

Influence of Classroom Management on the Teaching of Physics in Senior Secondary Schools in Rivers State

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Abstract

The study investigated “influence of classroom management on the teaching of Physics in senior secondary schools in Rivers State”. Succinctly, the study determined classroom management procedures/ strategies in the teaching of physics; benefits of effective classroom management, factors hindering effective classroom management and teachers’ qualities for improving classroom management skills among physics teachers in Rivers state. The sample size for the study was 36 male physics teachers and 15 female physics teachers which were randomly selected from the three senatorial districts in Rivers state. Self-constructed questionnaire was administered to the respondents for data collection. The collated data was analyzed using frequency, mean and standard deviation method. The result revealed that establishing clear rules and regulation in the class, communicating the set rules with the learners, enforcement of classroom rules promptly, consistently and equitably among others are the strategies/procedures for effective classroom management. A portion of the study also discovered that effective classroom management stimulates efficient teaching and learning process, enhances students’ achievement of lesson objective, creates a productive and conducive learning environment, helps students to maintain rules and regulations, instills moral discipline among students, just to mention few. Whereas, poorly planned instruction, lack of classroom rules and regulation, poor classroom setting and others were determined as the factors militating effective classroom management. Findings revealed that boldness, self-coordination, indiscrimination, harshness, preparedness, among others are qualities that will enhance classroom management practices among teachers. It was therefore recommended that physics teachers should be provided with necessary instructional material to enhance proper self coordination and preparedness

Keywords: classroom, management, strategies, procedures, teaching, physics

Introduction

Physics from the ancient Greek, is the natural science that studies matter and its motion and behavior through space and time and studies the related entities of energy and force. According to Anka, Anka and Anka (2014) physics refers to the study of the laws of nature that governs the behavior of the universe from the very smallest scale of cosmology. Physics is taught in science secondary schools which intend to groom learners in the aspect of understanding the nature. However, the teaching and learning of physics in educational institution takes place in the walls of the classroom and laboratory. It is therefore pertinent for physics teachers to have a substantial knowledge on classroom management so as to enhance the instructional objectives.

Classroom can be likened to factories where raw materials are processed. It is the atomic part of an educational institution where learning takes place. The classroom comprises of the teacher and student including all necessary instructional materials that enhance teaching and learning process. Classrooms are found in all educational institution which attempts to provide a space where learning can take place uninterrupted by external distractions. Classroom provides a conducive environment where knowledge could be transferred to learners without or with less interruption from external environment. However, various distractions emerge from the environment that may lead to reduced attention and thereby results to less realization of instructional objectives among learners. These distracters may be internal factors caused by students and teachers or external ones caused by factors outside the walls of the classroom. It is based on the effort to control these distracters that classroom management becomes imperative.

Classroom management according to Everton and Weinstein (2006) is the actions teachers take to create a supportive environment for the academic and social emotional learning of the students. Oliver (2007) also described classroom management as the acts of organizing classroom and manage behaviors of the students in order to achieve positive educational objective. Effective management of the whole classroom population (including response to disruptive individual students) is a pre-requisite for dealing with students requiring additional behavioral supports (Swinson, Woof & Melling, 2003). However Oliver (2007) argued that behavioral management does not guarantee effective instruction, but establishes the behavioral context that makes good instruction possible Therefore classroom management could be seen as the teachers’ acts of subjecting all learning interrupting factors under control so as to establish a conducive learning environment which in turn leads to achieving instructional objectives.

Classroom management procedures are very essential for teachers to know what is expected of students and also for students to know how things work in the wall of the classroom that is the governing rules of the classroom. “If students are disorderly and disrespectful, and no apparent rules and procedures guide there

behavior chaos becomes the norm”(Marzano, Marzano & Pickering, 2013). Procedures depicts what students are to do and the corresponding results of all actions taken in the classroom. According to Cox (2018), “every time a teacher wants something done, they will think of the procedure of how it will be get done. For instance, transitioning between activities. Classroom procedures help students to know when bell rings, when there is need to ask question and need to make necessary contributions during lessons. Dunbar (2004) opined that classroom arrangement is one of the major step to effective classroom management as many experienced teachers recommend assigned seating for students to facilitate discipline and instruction. He also supported the fact that establishing realistic rule and conduct as well as carryout consequence versus punishment model creates a conducive classroom environment where adequate instructions will be carried out. Good classroom managers are teachers understand and use specific techniques to control students behaviors (Marzano, Marzano & Pickering, 2013). Calderon (N.D) upheld that classroom management requires good rules and procedures which may vary from one teacher to the other and from one classroom to another. Effective classroom management doesn't just develop itself during lectures, it requires a great deal of deliberate effort of the teacher.

Moreover, various researchers have come to the conclusion that effective classroom management is so beneficial as it facilitates the achievement of general educational objectives. Ingersoll and Smith (2003) posited that a significant body of research attest to the fact classroom organization and behavior management competencies significantly influence the persistence of new teachers and teaching careers. It is therefore obvious that classroom management is not unidirectional rather it both benefits the learners and the teachers. Teachers' ability to effectively manage classroom behaviors often contribute to the high achievement students both cognitively and affectively (Oliver, 2007). Classroom which comprises of students and teachers could be thought of a team where team work and cooperation plays a vital role in achieving team goals. This cooperation can be obtained with the teachers' good management skills in the classroom (Ukessay, 2013). In addition to helping the teachers doing his /her work effectively students cooperation developed through classroom management can also mould students into young patriotic citizens.

Nevertheless, there diverse challenges hindering effective classroom management in the teaching of Physics. According to Ahmed (2016) there are various reasons why teachers' classroom management are hindered or not effectively carried out. He pinpointed teaching style that is “if the teachers is apathetic or shows little interest in supporting students' educational progress, students are likely to become bored; passive or restless. Also Lindhard and Dlamini (1990) external factors can also be a problem such as poverty, violence and other forms of human insecurity both in the home and in the society more generally can severely influence a student's receptivity to a teachers' attempt to manage classroom learning and discipline. These factors annihilate teachers' efforts to organize and control the classroom for proper learning to take place.

Finally there is an increasingly public concern about fallen standard of the education system in the country. Achievement of a credible class conduct as a teachers deserves some spectacular qualities attained by the teacher which includes boldness, flexibility, reliability comportsment among others (Koole, 2009). Also, in the absence of self motivated discipline, teachers default mechanism goes off automatically which results to the main cause of underachievement and inability to realize potentials (Brain, 2010). Therefore in other to maintain an excellent atmosphere for learning there is a need for the teachers to be self disciplined so as to carry out the speculated classroom rules with consistency, accuracy, mild distraction and discrimination.

Purpose of the study

The main purpose of the study is to determine the influence of classroom management in teaching of physics in senior secondary schools. In specific terms the study tends to;

1. determine classroom management procedures/ strategies in the teaching of physics.
2. determine the benefits of classroom management on the teaching of Physics.
3. ascertain the factors hindering effective classroom management in senior secondary schools in Rivers State.
4. determine the teachers' qualities for improving classroom management skills among physics teachers in Rivers state.

Research Questions

The following research questions guided the study;

1. What are the classroom management procedures in the teaching of physics in senior secondary schools?
2. What are the benefits of effective classroom management in the teaching of physics in senior secondary schools in Rivers State?.
3. What are the factors hindering effective classroom management in senior secondary schools?
4. What are the strategies for improving classroom management skills among physics teachers?

Hypothesis

The following hypotheses were tested at 0.05 level of significance

- H₀₁: There is no significant difference in the mean responses of male and female physics teachers on the classroom management procedures in the teaching of physics
 H₀₂: There is no significant difference in the mean responses of male and female physics teachers on factors hindering effective classroom management in senior secondary schools
 H₀₃: There is no significant difference in the mean responses of male and female physics teachers on the strategies for improving classroom management skills among physics teachers

Methodology

The study adopted a descriptive survey research design. However random sampling technique was used to select 12 male physics teachers and 5 female physics teachers from each of the three strata (senatorial districts) in Rivers State (Rivers South East, Rivers West and Rivers East) through science teaching science teaching secondary schools. The total sample size amounted to 36 male physics teachers and 15 female physics teacher which was used for the study. The instrument used for data collection was a self constructed survey questionnaire titled “ ICMTP” influence of classroom management on the teaching of physics. The instrument consisted of two sections which were structured in four- point rating scale. Section one consisted of respondents' details and section two comprised of 46 items which elicited information based on each of the research questions. The instrument was validated in terms of construct and contents by two experts in the department of science education in River State University. To ascertain the reliability of the instrument, Cronbach Alpha reliability coefficient method was used to measure the internal consistency of the instrument which yielded reliability coefficient was 0.62. Copies of the instrument were administered and retrieved by the researchers. Frequency mean and standard deviation were used to answer the research questions. Mean scores < 2.50 were rejected and mean scores ≥ 2.50 were accepted. The null hypotheses were tested at 0.05 level of significance.

Results and Discussions

Research Question 1:

What are the classroom management procedures/strategies in the teaching of physics in senior secondary schools?

Table 1: Classroom management procedures/strategies in the teaching of physics in senior secondary schools

S/N	ITEMS	Male physics teacher =36			Female physics teacher=15		
		\bar{x}	S.D	Remarks	\bar{x}	S.D	Remarks
1	Establishing clear rules and regulation in the class	3.46	0.53	Agreed	3.53	0.82	Agreed
2	Communicate the set rules with the learners	3.55	0.62	Agreed	3.44	0.71	Agreed
3	Enforce classroom rules promptly, consistently and equitably	3.30	0.54	Agreed	3.21	0.54	Agreed
4	Establish positive relationship with the students	3.43	0.74	Agreed	3.04	0.81	Agreed
5	Set views that accommodates all students at a time during both practical and lesson	3.09	1.02	Agreed	3.18	0.77	Agreed
6	Keep your eyes moving to identify behavioral changes	3.62	0.82	Agreed	3.42	0.62	Agreed
7	Reinforcing positive behavioral changes	3.53	1.02	Agreed	3.31	0.51	Agreed
8	Punishing negative behavior immediately	3.26	0.72	Agreed	3.42	0.82	Agreed
9	Create opportunities for contribution and crucial questions	3.14	0.69	Agreed	3.51	0.74	Agreed
10	Arrange the classroom so that every students have equitable view	3.10	0.80	Agreed	2.95	0.83	Agreed
11	Encourage participation for all class members	3.29	0.72	Agreed	3.34	0.81	Agreed
12	Encourage feedback from learners	3.08	0.91	Agreed	3.12	0.80	Agreed
13	Utilize the feedback to improve instruction.	3.01	0.88	Agreed	2.90	0.97	Agreed
14	Use of captivating teaching materials such as video clips among others	3.42	0.76	Agreed	3.30	0.68	Agreed
15	Stimulating students interest to success.	2.89	0.83	Agreed	3.11	0.71	Agreed
16	Improving teaching ability by relating physics concepts to day-to-day activities	3.05	1.00	Agreed	2.78	0.93	Agreed
Grand Mean & S.D		3.26	0.79		3.22	0.75	

Field Survey, 2018.

Table 1 shows the respondents mean responses on the classroom management procedures/strategies in the teaching of physics. Based on the mean acceptance level of 2.50, the respondents agreed that establishing clear

rules and regulation in the class (3.46 & 3.53), communicating the set rules with the learners (3.55 & 3.44), enforce classroom rules promptly, consistently and equitably (3.30 & 3.21), establish positive relationship with the students (3.43 & 3.04), set views that accommodates all students at a time during both practical and lesson (3.09 & 3.18), keep your eyes moving to identify behavioral changes (3.62 & 3.42), reinforcing positive behavioral changes (3.53 & 3.31), punishing negative behavior immediately (3.26 & 3.42), create opportunities for contribution and crucial questions (3.14 & 3.51), arrange the classroom so that every students have equitable view (3.10 & 2.95), encourage participation for all class members(3.29 & 3.34), encourage feedback from learners (3.08 & 3.12),utilize the feedback to improve instruction (3.01 & 2.90), use of captivating teaching materials such as video clips among others (3.42 & 3.30), stimulating students interest to success (2.89 & 3.11), improving teaching ability by relating physics concepts to day-to-day activities (3.05 & 2.78) are the procedures/strategies of classroom management in the teaching physics. The findings is equivalent to Dunbar (2004) who observed that, in the pursuit of effective classroom management experienced teachers recommend assigned seating for students to facilitate discipline and instruction. He is also of the notion that establishing realistic rule and conduct as well as carryout consequence versus punishment model creates a conducive classroom environment where adequate instructions will be carried out.

Research question 2: What are the benefits of effective classroom management in the teaching of physics in senior secondary schools in Rivers State?

Table 2: Benefits of effective classroom management in the teaching of physics

S/N	ITEMS	Male physics teacher =36			Female physics teacher=15		
		\bar{x}	S.D	Remarks	\bar{x}	S.D	Remarks
1	Classroom management stimulates effective teaching and learning process	3.59	0.71	Agreed	3.11	0.63	Agreed
2	It enhance students' achievement of lesson objective	3.02	0.85	Agreed	3.10	1.00	Agreed
3	It creates a productive and conducive learning environment	3.11	0.69	Agreed	3.26	0.59	Agreed
4	It helps students to maintain rules and regulation	3.19	0.63	Agreed	3.14	0.79	Agreed
5	It instills moral discipline among students	3.01	0.77	Agreed	3.40	0.63	Agreed
6	It enhances the achievement of general educational objective	3.34	0.71	Agreed	3.21	0.81	Agreed
7	It guarantee the safety of the students	2.94	0.81	Agreed	3.08	0.72	Agreed
8	Establish clear and consistent standard of behavior.	3.42	0.52	Agreed	3.35	0.73	Agreed
9	It reduces students' conflicts	3.51	0.81	Agreed	3.25	0.64	Agreed
10	It increases students attention during lecture	3.42	1.01	Agreed	3.01	0.82	Agreed
11	It increases students' ability by engaging them in all classroom activities.	3.55	0.82	Agreed	3.31	1.01	Agreed
12	It boosts students interest to work hard in their studies.	3.32	1.03	Agreed	3.27	0.54	Agreed
Grand Mean & S.D		3.29	0.78		3.21	0.74	

Field Survey, 2018.

Table 2 shows the benefits of effective classroom management in the teaching of physics. According o the mean decision rule, the listed items which are; Classroom management stimulates effective teaching and learning process (3.59 & 3.11), it enhance students' achievement of lesson objective (3.02 & 3.10), it creates a productive and conducive learning environment (3.11 & 3.26), it helps students to maintain rules and regulation (3.19 & 3.14), it instills moral discipline among students (3.01 & 3.40), it enhances the achievement of general educational objective (3.34 & 3.21), it guarantee the safety of the students (2.94 & 3.08),establish clear and consistent standard of behavior (3.42 & 3.35), it reduces students' conflicts (3.51 & 3.25), it increases students attention during lecture (3.42 & 3.01), it increases students ability by engaging them in all classroom activities (3.55 & 3.31), it boosts students interest to work hard in their studies (3.32 & 3.27) are agreed by the respondents as the benefits of effective classroom management in the teaching of physics. This findings agrees with Smith (2003) who posited that classroom organization and behavior management competencies significantly influences students academic and moral performance as well boosting teachers capability in the teaching profession.

Research question 3: What are the factors hindering effective classroom management in senior secondary schools?

Table 3: Factors hindering effective classroom management in the teaching of physics

S/N	ITEMS	Male physics teacher = 36			Female physics teacher=15		
		\bar{x}	S.D	Remarks	\bar{x}	S.D	Remarks
1	Poorly planned instruction	3.05	1.01	Agreed	3.17	0.63	Agreed
2	Lack of classroom rules and regulation	3.07	0.92	Agreed	3.32	0.82	Agreed
3	Poor classroom setting	3.35	0.81	Agreed	3.23	0.85	Agreed
4	Lack of corresponding feedback on students behavior	3.21	0.77	Agreed	2.83	0.91	Agreed
5	In conducive learning environment	3.57	0.69	Agreed	3.47	0.54	Agreed
6	Teachers' lack of social management skills	2.81	0.75	Agreed	3.09	0.82	Agreed
7	Poor communication and interactions between teachers and students	2.62	0.85	Agreed	3.18	0.69	Agreed
8	Lack of adequate equipment for effective delivery of instruction both in the lab. And the classroom	3.14	1.03	Agreed	3.19	0.75	Agreed
9	Teachers' inability to motivate students	3.24	0.59	Agreed	3.26	0.70	Agreed
10	Lack incentives among physics teachers	3.59	0.98	Agreed	3.48	1.02	Agreed
Grand Mean & S.D		3.17	0.84		3.22	0.77	

Field Survey, 2018.

Table 3 presents the mean responses of physics teachers on the factors hindering effective classroom management in the teaching of Physics. The listed items in the table and the mean of both respondents in parenthesis confirms the following were accepted by Physics teachers as the factors hindering effective classroom management in the teaching of Physics; poorly planned instruction (3.05 & 3.17), lack of classroom rules and regulation (3.07 & 3.32), poor classroom setting (3.35 & 3.23), lack of corresponding feedback on students behavior (3.21 & 2.83), in conducive learning environment (3.57 & 3.47), teachers' lack of social management skills (2.81 & 3.09), poor communication and interactions between teachers and students (2.62 & 3.18), lack of adequate equipment for effective delivery of instruction both in the lab. and in the classroom (3.14 & 3.19), teachers' inability to motivate students (3.24 & 3.26), lack incentives among physics teachers (3.59 & 3.48). This is in agreement with Lindhard and Dlamini (1990) who observed that external factors can also be a problem such as poverty, violence and other forms of human insecurity both in the home and in the society more generally can severely influence a student's receptivity to a teachers' attempt to manage classroom learning and discipline

Research question 4: what are the teachers qualities for improving classroom management skills among physics teachers?

Table 4: Teachers qualities for improving classroom management skills among physics teachers

S/N	ITEMS	Male physics teacher =			Female physics teacher=		
		\bar{x}	S.D	Remarks	\bar{x}	S.D	Remarks
1	Boldness	3.05	0.75	Agreed	3.11	1.05	Agreed
2	Self coordination	3.18	0.63	Agreed	3.21	0.72	Agreed
3	Indiscrimination	3.08	1.08	Agreed	3.12	0.71	Agreed
4	Harshness	2.76	0.75	Agreed	3.21	0.72	Agreed
5	Laziness in executing classroom rules	1.08	0.61	Disagreed	1.02	0.54	Disagreed
6	Preparedness	3.62	0.51	Agreed	3.59	0.61	Agreed
7	Self- discipline	3.21	0.62	Agreed	3.50	0.82	Agreed
8	Consistency	3.53	0.74	Agreed	3.21	0.51	Agreed
9	Fluency	3.02	0.91	Agreed	3.09	0.73	Agreed
10	Flexibility	3.32	0.81	Agreed	3.10	0.80	Agreed
11	Reliability	3.56	0.70	Agreed	3.29	0.73	Agreed
Grand Mean & S.D		3.04	0.74		3.04	0.72	

Field Survey, 2018.

Finally, table 4 shows physics teachers' opinion on the teachers' qualities for improving classroom management skills. However, the calculated mean for each items revealed its agreement or disagreement based on the acceptance mean level of 2.50. Therefore, boldness (3.05 & 3.11), self-coordination (3.18 & 3.21), indiscrimination (3.08 & 3.12), harshness (2.76 & 3.21), preparedness (3.62 & 3.59), self-discipline (3.21 & 3.50), consistency (3.53 & 3.21), fluency (3.02 & 3.09), flexibility (3.32 & 3.10), reliability (3.56 & 3.29) were all agreed as the teachers' qualities for improving classroom management skills. Whereas laziness in executing classroom rules (1.08 & 1.02) was rejected. This findings is in conformity with Koole (2011) who opined that teachers requires certain spectacular qualities such as flexibility, equitability, reliability, consistency, self discipline among others in order to effectively carry out classroom management strategies.

Hypothesis

The following hypotheses were tested at 0.05 level of significance

H₀₁: There is no significant difference in the mean responses of male and female physics teachers on the classroom management procedures/strategies in the teaching of physics

Z-test analysis on the procedures/strategies for improving classroom management skills among physics teachers

Groups	\bar{x}	S.D	N	Lev. of sig.	z-cal	z-crit	Remark
Male Teachers	3.26	0.79	36	0.05	0.17	1.96	Fail to reject
Female Teachers	3.22	0.75	15				

The result in Table 5 shows that Male teachers have mean and standard deviation scores 3.26 and 0.79, while female teachers have mean and standard deviation scores of 3.22 and 0.75 at 0.05 level of significance. The result shows that the z-cal value is less than z-crit value. Since the z-cal value of 0.17 is less than the z-crit value of 1.96, the null hypothesis is thus accepted. This implies that there is no significant difference in the mean response of male and female physics teachers on the on the classroom management procedures/strategies in the teaching of physics.

H₀₂: There is no significant difference in the mean responses of male and female physics teachers on factors hindering effective classroom management in senior secondary schools

Table 6: Z-test analysis on the factors hindering effective classroom management

Groups	\bar{x}	S.D	N	Lev. of sig.	z-cal	z-crit	Remark
Male Teachers	3.17	0.77	36	0.05	0.19	1.96	Fail to reject
Female Teachers	3.22	0.84	15				

The result in Table 5 shows that Male teachers have mean and standard deviation scores 3.17 and 0.77, while female teachers have mean and standard deviation scores of 3.22 and 0.84 at 0.05 level of significance. The result shows that the z-cal value is less than z-crit value. Since the z-cal value of 0.19 is less than the z-crit value of 1.96, the null hypothesis is therefore accepted. This implies that there is no significant difference in the mean response of male and female physics teachers on factors hindering effective classroom management in senior secondary schools

Summary and Conclusion

Based on the quest to determine the influence of classroom management in the teaching of physics in senior secondary schools, it was therefore concluded that, classroom management procedures/strategies which are establishment of clear rules and regulation in the class, communicating the set rules with the learners, enforcement of classroom rules promptly, consistently and equitably, classroom arrangement, keeping your eyes moving to identify behavioural changes, among others are used by Physics teachers to establish effective management of classroom during teaching and learning process.

Secondly, the study discovered that effective classroom management has limitless advantage to the teaching and learning of Physics in secondary schools. Just to mention few, effective classroom management stimulates efficient teaching and learning process, enhances students' achievement of lesson objective, creates a productive and conducive learning environment, helps students to maintain rules and regulations, instills moral discipline among students.

Furthermore, poorly planned instruction, lack of classroom rules and regulation, poor classroom setting, lack of corresponding feedback on students' behavior, inconducive learning environment, teachers' lack of social management skills, poor communication and interactions between teachers and students among others were discovered as the factors militating against effective classroom management.

Finally, respondents were of the opinion that the teachers should possess following qualities in other to execute good management practices in the classroom. The qualities include boldness, self-coordination, indiscrimination, harshness, preparedness, self-discipline, consistency, fluency, flexibility, among others.

Recommendations

- Physics teachers should be provided with necessary instructional material to enhance proper self coordination and preparedness.
- Teachers should be trained and re-trained on classroom management as its impacts on achieving educational objectives cannot be overemphasized.
- School administrators should give close attention to teachers while teaching as this may enhance their classroom management skills.

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