Comparing three approaches to evaluating physics teachers’ effectiveness in instructional delivery to secondary school students in Nasarawa state of Nigeria

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Abstract: The study was designed to assess physics teachers’ effectiveness in instructional process using three assessment strategies. It was an evaluative survey, with three types of questionnaires - Students Evaluation Instrument, Peer Evaluation Instrument and Self Evaluation Instrument as instruments for data collection. A total of 180 senior secondary two physics students, 9 physics teachers and 18 peers of the physics teachers were randomly selected from 9 Model Science Schools in Nasarawa State of Nigeria were sampled. Four hypotheses were tested using the t-test, Analysis of Variance, and Pearson’s product moment correlation statistics. Results indicated that there was a significant difference between Student Assessment, Peer Assessment and Self-Assessment methods of evaluating physics teacher effectiveness. Students’ assessment and Peer assessment of physics teacher effectiveness showed a strong positive correlation (r = + 0.60), indicating high degree of objectivity. There was no significant difference between students’ assessment scores and peer assessment scores suggesting that the physics teachers were effective in their instructional delivery. Incidentally, the physics teachers were rather generous in their self-assessment corroborating earlier researches. It was concluded that the two assessment methods should be incorporated into the assessment practices of secondary schools in Nigeria particularly as a strategy for improving physics teachers’ instructional delivery.

Keywords: Strategies; Evaluative survey; Students Evaluation Instrument; Peer Evaluation Instrument; Self Evaluation Instrument; Physics; Teacher; Assessment

I. Introduction

Education in Nigeria has been recognized as an instrument par excellence for effective national development in reference [1]. According to reference [2], education is “the key that opens the door of modernization and globalization.” Education, no doubt, is the key to national development: thus, recent trends in education favour the humanistic approach which puts a strong emphasis on the teacher as the major facilitator of the teaching–learning process. Education is intended to serve the expressed goals and aspirations of the country as enshrined in the National Policy of Education in reference [1]. The thrust is towards the realization of national development through improved educational system which has led to the introduction of new programmes and new syllabuses aimed at improving the curricula, particularly at the secondary school level.

To assess the output, it becomes necessary that some form of evaluation must be part of the operation of the educational system. Given that the educational system has objectives, it is expected that the operators of the educational system should be committed to the achievement of these objectives. Educational evaluation is a major process that determines the extent to which objectives have been achieved as well as the quality of human development in a society. The quality of human development process refers essentially to the quality of education and the quality of education is largely recognized as the quality of teaching that goes on in the schools in reference [3].

It is generally acclaimed that the quality of education at any level depends largely on the qualification and commitment of the teacher. Thus, the Federal Ministry of Education in reference [4] states that “no educational system can rise above the quality of its teachers as the standards of our teachers invariably affect the performance of the pupils and students.” Therefore, during the process of human development, evaluation information is generated in a variety of ways to improve school administration, teaching and learning; and also to enhance the likelihood of success by both the learner and the teacher.
Generally, teachers evaluate their students’ learning and accept the results as evidence of their teaching effectiveness. Scholars, however, believe that teachers’ professional growth and effectiveness in instructional delivery could be enhanced through mentoring, peer assessment, student assessment and self-evaluation.

Teacher evaluation is of global concern because of the role of the teacher in the education enterprise. This probably explains why Obanya in reference [5] argued that teachers are the major implementers of a country’s educational policies. The teacher engages in interactive behaviour with learners effecting cognitive, affective and psychomotor changes in them. However, reference [5] posited that the teacher is an engineer in the teaching-learning process because he selects the instructional objectives, contents, method and learning experiences, and also evaluates the outcome of instruction with respect to the stated objectives. Furthermore, reference [6] sees the teacher as the one responsible for the instructional design and so needs to make the best choices amidst subject area influences by using his teaching influences (theory, technology and social system) to overcome certain input constraints or limitations in the way of achieving quality output expected by the society.

No doubt, the role of the teacher in the school system cannot be over-emphasized but the decline and deteriorating results, particularly from secondary schools vis-à-vis the huge investment in education, are quite disturbing. The situation has made some stakeholders to associate the quality of school products (in terms of achievement scores/grades) with quality of school personnel who are largely teachers. Some have even wondered whether the achievement scores/grades of learners in and from schools do actually reflect the quality of teaching and by extension, the quality and effectiveness of teachers in reference [6].

In view of the above, the public has become increasingly inquisitive and bothered about the activities going on in schools, particularly the results that schools are producing in the science subjects in reference [5]. Generally, there is a consensus of opinion about poor quality of education in Nigeria reference [7]. Governments, communities, proprietors, employers, parents and learners themselves have had reasons to worry about the results and the products of the educational system. Teachers also complain of students’ low performance at both internal and external examination. The annual releases of Senior Secondary Certificate Examination (SSCE) results conducted by West African Examination Council (WAEC) and National Examination Council (NECO) justify generalization of poor secondary school students’ performance in science subjects. Reference [9] noted that there had been a steady increase in failure rate of secondary school students in the science subjects (Biology, Chemistry and Physics) over the years. The poor performance of students in Biology, Chemistry and Physics reflected in Table I corroborate the impression of critics.


<table>
<thead>
<tr>
<th>YEAR</th>
<th>TOTAL ENTRY</th>
<th>NO. &amp; % PASS AT CREDIT LEVEL</th>
<th>TOTAL ENTRY</th>
<th>NUMBER &amp; % PASS AT CREDIT LEVEL</th>
<th>TOTAL ENTRY</th>
<th>NUMBER &amp; % PASS AT CREDIT LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>508,385</td>
<td>37,956 (11.40)</td>
<td>161,232</td>
<td>38,212 (23.70)</td>
<td>146,000</td>
<td>21,462 (14.70)</td>
</tr>
<tr>
<td>1995</td>
<td>351,353</td>
<td>86,406 (18.90)</td>
<td>133,158</td>
<td>48,880 (36.74)</td>
<td>120,768</td>
<td>22,825 (18.90)</td>
</tr>
<tr>
<td>1996</td>
<td>506,628</td>
<td>80,554 (15.90)</td>
<td>144,900</td>
<td>48,572 (33.50)</td>
<td>132,768</td>
<td>16,094 (12.80)</td>
</tr>
<tr>
<td>1997</td>
<td>669,026</td>
<td>96,226 (15.80)</td>
<td>172,383</td>
<td>40,682 (23.60)</td>
<td>157,700</td>
<td>14,824 (9.40)</td>
</tr>
<tr>
<td>1998</td>
<td>637,021</td>
<td>219,453 (34.45)</td>
<td>185,430</td>
<td>39,682 (21.40)</td>
<td>172,223</td>
<td>19,530 (11.34)</td>
</tr>
</tbody>
</table>


Recent results seem to follow the same trend as the 2007 and 2008 examinations recorded 6.45% and 6.90% pass respectively among science-oriented candidates in reference [10]. The 2009 result of the NECO SSCE indicated only about 8.5% pass among all the candidates in reference [11].

Some critics have blamed the poor performance of the students on their low retention, association with wrong peers, and low achievement motivation. However, reference [13] posited that the poor level of academic achievement is attributable to teachers’ non-use of verbal reinforcement strategy. In his attribution, reference [14] maintained that the attitude of some teachers to their job is reflected in their poor attendance to lessons, lateness to school, unsavoury comments about students’ performance that could damage their ego, and poor method of teaching which in concert affect students’ academic performance. Either way, the teacher cannot escape accountability for students’ performance at certificate examinations.

Incidentally, evaluation of teacher effectiveness has in recent times become enmeshed in controversies over terms and methods. Reference [14] highlighted various teacher evaluation methods to include: Classroom Observation, Student Evaluation, Peer Evaluation, Self Evaluation, Teaching Portfolio, etc. Reference [15] maintained that there has not been a set of clear indisputable conclusion as to the best ways to evaluate...
teaching. While some experts such as in reference [16] argued in favour of the reasonability of teacher self-evaluation, others such as reference [17] strongly opposed the use of self-evaluation method of teacher effectiveness. Teacher self-evaluation is the method of evaluation whereby the teacher rates him/herself against some pre-determined objectives of instruction in order to ascertain his/her effectiveness in instruction delivery. Reference [18] argued that self-evaluation method encourages the teacher to reflect on his/her teaching thereby enhancing performance. Reference [19] had posited that self-evaluation of teacher effectiveness is of greater value for self-understanding and instructional improvement. On the other hand, in reference [20] argued that student evaluation of teacher effectiveness is one of the several forms of evaluation used to shed light on teacher effectiveness. Student evaluation of instruction means that students as consumers of instruction are made to express their opinion and feelings concerning the effectiveness of the teacher’s instructional process and activities in the classroom and the extent to which they benefited from that process.

Since there is lack of standardized and uniform quality assurance instruments for teacher evaluation as reported in the Roadmap for Nigerian Education in reference [21] and in view of controversies over methods of evaluating the teacher, the study sought to comparatively analyze three methods of assessing the teacher with a view to determine which strategy is the most objective and valid. Thus, the thrust of the study is to analytically compare student, peer and self-evaluation of physics teacher effectiveness in Nasarawa state secondary schools.

**Objectives of the Study**

The general objective of this study was to compare student evaluation (STEV), peer evaluation (PEEV) and self-evaluation (SEEV) of physics teacher effectiveness in Nasarawa state secondary schools. In specific terms, the study attempted to:

(i) Determine whether a significant difference existed between the mean assessment of student, peer and physics teacher self-evaluation.
(ii) Determine whether there is a significant relationship between student, peer and self-evaluation methods of assessing physics teacher effectiveness.
(iii) Determine whether a significant difference existed between mean score of students’ assessment and the mean score of physics teacher self-assessment.
(iv) Determine whether a significant difference existed between mean score of students’ assessment and the mean score of peer assessment.

**Research Questions**

The following research questions were raised to facilitate the investigation:

(i) Is there any significant difference between mean scores of student, peer and self-evaluation of physics teacher effectiveness?
(ii) What relationship exists between student, peer and self-evaluation methods of evaluating physics teacher effectiveness in Nasarawa state secondary schools?
(iii) Is there a significant difference in the mean scores between student evaluation of their physics teacher and physics teacher self-evaluation?
(iv) Is there a significant difference in the mean scores between student evaluation and evaluation by peers of the physics teacher?

**Statement of the Hypotheses**

The following hypotheses were tested:

1. There is no statistically significant difference between mean scores of student, peer and self-evaluation of physics teacher effectiveness in Nasarawa state secondary schools. (H₀₁)
2. There is no statistically significant relationship between student, peer and self-evaluation of physics teacher effectiveness in Nasarawa state secondary schools. (H₀₂)
3. Students’ evaluation mean scores would not differ significantly from mean scores of peers of physics teacher (Hₒ₃)
4. Students’ evaluation mean scores would not differ significantly from mean scores of the physics teacher (Hₒ₄)

**II Literature Review**

Evaluation in educational practice connotes different things to different scholars. But generally, evaluation connotes the systematic process of gathering, selecting, analyzing and reporting valid information on the attainment of educational goals and objectives in order to facilitate correct adjudication on the effectiveness of teaching method(s) or an educational programme as in reference [11]; reference [12]; reference [13] and reference [14].

In the educational system, evaluation is usually carried out at two major levels - student level and, programme level reference [14]. No place is provided for the evaluation of teacher effectiveness by those who
are basically involved and in the best position to do so (the student and fellow teachers). To correct this anomaly, reference [15] proposed that evaluation should be conducted to cover three levels of student, teacher and programme. Teacher evaluation according to reference [15] is based on the premise that if teachers should be faced with the realization that their continued employment and promotion would partly be based on the evaluation of their performance by their students (who remain anonymous), and colleagues, then they would be compelled to put in their best in the class. In this regard, two types of evaluation (formative and summative) could be carried out with distinctive roles. While, formative evaluation is undertaken during teaching and learning for the expressed purpose of learning to achieve its objectives, summative evaluation is carried out by the teacher which may be at the end of the term, year or end of a course for the purpose of decision making such as, promotion, demotion, retention or firing.

Numerous studies have attempted to measure teacher effectiveness using different methods and on different school subjects/courses. Reference [16] surveyed 480 secondary school teachers from 20 schools and found significant negative attitude to student evaluation of the teacher, irrespective of the use(s) to which the results of such evaluation will be put.

Reference [16] using a sample of 2,310 students in 60 secondary schools from 12 states of Nigeria investigated the quality of secondary school teaching in Nigeria from the perspective of the students. The findings indicated that teachers were effective in class attendance; competent in content and pedagogy; and manifested positive relationship with students and disciplinary qualities. The result suggests that students perceived their teacher as efficient in their job performance, hence, student evaluation could be highly effective.

Reference [5] compared three instruments for evaluating Biology teacher effectiveness in the instructional process in Edo state of Nigeria. The instruments were; Student Assessment of Teacher Instrument (SATEI), Teacher Assessment of Teacher Effectiveness Instrument (TATEI) and Class Observation. The result of the study showed that there was a strong agreement in the assessment of Biology teachers’ effectiveness between student evaluation and classroom observation by the researcher indicating high degree of objectivity. On the contrary, the Biology teachers’ self-evaluations were biased in their self-assessment of teaching effectiveness.

III Methodology

The population of the evaluative survey consisted of all the 53 physics teachers in 145 science-oriented senior secondary schools in Nasarawa state, their peers and the senior secondary 2 (SS2) students who offer physics as one of their certificate examination subjects.

The sample for the investigation consisted of 9 physics teachers, 18 peers of the physics teacher and 180 physics students selected through multi-stage stratified sampling technique from science-oriented secondary schools located across the ten educational zones in Nasarawa state. Thus, one (1) physics teacher was randomly selected from each of the nine science schools and two colleagues of the target physics teacher were randomly selected from each school using the Hat-and-Draw method. The SS2 students (20 from each of the 9 schools) were selected using the simple random sampling technique. This brought the total research subjects to 207 which were considered representative of the total population.

Instrumentation

Three types of questionnaires were used for data collection - Student Evaluation of Teacher Effectiveness Instrument (STEV), Peer Evaluation of Teacher Effectiveness Instrument (PEEV) and Self Evaluation of Teacher Effectiveness Instrument (SEEV). Each of the designed questionnaires consisted of two sections: the essential bio-data and 24 items on a 5-point scale ranging from Excellent (5), Good (4), Average (3), Fair (2) and (Poor (1) or (Always (5), Often (4), Sometimes (3), Rarely (2) and Never (1). The scales were used to either elicit the degree of availability or the frequency of the characteristics under assessment. The respondents were expected to indicate their opinions on the effectiveness of the physics teacher by focusing on the extent to which the physics teacher exhibited characteristics/attributes in the areas of preparation of lessons, presentation of lessons, classroom management, communication skills, personality and evaluation of lessons.

Validity and Reliability of the Instruments

To build validity and reliability into the data collection instruments, efforts were made to relate each item in the questionnaire to a specific variable for assessing physics teacher effectiveness. The items on the three scales were similar and were generated by adapting the Teaching Practice Format used by the Faculty of Education, Nasarawa State University, Keffi. Face validity was sought and obtained by subjecting the instruments to critical appraisal of experts in Measurement and Evaluation. The experts were requested to check for clarity, ambiguity of the items, appropriateness of the items, language use, clarity of purpose and relevance to the issue under investigation using a 5-point rating scale. This enabled the researchers to establish logical validity indices of 0.70, 0.60 and 0.70 for STEV, PEEV and SEEV respectively. The validity indices were considered sufficiently high for use in collecting data for the study.
IV Results

Presentation and Analysis of Data

Table 2: Comparison of Physics Teachers Assessment by Students, Peers & Self by Schools

<table>
<thead>
<tr>
<th>S/N</th>
<th>NAME OF SCHOOL</th>
<th>STEV mean scores (%)</th>
<th>PEEV mean scores (%)</th>
<th>SEEV mean scores (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>GSSS ANDAHA</td>
<td>56.5</td>
<td>62.5</td>
<td>85.0</td>
</tr>
<tr>
<td>2.</td>
<td>GSSS WAMBA</td>
<td>60.5</td>
<td>59.1</td>
<td>85.8</td>
</tr>
<tr>
<td>3.</td>
<td>GSSS DOMA</td>
<td>48.8</td>
<td>47.1</td>
<td>82.5</td>
</tr>
<tr>
<td>4.</td>
<td>GSSS OBI</td>
<td>51.0</td>
<td>60.9</td>
<td>80.0</td>
</tr>
<tr>
<td>5.</td>
<td>GSSS KARU</td>
<td>55.8</td>
<td>56.3</td>
<td>82.5</td>
</tr>
<tr>
<td>6.</td>
<td>GSSS GARAKU</td>
<td>50.2</td>
<td>56.7</td>
<td>80.8</td>
</tr>
<tr>
<td>7.</td>
<td>GSSS LAFIA</td>
<td>53.9</td>
<td>55.4</td>
<td>84.2</td>
</tr>
<tr>
<td>8.</td>
<td>GSSS NASARAWA</td>
<td>54.7</td>
<td>60.0</td>
<td>77.5</td>
</tr>
<tr>
<td>9.</td>
<td>GSSS NASARAWA EGGON</td>
<td>52.0</td>
<td>57.0</td>
<td>87.5</td>
</tr>
<tr>
<td></td>
<td>GRAND MEANS</td>
<td>53.7</td>
<td>57.2</td>
<td>82.8</td>
</tr>
</tbody>
</table>

Table 2 shows the results for the three methods of assessment for each of the sample schools in Nasarawa state. The study the result shows that the assessment of the physics teacher by students, peers and self-exceeded 50% as bench mark for success. This indicates that generally, the physics teachers were effective in their instructional delivery. The overall mean assessment scores were STEV = 53.7, PEEV = 57.2 and SEEV = 82.8. The result indicates that there is an agreement between students’ assessment and peer assessment methods. However, the teachers’ self-assessment seemed exaggerated when compared to students’ and peer assessment suggesting a natural tendency of individuals to over-score themselves when given the opportunity for self-evaluation in reference [17]. However, the table also shows the mean assessment of physics teachers’ effectiveness from the three methods of evaluation

Table 3: Comparison of Mean Assessment of Physics Teacher Effectiveness by STEV, PEEV and SEEV: Summary of ANOVA.

<table>
<thead>
<tr>
<th>S/N</th>
<th>ASSESSMENT METHOD</th>
<th>N</th>
<th>MEAN</th>
<th>SD</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>STEV</td>
<td>180</td>
<td>53.70</td>
<td>3.43</td>
<td>0.25</td>
</tr>
<tr>
<td>2.</td>
<td>PEEV</td>
<td>18</td>
<td>57.20</td>
<td>4.21</td>
<td>0.99</td>
</tr>
<tr>
<td>3.</td>
<td>SEEV</td>
<td>9</td>
<td>82.80</td>
<td>2.94</td>
<td>0.98</td>
</tr>
</tbody>
</table>

Table 3 shows an F-ratio of 151.4 which is significant beyond 0.05 level of probability with degrees of freedom (2, 24). The null hypothesis (H₀) was therefore rejected. The result indicates that there is a statistically significant difference between the mean assessment scores on physics teacher effectiveness using the three methods of evaluation (STEV, PEEV and SEEV).

Table 4: Multiple Comparisons of Means: Tuckey’s Honestly Significant Difference (HSD) Test.

<table>
<thead>
<tr>
<th>STEV X₁ = 53.7</th>
<th>PEEV X₂ = 57.2</th>
<th>SEEV X₃ = 82.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEV X₁ = 53.7</td>
<td>-</td>
<td>1.02</td>
</tr>
<tr>
<td>PEEV X₂ = 57.2</td>
<td>1.02</td>
<td>-</td>
</tr>
<tr>
<td>SEEV X₃ = 82.8</td>
<td>8.48</td>
<td>6.08</td>
</tr>
</tbody>
</table>

Studentised Mean = 2.98 = Significant  df = 17  α = 0.05

The post Hoc Analysis using Tuckey’s Honestly Significant Difference (HSD) test to determine the direction of superiority of means as shown in Table 4 indicates that the ratio of 8.48 (teacher self-assessment) is superior to others. The Studentised mean of 2.98 is greater than the calculated Studentised ratio of 1.02 (df = 17, α = 0.05). This test further indicates that STEV and PEEV were more objective and valid in the assessment of the physics teacher.
Table 5: Summary of Correlation Coefficient (Pair-Wise) for Three Methods of Evaluation

<table>
<thead>
<tr>
<th>S/N</th>
<th>EVALUATION METHODS</th>
<th>CORRELATION COEFFICIENT (r)</th>
<th>REMARK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>STEV AND PEEV</td>
<td>+0.60</td>
<td>Positive and Strong</td>
</tr>
<tr>
<td>2</td>
<td>STEV AND SEEV</td>
<td>+0.29</td>
<td>Positive and Weak</td>
</tr>
<tr>
<td>3</td>
<td>PEEV AND SEEV</td>
<td>-0.01</td>
<td>Negative and Weak</td>
</tr>
</tbody>
</table>

Table 5 shows the correlation coefficients of the three methods of assessing physics teacher effectiveness. This reveals that students’ assessment and peer assessment (STEV and PEEV) correlated positively and strongly indicating that the two methods were related positively. STEV and SEEV had a positive correlation coefficient. This implies that the relationship between them was weak while PEEV and SEEV had a negative and weak correlation coefficient. The correlation coefficients obtained in Table 5 were transformed to t-values and tested at a probability level of 0.05. This is to establish whether the relationships were statistically significant.

Table 6: Testing the Significance of the Correlation Coefficient (r)

<table>
<thead>
<tr>
<th>S/N</th>
<th>ASSESSMENT METHODS (PAIRWISE)</th>
<th>R</th>
<th>Calculated t (t_cal)</th>
<th>Critical t (t_critical)</th>
<th>a</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>STEV-PEEV</td>
<td>+0.60</td>
<td>3.00</td>
<td>2.92</td>
<td>0.05</td>
<td>SIGNIFICANT</td>
</tr>
<tr>
<td>2</td>
<td>STEV-SEEV</td>
<td>+0.29</td>
<td>1.35</td>
<td>2.92</td>
<td>0.05</td>
<td>NOT SIGNIFICANT</td>
</tr>
<tr>
<td>3</td>
<td>PEEV-SEEV</td>
<td>-0.01</td>
<td>-0.24</td>
<td>2.92</td>
<td>0.05</td>
<td>NOT SIGNIFICANT</td>
</tr>
</tbody>
</table>

Table 6 shows the summary of t-test analysis for the pair-wise correlation coefficients of the methods of evaluating physics teacher effectiveness. The result indicates that the relationship between student assessment and peer assessment was significant at 0.05 level of probability. However, the relationship between STEV-SEEV and PEEV-SEEV were not significant at 0.05 alpha. Hence, Hypothesis 2 (H2) was not rejected for STEV and PEEV.

V Discussion

The results of the study showed that the scores of physics teachers’ self-assessment of instructional effectiveness were higher than the scores of students’ assessment and peer assessment methods (Table 3). However, there was a strong agreement in the assessment of physics teacher effectiveness by students and peers of the physics teacher indicating a high degree of objectivity in their assessment. Based on the great difference between physics teacher self-assessment and the assessments by students and peers of the physics teacher, this study placed more premiums on the assessment done by students and peers of the physics teacher. Hence, self-evaluation of physics teachers in Nasarawa state secondary schools could not be relied upon.

A major finding of the study suggests that peer evaluation and student evaluation are valid methods of assessing teacher effectiveness based on their correlation. Furthermore, there was no significant difference between the means obtained from these two methods. This result is in agreement with reference [18] and reference [5] who was strongly opposed to the use of teacher self-evaluation in the assessment of instructional effectiveness because of the tendency to over-score self as found out by earlier researchers like reference [19]; reference [20].Reference [22] equally found out that chemistry teachers were biased in their self-assessment of teaching effectiveness. The result of the study however, is incongruous with reference [17] who argued in favour of the reasonability of teacher self-assessment. The findings of this study are in agreement with reference [21] who argued that student evaluation of teacher effectiveness is one of the several forms of evaluation used to shed light on teaching effectiveness. Evidence from the study further attests to the usefulness and accuracy of students’ evaluation as an index of determining teacher effectiveness. This is in agreement with reference [23] who argued that it is only by the evaluation of our performance by a third person (or persons) that we can ever hope to receive objective feedback as to the quality of our output. Hence, peers of the physics teacher can provide valid assessment of the physics teacher instructional effectiveness.

Findings from the study suggest that using a single method to evaluate the teacher’s instructional effectiveness might not be adequate. The practice over the years has been the use of peer evaluation (observation technique) only to assess teacher effectiveness. This study has revealed that incorporating two methods (student evaluation and peer evaluation) for this task offers more valid, efficient and objective means of evaluating the teacher.

VI Conclusion

Based on the findings of the study, the physics teachers’ performance was satisfactory with overall mean score of 55.5% indicating that they were effective in their instructional delivery. One can therefore...
conclude that they are not responsible for the poor students’ performance in physics at both internal and external examinations.

The magnitude of the relationship between student assessment and peer assessment of the physics teacher effectiveness shows a strong positive correlation (+0.60). This implies that high assessment scores from peers of the physics teacher should give a corresponding high assessment score if assessed by students. On the contrary, the use of self-evaluation cannot provide an objective and valid assessment of the physics teacher. Therefore, using the two methods (student and peer) in the evaluation of the physics teacher will check for bias. This will ensure standards and quality assurance.

VII Recommendations

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

1. Teacher evaluation instrument should incorporate both student and peer assessment of teacher effectiveness in instructional delivery as this will check bias and ensure quality assurance in teacher evaluation.
2. Since student evaluation correlated highly with peer evaluation, school administrators should exercise caution in using only peer assessment for evaluating physics teacher effectiveness and rather prefer to use both peer and student evaluation.
3. Schools in Nasarawa state should ensure frequent inspection of their teachers to monitor their instructional delivery using a combination of the two methods as the results can be used for both formative and summative purposes. It will be unfair to use only STEV or PEEV method as indicators of teachers’ effectiveness; a combination of the three strategies is likely to give a picture of the teacher.
4. Physics teachers in the state need to improve on their effectiveness in terms of instructional delivery as this will improve the overall performance of students in both internal and external examinations.

Suggestions for Further Research

The comparative analysis of these methods can be carried out in other science subjects such as, Biology, Chemistry and Mathematics. The study could also be carried out in any other subject in Nasarawa state or in other geographical locations in Nigeria to further test the efficacy of these evaluation methods.

References