Discussion of Findings

Findings from research question 1 revealed that mathematics teachers demonstrate high level of competence in pedagogical content knowledge. The result is consistent with previous findings of (Olaleye, 2011)

which showed that 78.1% of the studied students had a positive perception of their teachers knowledge of the subject matter; 76.5% had a positive perception of their teachers' attitude to work and 78.2% had a positive perception of their teachers' teaching skills. This finding also support the early findings of Asim, Kalu, Idaka & Bassey (2007); Asim & Balogun(2006); Ijente & Bassey (2011) in which teachers claimed they were competent Findings from research question 2 revealed that mathematics teachers demonstrate low level of assessment competence. This finding corroborates the earlier findings of Mcmillan, Myran & Workman (2002) and Mertler (1999) that have shown empirically that teachers' assessment practices are often not consistent with the recommended practices. The finding is also in line with Asim, Kalu, Idaka, and Bassey (2007) submission that simple basic education teachers in Cross River state of Nigeria exhibited high level incompetence in STM assessment, hence resorted to the measurement of lower order recall objectives (Ijente.2007). The acclaimed competency by teachers in PCK and assessment practices as reported in Asim, Kalu, Idaka & Bassey (2007); Asim & Balogun (2006);Asim, Ijente & Bassey, (2010)could be that the teachers reported measure could be majorly focusing on PCK.

Findings from hypothesis one revealed that class of students has significant influence on students' ratings of their mathematics teachers' pedagogical content knowledge. This finding corroborates the findings of Abdullahi and Obasanya (2010) that showed significant difference in the ratings of the three groups of students of their mathematics teachers' effectiveness in all aspects of teachers' variables except qualifications. Result of post-hoc test analysis showed that the source of the difference was between SSS1 and SSS2; SSS1 and SSS3; and SSS2 and SSS3. Similarity between these two studies could be attributed to the fact that they were based on students' ratings and not on teachers self expressed measure.

The result of hypothesis two which stated that there is no significant difference in the ratings of SSS1, SSS2 and SSS3 students of their mathematics teachers' assessment competency was rejected as shown in table 4a. This showed that class of the students has significant influence in the rating of their mathematics teachers' assessment competency. Results of post hoc analysis also showed the source of difference is between SSS1 and SSS2; SSS1 and SSS3; and SSS2 and SSS3. The significant difference in the rating of students of their mathematics teachers assessment competency corroborates the early finding

of Hussain(2010) that showed that students' perception of the assessment environment were shaped by students' characteristics such as self efficacy, class contextual features such as aggregate perceived assessment environment and self efficacy levels of the class and teachers' teaching experience and assessment practices.

in PCK and assessment practices. Perhaps the reason for these findings to come out this way might be that the items in the self reported measures of the previous study might be similar to items in students rating inventory used in this present study.

The findings further corroborate the findings of Omo-Egbekuse,Afemikhe & Imobekhai(2010)in which difference of standard of teacher competence in assessment of students between primary and junior secondary school teachers was significant. Significant differences in assessment were observed between teachers in primary and junior secondary schools in the following assessment standards: choose /select assessment methods; administer, score and interpret results of assessment; use of assessment results when making decisions about students; use of assessment for grading and communicate assessment results.These results lend support to the findings of Pohlman(1975);Kohlan (1973);Aleamoni& Graham(1974) that students in lower levels (years I & II) tend to award less favorable ratings to the teachers than their counterparts in higher levels. It is also consistent with the findings of Murkison et al. (2001)that teachers assigning more and tedious homework or assignments were rated lower by students than their counterparts assigning less tedious homework or no assignments at all. More so, teachers who were perceived competent in assessment practices would be rated higher by students than those who were perceived less or not competent.

The result of hypothesis three indicated that gender of students has no significant influence on the ratings of the pedagogical content knowledge of their mathematics teachers. This finding is at variance with the finding of Adedoyin (2011) which showed that there were gender significant differences in the pupils' perception of their mathematics teacher in-depth mathematics pedagogical content knowledge in relation to their learning outcomes/assessment in mathematics. Perhaps the marked difference in the two studies could be that in Adedoyin (2011), the students' perception of mathematics teachers PCK was based in relation to

students learning outcomes and assessment.

The result of hypothesis four showed that gender has significant influence in the students' perception of the assessment competency of their mathematics teachers. The finding is not surprising because mathematics is gender based. John (1968) commented that mathematics is seen as being more masculine and therefore more desirable of boys while liberal arts are more desirable of girls. Therefore such values and ability will affect interest aspiration level and rating of mathematics teachers' assessment competency.

Conclusion and recommendations

Based on the findings of this study, it is therefore concluded that senior secondary school mathematics teachers in Ondo State demonstrate high competence in pedagogical content knowledge but low competence in assessment practices. Majority of the mathematics teachers lack the basic principles of assessment and skills necessary to produce a classroom test. Bulk of them have shallow knowledge of the basic principle of test construction, test administration and scoring. Although class of students has significant influence in the rating of the mathematics teachers' pedagogical content knowledge but there was gender influence in the rating of mathematics teachers assessment competency. On the basis of these findings the following recommendations are made:

1. Only competent teachers well groomed in PCK and assessment skills should be allowed to teach mathematics in Ondo state senior secondary schools.
2. Government on its own part should assist mathematics teachers consistently through in-service courses and training in ways of improving their assessment skills in order to ensure effective learning outcomes in mathematics.
3. Colleges of education and universities` faculty of education should provide a comprehensive opportunity to mathematics teachers to develop their assessment skills.

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