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Science Teachers' Assessment of Use of Hands: On Activities in the Management of Indiscipline in the Classroom

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Abstract:

Hands-on activities, as panacea for classroom indiscipline was assessed by science teachers. A descriptive survey design was used. Three research questions were asked and 2 hypotheses were tested. The sample consists of 197 science teachers out of a total of 394 in Abia State got by a combination of purposive and stratified random sampling techniques. Instrument for data collection is a researchers' developed structured questionnaire of the Likert type. The instrument was validated and the reliability index of 0.79 was got. Mean was used to answer the research questions while the hypotheses were tested with chi-square statistics. Results show that all the items were agreed to be useful in managing indiscipline. Gender has a significant influence in the management of indiscipline by hands-on activities while location did not show any significant influence on the use of hands-on activities in the management of indiscipline. It is recommended that teaching be activity-based in order to ensure that students' hands are on some activities that will occupy them thereby reducing indiscipline in the classroom.

Key words: Science, Indiscipline, Classroom Management and Hands on activities

1. Introduction

Classroom indiscipline is one of the many concerns of teachers, parents, school administrators and students. According to Gicheha (2007), most common behavioural problems among students include poor or lack of concentration, truancy, fighting and abusive conduct, shattering other students' property, bullying and poor attendance in class. Indiscipline in the classroom is an unfortunate reality faced by teachers worldwide that needs to be addressed for effective teaching and learning to take place. Amando and Feuire (2009) defined indiscipline as those incidents of disruptive nature that affects good classroom functioning. Earlier, Amado (2005) opined that such incidents include conflicts among peers and conflict within a teacher - student relationship that might be taken on proportions of violence and even delinquency. When students misbehave, teachers lose control of their classroom and as a result, the learning environment suffers. The more time the teacher spends on classroom management and behaviour issues, the less time they have for teaching and learning, hence the need to curb these undesirable behaviours amongst the students. Acts of indiscipline occasioned by students' misconduct involving violent and criminal behaviour defeat the goals of education. This is why all stakeholders in education should not perceive indiscipline as an exclusive function of teachers, but a partnership where all subsystems have the capacity to make positive contributions (Ikoya, 2009). This therefore calls for good classroom management by the teachers. Classroom management is an essential skill, teachers cannot afford to ignore. Effective teaching and learning cannot take place in a classroom plagued with disruptions and indiscipline. To minimize poor classroom behaviours like bullying, fighting and truancy, teachers have to implement a variety of tactics that can help create a comfortable learning environment. This can be done by creating a positive physical and emotional environment through the establishment of routines, lessons and disciplinary strategies that teach students self control. As students take more responsibility for their learning and behaviour, teachers spend less time correcting misbehaviours thereby enhancing learning. This can be achieved through proactive classroom management, which is the art and science of transferring a collection of young people into a cohesive group of learners. The teacher in this case crafts a learning environment from the raw tools of books, paper and interactions, routines and activities so that all students despite their strengths, weaknesses, individuals' differences, become an integral part of a productive classroom community thereby preventing indiscipline in the classroom. Cotton (2005) and Gaustad (2005) saw discipline from the preventive perspective. They stressed that preventive

discipline involves the application of preventive measures to halt the occurrence of misbehaviour. These measures they argued include quality teaching, good school management and effective curriculum. The implication is that the teacher needs to employ teaching that will involve the students' active participation, hence the need for hands-on activities in teaching and learning.

According to Matthews (2002), hands-on activities teaching is a teaching and learning model that emphasizes student centered instruction by assigning projects and other activities to students. It allows students to work autonomously, to construct their own learning and which culminates into realistic, student generated products. More specifically hands-on activities based learning can be defined as a learning that focuses on the central concepts of a discipline, energy, learning experience that involve students in complex, real-world projects through which they develop and apply skills and knowledge. Matthews (2002) went further to explain that it is learning that requires students to draw from many information sources and discipline in order to solve problems. Schneiders and Krajcik (2002) gave the attributes of hands-on activities based learning to include student centered, collaborative or cooperative group learning, learning have impact on life skills like self management, group process and problem solving. In this approach, learners are active participants with the goal being to bring them into the process of their education. The Federal Republic of Nigeria (FRN 2004:9) supporting the use of hands-on activity recommends "educational activities shall be centred on the learner for maximum self development and self fulfilment." Such approach takes students beyond being passive listeners and rote learners, allowing them take some directions and initiatives in the class. It makes the students to have in- depth investigative abilities with objects, materials, phenomenon and ideas and allows them to draw inferences from those experiences. Students in this case become critical thinkers applying what they have learned and the process of learning to various life situations. When employing an actively oriented approach to the teaching of science, teachers offer the students a variety of active educational experience structured according to a learning cycle, which consists of an instructional sequence that includes engagement, exploration, development and extension of ideas (Guillaume, Yopp and Yopp, 1996). These hands-on activities, learning, give students concrete experiences that establish a foundation for learning more abstract concepts. In such an instruction, students actively explore and discover content by working in the laboratory, solving problems and conducting experiments. The implication of this is that students are active learners and are very busy during this period trying to make out the meanings from their learning activities. Activity-based learning starts with the teacher who now establishes the classroom and instructional tone, environment and exciting activities that provide opportunities and encourage students to become active learning participants. When learners are engaged in such activities that involve creativity, critical thinking, laboratory experiments, there may be no room for disruptive behaviours that bring about indiscipline in the classroom. Hence, the need to involve students in hands-on activities based teaching and learning.

Studies show that gender plays a role in the management of indiscipline. Ikoya (2009) investigated the application of preventive indiscipline practices by principals of secondary schools in Nigeria and reported that out of the 45 percent of principals that adopted the preventive model, 60 percent are female principals while 40 percent are males. The study also showed that the quality of discipline appeared higher in schools managed by female principals (50%) when compared to schools managed by male principals (46%). Ikoya (2009) explained that this observed difference may be probably due to the men's assumption of their ability to handle and deal with disciplinary issues thereby ignoring the use of preventive approach. Women on the other hand may not be prepared to deal with violent situations so they make adequate plans and preparations using preventive approaches.

Location was another factor found to affect indiscipline in schools. Mulkeen (2005) noted that managing indiscipline in rural areas present additional difficulties, especially in the monitoring of teachers and students because of the reason that schools principals often travel to urban offices to make administrative arrangements and thus stay away longer from schools leaving both the teachers and students uncontrolled. In addition schools in remote areas are less likely to be visited by external inspectors. Frame (1990) in his research on school location concluded that school location had significant effect on the philosophy, tradition, perception of discipline and performance of both teachers and students. Also an empirical research conducted by Anam (2007) on influence of school location on teachers discipline showed that urban teachers were more prone to truancy and had higher tendency for indiscipline than their counterparts in rural areas.

This study therefore is to investigate science teachers' assessment of hands-on activities teaching as a means of managing indiscipline in the classroom.

The following research questions guided the study

- What are the mean scores of science teachers' assessment of hands-on activities teaching?
- What are the mean scores of male and female science teachers' assessment of hands-on activities teaching?
- What are the mean scores of urban and rural science teachers' assessment of hands-on activities teaching?

The following null hypotheses tested at 0.05 level of significance guided the study

- There is no significant difference in the scores of male and female science teachers' assessment of hands-on activities teaching.
- There is no significant difference in the scores of science teachers in urban and rural schools assessment of hands-on activities teaching.

2. Method

Descriptive survey design was adopted in this study. A sample of 197 out of the population of 394 science teachers in Abia State was used. Combinations of purposive and proportionate stratified random sampling techniques were used. The instrument for data collection was a researchers' developed structured questionnaire of the Likert type on science teachers' assessment of the extent of use of hands-on activities in managing indiscipline in the classroom (STAUHAMI). The responses are Very High Extent (VHE), High

Extent (HE), Low Extent (LE) and No Extent (NE) weighted 4,3,2,1, respectively. It is a ten-item questionnaire that is made up of hands-on activities that can be carried out by science teachers to keep the students busy and manage indiscipline in the classroom. The instrument was face and content validated by one expert in test and measurement and two others who are science education specialist. The reliability index was determined by cronbach alpha and found to be 0.79. The questionnaires were distributed by the researchers and collected back and so percentage return was 100%. The three research questions were answered with mean while the hypotheses were tested using chi-square statistics at 0.05 level of significance.

3. Result

The results obtained are presented on the tables below

S/N	ITEMS	VHE	HE	LE	NE	X
1.	Laboratory work	98	99	-	-	3.49
2.	Demonstration	99	70	28	-	3.36
3.	Field trip/excursion	98	99	-	-	3.49
4.	Projects	107	90	-	-	3.54
5.	Activity-based teaching	138	59	-	-	3.70
6.	Peer assessment	28	99	70	-	2.79
7.	Involvement of students in production of instructional materials	59	99	39	-	3.10
8.	Field work	70	99	28	-	3.21
9.	Group work	59	138	-	-	3.30
10.	Using games to teach science	28	99	70	-	2.79

Table 1: Hands –on activities used in managing indiscipline in the classroom

- Table 1 showed that all the items had means of between 2.79 and 3.49. The science teachers believe that all these activities will to a high extent reduce indiscipline in the classroom.

		VHE	HE	LE	NE	TOTAL
MALE	38	156 (152.53)	180 (165.75)	28 (45.72)	-	364
FEMALE	159	628 (631.47)	672 (686.25)	207 (189.28)	-	1507
TOTAL		784	852	235	-	1871

Table 2: Chi Squared values of male and female science teachers assessment of hand-on activities used in managing indiscipline
 $X^2_{cal} = 10.16, X^2_{tab} = 7.82, df = 3$

- Table 2 showed that X^2_{cal} is more than X^2_{tab} . Since X^2_{cal} is more than X^2_{tab} , the null hypothesis is rejected which means that a significant difference exist between the assessment of males and females as to the extent hands-on activities are used to manage indiscipline.

		VHE	HE	LE	NE	TOTAL
URBAN	60	261 (261.89)	284 (284.61)	80 (78.50)	-	625
RURAL	137	523 (522.11)	568 (567.39)	755 (156.50)	-	1246
TOTAL		784	852	235	-	1871

Table 3: Chi squared values of Science teachers in urban and Rural schools assessment of hands-on activities used in managing indiscipline
 $X^2_{cal} = 0.049, X^2_{tab} = 782, df = 3$

- Table 3 showed that X^2_{cal} is less than X^2_{tab} . Since X^2_{cal} is less than X^2_{tab} , the null hypothesis is accepted and it means a significance difference does not exist by location on the use of hands-on activities to manage indiscipline in classroom as seen by science teachers.

4. Discussion

From table 1 above, science teachers opined that hands-on activities will help teachers manage indiscipline behaviours in the classroom. All the items had mean values that is above 2.50. Majority of the items (about 80%) had above 3.79 but for two items of peer assessment and use of games to teach science.

This is attributable to the fact that many teachers believe that students should not be used to grade other students' scripts. It has been found that peer assessment will help keep students busy and also help them take note of the correct answer if done properly. The mean values show that all the science teachers believe that hands-on activities can keep students busy and help manage indiscipline in the classroom.

From Table 2, it is observable that the null hypothesis was rejected and the alternative accepted which means gender played a role. It does not differ from the findings of Ikoya (2009) who found out that schools managed by female principals are better managed in terms of discipline than those managed by male principals. This is attributable to the fact that females may not be prepared to deal with violent situations so they make adequate plans and preparations to prevent the occurrence of indiscipline.

Location did not show a significant difference. This can be explained by the fact that these hands-on activities can be carried out wherever an individual is whether in rural or urban areas and this could account for the difference in the findings of Anam (2007) and Frame (1990).

5. Conclusion

Science teachers believe that hands-on activities in classrooms will keep students busy, reduce time given to indiscipline behaviours and help teachers to manage indiscipline behaviours in classrooms. The following recommendations are therefore made;

- Classroom teachers should make their teaching more learner centered and activity based to manage indiscipline.
- Teachers should be more proactive by creating more challenging scenario that can keep students busy all through school and reduce indiscipline.
- Parents should also keep their children/wards busy with activities that will interest the child in order to reduce indiscipline behaviours.

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