

THE INFLUENCE OF TEACHERS' PROFESSIONAL DEVELOPMENT ON MASTERY OF SUBJECT MATTER

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Abstract

This study investigates the influence of teachers' professional development on mastery of subject matter. The ex-post facto research design was used. Three research questions and three hypotheses were raised and formulated. The population was made up of all the teachers in Public Secondary Schools in Delta and Edo States. Stratified random sampling technique was adopted to select the teachers. The instrument used for data collection was the questionnaire. The instrument has face and content validity. The Split-half method was used to determine the reliability of instrument. The spearman correlation coefficient was used in analyzing it, which gave a value of 0.96 reliability coefficient. The data collected were analyzed with Mean and Standard Deviation for the research questions while the Pearson Product Moment Correlation was used for the hypotheses. A mean of 2.50 was adopted as the agreement level of the items. The findings of the study showed that professional development of teachers' influence the mastery of their subject matter, classroom management strategies contributes to mastery of subject matter, and teaching methods contribute to academic performance of students. Based on these findings, it was recommended that teachers' professional development training should be adopted as a yearly exercise for teachers across all levels of teaching.

Keywords: Teachers' professional development, Mastery of subject matter, Classroom management strategies, Teaching methods.

Introduction

Teachers' professional development is a programme that can be conducted by different organizations, in school and out of school, on the job or during sabbatical leave. In view of this, teachers update their knowledge and skills so that they can meet the requirements of modern curricula, consider new research in education and adapting to changes in the needed desire of the students (Bonney, Amoah, Micah, Ahiamenyo & Lemaire, 2015). Professional development involves training, practice and feedback; enough provided time and follow-up support. Professional development of a teacher can be achieved through:

- Courses/workshops (e.g. on subject matter, or teaching methods and/or other education related topics);
- Education conferences or seminars (at which teachers or researchers present their research results and discuss education problems);
- Qualification programmes (e.g. Degree programmes);
- Observation visits to other schools;

- Participation in a network of teachers formed specifically for the professional development of teachers, and
- Individual or collaborative research on a topic of professional interest (Organization for Economic Co-operation and Development, 2017).

The understanding of subject matter of a discipline enables committed teachers to plan their lessons and also to evaluate their students' assignments. Making a lesson plan requires teachers to simplify their teaching process so that the acts and information of a particular lesson is passed unto students in an efficient way. In addition, teachers' subject matter influences their capacity to help students learn subject matter. The knowledge of a teacher about a subject matter influences his ability to teach it, set questions on it and give work to students' based on it. This kind of understanding encompasses an understanding of the intellectual fabric of the subject matter. Many researchers understood the problems of subject matter in the teaching-learning process. Rena (2018) opined that knowledge of the subject matter aid the teacher to impart the learners with appropriate and relevant skills leading to the achievement of stated objectives. As highlighted above, teachers' level of knowledge of the subject matter has much influence on the process of achieving the lesson's objectives. In line with this, Rice and Royehoudhury (2014) also asserted that teachers must possess adequate knowledge in their domains of teaching. Any teacher that does not possess the adequate knowledge of subject matter in their domain of teaching cannot be effective. However, teacher's competence in subject goes beyond his/her knowledge of subject matter. Ehindero and Ajibade (2018) when they put forward that a teachers' achievement is related to the level of his pedagogical knowledge as different from his understanding of subject matter.

Classroom management strategy is a tool that the teachers should use to create an enabling environment, ranging from activities to improve teacher-student relationships to rules to regulate students' behavior. Classroom management strategies should be planned, be thoughtful and in consonance with curricula fidelity. Emmer and Stongh (2015) has stated that the ability of teachers to organize classrooms and manage the behaviour of their students is essential to achieving good educational outcomes. Brophy (2020) opined that classroom organization is the action taken to maintain a good learning situation conducive to successful instruction.

Proactive classroom management strategies aim on implementation of strategies that would emphasize on how learners should behave in the classroom and how to make the classroom as predictable as possible to prevent disruptive behaviour. Effective classroom management is significant to all teachers. It entails all aspects of what is going on in the classroom. Not only does classroom management involve how the teacher delivers the curriculum, but also how the learners interact with the teachers. Classroom management includes elements of discipline, but focuses on creating a peaceful learning situation that is portable, organized, engaging and respectful for both the teacher and learners. Akpan, Rssien and Ohot (2016) stated that one of the most significant teacher variables that improve their effectiveness is the mastery of subject matter. Mezieobi, Fubara and Mezieobi (2020) also observed that any meaningful conception of teaching should recognize the pattern of the subject and the good-objects to be taught and learned. Teachers should familiarize themselves with the subject matter to be taught. According to Rena (2012) good knowledge of the subject matter helps the

teacher to teach the learners effectively. This leads to the achievement of stated positive goals and consequent interest of the learners to continue in the learning process.

Teaching methods are referred to the teachers' attempt to teach the desired learning to students (Ndirangu, 2017). Ndirangu further stated that the selection of a teaching method is determined by many causes which include the content, the objectives teacher aims to achieve, availability of instructional materials and the ability of the teacher to improvise teaching materials. Kimweri (2020) opined that method of teaching refers to several ways in which a learning task is used to simulate the learning process. This means the way of organizing the participants and the type of methods to be used would be determined by different factors which include number of students, age and the topic to be taught, teaching methods is the strategies employed by the teachers in attempt to impart knowledge to the learners (Asikhia 2015), It is viewed as the strategy or plan that mapped the approach that teachers intend to take in order to achieve the right objectives (Osokoye, 2016).

The problem of teachers' professional development and mastery of subject matter is not related to teacher instruction only, but also to the level and quality of training. Both the academic level achieved and the quality of the professional training received, contribute to the competence of a teacher. Teachers' mastery of subject matter and other factors such as classroom management strategies and teaching methods adopted are the important indicators of the depth of the teacher's competence in subject matter. Teachers' competence in subject matter must go beyond mere knowledge of the subject matter. The teachers' competence in subject matter should involve his skill to develop learning interest among the learners. It is on this note that the study empirically seeks to find out if professional development of teachers has an influence on the mastery of their subject matter.

Research questions

The following research questions were raised to guide the study:

1. What is teachers' assessment of the influence of professional development on mastery of subject matter?
2. What is teachers' assessment of the influence of classroom management strategies on mastery of subject matter?
3. What is teachers' assessment of the influence of teaching methods used on academic performance of students?

Hypotheses

The following hypotheses were formulated:

1. There is no significant relationship between teachers' assessment of professional development and mastery of subject matter.
2. There is no significant relationship between teachers' assessment of classroom management strategies and mastery of subject matter.
3. There is no significant relationship between teachers' assessment of teaching methods used and academic performance of students.

Purpose of the Study

The general purpose of the study is to investigate the influence of teachers' professional development on mastery of subject matter. Specifically, the study seeks to:

1. Establish teachers' assessment of the influence of professional development on mastery of subject matter
2. Ascertain teachers' assessment of the influence of classroom management strategies on mastery of subject matter
3. Assess teachers' assessment of the influence of teaching methods used on academic performance of students.

Methods and Procedures

The design used for the study was ex-post facto and was descriptive in nature.. The population of the study was made up of all public secondary schools teachers in Delta and Edo States. There are four hundred and thirty six (436) Public Secondary Schools in Delta State with 13,451 teachers while Edo State has 259 Public Secondary Schools with a total of 7,353 teachers. Hence, the total population consisted of 20,804 teachers. (Post Primary Education Board, Asaba and Benin-City, 2020) The sample used was 2,080 teachers drawn from 68 schools according to senatorial district both in Delta and Edo States through the stratified random sampling technique. The instrument used for data collection was the questionnaire. A four point Likert type rating scale of strongly agree (4 points) Agree (3 points) disagree (2) and strongly disagree (1 point) was provided for the respondents to make their responses. The instrument has face and content validity. The Split-half method was used to determine the reliability of instrument. The spearman correlation coefficient was used in analyzing it, which gave a value of 0.96 reliability coefficient. The data collected were analysis with Mean and Standard Deviation for the research questions while the Pearson Product Moment Correlation was used for the hypotheses. A mean of 2.50 was adopted as the agreement level of the items.

Presentation of Results

Answering of the research questions and testing the hypotheses

Research Question 1

What is teachers' assessment of the influence of professional development on mastery of subject matter?

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Table 1: Mean rating of Teachers' Assessment of the influence of Professional Development on Mastery of Subject Matter.

S/No	Items	Mean	Decision
1	Professional development contributes to teachers' mastery of subject matter.	2.84	Accepted
2	Good knowledge of subject matter helps teachers to teach the learners better.	2.90	Accepted
3	Teachers who want to know more about their subject matter will seek for professional development.	2.93	Accepted
4	Maintaining discipline among learners is enhanced through classroom management strategies.	2.73	Accepted

5	Teachers' professional development promotes independent learning and success for all students in classrooms.	2.73	Accepted
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Source: Computed from Fieldwork, 2020

Table 1 showed that the respondents accepted all the items. They accepted all the items since their mean responses were above 2.5 which is the acceptance level. This means that professional development contributes to teachers mastery of subject matter, good knowledge of subject matter helps teachers to teach the learners better, teachers who want to know more about their subject matter will seek for professional development, maintaining discipline among learners are enhanced through classroom management strategies and teachers' professional development promote independent learning and success to all students in classrooms.

Hypotheses 1: There is no significant relationship between teachers' assessment of professional development and mastery of subject matter.

Table 2: Summary of Correlational Coefficient Analysis on Teachers' Assessment of Professional Development and Mastery of Subject Matter

Variable	N	Mean	SD	r-value	p-value	Decision
Professional Development	208015.26	2.218		0.332	0.012	Rejected
Mastery of Subject Matter	208014.19	2.955				

$\alpha = 0.05$

Sources: Computed from Fieldwork, 2020

Table 2 showed the summary of correlational coefficient analysis on teachers' assessment of professional development and mastery of subject matter. It showed r-value of 0.332 and a p-value of 0.012. Testing at an alpha level of 0.05, the p-value is less than the alpha level. Therefore, the null hypothesis is rejected. This means that there is a significant relationship between teachers' assessment of professional development and mastery of subject matter.

Research Question 2

What is teachers' assessment of the influence of classroom management strategies on mastery of subject matter?

Table 3: Mean rating of Teachers' Assessment of the influence of Classroom Management Strategies on Mastery of Subject Matter.

S/No	Items	Mean	Decision
1	Classroom management strategies provide instruction through interactive communication.	2.55	Accepted
2	Maintaining discipline among learners are enhanced through classroom management strategies.	2.88	Accepted

3	Feedbacks from learners are outcome of classroom management strategies.	2.66	Accepted
4	A teacher who has mastery of subject matter controls his class effectively.	3.07	Accepted
5	Effective classroom management guarantees the achievement of outstanding educational outcomes.	3.03	Accepted

Source: Computed from Fieldwork, 2020

Table 3 showed that the respondents accepted all the items. They accepted all the items since their mean responses were above 2.5 which is the acceptance region. This means that classroom management strategies provide instruction through interactive communication, maintaining discipline among learners are enhanced through classroom management strategies, feedbacks from learners is an outcome of classroom management strategies, a teacher who has mastery of subject matter controls his class effectively and effective classroom management guarantees the performance of outstanding educational outcomes.

Hypothesis 2: There is no significant relationship between teachers' assessment of classroom management strategies and academic performance of students.

Table 4: Summary of Correlational Coefficient Analysis on Teachers' Assessment of Classroom Management Strategies and Mastery of Subject Matter

Variable	N	Mean	SD	r-value	p-value	Decision
Classroom Management Strategies	2080	14.502	2.231			
Mastery of Subject Matter	2080	14.192	1.955	0.037	0.032	Rejected

$\alpha = 0.05$

Source: Computed from Fieldwork, 2020

Table 4 showed the summary of correlational coefficient analysis on teachers' assessment of classroom management strategies and mastery of subject matter. It showed r-value of 0.037 and a p-value of 0.032. Testing at an alpha level of 0.05, the p-value is less than the alpha level. Therefore, the null hypothesis is rejected. This revealed that there is a significant relationship between teachers' assessment of classroom management strategies and mastery of subject matter.

Research Question 3

What is teachers' assessment of the influence of teaching methods used on academic performance of students?

Table 5: Mean rating of Teachers' Assessment of the influence of Teaching Methods used on Academic performance of students.

S/No	Items	Mean	Decision
1	The use of different teaching methods in classroom contributes to academic performance of students.	2.88	Accepted
2	Teachers' professional development equips teachers with different methods of teaching to enhance academic performance of students.	2.93	Accepted
3	Different teaching methods play an important role in contributing to academic performance of students.	2.88	Accepted
4	There is a greater impact of teaching methods on students' performance as a result of teachers' professional development.	2.85	Accepted
5	Teaching method comprises principles and methods used in instruction to enhance students' performance.	2.83	Accepted

Source: Computed from Fieldwork, 2020

Table 5 showed that the respondents accepted all the items. They accepted all the items since their mean responses were above 2.5 which is the acceptance level. This means that the various teaching methods in classroom contribute to academic performance of students, teachers' professional development equip teachers with different methods of teaching to enhance academic performance of students, different teaching methods play an important role in contributing to academic performance of students, there is a greater impact of teaching methods on students' performance as a result of teachers' professional development and teaching method comprises principles and methods used in instruction to enhance students' performance.

Hypothesis 3: There is no significant relationship between teachers' assessment of teaching methods used and academic performance of students.

Table 6: Summary of Correlational Coefficient Analysis on Teachers' Assessment of Teaching Methods used and Academic performance of students

Variable	N	Mean	SD	r-value	p-value	Decision
Teaching Methods	208	14.372	55			
Academic performance of students	208	60.348	02	0.667	0.028	Rejected

$\alpha = 0.05$

Source: Computed from Fieldwork, 2020

Table 6 showed the summary of correlational coefficient analysis on teachers assessment of teaching methods used and academic performance of students. It showed r-value of 0.667 and a p-value of 0.028. Testing at an alpha level of 0.05, the p-value is less than the alpha level. Therefore, the null hypothesis is rejected. This means that there is a significant relationship

between teachers assessment of teaching methods used und academic performance of students.

Discussion of Results

Results from research question 1: it was revealed that professional development has influence on mastery of subject matter. It was observed that professional development contributes to teachers' mastery of subject matter, good knowledge of subject matter helps teachers to teach the learners better, teachers who want to know more about their subject matter will seek for professional development, maintaining discipline among learners are enhanced through classroom management strategies and teachers professional development promote independent learning and success for all students in classrooms. The result from hypothesis 1also revealed that there is a significant relationship between teachers' assessment of professional development and mastery of subject matter. This means that professional development influences mastery of subject matter. This is in consonance with a study by Ehindero and Ajibade (2018) who affirmed that teachers' performance is related to the level of their pedagogical knowledge, as different from their knowledge of subject matter. Rice and Roychoudhury (2014) opined that the teacher's ability in the subject matter is an indispensable background for the display of effective pedagogical skills. Teacher's level of understanding on the subject matter has significant influence on the process of achieving the lesson's objectives. Teachers without good grasp of subject matter, if he can succeed in bluffing the students, he has only succeeded in imparting incorrect information.

Research question 2 in table 3 indicated that classroom management strategies have influence on mastery of subject matter. It was observed that classroom management strategies provide instruction through interactive communication, maintaining discipline among learners are enhanced through classroom management strategies, feedbacks from learners is an outcome of classroom management strategies, a teacher who has mastery of subject matter controls his class effectively and effective classroom management guarantees the achievement of outstanding educational outcomes. The result from hypothesis 2 in table 4 showed that there is a significant relationship between teachers' assessment of classroom management strategies and mastery of subject matter. This implies that classroom management strategies contribute to mastery of subject matter. This is related to a study carried out by Akpan, Essien and Ohot (2016) who stated that one of the most significant teacher variables that improve their effectiveness is the mastery of subject matter. Mezieobi, Fubara and Mezieobi (2016) observed that any meaningful conception of teaching should recognize the pattern of the subject and the good-objects to be taught and learned. Teachers should familiarize themselves with the subject matter to be taught. According to Rena (2018) good knowledge of the subject matter helps the teacher to teach the learners effectively. This leads to the achievement of stated goals and consequent interest of the learners to continue in the learning process. Scholars added that it has been established that there is a high relation between what teachers know and what they teach.

Research question 3 in table 5 revealed that teaching methods have influence on academic performance of students. It was observed that the use of several teaching methods in classroom contribute to academic performance of students, teachers' professional development equip teachers with different methods of teaching to enhance academic performance of students, different teaching methods play a fundamental role at contributing

to academic performance of students, there is a greater impact of teaching methods on students' performance as a result of teachers' professional development and teaching method comprises principles and methods used in instruction to enhance students' performance. However, the result from hypothesis 3 in table 6 revealed that there is a significant relationship between teachers' assessment of teaching methods used and academic performance of students. This implies that teaching methods contribute to academic performance of students. This corroborates a research carried out by Asikhia (2015) that teaching methods are the strategies employed by teachers in attempt to impart knowledge to the learners. Again, Osokoye (2016) asserted that teaching method is the strategy or plans that outline the approach that teachers intend to take to achieve the desirable objectives. Oyegwe (2018) also held the view that teaching methods are the types of activities pursued by teachers and students together in the teaching-learning process.

Conclusion

The major conclusions reached from the results of the study were that professional development of teachers influence the mastery of their subject matter, classroom management strategies contributes to mastery of their subject matter, and teaching methods contribute to academic performance of student.

Recommendations

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

1. Teachers' professional development training should be adopted as a yearly exercise for teachers across all levels of teaching.
2. Workshops and seminars should be organized to train teachers on effective classroom management practices.
3. The government at all levels and its agencies on education should encourage teachers in their quest for acquisition of professional development through financial support.

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