

Pedagogical Innovative Methods and Classroom Management in Nigeria

Nimota jibola Kadir Abdullahi¹

¹ University of Ilorin, Nigeria

Abstract

The primary goal of this research was to determine the relationship between innovative pedagogical methods and classroom management. Traditional pedagogy has been found to be out of date in recent years, especially in terms of how teachers deliver their teaching and management of the classroom. The time is right to recognize cutting-edge educational pedagogical innovative methods that are currently being implemented on a world wide scale or locally, depending on the needs of the region. A quantitative research design was adopted for the study. A sample of 761 participants was selected randomly selected from the sample public primary schools in the North-west zone, Nigeria. Pearson product-moment correlation coefficient and linear regression analysis were used to test the hypotheses. The findings revealed that computational thinking-embodied learning and context-based learning positively and significantly correlated with classroom management. Therefore, it was recommended that School managers should continue to encourage learners' computational thinking so as to help learner experience a deeper level of involvement and understanding. Also, school managers should continue to improve embodied learning in order to help teachers reach out to the mind of learners and make lessons more interesting. Furthermore, school managers should encourage context-based learning by giving learners a perfect degree of autonomy over learning activities, helping learner activate their thinking and meta-cognitive skills toward achieving effective classroom management.

Keywords: *Computational Thinking; Embodied Learning, Context-Based Learning; Innovative Methods.*



This is an open access article under the CC-BY-NC license.

INTRODUCTION

The importance of innovative pedagogical methods in the realization of effective classroom management toward the achievement of educational objectives cannot be over-emphasized. Pedagogical innovative methods are very embracing and involve a wide range of activities such as embodied learning, computational thinking, adaptive teaching, learning-by-doing, flipping classroom, as well as context-base learning. Generally, disruptive student behavior occurs in all educational settings, especially during the learning and teaching processes. Thus, teachers must be prepared to deal with it. In this regard, effective classroom management is critical to facilitate efficient learning.

Despite all methodological advances of the last three decades, western instructions are still based on traditional principles. The majority of educational programmes are based on mentalistic theories in which the mind and body are operated. Students sit, observe, listen and write while at school. The purpose of this study is to present innovative pedagogical methods as a possible alternative for improving effective classroom management. The explanation for the sluggish evolution of western

school education may be traced back to pedagogy. The philosophy of pedagogy runs deep because it has strong philosophical foundations.

Information and knowledge stand out as essential ingredients for development and survival in the modern era as a method of accomplishing social betterment. In the information age, when knowledge is powered by its wheels of inquiry leading to improvement, society must see education as an engine of advancement, preparing pupils for the information society, where knowledge is the most important aspect in a nation's social and economic progress, which is a critical prerequisite for the future. There is a promise for advancement in any field, particularly in education, when there is a willingness to change. Innovation helps both learners and teachers to cultivate creativity. In addition to improving education, the adoption of creative and innovative educational practices has the ability to enhance instruction and classroom management while also empowering individuals, enhancing governance in school, and igniting national efforts to attain the aim of education and human development goals.

Several studies have been carried out on innovative methods and classroom management. Efendi et al. (2020) investigated a comparative analysis of techno-teaching innovation between Indonesia and Taiwan. Liisa and Minna (2018) embarked on school improvement and digital technology practices. Messmann and Mulder (2011) focused their research light on the effect of innovative behaviour on vocational colleges. Agu (2021) investigated teacher classroom management techniques and student academic performance. Asiyai (2011) treatise a focus on the influence of classroom management on secondary school effectiveness. A sample of 300 teachers was selected for the study. The results revealed that effective management of the classroom is a powerful motivator of student academic performance. Onyali et al (2016) studied creative ad innovation through classroom management skills and high student performance in Anambra State, Nigeria. A sample of 5,713 teachers was used in the study. The findings showed that the introduction of creative innovative strategies improves students' skills. Yet, none of the authors cited in this study focused on innovative pedagogical methods and classroom management. Likewise, the previous studies did not focus on computational thinking, embodied learning, and context-based learning as critical variables to measure pedagogical innovative methods. Another glaring gap that prompted this investigation is that the aforementioned extant studies' location and region varied significantly from the study. Therefore, this study endeavours to fill in the gaps left by the previous scholars. The following objectives have been established to guide the study's progress as it seeks to:

1. Investigate the relationship between computational thinking and classroom management in Nigeria.
2. Investigate the relationship between embodied learning and classroom management in Nigeria.
3. Investigate the relationship between context-based learning and classroom management in Nigeria.
4. Investigate the relationship among computational thinking, embodied learning, context-based learning, and classroom management in Nigeria.

Research Questions

The following are some of the questions that were posed and answered:

1. Does computational thinking enhance classroom management in Nigeria?
2. Does embodied learning brings about classroom management in Nigeria?
3. Does context-based learning improve classroom management in Nigeria?
4. Does pedagogical innovative strategies enhance classroom management?

LITERATURE REVIEW

Pedagogical Innovative Methods

The Latin word innovative, from which the English word innovation is derived, means "to revise or change". Innovation simply means the development of better or more efficient educational tools that are accepted by teachers, administrators, and parents (Ekoh, 2016). Innovation also refers to the development of new educational technologies. Similarly, innovative pedagogy refers to the process of developing new concepts in teaching (Adzongo, et al, 2016)). Innovative pedagogy, according to Lehto et al (2011) is a learning strategy centered on the development of innovation competencies. It describes how knowledge is taken in and applied in a way that can lead to innovation. This implies that the knowledge, abilities, and attitudes required for innovation are necessary to achieve learning outcomes.

Pedagogical innovative methods entail employing novel teaching methods and materials for the benefit of pupils (Mandula, 2012). According to Anderson and Neri (2017), pedagogical innovative methods involves learning exercise that is based on the real-life situation as well as learning rooms with equipment, furnishings, audiovisual resources, and learning aids for learners and teachers. All of these are combined with strategies that encourage teachers to adopt active learning methods to assist pupils to improve their learning abilities. Pedagogical innovative methods in this study refer to computational thinking, embodied learning as well as context-based learning.

Computational thinking is a collection of problem-solving techniques that entail describing problems and solutions in a computer way of solving problems (Sawitree et al, 2021; Wing, 2014). It entails breaking down a large problem into small chunks. Embodied learning is a new area of study that combines learning science and human-computer interaction (Borghi & Zarcone, 2016; Tondeur et al, 2017; Garcia-Penalvo & Mendes, 2018). Embodied learning is an educational approach to learning that emphasizes the necessity of taking the body and mind as a whole into account during the learning process (Buccino et al, 2016; Mirko et al, 2019). This implies that embodied learning is based on the notion that learning is inextricably linked to the body and mind. Context-based learning is a strategy that empowers teachers to creatively reflect on the teaching activities in the classroom (Michael-Allan, 2015).

Classroom Management

A classroom is a special place where students are gathered for the purpose of teaching and learning under the direction and supervision of the teacher (Otta, 2010). It is a place where learners with comparable traits interact with their teachers, peers, and the environment in order to attain educational objectives. Management can be seen as an act of coordinating both human and material resources in an organisation through planning, organizing, directing, and controlling so as to achieve organisational goals (Abdullahi, 2019). It is the act of interacting with learners and organizing the environment in a systematic and successful manner so that the stated educational objectives can be achieved.

Classroom management is defined as the systematic control of the learners, the instructional materials or teaching aids (Akpakwu, 2012). It involves organizing certain academic duties that are necessary for efficient teaching and learning in a particular environment (Philomena & Temitayo, 2019). The practical of classroom management includes all the activities a teacher performs throughout a lesson. Among these, include lesson preparations and delivery, coordination of learning activities, and administration of instructional resources toward achieving stated educational goals (Nwankwo, 2014). Igbacha (2014) sees classroom management as a process that involves planning, organizing, coordinating, motivating, and directing materials and learner behaviour in order to fulfill instructional

goals. Classroom Management as stated by Brophy (2016) refers to an arrangement of the physical environment, establish rules and procedures, keeping learners' attention on the lesson and engaged in activities as well as maintaining a learning environment that is favourable to good instruction. According to Adzonongo et al (2016), classroom management refers to the steps teachers take to establish a welcoming environment for learners to grow academically and socially.

Classroom management is a process of planning, controlling, stimulating, and directing resources in the classroom optimally and maximally toward the success of teaching and learning (Abdullahi, 2018; Onyali et al, 2016). classroom management refers to the provision of resources and maximum utilization of these resources in coordinating activities of teaching and learning process to ensure decorum in the classroom as well as create a healthy and conducive learning environment (Asiyai, 2011). classroom management in this study refers to discipline, effective communication as well as adequate organisation.

Discipline is defined as the teaching that instills in child self-control, good behaviour, cooperation, and a desire to achieve their full potential (Agu, 2021). Discipline is a way of putting up wanted behaviour in a wanted environment at a wanted period of time (Abdullahi, 2019). This means discipline is a way of ensuring obedience and motivating learners to take responsibility for their actions. When adequate discipline has been put in place, the teacher organizes the resources and the activities in such a way that teaching and learning are made easier and more interesting. It is required to help learners work interrupted or undisturbed and gain self-control. According to Abdullahi (2020) Communication refers to the exchange of information, ideas, feeling, wishes, and signs that produce a degree of understanding between a sender (teacher) and receivers (learners). Education is one of those organisations whose primary function is to impart knowledge and skill to learners. Attainment of this function is dependent on the effectiveness of communication among teachers, students, and key managers of schools. Organisation is defined as a consistent pattern of interaction among conditions or groups with a shared identity in pursuing common goals and achieving specific tasks through effective coordination.

Theoretical Framework

The theoretical contribution of this study was based on Parsons (1977) system theory as cited by Chikere and Nwoka (2015) and Abdullahi (2020). This theory focused on the interaction between the pieces and how they work together as a whole. A system has input, process, output and feedback. Money, materials, people, and technology are all inputs to a system. Planning, organizing, directing, controlling, and coordinating are all steps in the process. Output are finished items such as satisfaction and end product, then, there is feedback that helps a system achieve its purpose.

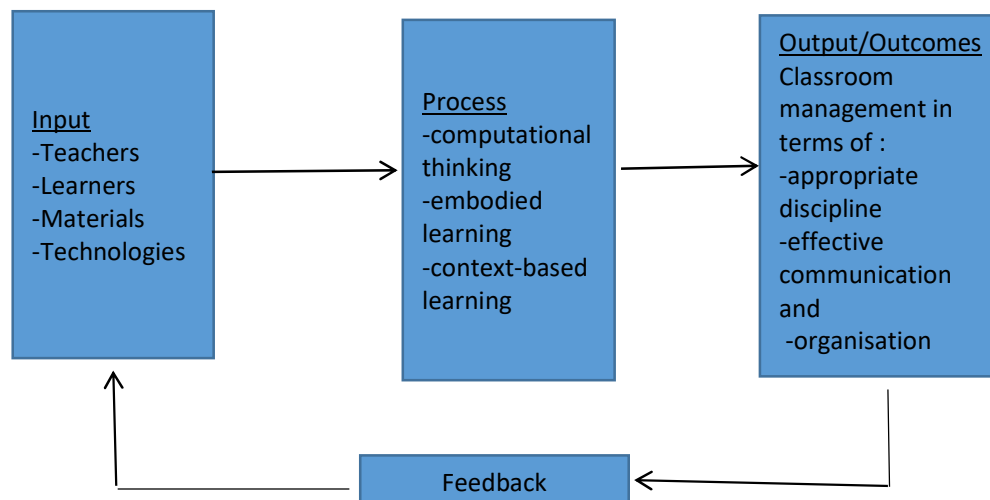


Figure 1. Theoretical Framework

Source: Adapted from Chikere and Nwoka (2015)

This theory is pertinent to this study in that, it focused on the relationship between innovative pedagogical methods and classroom management. The achievement of educational goals and objectives depends heavily on computational thinking, embodied learning, and context-based learning in the effort to improve classroom management in terms of appropriate discipline, effective communication as well as classroom organisation.

RESEARCH METHOD

Research Approach

The study employed a quantitative research approach to examine the relationship between innovative pedagogical methods and classroom management. It was chosen because it makes the finding of social realities easier by using a single source of data to categorize traits and construct a descriptive, objective, and statistically model acceptable for interpreting the data (Gay et al, 2009; Patton, 2002)

Population and Sampling Procedure

The population of this study comprises 19,436 public primary school headteachers and 210,514 teachers in the North-west zone, Nigeria. Research Advisor's (2006) table of determining the sample size of a known population with a Confidence level = 95%, Margin of Error = 5%, was used to select the sample of 377 headteachers and 384 teachers making a total of 761 participants in the seven States as shown in Table 1. A proportional random sampling method was used to select a sample of 377 head teachers, and 384 teachers from the population, as indicated in table 1. The participants were chosen using stratified random sampling techniques to ensure that every member of the selected samples had an equal opportunity of being chosen.

Table 1. Population Sample of Head of Schools and Teachers of Primary Schools

S/N	North-west States	Number of Primary Schools	Number of primary teachers	of school	Selected head-teachers	Selected teachers
1	Jigawa	1,998	16,599		39	30
2	Kaduna	4,225	36,019		82	66
3	Kano	5,732	65,173		111	119
4	Katsina	2,217	29,835		43	54
5	Kebbi	1,990	25,753		39	48
6	Sokoto	1,729	21,000		33	38
7	Zamfara	1,545	16,135		30	29
Total		19,436	210,514		377	384

Source: National Personnel Audit Report (2019)

Instrumentation

The instruments utilized in this study were a combination of two tested questionnaires including a self-constructed questionnaire titled “Pedagogical Innovative Methods Questionnaire” (*PIMQ*) and a classroom management Questionnaire (*CMQ*). A total number of 17 items was used to measure pedagogical innovative methods with three sub-scales namely: computational thinking with (7 items), embodied learning with (5 items) and context-based learning with (5 items). The items of a questionnaire regarding classroom management questionnaires were concluded by Agu (2021) on discipline with (5 items), Ong et al (2019) on communication with (5 items) and Abdullahi (2019) on organisation. Participants responded to four Likert scales from the range of 1 representing “Strongly Disagreed” to 4 being “Strongly Agreed”. The criterion means depicts that any item that is above or equal to the criterion mean value of 2.50 is agreed by the participants, but any item that is below the criterion mean value is disagreed decided that answering on a 4-point Likert scale was quicker and easier than answering on 5- to 7-point range. (Bond & Fox, 2015; Cohen et al, 2000; Bell et al, 2007).

Validity and Reliability

The validity of the instrument was determined by sending draft copies to two professionals in test and measurement and two experts in educational management for review. The questionnaire was modified and updated based on expert recommendations and views. Furthermore, 20 copies were provided to participants in the sample to assess their clarity of the instruction, language, and scale, as well as to check whether they had any problems filling out the questionnaire. Cronbach's Alpha was used to assess instrument dependability as revealed in Table 2.

Table 2. Reliability Test of PIMQ and CMQ

Variable	Sub-construct	N	Cronbach's Alpha	Decision
Pedagogical innovative methods	Computational thinking	7	0.905	All items are suitable and reliable
	Embodied learning	5	0.922	All items are suitable and reliable
	Context-based learning	5	0.874	All items are suitable and reliable
Classroom	discipline	5	0.893	All items are suitable and reliable

Variable	Sub-construct	N	Cronbach's Alpha	Decision
management	Effective communication	5	0.863	All items are suitable and reliable
	organisation	5	0.861	All items are suitable and reliable

Cronbach's Alpha is a measure of internal consistency, and it will be used to see if the reliability of numerous or multiple questions on the Likert scale survey. As a rule of thumb, consider the following when evaluating alpha is $\alpha \geq 0.9$ (Excellent), $0.9 > \alpha \geq 0.8$ (Good), $0.8 > \alpha \geq 0.7$ (Acceptable), $0.7 > \alpha \geq 0.6$ (Questionable), $0.6 > \alpha \geq 0.5$ (Poor), and $0.5 > \alpha$ (Unacceptable). Table 2 shows the reliability test for PIMQ for effective classroom management, these are computational thinking, embodied learning, and context-based learning. Cronbach Alpha value of sub-construct is 0.905 for computational thinking with (7 items), 0.922 for embodied learning with (5 items), and 0.874 for context-based learning with (5 items). Also, on classroom management variables, Cronbach's alpha for sub-construct is 0.893 for discipline with (5 items), 0.863 for effective communication with (5 items), and 0.861 for organisation with (5 items). A value above 0.70 are regarded as suitable and reliable (Leady & Ormrod, 2005; Hesse-Biber & Leavy, 2011; Dianantopoulos et al, 2012).

Data Collection Technique

A total of 800 participants responded to the survey which ran from April 2 to May 4, 2022. the questionnaire was given to participants in the sample schools by three research assistants and the researcher in order to ensure a high return rate. Due to a number of circumstances, such as the unavailability of head teachers or a lack of time, the researcher and study assistants were compelled in certain schools to collect questionnaires in a couple of days. In addition, 770 questionnaires were recovered and filled out correctly. The retrieved numbers correspond to Research advisor's recommendation with a number of 761 participants used in this study. Also, in conducting the research, the researcher followed the ethical protocol, participants' consent was sought prior to the filling of the questionnaire in order to adhere to ethical considerations and participants' safety as recommended by Hesse-Biber & Leavy (2011).

Data Analysis

The data gathered for this study were compiled and subjected to statistical analysis. Both descriptive and inferential statistics were used by the researcher. Descriptive statistics are a set of data that provides a general trend such as mean, median, variance, standard deviation, skewness, count of minimum and maximum, and are used to summarize a large pool of data into useful information for educational managers to make a decision, whereas descriptive analysis is the process of transforming raw data into a form that is easy to understand and turn into useful insights. Good and quality data is defined as data that is accurate, complete, relevant, and consistent, especially when it is legitimate and available on a timely basis. The data was analyzed using the mean and standard deviation to determine the study's goal. At (0.5) significant level, inferential statistics such as Pearson product-moment correlation and linear multiple regression analysis were utilized to evaluate the hypotheses and determine whether they were rejected or accepted (Mayer, 2013; Dillman et al, 2014).

FINDINGS AND DISCUSSION

Demographic data of the participants

This section uses simple percentage to discuss the demographic of the participants

Table 3. Demographic information of the participants

		N= 761	Percentage (%)
Sex	Male	421	53%
	Female	340	47%
		761	100%
Age	20 -30	165	22%
	31-40	156	20%
	41 - 50	147	19%
	51 above	293	39%
		761	100%
Years of teaching experience	1 – 10 years	198	26%
	11 - 20 years	327	43%
	21years and above	236	31%
		761	100%
Level of education	NCE	303	40%
	Bachelor's degree	413	54%
	Master's degree	45	6%
		761	100%

Table 3 reveals that the majority of the participant in the study are male 421 which make up (53%) while female 340 make up (47%). The majority of the participants are between the ages of 51 and above (39%) while 147 (19%) are between the ages of 41 to 50. In terms of years of experience, the majority of the participants 327 (43%) have 11 to 20 years of experience while 198 (26%) have 1 to 10 years of experience. Based on the level of education, the majority 413 (54%) have a bachelor's degree while 45 (6%) have a master's degree.

Computational Thinking

RQ1: Does computational thinking enhance classroom management in Nigeria?

The mean and standard deviation responses of participants on computational thinking are revealed in Table 4.

Table 4. Mean and Standard Deviation of Items on Computational thinking

S/N	Computational Thinking	Mean	Standard Deviation
1	Helps learner experience a deeper level of involvement and understanding.	2.92	0.954
2	Conveys the topic more effectively to the learners.	2.86	0.926
3	Encourages learners to work together.	2.93	0.968
4	Enhances learner problem-solving and negotiation skills.	3.26	0.966

S/N	Computational Thinking	Mean	Standard Deviation
5	Helps learners gain a better understanding of the content.	2.94	0.958
6	Promotes critical and analytical thinking.	3.22	0.986
7	Provides learner an opportunity for self-assessment and continuous improvement.	2.88	0.960
Grand mean		3.00	0.960

Table 4 reveals that the overall perception of participants on computational thinking is “Agreed” (M = 3.00, SD = 0.960). This reveals that participants agreed that computational thinking enhance classroom management in Nigeria. Also, all of the responses had a mean value higher than the criterion mean value of 2.50. This points that participants agreed that computational thinking i) helps learner experience a deeper level of involvement and understanding (M = 2.92, SD = 0.954), ii) conveys the topic more effectively to the learners (M = 2.86, SD = 0.926), iii) encourages learners to work together (M = 2.93, SD = 0.968), iv) enhances learner problem-solving and negotiation skills (M = 3.26, SD = 0.966), v) helps learner gain a better understanding of the content (M = 2.94, SD = 0.958), vi) Promotes critical and analytical thinking (M = 3.22, SD = 0.986) vii) makes learner have positive attitude towards task in the classroom (M = 2.88, SD = 0.960).

Embodied Learning

RQ 2: Does Embodied learning brings about classroom management in Nigeria?

Table 5 shows the participants responses on embodied learning.

Table 5. Mean and Standard Deviation of Items on Embodied Learning

S/N	Embodied Learning	Mean	Standard Deviation
8	Helps teachers reach out to the mind of learners.	2.88	0.958
9	Makes lesson more interesting.	3.36	0.961
10	Improves learner motivation and attainment of learning goals.	3.24	0.978
11	Makes learning fun and real	3.12	0.956
12	Helps teachers win the heart of learners while teaching.	2.96	0.951
Grand mean		3.11	0.961

Table 5 shows that the overall perception of participants on embodied learning is “Agreed” (M = 3.11, SD = 0.961). This shows that participants agreed that embodied learning brings about effective classroom management in Nigeria. Also, all of the responses had a mean value higher than the criterion mean value of 2.50. This indicates that participants agreed that embodied learning i) helps teacher reach out to the mind of learners (M = 2.88, SD = 0.958), ii) makes lesson more interesting (M = 3.36, SD = 0.961), iii) improves learner motivation and attainment of learning goals (M = 3.24, SD = 0.978), iv) makes learning fun and real (M = 3.12, SD = 0.956), v) helps teachers win the heart of learners while teaching (M = 2.96, SD = 0.951).

Context-based Learning

RQ 3: Does context-based learning improve classroom management?

Table 6 presents participants responses on context-based learning

Table 6. Mean and Standard Deviation of Items on Context-Based Learning

S/N	Context-Based Learning	Mean	Standard Deviation
13	Gives learners a perfect degree of autonomy over learning activities.	2.82	0.978
14	Helps learner activate their thinking and meta-cognitive skills.	2.88	0.964
15	Stimulates learner interest and motivation in learning.	2.92	0.954
16	Helps learners to be scientifically literate.	2.86	0.922
17	Promotes learners' self-esteem and acquire important knowledge discipline.	2.84	0.966
	Overall Mean	2.86	0.957

Table 6 shows that the overall perception of participants on context-based learning is "Agreed" (M=2.86, SD=0.957). This reveals that participants agreed that context-based learning improves classroom management in Nigeria. In addition, all of the responses had a mean value higher than the criterion mean value of 2.50. This shows that participants agreed that context-based learning (a) gives learner a perfect degree of autonomy over learning activities (M=2.82, SD=0.978), (b) helps learner activate their thinking and meta-cognitive skills (M=2.88, SD=0.964), (c) stimulates learner interest and motivation in learning (M=2.92, SD=0.954), (d) helps learners to be scientifically literate (M=2.86, SD=0.922), (e) promotes learners self-esteem and acquire important knowledge discipline (M=2.84, SD=0.966).

Research Hypotheses

The following hypotheses were formed and tested:

1. There is no significant relationship between computational thinking and classroom management in the North-west zone, Nigeria.
2. There is no significant relationship between embodied learning and classroom management in the North-west zone, Nigeria.
3. There is no significant relationship between context-based learning and classroom management in the North-west zone, Nigeria.
4. There is no significant relationship between pedagogical innovative methods and classroom management in the North-west zone, Nigeria.

Pearson Correlation

Pearson's R can range from -1 to +1 according to Choy (2014) where positive Pearson correlation means that one variable increases at the same time as the other, whereas negative Pearson correlation suggests that one variable rises while the other decreases.

H₀₁: There is no significant relationship between computational thinking and classroom management in North-west zone, Nigeria.

Table 7. Pearson Correlation of Computational Thinking and Classroom Management

		Computational Thinking	Classroom Management
Computational Thinking	Pearson correlation	1	.702**
	Sig. (2-tailed)		.000
	N	761	761
Classroom Management	Pearson Correlation	.702**	1
	Sig. (2-tailed)	.000	
	N	761	761

Table 7 Pearson correlation reveals a strong and positive correlation between computational thinking and classroom management ($r = 0.702$, $n = 761$, $p = .000$). The Highly significant $p < 0.01$ correlation indicates a close level of relationship and supported, which implies high level of confidence in the correlation (Creswell and Creswell, 2017; Neuman, 2013).

H₀₂: There is no significant relationship between embodied learning and classroom management in North-west zone, Nigeria.

Table 8. Pearson Correlation of Embodied Learning and Classroom Management

		Embodied learning	Classroom Management
Embodied Learning	Pearson Correlation	1	.762
	Sig. (2-tailed)		.000
	N	761	761
Classroom Management	Pearson Correlation	.762	1
	Sig. (2-tailed)	.000	
	N	761	761

Table 8 Pearson correlation shows a high and positive relationship between embodied learning and classroom management ($r = 0.762$, $n = 761$, $p = .000$). The Extremely significant $p < 0.01$ correlation shows a high level of the link and is supported, which implies a high level of confidence in the relationship (Miller et al, 2013; Mugenda & Mugenda, 2013).

H₀₃: There is no significant relationship between context-based learning and classroom management in the North-west zone, Nigeria.

Table 9. Pearson Correlation of Context-Based Learning and Classroom Management

		Context-based Learning	Classroom Management
Context-based Learning	Pearson Correlation	1	.674**
	Sig. (2-tailed)		.000
	N	761	761
Classroom Management	Pearson Correlation	.674**	1
	Sig. (2-tailed)	.000	
	N	761	761

Table 9 Pearson correlation reveals a close and positive relationship between context-based learning and classroom management ($r = 0.674$, $n = 761$, $p = .000$). The Extremely significant $p < 0.01$ correlation reveals a high level of correlation and is therefore supported, which implies a high level of confidence in the relationship (Timmermans & Tavory, 2012; Yilmaz, 2013; Creswell, 2015).

Linear Regression Analysis

Objective 4: Investigate the relationship between innovative pedagogical methods and classroom management in the North-west zone, Nigeria.

This part presents the linear regression analysis on pedagogical innovative methods and classroom management in the North-west zone, Nigeria.

Table 10. Linear Regression of pedagogical innovative methods and Classroom Management

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.607	.318	.430	.426

a. Predictors: (constants), computational thinking, embodied learning and context-based learning

Table 10 shows that pedagogical innovative methods has a positive impact on classroom management with 0.310 of R square value.

Table 11. Linear Regression Coefficient for Pedagogical Innovative Methods and Classroom Management

Model	Unstandardized coefficient		Standardized coefficient	T	Sig.
	B	Std. Error	Beta		
(Constant)	.546	.216		6.733	.000
Computational thinking	.327	.357	.276	3.247	.000
Embodied learning	.329	.242	.367	4.247	.000
Context-based learning	.076	.175	.186	1.606	.000

a. Dependent Variable: Classroom Management

Table 11 reveals the result of the running linear regression model that the standard regression weight of the eta coefficients value for pedagogical innovative methods was .546, which indicates that pedagogical innovative methods enhance classroom management. In addition, it shows that innovative pedagogical methods and classroom management are undeniably related. Also, the T-test of 6.733 was

significantly high with a corresponding p-value of 0.000. Therefore, in comparison, embodied learning has the highest effect (Beta = 0.367) followed by computational thinking (Beta = 0.276) and context-based learning (Beta = 0.186), In summary, the findings from this multiple linear regression research confirm that computational thinking, embodied learning and context-based learning are closely and positively related to classroom management in North-west zone, Nigeria.

DISCUSSION

Table 4 findings show that computational thinking enhances effective classroom management in Nigeria such that it helps learner experience a deeper level of involvement and understanding, convey the topic more effectively to the learners, encourages learners to work together, enhance learner problem-solving and negotiation skills, help the learner gain a better understanding of the content, Promote critical and analytical thinking as well as make learner have a positive attitude towards the task in the classroom. Results from hypothesis one show that there is a strong and positive relationship between computational thinking and classroom management in Nigeria. The finding concurred with Garcia-Penalvo and Mendes (2018) that computational thinking is an important skill that must be acquired by new-generation learners to enhance their effectiveness in learning. Also, agreed with Gunbatar, (2019) and Sawitree et al (2021) that learners need to develop computational thinking so as to have problem-solving skills in logical and systematic ways.

The findings in Table 5 reveal that embodied learning brings about effective classroom management. Consequently, it help teacher reach out to the mind of learners, make the lesson more interesting, improves learner motivation and attainment of learning goals, make learning fun and real as well as help teachers win the heart of learners while teaching. Research from hypothesis two reveals that there is a positive and close correlation between embodied learning and classroom management. The finding support Mirko et al (2019), Tricot (2015), Mavilidi et al (2018), Riley et al (2016) and Schmidt et al (2016) that embodied learning increases learners' cognitive processing toward achieving learning objectives.

Table 6 shows that context-based learning improves effective classroom management in Nigeria. Such that, it gives learners a perfect degree of autonomy over learning activities, help learner activate their thinking and meta-cognitive skills, stimulate learner interest and motivation in learning, help learners to be scientifically literate, as well as promote learners' self-esteem and acquire important knowledge discipline. Hypothesis three result reveals that there is a positive and strong relationship between context-based learning and classroom management in Nigeria. The finding concurred with Mischelle and Algeline (2020) that context-based learning improved the performance of learners from being described as low to high. Also, the finding is in line with Holbrook (2014), Kukliansky, and Eshach (2014) that the application of context-based learning contributes directly to the betterment of teaching and learning.

The results of regression analysis show that there is a strong relationship between innovative pedagogical methods and classroom management in Nigeria. The findings agreed with Nicolaidis (2012) that innovative pedagogical methods offer greater benefit to the quality of student learning. In addition, the finding concurred with Ngerem and Okpe (2020) that classroom teachers must be skillful in learning management in order to succeed. The finding agreed with Liisa and Minna (2018), Agu (2021), Onyali et al (2016), and Effendi et al (2020) that pedagogical innovative methods serve as powerful motivators of effective student academic performance and improvement of learner skills.

CONCLUSION

This study investigates the impact of pedagogical innovative methods, such as computational thinking, embodied learning, and context-based learning on classroom management in Nigeria, especially in northwest public primary schools. The study was based on the system theory proposed by Parson (1977). The findings revealed that participants agreed that pedagogical innovative methods like computational thinking, embodied learning and context-based learning are essential predictors of classroom management to ensure teaching and learning. The outcome of this current study strengthens the theoretical justification of system theory to help managers, teachers, and the government. Thus, this study highlights practical implications for the people managing those public primary schools as pedagogical innovative methods are very crucial in effective classroom management towards achieving the stated educational goals. Therefore, public school administrators should become accustomed to this current research by designing innovative pedagogical strategies that would improve effective classroom management.

RECOMMENDATIONS

School managers should continue encouraging learners' computational thinking so as to help learner experience a deeper level of involvement and understanding, convey the topic more effectively to the learners, encourages learners to work together, enhance learners' problem-solving and negotiation skills, help the learner gain a better understanding of the content, Promote critical and analytical thinking as well as make learner have a positive attitude towards the task in the classroom towards achieving effective classroom management. Also, school managers should continue to improve embodied learning in order to help the teacher reach out to the mind of learners, make the lesson more interesting, improves learner motivation and attainment of learning goals, make learning fun and real as well as help teachers win the heart of learners while teaching so as to improve classroom management. Likewise, school managers should encourage context-based learning y giving learners a perfect degree of autonomy over learning activities, helping learner activate their thinking and meta-cognitive skills, stimulating learner interest and motivation in learning, helping learners to be scientifically literate, as well as promoting learners' self-esteem and acquiring important knowledge discipline so as to achieve effective classroom management.

LIMITATION & FURTHER RESEARCH

In addition to highlighting the importance of innovative pedagogical methods in the effectiveness of classroom management, this study indicated a few research limitations that should be considered in future studies. Also, another variable might be utilized in a similar investigation aside from the variables used in this study, it also identified a few research limitations that should be addressed in future studies. Aside from the variables employed in this study, other variables can be used to measure innovative pedagogical methods. These findings will assist the government and educational administrators in ensuring the effective utilization of different innovative methods so as to enhance efficient classroom management. Furthermore, the results of this research are expected to contribute to further literature on innovative pedagogical methods both theoretically and practically. This finding could also be used as a reference point for future educational research.

REFERENCES

- Abdullahi, N. J. K. (2020). educational leadership behaviour and community engagement in Kwara State, Nigeria. *Educational Leader (Peminpin Pendidikan)*, 8(1), 45-62.
- Abdullahi, N. J. K. (2019). Education quality management ad teacher effectiveness in Nigeria. *Attarbawiy: Malaysia Online Journal of Business Studies*, 3(1), 59-68
- Abdullahi, N. J. K. (2018). Teacher training and classroom management in Nigeria. *Journal of Education in Developing Area*, 26(1), 32-41.
- Anderson, R. T., Neri, L. (2017). reliability-centered maintenance: Management and engineering methods. Springer Science and Business Media.
- Adzongo, P. T., Shir, J. N., & Hembra, D. B. (2016). *A pedagogical approach to basic issues in pre-primary and primary education in Nigeria*. Makurdi: Power Computer and Communication.
- Agu, J. C. (2021). Influence of teachers' classroom management technique on students academic performance in Njikoka, L. G. A. *International Journal of Innovative Education Research*, 9(1) 33-44.
- Akpakwu, S. O. (2012). *Educational management theory and practice*. Makurdi: Destiny Ventures.
- Asiyai, R. L. (2011). Classroom management techniques and secondary school effectiveness. *An International Multi-disciplinary Journal*, 5(1), 282-291.
- Bell, E., Bryman, A., & Harley, B. (2007). *Business research methods* (5th ed.) New York: Oxford University Press.
- Bond, T. G. & Fox, C. M, (2015). *Applying the Research Model Fundamental Measurement in the Human Sciences* (3rd Ed.). New York & London: Routledge.
- Borghia, A. M., & Zarcone, E. (2016). Grounding abstractness: Abstract concepts and the activation of the mouth. *Frontal Psychology*. 7:1498. DOI/10.3389/fpsyg.2016.01498.
- Brophy, R. N. (2016). Classroom management techniques. *Education and Urban Education*, 5(4), 21-32.
- Buccino, G., Golage, I., Gobbi, N. Bonaccorso, G. (2016). Grounding meaning in experience: A broad perspective on embodied language. *Neuro Science Bio-Behavioural Review*, 69. 69-78. doi:10.1016/j.neubiorev-2016.07.033.
- Chandler, P., & Tricot, A. (2015). Mind your body. The essential role of the body movements in children's learning. *Educational Psychology Review*, 27(3). 365-370. <https://doi.org/10.1007/s10648-015-9333-3>
- Choy, L. T. (2014). The strengths and weaknesses of research methodology: Comparison and complimentary between qualitative and quantitative approaches. *Journal of Humanities and Social Sciences*, 19(4), 99-104
- Cohen, L., Mainion, L., & Morrison, K. (2000). *Research methods in education* (5th ed.). London: Routledge Falmer.
- Chikere, C. C., & Nwoka, J. (2015). The system theory of management in modern day organisations: A study of Aldasate congress resort Limited Port Harcourt. *International Journal of Scientific and research Publication*, 5(9), 1-7.
- Creswell, J. W. (2015). *A concise introduction to mixed methods research*. Thousand Oaks, California: SAGE.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative and mixed methods approach*, USA: Sage Publication

- Diamantopoulos, A., Marko, S., Chrisoph, F., Petra, W. & Sebastian, K. (2012). Guideline for choosing between multi-item and single-item scales for construct measurement: A predictive validity perspective. *Journal of the Academy of Marketing Science*, 40(3), 434-449.
- Dillman, D. A., Jolene, D., & Leah, M. C. (2014). Internet, phone, mail and mixed mode surveys: The Tailored design method (4th ed.). Hoboken, NJ: John Wiley.
- Ekoh, A. C. (2016). Traditional pedagogy to innovative pedagogy in business education: A challenge to business educators. *Nigeria Journal of Business Education*, 3(2), 133-144.
- Efendi, M. Y., latief, S., & Lien, H. N. (2020). The educational innovation, comparison of a techno teaching analysis in primary school between Indonesia and Taiwan. *Studies in Learning and Teaching*, 1(1), 27-40.
- Garcia-Penalvo, F. J., & Mendes, A. J. (2018). Exploring the computational thinking effect in pre-university education. *Computer in Human Behaviour*, 80, 407-411. <https://doi.org/10-1016/j.chb.2017.12:005>
- Gargay, & Latchanna (2015). Innovative pedagogical. Retrieved July 18th, 2022 from www.researchgate.net
- Gay, L. R., Mills, G. E., & Airasian, P. (2009). Educational research: Competencies for analysis
- Gunbater, M. S. (2019). computational thinking within the context of professional life: Change in computational thinking skill from the view point of teachers. *Education and Information Technologies*. 24(5), 2629-2652.
- Hesse-Biber, S. & Leavy, P. (2011). *The practice of qualitative research*. Thousand Oak, CA: Holbrook, J. (2014). context-based approach to science technology. *Journal of Baltic Science Education*, 13(2), 1648-3898.
- Igbacha, S. T. (2014). *A guide to quality classroom teaching*. Makurdi: Kingdom Press
- Kukliansky, I., & Eshach, H. (2014). Evaluating a context-based course on data analysis for physics laboratory. *Journal of Science Education Technology*, 23(1), 108-115.
- Leady, P. D. & Ormrod, J. E. (2005). *Practical Research: Planing and design*. New Jersey: Pearson Merrill Prentice Hall.
- Lehto, A., Kairisto, M., & Liisa, P. T. (2011). Towards innovation pedagogy: A new learning for university of applied science. Report from Turku University of Applied Science.
- Liisa, I., & Minna, L. (2018). digital technology and practices for school improvement: Innovative digital school model. *Research and Practice in Technology Enhance Learning*, 13(25), 22-38.
- Mandula, K., Meda, S. R., Jain, D. K. (2012). Research and Implementation of a mobile video streaming application for ubiquitous learning. International Conference on Technology Enhanced Education (ICTEE), 1-6.
- Mavilidi, M. F., kely, A., Chandler, P., Domazet, S. L., & Pass, F. (2018). Immediate and delayed effects of interacting physical activity into preschool children's learning of numeracy skills. *Journal of Experimental Child Psychology*, 166, 502-519. <https://doi.org/10.1816/j.jecp.2017.09.009>
- Mayer, A. (2013). *Introduction to statistics and SPSS in psychology* (1st ed.) England: Pearson Education Limited.
- Messmann, G., & Mulder, R. (2011). Innovative work behaviour in vocational colleges: Understanding how and why innovations are developed. *Vocations and Learning*, 4, 63-84. <https://doi.org/10.1007/s12186-010-9049-y>
- Michael-Allan, A. B. (2015). Improving transfer of learning through designed context-based instructional materials. *European Journal of science and Mathematics Education*, 3(3), 265-274.

- Miller, V. D., Poole, M. S, Seibold, D. R., Myers, K. K., Hee Sun, P., & Monge, P. (2013). Advancing research in organizational communication through quantitative methodology. *Management Communication Quarterly*, 25(1), 4-58.
- Mirko, S., Valentin, B., Amie, W., Mysto-foteini, M., David, R. L., & Fred, P. (2019). Embodied learning in the classroom: Effects on primary school children's attention and foreign language vocabulary learning. *Psychology of Sport and Exercise*, 43, 45-54.
- Mischelle, M. B., & Algeline, S. H. (2020). context-based learning in teaching senior high school: Basis for science instructional material development. *Asia Pacific Journal of Education, Arts and Sciences*, 7(1), 73-81.
- Mugenda, A., & Mugenda, O. (2013). *Research methods: Qualitative and quantitative approaches*. Nairobi: ACTS Press.
- Neuman, W. L. (2013). *Social research methods: Qualitative and quantitative approaches*. USA: Pearson Education.
- Ngerem, E. T. & Okpe, P. U. (2020). Effective classroom management: A panacea for enhancing students learning experience and satisfaction in higher education. *Britun Journal of Education*, 8(1), 10-19.
- Nicolaidis, A. (2012). Innovative teaching and learning methodologies for higher education institutions. *International Research Journals*, 3(8), 620-626.
- Nwankwo, A. (2014). *Management in education*. Ibadan: Giraffe Books
- Ong, I. L., Dino, M. J. S., Calimag, M. M. P., & Hidalgo, F. A. (2019). development and validation of interpersonal learning assessment tool for health professionals in continuing professional development. *PLOS ONE*, 14(1). 1-16.
- Onyali, L. C., Ezeugbor, C. Okoye, F. (2016). Introducing creativity and innovation into classroom management skill: A panacea for student high performance in secondary schools in Anambra State, Nigeria. *International Journal for Research in Business, Management and Accounting*, 2(8), 22-32.
- Otta, F. E. (2010). Classroom management and effective administration of guidance services in schools. In I.L. anukam, P.O.O. Okunamiri & R.N.O. Ogbonna. (Eds.) *Basic text on educational management*. Imo State, EeHech Versatile Publishers.
- Patton, M. Q. (2002). *Qualitative research and evaluation methods*. 3rd Sage Publications: Thousand Oaks, CA.
- Philomena, I. A., & Temitayo, O. O. (2019). effective teaching and classroom management: A tool for quality education in Nigeria. *BSUJEM*, 1(2), 1-12.
- Research Advisor (2006). Sample size table. <http://WWW.reseach-advisor.com>
- Riley, N., Lubans, D. R., Holmes, K., & Morgan, P. J. (2016). Findings from the easy mind cluster randomized controlled trial: Evaluation of a Physical activities integration program for mathematics in primary schools. *Journal of Physical Activities and health*, 13(2), 198-206. <https://doi.org/10.1123/jpah.2015-0046>
- Sawitree, P., Paitoon, P., Somkiat, T., & Akan, N. (2021). Enhancing student computational thinking skills by using a flipped-classroom learning model and critical thinking problem-solving activities: A conceptual framework. *Turkish Journal of Computer and Mathematics Education*, 12(14), 1352-1363.
- Shmidt, M., Benzing, V., Kamer, M. (2016). Classroom-based physical activity breaks and children's attention: Cognitive engagement works. *Frontier in Psychology*, 7, 1474, <https://doi.org/10.3389/fpsyg.2016.01474>

- Timmermans, S., & Tavory, I. (2012). Theory construction in qualitative research: From grounded theory to abductive analysis. *Sociological Theory*, 30 (3), 167-186.
<https://doi.org/10.1177%2f073527511245.7914>
- Tondeur, J., Van-Braak, J., Ertmer, P. A. & Ottenbreit-Leftwich, A. (2017). Understanding the relationship between teachers' pedagogical belief and technology use in education: A systematic review of qualitative evidence. *Educational Technology Research and Development*, 65(3), 555-575.
- Wing, J. (2014), Computational thinking. *Communication of the ACM*, 49(3), 33-35.
- Yilmaz, K. (2013). Comparison of quantitative and qualitative research traditions: Epistemological, theoretical, and methodological differences. *European Journal of Education*, 48(2), 311-325.