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In-Service Training And Attendance Of Conferences As Predictors Of Teacher Productivity In Public Senior Secondary Schools In Rivers State, Nigeria

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ABSTRACT

The study examined in-service training and attendance of conferences as predictors of teacher productivity in public senior secondary schools in Rivers State, Nigeria. The study adopted correlational research design. The population consisted of 8,526 principals, vice-principals and teachers in 365 public senior secondary schools in Rivers State. A sample of 396 respondents was drawn through a multistage sampling procedure. Of the 396 questionnaires administered, 389 valid copies were retrieved and used for analysis. Two researcher-designed questionnaires, the Continuous Professional Development Programmes Questionnaire (CPDPQ) and the Teacher Productivity Questionnaire (TPQ), were used to collect data. The validated instruments yielded Cronbach's alpha coefficients of .78 and .83 for the in-service training and attendance of conferences subscales of the CPDPQ, respectively, while the TPQ yielded a coefficient of .87. Simple linear regression was used to answer the research questions, while the regression coefficient t-test was used to test the hypotheses at the .05 alpha level. The findings showed that in-service training had a moderate, positive relationship with teacher productivity ($R = .416$; $R^2 = .173$), whereas attendance of conferences had a low, positive relationship ($R = .247$; $R^2 = .061$). Both relationships were statistically significant ($p < .001$). The study concluded that both in-service training and attendance of conferences were significantly associated with teacher productivity, although the observed relationships differed in magnitude. The study recommended that the Rivers State Ministry of Education should organise regular in-service training for teachers and that school principals should encourage teachers to attend relevant educational conferences to develop their professional skills.

Keywords: In-service training, attendance of conferences, continuous professional development, teacher productivity, secondary schools.

INTRODUCTION

Education remains one of the major instruments through which societies develop the knowledge, skills, values and productive capacities required for individual and national advancement. Its contribution to development depends largely on the quality of learning opportunities provided to citizens and the extent to which educational institutions prepare learners for useful participation in society. Investment in education has been associated with the development of productive human capacity, while teachers' professional skills have also been linked with teacher productivity in public secondary schools. Igbozuruike and Agabi (2019) emphasized that education provides learners with significant private social and economic benefits, underscoring the importance of sustained investment in education. A critical aspect of this investment is teacher capacity building, which Iwuoha et al. (2024) identified as a key

driver of teacher productivity. The link between teachers' skills and their productivity highlights that the benefits of education depend substantially on teachers, who interpret curricula, organize instruction, assess learners, and guide them toward achieving school objectives.

Secondary education occupies a central position within the Nigerian educational system because it links primary education with tertiary education and prepares learners for useful living in society. The Federal Republic of Nigeria (2014) stated that secondary education is the form of education received after primary education and before tertiary education. At this level, students study increasingly specialised subject content and are prepared for higher education, employment and responsible participation in society. The attainment of secondary education objectives depends substantially on teachers because they translate curriculum prescriptions into classroom activities and learning experiences. When teachers have adequate professional knowledge and perform their duties productively, secondary schools are better positioned to pursue their stated educational objectives.

Teacher productivity refers to the extent to which teachers perform their professional responsibilities effectively in relation to expected school goals (Igbozuruike, Abinusawa, & Okoli-Ernest, 2017). Such responsibilities include lesson preparation, instructional delivery, classroom management, assessment of learners, use of instructional materials, record keeping, punctuality and commitment to assigned duties. Igbozuruike, Abinusawa, and Okoli-Ernest (2017) argued that teacher productivity is essential for quality secondary education, adding that it hinges on teachers' ability to effectively deliver instruction, manage classrooms, and adapt pedagogical strategies to diverse learner needs. This suggest that productive teachers not only enhance student achievement but also contribute to the overall efficiency and sustainability of the education system. Iwuoha et al. (2024) similarly found significant relationships between 21st century teaching skills and teacher productivity in public senior secondary schools in Rivers State. Understandably, an initial teaching qualification alone is not sufficient for productive teaching. Teachers need opportunities to update their knowledge and strengthen the competencies required to respond to changing curriculum expectations, learner characteristics, instructional methods and educational technologies.

Through Continuous Professional Development (CPD), teachers can acquire additional knowledge and strengthen their professional competence while remaining in service. The literature identifies in-service training, attendance of conferences, teacher collaborative learning, technology-mediated learning and subject enrichment programmes as major dimensions of continuous professional development. These activities are intended to help teachers remain current in their subjects, improve instructional methods and respond more effectively to the practical demands of teaching (Ukaigwe & Igbozuruike, 2019). However, the relationship between each CPD dimension and teacher productivity may differ according to the nature of the professional learning activity and the conditions under which teachers participate.

In-service training is one of the most direct means of strengthening teachers' professional competence while they remain in employment. It comprises organised learning activities designed to update teachers' knowledge and improve the skills required for professional practice. Qaisra and Haider (2024) described in-service training as school-level professional development intended to improve teachers' competencies in lesson planning, instructional delivery, assessment, classroom management and professional confidence. Akuh (2023) observed that teachers who participated in in-service training improved in subject-matter mastery, teaching methods, classroom management, assessment of students' work and professional commitment. Maclean (2018) also established positive and statistically significant relationships between in-service training and teachers' job performance in public senior secondary schools in Rivers State. Hart and Nwuke (2025) further found a significant moderate positive relationship between in-service training and instructional delivery in public senior secondary schools in the State. Outside Nigeria, Sibomana and Ndayambaje (2024) found that teacher training correlated positively with effective instructional practice among public secondary school teachers in Kicukiro District, Rwanda ($r = .611$).

In-service training may be more useful when the programme addresses teachers' instructional needs. Training that is poorly designed or weakly aligned with classroom needs may have little relationship with

teachers' work. Abiodun-Oyebanji and Faremi (2016) observed a positive but non-significant relationship between in-service training and students' academic performance where programme targeting and classroom alignment were inadequate. Onyeka et al. (2025) similarly found that professional development had a negligible relationship with teacher productivity where access to structured opportunities was limited and programme content was poorly aligned with classroom needs. These findings suggest that training can strengthen teachers' professional capabilities, but stronger capabilities do not necessarily translate into greater productivity. The relevance of training to classroom needs and the way teachers apply what they learn remain central considerations.

Attendance of conferences is another form of professional development. Conferences provide opportunities for teachers to interact with other professionals, obtain information on emerging educational issues, encounter research findings and gain exposure to new instructional practices. Banik and Saha (2023) described conferences as formal professional development platforms through which teachers could broaden professional expertise and remain current with developments in educational practice. Felix and Abrogena (2024) characterised conference participation as an organised professional learning activity intended to improve teachers' self-efficacy and instructional performance. At conferences, teachers can encounter instructional ideas that may inform their classroom practice.

What teachers gain from conferences may depend on whether they can apply new knowledge to their school and classroom responsibilities. If teachers have few opportunities to share or apply what they learn afterwards, the benefits of conference participation may remain limited to those who attend. Okeke and Nwogbo (2020) observed that principals encouraged teachers' participation in conferences and workshops as part of continuous professional development practices for effective teaching, which suggests that principals regarded skills acquired during conference attendance as beneficial to effective instruction. Conference attendance offers opportunities for knowledge sharing and capacity-building, but inadequate funding, selective participation and weak follow-up may limit the practical value of formal professional development (Arinze & Alimba, 2023; UNICEF, 2024). Worku et al. (2025) likewise found that seminars, workshops and conferences were rated at low levels among secondary school teachers in Woliso Town, Ethiopia, where weak organisation and the absence of systematic evaluation limited the contribution of CPD to instructional quality. Conference attendance can broaden teachers' professional awareness, but its relationship with teacher productivity still requires empirical examination.

In public senior secondary schools in Rivers State, in-service training and attendance of conferences are among the continuous professional development activities available to teachers. Access to these activities varies across schools (Arinze & Alimba, 2023; UNICEF, 2024), and the extent to which either dimension is associated with teacher productivity remains uncertain. The study therefore examined the relationships of in-service training and attendance of conferences with teacher productivity in public senior secondary schools in Rivers State.

Statement of the Problem

Teachers are expected to perform their instructional and professional responsibilities effectively to ensure the attainment of secondary education objectives. Schools use in-service training and conference attendance to give teachers opportunities to update their professional knowledge and develop skills relevant to classroom practice. These activities are intended to help teachers meet the instructional and professional expectations placed on them. However, previous studies have reported uneven access to structured professional development and inconsistent relationships between participation in professional learning activities and teacher productivity (Abiodun-Oyebanji & Faremi, 2016; Onyeka et al., 2025). These differences make it necessary to determine how specific CPD dimensions relate to teacher productivity within the context in which teachers work. In public senior secondary schools in Rivers State, teachers participated in in-service training and educational conferences, but the extent to which these activities were associated with teacher productivity remained unclear. Without empirical evidence on these specific relationships, educational administrators may have a limited basis for judging the relative strength of the associations between each activity and teachers' professional output. Accordingly,

the study examined the relationships of in-service training and attendance of conferences with teacher productivity in public senior secondary schools in Rivers State.

Aim and Objectives

The aim of the study was to investigate the relationships of in-service training and attendance of conferences with teacher productivity in public senior secondary schools in Rivers State. Specifically, the study sought to:

1. determine the extent to which in-service training relates to teacher productivity in public senior secondary schools in Rivers State;
2. determine the extent to which attendance of conferences relates to teacher productivity in public senior secondary schools in Rivers State.

Research Questions

The following research questions were answered in the study:

1. To what extent does in-service training relate to teacher productivity in public senior secondary schools in Rivers State?
2. To what extent does attendance of conferences relate to teacher productivity in public senior secondary schools in Rivers State?

Hypotheses

The following null hypotheses were tested at the .05 alpha level:

1. There is no significant relationship between in-service training and teacher productivity in public senior secondary schools in Rivers State.
2. There is no significant relationship between attendance of conferences and teacher productivity in public senior secondary schools in Rivers State.

METHODOLOGY

The study adopted a correlational research design. The population consisted of 8,526 staff serving in 365 public senior secondary schools in Rivers State (Rivers State Ministry of Education, 2026). This population comprised 365 principals, 365 vice-principals in charge of academics, 365 vice-principals in charge of administration and 7,431 teachers. A sample of 396 respondents was drawn through a multistage sampling procedure. In the first stage, 11 Local Government Areas were randomly selected from the 23 Local Government Areas in Rivers State. Six public senior secondary schools were subsequently selected from each of the 11 Local Government Areas through simple random sampling, giving 66 schools. From each selected school, the principal, the vice-principal in charge of academics and the vice-principal in charge of administration were selected purposively, one per post, while three teachers were selected through simple random sampling, thereby producing a total sample of 396 respondents.

Two researcher-designed questionnaires titled Continuous Professional Development Programmes Questionnaire (CPDPQ) and Teacher Productivity Questionnaire (TPQ) were used for data collection. The CPDPQ contained 20 items items of which 10 were used to measured in-service training and 10 items for attendance of conferences as predictor variables. TPQ contained 15 items that measured teacher productivity. Both questionnaires were structured on a modified four-point Likert scale of Very High Extent (4), High Extent (3), Low Extent (2) and Very Low Extent (1). The instruments were subjected to face and content validation by three experts in the Faculty of Education, University of Port Harcourt, one of whom specialised in Measurement and Evaluation. The reliability of the instruments was established through a pilot test on 30 respondents drawn from public senior secondary schools outside the main study sample, and the data were analysed using Cronbach's alpha in SPSS version 27. CPDPQ yielded coefficients od .78 for in-service training and .83 for attendance of conferences, while TPQ yielded a reliability coefficient of .87. Permission for data collection was obtained from the principals of the sampled schools. The researchers and two trained research assistants administered the questionnaires in person, explained the purpose of the study to respondents and assured them of anonymity and confidentiality, and the completed copies were collected on the spot. Of the 396 questionnaire copies

administered, 389 were properly completed, retrieved and used for analysis. Composite scores were computed for in-service training, attendance of conferences and teacher productivity. Data were analysed using SPSS version 27. Simple linear regression was used to answer the research questions, while the regression coefficient t-test was used to test the null hypotheses at the .05 alpha level.

RESULTS

Research Question One: *To what extent does in-service training relate to teacher productivity in public senior secondary schools in Rivers State?*

Table 1: Simple Linear Regression Model Summary for In-Service Training and Teacher Productivity

Model	R	R Square	Adjusted R Square	Variance Explained	Decision
1	.416[a]	.173	.171	17.3%	Moderate

a. Predictors: (Constant), in-service training

Decision rule: .00 to .249 = low relationship, .25 to .499 = moderate relationship, .50 to .749 = high relationship, and .75 to 1.00 = very high relationship

The regression model summary for in-service training and teacher productivity among respondents from public senior secondary schools in Rivers State is presented in Table 1. The R value of .416 indicated a moderate, positive relationship between in-service training and teacher productivity. The coefficient of determination (R^2 = .173) indicated that in-service training accounted for 17.3% of the variance in teacher productivity in the fitted simple regression model.

Research Question Two: *To what extent does attendance of conferences relate to teacher productivity in public senior secondary schools in Rivers State?*

Table 2: Simple Linear Regression Model Summary for Attendance of Conferences and Teacher Productivity

Model	R	R Square	Adjusted R Square	Variance Explained	Decision
1	.247[a]	.061	.059	6.1%	Low

a. Predictors: (Constant), attendance of conferences

Decision rule: .00 to .249 = low relationship, .25 to .499 = moderate relationship, .50 to .749 = high relationship, and .75 to 1.00 = very high relationship

The regression model summary for attendance of conferences and teacher productivity among respondents from public senior secondary schools in Rivers State is presented in Table 2. The R value of .247 indicated a low, positive relationship between attendance of conferences and teacher productivity. The coefficient of determination (R^2 = .061) indicated that attendance of conferences accounted for 6.1% of the variance in teacher productivity in the fitted simple regression model.

Test of Hypotheses

Hypothesis One

H_{o1}: There is no significant relationship between in-service training and teacher productivity in public senior secondary schools in Rivers State.

Table 3: Regression Coefficients for the Relationship Between In-Service Training and Teacher Productivity

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.784	.122		14.608	.000
	In-service training	.386	.043	.416	8.999	.000

a. Dependent Variable: Teacher productivity

The regression coefficients presented in Table 3 were used to test the relationship between in-service training and teacher productivity in public senior secondary schools in Rivers State. The analysis yielded t = 8.999 with p < .001. As p was below .05, the null hypothesis was rejected. There was therefore a statistically significant positive relationship between in-service training and teacher productivity in public senior secondary schools in Rivers State.

Hypothesis Two

H_{02}: There is no significant relationship between attendance of conferences and teacher productivity in public senior secondary schools in Rivers State.

Table 4: Regression Coefficients for the Relationship Between Attendance of Conferences and Teacher Productivity

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.166	.139		15.560	.000
	Attendance of conferences	.241	.048	.247	5.018	.000

a. Dependent Variable: Teacher productivity

The regression coefficients presented in Table 4 were used to test the relationship between attendance of conferences and teacher productivity in public senior secondary schools in Rivers State. The analysis yielded t = 5.018 with p < .001. As p was below .05, the null hypothesis was rejected. There was therefore a statistically significant positive relationship between attendance of conferences and teacher productivity in public senior secondary schools in Rivers State.

DISCUSSION

The results presented in Tables 1 and 3 showed that in-service training had a moderate, positive relationship with teacher productivity in public senior secondary schools in Rivers State (R = .416), and the relationship was statistically significant (t = 8.999, p < .001). Higher scores on in-service training were associated with higher scores on teacher productivity. Other studies have linked structured in-service learning with teachers' instructional and professional performance. Akuh (2023) observed improvements in subject-matter mastery, teaching methods, classroom management, assessment of students' work and professional commitment among teachers who participated in in-service training. Maclean (2018) also established positive and significant relationships between in-service training and teachers' job performance in public senior secondary schools in Rivers State. The findings of this study agree with Hart and Nwuke (2025), who found a significant moderate positive relationship between in-service training and instructional delivery in the same educational context.

Previous studies have reported different relationships between professional development and teachers' work under different programme and school conditions. Qaisra and Haider (2024) reported that in-service training was associated with improvements in instructional skills, classroom discipline, confidence and professional competence, although institutional constraints limited the benefits that participants reported. In contrast, Onyeka et al. (2025) found a negligible relationship between professional development and teacher productivity where structured opportunities were limited and programme content was weakly aligned with classroom needs. In this context, the present result indicated a moderate association between in-service training and teacher productivity. The moderate magnitude of this association means that in-service training alone does not account for teacher productivity; other teacher and school conditions may also be relevant.

The results presented in Tables 2 and 4 showed that attendance of conferences had a low, positive relationship with teacher productivity in public senior secondary schools in Rivers State (R = .247), and the relationship was statistically significant (t = 5.018, p < .001). Previous studies have also examined conferences and workshops as forms of professional learning. Okeke and Nwogbo (2020) found that principals encouraged teachers' participation in conferences and workshops as part of continuous

professional development practices for effective teaching. Banik and Saha (2023) similarly described conferences as platforms through which teachers could broaden professional expertise and maintain awareness of developments in educational practice.

The model summary showed that attendance of conferences accounted for 6.1% of the observed variance in teacher productivity. Conference attendance, considered as a single predictor, had a limited relationship with teacher productivity in the present sample, although conferences may still benefit teachers. Felix and Abrogena (2024) characterised conference participation as an organised professional learning activity intended to strengthen self-efficacy and instructional performance. None of the studies cited on conferences tested the relationship between conference attendance and teacher productivity; the present result thus extends rather than replicates their evidence. The low magnitude is in line with Worku et al. (2025), who found that seminars, workshops and conferences were rated at low levels and that unreformed CPD practices contributed little to instructional quality. A plausible explanation for the low magnitude lies in the difference between professional exposure and professional enactment: conferences expose teachers to curriculum issues and instructional innovations, but such exposure is likely to relate to teacher productivity only when the ideas are adapted and used in classroom situations. Inadequate funding, selective sponsorship and weak follow-up may also reduce the professional value of conference attendance (Ugorji et al., 2025). The present study adds evidence that, within public senior secondary schools in Rivers State, the relationship between attendance of conferences and teacher productivity was statistically significant but low.

The implication is that, of the two continuous professional development dimensions examined, in-service training bears the stronger association with teacher productivity in public senior secondary schools in Rivers State, accounting for 17.3% of the variance in teacher productivity, compared with 6.1% for attendance of conferences. This means that decisions on continuous professional development in these schools can draw on evidence that in-service training is more closely related to teacher productivity than conference attendance, although neither dimension, considered alone, accounts for most of the variance in teacher productivity.. Because the design was correlational, these implications concern the relative strength of association and not the effect of either activity on teacher productivity.

CONCLUSION

The study examined the relationships of in-service training and attendance of conferences with teacher productivity in public senior secondary schools in Rivers State. In-service training had a moderate, positive and statistically significant relationship with teacher productivity, whereas attendance of conferences had a low, positive and statistically significant relationship with teacher productivity. The study therefore concluded that both dimensions of continuous professional development were significantly associated with teacher productivity, although the observed relationships differed in magnitude.

RECOMMENDATIONS

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

1. The Rivers State Ministry of Education should organise regular in-service training for teachers in public senior secondary schools to help them develop their instructional, classroom management and curriculum delivery skills.
2. School principals should encourage and nominate teachers to attend relevant educational conferences, particularly conferences that address teaching methods, subject content and teacher productivity.

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