Classroom Management Skills of Science Teachers

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Abstract: Classroom is the centre focus of every educational setting due to the fact that it is the inevitable component of schools where students and teachers interacts for the purpose of imparting knowledge on students in line with the goal and objectives of policy of education of the society. Also, management of classroom is centered to effective teaching and learning. Hence, it is essential for teachers to be familiar with classroom management skills. This study investigated classroom management skills of science teachers in the Nigerian Capital, Abuja. The survey research design was adopted. 382 science teachers in both junior and senior secondary schools in the FCT, Abuja were randomly sampled. Data of the study were collected through as a questionnaire constructed in a 4-point modified Likert scale format. Data collected were analyzed using descriptive and, analysis of variance statistics. It was revealed that classroom management skills of science teachers are moderately satisfactory. However, academic attainment and work experiences of the teachers influence their classroom management skills. It was recommended that regular in-service training in classroom management should be organized for science teachers irrespective of educational attainment and working experiences.

Key words: Classroom, Management, Skill, Science, Teachers.

I. INTRODUCTION

Education is a central pillar of every society upon which components of the society depend. It is a lucrative investment for both individual and society because position of every individual in the society as well as every nation across the globe is determined by education (Fazilah, Zaharah, Azizah, Saran & Noor, 2011). Hence, social and economic developments of every nation count on pace of her education. To educate citizenry, therefore, schools are established.

The school is sine quo none in every society due to the fact that it is the society's miniature. It is a social centre established towards building the personality and character of the citizenry which assist them develop their natural abilities toward sustainable growth and development of the immediate society, and the world at large.Also, it is the centre for coordination and utilization of educational resources to bring about desirable changes in the learners, and it incorporates such experiences which are intimately connected with actual living and enable the individual to lead a successful life is society (Gu & Johansson, 2013). Obviously, the status of every society is determined by the stats of its education which counts of schools. However, the school cannot achieve the stated objectives without the classroom.

Classroom is an inevitable component of the school as a result of its roles towards realization of the objectives of school in the society as well as education to the society. Classrooms are educational showroom mostly found in educational institutions. Adeyemo (2012) describes classroom as the formal learning environment designed for formal knowledge acquisition, and made up of the teacher, the learners, and learning equipment which interact towards predetermined objectives. Moreover, classroom is described as an engaging and dynamic learning environment which supports pedagogical activities, active learning, and students' development of essential skills as well as emphasized creativity, critical thinking, communication, and collaboration between teachers, learners and school's supporting staff (Mien, 2021).

Garrett (2014) submits characteristics of classroom to include security, open communication, mutual liking, shared goals and connectedness. Likewise, Mien (2021) opines that characteristics of classroom include flexible functionality, concern about students' cognitive and intellectual growth and development, independent learning, and variety of skill sets. To Anonymous (2021), these include provision of physical and psychological security and comfort, supporting learning tasks towards realization of education objectives, provision of rooms for students' social contact and interaction, attractive and aesthetically pleasing, and inspires intellectual growth and development. Based on the above description of classroom as well as its functions, it is neither understatement nor exaggeration to tag classroom as the "society theatre" perhaps, abnormalities in the citizenry are corrected from juvenile stage in the schools via the classroom. For classroom to be effective, therefore, it management cannot be overemphasized.

Cini (2016) sees classroom management as the use of procedures and teaching techniques that promote a safe and efficient learning environment of which disciplinary method and behavioral expectations are central. Sadik and Akbulut (2015) also describe classroom management as one teachers' skills that determines teaching effectiveness. It is constant procedures which involves teachers' decisions making regarding teaching and learning factors such as where and with whom the students should sit down, which teaching methods should be followed, how to ensure motivation and student participation, which materials to use and, how to deal with misbehaviors, among others (Emmer & Gerwels, 2005; Jones & Jones, 2004; Sadik & Akbulut, 2015).

Perhaps, classroom management majorly focus on turning classroom into the ideal learning environment as well as teachers' controlling behavior and actions to create, implement, and maintain a learning environment for effective interaction between teachers and students (Kelly, 2020).

Spencer (2018) describes classroom management as responsibility of teacher to exhibit complete control over the classroom through a series of strategies and techniques that encourage positive student behavior. It also seen as teachers activities which have implications for classroom functionality including creating the setting, decorating the room, arranging the chairs, speaking to students and handling students' responses, putting routines in place, developing rules, and communicating those rules to the students (Adeyele, Sowunmi & Adeosun, 2018; Agu, 2021).

Corroboratively, Evertson and Weinstein (2006) submit that classroom management aimed mainly at two factors – academic learning and social-emotional learning. The academic learning in this direction implies learning content specified in state content standards while the social-emotional learningis concerned with promotion of growth in social skills and students' ability to express emotions maturely (Garrett, 2014). Also, Spencer (2018) stresses that students' wellbeing and academic outcomes count on classroom management. This is based on the assertion that students' cognitive demands - academic task demands (understanding and working with content) and social task demands (interacting with others concerning that content) – are achievable within functional and conducive classrooms where students actively participate in the teaching and learning process rather than mere passive stakeholders (Ben, 2016).

Features of classroom management, according to Bosch (2006), include organizing the physical design of the classroom, establishing rules and routines, developing caring relationships, implementing engaging and effective instruction, and addressing discipline issues. To effective in this regards, Burden cited in Mudianingrum, Evenddy and Rima (2019) submits seven factors which assist teachers to include preparation, making the classroom attractive, set up classroom rules, enthusiastic about instructional delivery, fairness to students, and proper records of students.

This implies that teachers have to be conversant with classroom management skills for academic excellence. Unfortunately, there are paucity of studies on studies on classroom management skills among science teachers in the Federal Capital of Nigeria. Most studies conducted focused on other variables that influence students' academic outcome. Therefore, this study examines classroom management skills of science teachers in the Federal Capital Territory, Abuja.

Objectives of the Study

The specific objectives of this study include:

i. Investigate classroom management skills of science teachers.
ii. Assess influence of educational background on teachers' options regarding classroom management skills of science teachers.
iii. Assess influence of working experience on teachers' options regarding classroom management skills of science teachers.

Research Questions

In line with the above objectives, the following research questions are raised:

i. How are the classroom management skills of science teachers?
ii. Does educational background influence teachers' options regarding classroom management skills of science teachers?
iii. Does working experience influence teachers' options regarding classroom management skills of science teachers?

Hypotheses

Based on the objectives and research questions of this study, the following hypotheses are formulated:

H_{01}: Educational background has no significant influence on teachers' options regarding classroom management skills of science teachers.

H_{02}: Working experience has no significant influence on teachers' options regarding classroom management skills of science teachers.

II. METHODOLOGY

The descriptive research design was employed for this study. Population of this study comprised of science teachers in public junior and senior secondary schools in Federal Capital Territory, Abuja. The FCT, Abuja made of six area councils namely Abaji, Abuja Municipal, Bwari, Gwagwalada, Kwali, and Kuje. There are 161 and 57 junior and senior secondary schools respectively across the six area councils with teachers' population of 6,097 and 3,646 teachers in the same order. This implies that population of the study is 9743(FCT Education Management Information System, 2021). Sample size of the study was 382 based on the Research Advisor's sampling table. The teachers were randomly selected across the area councils using the simple random sampling technique. Teachers teaching science subjects are selected. Data of the study were collected through a questionnaire design in a 4-point modified Likert scale format. The questionnaire contained twelve items revolving around classroom management skills including planning, monitoring, discipline, evaluation, and mentoring.The reliability index of the questionnaire is 0.83. The descriptive statistics was used for data analysis of which results was used for answering the research questions while analysis of variance (ANOVA) was employed for testing the formulated hypotheses.

III. DATA PRESENTATION AND ANALYSIS

Data of the study were presented and analyzed as follows:

Table 1: Responses to Questionnaire

S/N	Item	SA	A	D	SD	$\bar{x}$	Decision
1	Enrich the curriculum by planning visits to places of interest	84	127	114	57	2.62	Agreed
2	Planning to engage learners in their classes	81	148	106	47	2.69	Agreed
3	Communication with students in an appropriate way	81	147	110	44	2.69	Agreed
4	Organize seating arrangements according to the purpose of the lesson	106	147	92	37	2.84	Agreed
5	Creation of non-threatening classroom atmosphere conducive to optimal learning	91	146	113	32	2.77	Agreed
6	Establishment of effective classroom discipline management policy	114	137	84	47	2.83	Agreed
7	Consistent checking of classroom attendance of learners	78	153	97	54	2.67	Agreed
8	Regular marking and signing of work books of learners	73	173	93	43	2.72	Agreed
9	Teachers check that learners mastering of works while presenting lessons	77	151	79	75	2.60	Agreed
10	Working with, and motivating students to learn	111	150	69	52	2.84	Agreed
11	Modeling of values that promote a healthy classroom culture	91	159	103	29	2.82	Agreed
12	Provision of the right opportunities for learners to be competent	108	139	100	35	2.84	Agreed
Grand Mean						2.74	Agreed

Responses of respondents were presented on table 1 showed agreement with the entire items. The least rating mean was 2.60 while the highest rating mean 2.84. The general mean to the items was 2.74. This implies that science teachers in the study area are conversant with classroom management skills.

Table 2: Responses according to Academic Attainment

S/N	Item	1st	2nd	3rd
1	Enrich the curriculum by planning visits to places of interest	2.48	2.69	2.95
2	Planning to engage learners in their classes	2.56	2.76	2.85
3	Communication with students in an appropriate way	2.39	2.84	3.25
4	Organize seating arrangements according to the purpose of the lesson	3.06	2.71	2.8
5	Creation of non-threatening classroom atmosphere conducive to optimal learning	2.72	2.83	2.55
6	Establishment of effective classroom discipline management policy	2.59	2.93	3.5
7	Consistent checking of classroom attendance of learners	2.8	2.61	2.35
8	Regular marking and signing of work books of learners	2.41	2.87	3.35
9	Teachers check that learners mastering of works while presenting lessons	2.17	2.84	3.1
10	Working with, and motivating students to learn	2.64	3	2.5
11	Modeling of values that promote a healthy classroom culture	2.71	2.94	2.2
12	Provision of the right opportunities for learners to be competent	2.43	3.05	3.55
Overall Mean		2.58	2.84	2.91

Responses based on academic attainment of respondents were presented on table 2. Respondents with NCE and university first degree or equivalent were classed as first (1st) while those with additional certificates including masters were grouped as second (2nd), and those with PhD certificates are referred to as "3rd". The general rating means for these groups were 2.58, 2.84, and 2.91 respectively. This implied that academic attainments has effect on science teachers' classroom management skills.

Table 3: Responses according to Working Experience

S/N	Item	<10	10-20	>20
1	Enrich the curriculum by planning visits to places of interest	2.24	2.92	2.51
2	Planning to engage learners in their classes	2.55	2.78	2.71
3	Communication with students in an appropriate way	2.72	2.68	2.69
4	Organize seating arrangements according to the purpose of the lesson	2.6	3	2.97
5	Creation of non-threatening classroom atmosphere conducive to optimal learning	2.59	2.89	2.89
6	Establishment of effective classroom discipline management policy	2.73	2.94	2.66
7	Consistent checking of classroom attendance of learners	2.42	2.8	2.94
8	Regular marking and signing of work books of learners	2.6	2.75	3.09
9	Teachers check that learners mastering of works while presenting lessons	2.64	2.55	2.71
10	Working with, and motivating students to learn	2.97	2.75	2.8
11	Modeling of values that promote a healthy classroom culture	2.85	2.77	2.94
12	Provision of the right opportunities for learners to be competent	2.9	2.69	3.43
Overall Mean		2.65	2.79	2.86

Responses based on working experiences of respondents were presented on table 3. The respondents were grouped into three in this regards. These groups were those with less than 10 years, 10 to 20 years, and those with more than 20 years teaching experiences. The general rating means for these groups were 2.65, 2.79, and 2.86 respectively. This implied

that working experiences has effect on science teachers' classroom management skills.

Test of Hypotheses

Hypothesis One

Educational background has no significant influence on teachers' options regarding classroom management skills of science teachers.

Table 4: Summary of ANOVA Result for Hypothesis One

Source of Variation	SS	df	MS	F	P-value	F-crit	Decision
Between Groups	934.28	2	467.14	18.5	0.03	3.28	Rejected
Within Groups	9571.33	379	25.25				
Total	10505.62	381					

Table 4 showed summary of analysis of variance (ANOVA) result for data related to hypothesis one which is concerned with influence of educational attainment of teachers on their options regarding classroom management skills. From the table, the F-value, 18.5, is greater than the F-crit. (table value), 3.28. Similarly, p-value, 0.03, is less than the level of significance, 0.05, of which the test was carried out, hence, the null hypothesis one is rejected. Educational background has significant influence on teachers' options regarding classroom management skills of science teachers.

Table 5: Post-Hoc Test for Influence of Educational Attainment

Educational Background	Educational Background	Mean Difference	Std. Error	Sig.
1st Degree	2nd Degree	-3.13*	.539	.000
	3rd Degree	-4.01*	1.199	.003
2nd Degree	1st Degree	3.13*	.539	.000
	3rd Degree	-.88	1.174	.736
3rd Degree	1st Degree	4.01*	1.199	.003
	2nd Degree	.88	1.174	.736
*. The mean difference is significant at the 0.05 level.				

Table 5 captured the post-hoc comparisons using the Tukey HSD test for the influence of educational background on teachers' options regarding classroom management skills among science teachers. It indicated that the options of teachers with first degree were significantly different from their counterparts with second and thirddegrees. However, options of those with 2nddegreedid not differ significantly from those with third degree.

Hypothesis Two

Working experience has no significant influence on teachers' options regarding classroom management skills of science teachers.

Table 6: Summary of ANOVA Result for Hypothesis Two

Source of Variation	SS	df	MS	F	P-value	F-crit	Decision
Between Groups	322.91	2	161.455	6.01	0.004	3.28	Rejected
Within Groups	10182.71	379	26.867				
Total	10505.62	381					

Table 8 showed summary of analysis of variance (ANOVA) result for data related to hypothesis two which focused on the influence of working experience on teachers' options regarding classroom management skills.. From the table, the F-value, 6.01, is greater than the F-crit. (table value), 3.28. Similarly, p-value, 0.004, is less than the level of significance, 0.05, of which the test was carried out, hence, the null hypothesis two is rejected. This implied that working experience has significant influence on teachers' options regarding classroom management skills of science teachers

Table 7: Post-Hoc Test for Influence of Working Experience

Working Experience	Working Experience	Mean Difference	Std. Error	Sig.
Less than 10 Years	<10	-1.71*	.563	.007
	>20	-2.53*	.975	.026
10 – 20 Years	<10	1.71*	.563	.007
	>20	-.83	.949	.660
More than 20 Years	<10	2.53*	.975	.026
	10 – 20	.83	.949	.660
* The mean difference is significant at the 0.05 level.				

Table 7 captured the post-hoc comparisons using the Tukey HSD test for the influence of working experience on teachers' options on science teachers' classroom management skills. It showed that options of teachers with teaching experiences less than 10 years were significantly different from their counterparts with working experiences of 10 – 20 and more than 20 years class. However, options of teachers with working experiences between 10 and 20years did not differ significantly from those with more than 20 years working experiences.

IV. DISCUSSION OF FINDINGS

This study focused on science teachers' classroom management skills. Factors examined in this regards include planning, monitoring, discipline, evaluation, and mentoring. Influence of educational attainment and working experiences of teachers on classroom management was specifically examined. It was discovered that classroom management skills of science teachers in junior and secondary schools in the FCT, Abuja were fairly pleasant. Also, academic attainment and work experiences have influence on magnitude of science teachers' skills in managing classrooms.

This discovery is consistent with the findings of Mudianingrum, Evenddy and Rima (2019) who revealed pleasant classroom management skills of English language

teachers. Also, Sadik and Akbulut (2015) who found relationship between teachers' classroom management skills and professional experience and pedagogical background. Moreover, Adeyele, Sowunmi and Adeosun (2018) disclosed teachers' working experiences influenced their classroom management skills.

In addition, the findings of this study agree with the findings of Adeyemo (2012), and Agu (2021) who disclosed relationship between classroom management effectiveness and academic excellence. Furthermore, findings of this study support the submissions of Bosch (2006), Evertson and Weinstein (2006), Garrett (2014), Ben(2016), and Spencer (2018) that classroom management is essential for excellence teaching and learning activities which served as one of the major factors influencing students' academic performance.

V. CONCLUSION AND RECOMMENDATIONS

Based on the findings of this study, it could be concluded that classroom management is essential for effective teaching and learning exercise as well as students' academic outcome. Hence, teachers have to be conversant with skills essential for effective classroom management. Therefore, the following are recommended:

i. In-service/workshops/seminars training should be organize for Science teachers to acquaint themselves with relevant classroom management skills irrespective of their teaching experiences and academic attainment.

ii. Science teachers should be encouraged and allowed to go for further studies to upgrade their knowledge on modern classroom management skills.

iii. Science teachers' retirement age should be increase since their working experience has effect on their classroom management skills.

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