



EFFECT OF RALLY COACH ON PUPILS' ACADEMIC PERFORMANCE IN NUMERACY IN OKENE LOCAL GOVERNMENT, KOGI STATE NIGERIA

By

**Gambo Victory AGBOMEIRE, Usman Tunde SAADU, Hafees Tosin SULYMAN &
Yahaya OLAREWAJU**

Department of Early Childhood and Primary Education
Kwara State University Malete,

Correspondence: childrenmustgrow@gmail.com
08072080145

Abstract

This study examined the effect of rally coach on pupils' academic performance in numeracy in Okene Local Government Area of Kogi State. Four purposes were stated and four hypotheses were formulated to guide this study. The study employed a pre-test, posttest, control group quasi experimental design. the targeted population comprised 170 primary schools pupils. The sampled population consists of two private schools and public schools. The instruments titled Instructional Guide for Rally Coach (IGRC), Instructional Guide for Conventional Method (IGCM) and Numeracy Performance Test (NPT) were used for data collection. The instruments were subjected to face and content validity by three lecturers from Early Childhood and Primary Education and Arts and Social Sciences. The reliability index of NPT was determined using Pearson Product Moment Correlation (PPMC) and it yielded (0.75). Four research hypotheses were formulated and tested in this study at 0.05 level of significance. Inferential statistics of Analysis of Covariance (ANCOVA) was used to test the hypotheses. The findings revealed that there was a significant main effect of Rally Coach on pupils academic performance in numeracy ($F_{(1; 96)} = .010, P < 0.05$). Those exposed to Rally Coach (19.287) performed significantly higher than those exposed to conventional method (19.273). Similarly, interaction of treatment and school type had no significant effect on pupils' academic performance in numeracy in Okene Local Government Area of Kogi State. Ultimately, treatment and gender had no significant

effect on pupils' academic performance and learning retention in numeracy in Okene Local Government Area of Kogi State. In conclusion, the effect of Rally Coach on effect of Academic performance in Numeracy was high, it was recommended that Numeracy teachers in particular should adopt this strategy in delivering knowledge to the pupils and Teachers should be exposed more to the internet for more exposure on Rally Coach.

Keywords: rally Rally Coach, Academic Performance and Numeracy

Introduction

Numeracy is a core subject particularly at the primary school level that must be exposed to individuals at all levels of education specifically the primary level. This subject at the primary level of education could be considered as one which exposes pupils to the rudiment of numbers and figures. In the 21st century, the relevance of numeracy cannot be underestimated because of its connection to all fields of study. Similarly, it could be seen as a pillar on which all other subjects rely on. Numeracy in early years, if connected to a child's world in a developmentally appropriate manner could be more than getting ready for school or hastening them into fundamental or basic mathematics. Numeracy is also known as numerical literacy, ability to understand and work with numbers which is essential for everyday life and academic success. Numeracy has been a vital skill throughout human history with ancient civilization used numbers for trade architecture in the 19th and 20th centuries numeracy has become a core component of elementary education, it is crucial for problem solving, critical thinking and linked to academic achievement, economy productivity and social mobility.

The essence of primary education for the overall development of the child as slated by the National Policy on Education (NPE, 2013). It is to inculcate permanent literacy and numeracy and the ability to communicate effectively. In line with the policy, it could be said that each child at primary school level is taught simple mathematics and language skills. The skills acquired in the subject enable the pupils to effectively communicate and transact in the society (Ahmed & Lawal, 2020). Akinoso (2013) was of the opinion that numeracy is a field of Science use to solve various practical problems. Similarly, numeracy could be represented through the use of visual objects such as charts, diagrams, tables, and sketches. Purwadi, et al (2019) affirmed that presentation of numeracy topics in a simple form makes it easier for pupils to understand teaching and learning and problem-solving.

Makondo and Makondo (2020) in their study opined that despite the significance of numeracy, the academic performance of pupils, particularly in national examinations, has shown a downward trend. To buttress this point on numeracy performance among students, Saad et al. (2014) revealed that the percentage of students with five credits rose to 30.9% and continued to rise to 38.81% in 2012. Unfortunately, in 2013, the performance declined to 36.57% and further declined to 31.28% in 2014. The performance since then has not been consistent making it a major concern for researchers in the field of Education..

These statistics data calls for an immediate need to address the challenges and problems faced by pupils in numeracy, particularly in Okene Local Government Area of Kogi State. To address this pressing need of poor academic performance, there is need to know the causes. This poor academic performance could be attributed to a number of factors such as lack of school facilities, lack of qualified numeracy teachers, congested numeracy classroom, overloaded numeracy syllabus and poor instructional strategies used in teaching numeracy. Academic performance also depends on the amount of time a child is actively engaged in learning because, the time spent on studying helps pupils to retain the materials learnt which may also boost the pupil's academic

performance during test or examination. Among several previous studies conducted, Isa et al. (2020) indicated that the teaching method employed in classrooms has a significant impact on pupils' academic performance. Specifically, they posited that the use of a lecture method by certain teachers has been associated with poor academic performance in mathematics.

Efforts have been made to solve the problem of poor performance in the internal and external examinations by different stakeholders in the education industry, but evidence shows that the problems is still prevalent in our schools (Clifford, et al, 2019). In respect to this, many efforts have been explored and like other core subjects, priority attention has been given to this compulsory subject. Osikomaiya (2013) noted that pupils continue to perform very poorly in the subject at both promotional and terminal examinations to the displeasure of parents, teachers, examiners, and policy makers. This could be possible that this continuing poor performance is as a result of continuously using of conventional method, inadequate teaching facilities, unqualified teachers teaching the subject. This is because it can be observed that conventional method is still popular in Nigeria despite its obvious and numerous limitations.

Rally Coach is a comprehensive educational intervention program designed to support pupils academic development particularly in numeracy skills and it could also be a cooperative learning strategy used in education for peer collaboration and widening knowledge in it content.

Rally-Coach is a Kagan structure model that was designed in his book titled cooperative learning which referred to the learning models that involve students learning in groups or pairs. Kagan and Kagan (2015) stated that in the cooperative classroom, the teacher has learners work in pairs using Rally-Coach. Moreover, it is a learning model that allows the pupils in the classroom to give praises to their friends while solving the problem or answering the question. It gives learners the opportunity to coach their peers through problems and questions. Pupils are paired together: where one is partner A, and another is partner B. The pupils solve problems or answer questions aloud in pair. They take turns solving one of their problems or questions aloud, so their partner coaches can listen to their thinking and process. As Partner B listens, they check for accuracy, clarify any misconceptions, and "coach" Partner A as needed. The learners switch roles when the problem is correct. According to Marlina, et al (2016), rally coach is a strategy that supports learner's collaboration, communication, and subject mastery in the classroom.

Rally Coach is one of the alternative learning models which could promote pupils' numeracy ability. Ningsil et al (2017) stated that the learning steps of Rally Coach are into four stages namely; learner A tries to solve a given problem; learner B pays attention, checks and gives a reward if learner A answers correctly; learner B tries to solve a given problem then; learner A pays attention, checks and gives a reward if learner B's answer is correct. In this learning model, pupils are asked to solve some contextual problems in a small group or pair in order to minimize the existence of any sleeping partners during the discussion process.

Gender in relation to academic performance has been another area of great concern to educational stakeholders and this researcher deem it fit to consider it as one of the moderator variables in this study. Gender is a specially constructed phenomenon, which connects to the cultural attributes of males and females (Nnamani & Oyibe, 2016).

Bello and Famakinwa (2014) defined gender as the social and cultural construct, characteristics, behaviours and role which society ascribes to males and females. It is said to be one of the factors affecting students' socio-cultural and academic achievement. The physical characteristics and differences in the reproductive organs determine male or female respectively (Federal Ministry of Education, 2016).

School type could be divided into Public and private schools. They are institutions owned as the name connotes. The public schools in Nigeria have Federal, State, and Local governments as their proprietors; while private schools have individuals, associations, or organizations as their owners. Private schools vary widely, and the level of parental participation differs from one private school to the other (Olatoye & Olasehinde, 2014).

It has however been observed that different researchers have carried out studies on different learning strategies on academic performance while few have studied the effectiveness of rally coach structure on pupils' academic performance in numeracy. Also, to the best of the researcher's knowledge it has been observed from the literature reviewed that a study of this type has never been carried out in Okene Local Government Area of Kogi State. Hence, this justifies the need to examine the effect of rally coach on pupil's academic performance in numeracy in Okene Local Government of Kogi State. Therefore, this is meant to fill the gap, requiring empirical evidence with regard to the effect of rally coach on pupil's academic performance in numeracy.

Statement of the Problem

The academic performance of pupils in primary schools have become a persistent issue in recent times. This has been a great concern for teachers, parents, education administrators, researchers and the Nigeria government as a whole. Various studies have been carried out to know the causal effect of the problem.

Some studies revealed in their findings that the low academic performance of pupils in this subject can be attributed to so many factors including teaching method and learning structures. Previous studies on the influence of these variables on academic performance are not conclusive. While some of the findings of the studies discovered that, there is a significant influence of these variables on pupils' academic performance in mathematics. Some studies equally discovered that these variables do not significantly influence pupils' academic performance in mathematics. However, the academic performance of pupils in upper level of pupils in primary school in Okene local government area of Kogi state has been consistency low with many pupils struggling to demonstrate basic numeracy skills, many primary school pupils in Okene lack the necessary skills and competence to succeed in school leading to poor academic performance in numeracy (Kogi State Ministry of Education 2019). This problem is further compounded by lack of competent numeracy teachers to improve academic performance.

Rally Coach Structure is an innovative approach that has been implemented in some schools in Nigeria to improve academic performance in Numeracy. However, the effectiveness and impacts of this structure in improving performance has not been adequately and efficiently investigated. To the best knowledge of the researcher none of the previous studies conducted focused on the effect of rally coach on pupil's academic performance in Numeracy in Okene Local Government Area of Kogi State. This is the gap which the study tried to fill.

Research Hypotheses

The following research hypotheses were postulated for this study;

H₀₁: There is no significant effect of rally coach on pupils' academic performance in numeracy in Okene Local Government Area of Kogi State.

H₀₂: There is no significant interaction effect of rally coach and gender on pupils' academic performance in numeracy in Okene Local Government Area Of Kogi State.

H₀₃: There is no significant interaction effect of rally coach and school type on pupils' academic performance in numeracy in Okene Local Government Area of Kogi State.

H₀₄: There is no significant interaction effect of rally coach, gender, and school type on pupils' academic performance in numeracy in Okene Local Government Area of Kogi State.

Methodology

The research design adopted for this study was pre-test, post-test, control group, quasi-experimental design. A factorial design of 2X2X2 was adopted to test the null hypotheses for this study. The first two levels are; one experimental group (Rally Coach) and one control group (conventional method). The second factorial level was based on gender, that is male (M) and female (F); while the third factorial level focused on school type (public and private). The population for the study comprised of all 94,276 primary school pupils in public and private schools in Okene Local Government Area of Kogi State. The target population for this study were primary three pupils in Okene Local Government Area of Kogi State. Sample size was 97 participant. Three researcher instruments designed were used to elicit relevant information for the study titled "Numeracy Performance Test (NPT), instructional guide for rally coach (IGRC), Instructional guide for conventional Method (IGCM).

Face and content validity of the instrument were ascertained by two numeracy teachers in the lower basic school, researcher's supervisors, internal examiners and two lecturers in the Department of Early Childhood and Primary Education. The reliability test was conducted using test retest, 20 copies of the test were administered two times on primary 3 pupils in another school which was not be part of the study sample and Pearson Product-Moment Correlation (PPMC) was used to determine the reliability index yielded 0.75. The data collected were analysed using both descriptive and inferential statistics. Analysis of Covariance (ANCOVA) was used to test the hypotheses at 0.05 level of significance.

Results

Testing of the Hypotheses

H₀: There is no significant main effect of rally coach on pupils' academic performance and in numeracy in Okene Local Government Area of Kogi State.

Table 1: Summary of Analysis of Covariance (ANCOVA) showing the Main Effect of Treatment on Pupils Academic performance in Numeracy

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6.008 ^a	8	.751	1.593	.138
Intercept	230.913	1	230.913	489.924	.000
Pre_Test	4.767	1	4.767	10.114	.922
Treatment	.005	1	.005	.010	.002
Treatment * Gender	.166	2	.083	.177	.838
Treatment * School_Type	.350	2	.175	.372	.691
Treatment * Gender *	.999	2	.499	1.060	.351
School_Type					

Error	41.476	88	.471
Total	36098.000	97	
Corrected Total	47.485	96	

a. R Squared = .390 (Adjusted R Squared = .340)

Table 1 data shows the significant main effect of rally coach on pupils' academic performance in numeracy in Okene Local Government Area of Kogi State. The finding revealed that there was a significant main effect of treatment on pupils' academic performance in numeracy in Okene Local Government Area of Kogi State. ($F_{(1; 96)} = .010$, $P < 0.05$). The hypothesis was therefore rejected in light of the result since the significant value (.002) is less than 0.05. This implies that rally coach has significant effect on pupils' academic performance in numeracy in Okene Local Government, Kogi State.

Table 2: Summary of Bonferroni's Poc Hoc Pairwise Comparison of the scores within the two groups

Treatment	Mean Difference	Experimental	Control Group
Rally Coach	19.287 ^a		*
Conventional Method	19.273 ^a	*	

Data in Table 1 revealed that the significant main effect exposed by table 2 data is as a result the significant difference between rally coach and conventional method. Rally coach refers to the experimental group, while conventional method is known as the control group. This implies that those exposed to rally coach (19.287) performed significantly higher than those exposed to conventional method (19.273).

H₀₁: There was a significant main effect of treatment on pupils' academic performance in numeracy in Okene Local Government Area of Kogi State. ($F_{(1; 96)} = .010$, $P < 0.05$).

H₀₂: There was no significant interaction effect of rally coach and gender on pupils' academic performance in numeracy in Okene Local Government Area of Kogi State. ($F_{(1; 96)} = .177$; $P > 0.05$).

H₀₃: There was no significant interaction effect of treatment and school type on pupils' academic performance in numeracy in Okene Local Government Area of Kogi State ($F_{(1; 96)} = .372$; $P > 0.05$).

H₀₄: There was no significant interaction effect of treatment, gender, and school type on pupils' academic performance in numeracy in Okene Local Government Area of Kogi State ($F_{(1; 96)} = 1.060$; $P > 0.05$).

Discussion of Findings

The study was carried out with the aim to determine the difference between the academic performance of pupils taught numeracy using rally coach and those taught with conventional method in primary schools in Okene Local Government, Kogi State. Different studies confirmed the relationship between rally coach and academic performance of pupils.

Findings of this study among others revealed that there was a significant effect of Rally Coach on pupils' academic performance in numeracy in Okene Local Government Area of Kogi State. This implies that pupils taught numeracy using rally coach performed significantly higher than their counterparts taught with conventional method. This is line with the study of Obafemi et al., (2024). Which revealed that treatment had a significant effect on pupils' academic performance in mathematics. Similarly, it corroborates with the study of Ajayi, Hammed and Obafemi (2022) that revealed that there was significant main effect of treatment on pupils' academic performance in numeracy. This is also in line with the study of Akinlande and Jacob (2020) whose study revealed that there was significant main effect of treatment on pupils' academic performance in numeracy.

Another finding of the study revealed that treatment and gender had no significant effect on pupils' academic performance in numeracy in Okene Local Government Area of Kogi State. Research has indicated that there are minimal cognitive differences between genders in terms of numeracy skills in early education. This similarity could explain why both male and female pupils performed equally well under the treatment. This is in line with the study of Basila and Jajua, (2019). Which revealed that there is no significant difference in the academic performance of students taught using demonstration and discussion strategies based on gender. However, this negates the study of Amedu (2015), which showed that male students had greater mean score than their female counterparts when taught with jigsaw strategy.

The findings also revealed that treatment, gender and school type had no significant effect on pupils' academic performance in numeracy in Okene Local Government Area of Kogi State. This contradicts the study of Vanda (2023) which revealed that a significant difference was recorded in students' scores based on their gender and school type. Also, it is against the study of Sulyman, Saadu and Olosunde (2022), whose findings of the study revealed that the type of school had a significant impact on students' academic performance. Findings of this study further revealed that there was a significant effect of treatment on pupils' academic performance in numeracy in Okene Local Government Area of Kogi State. This implies that pupils taught numeracy using rally coach performed significantly higher than their counterparts taught with conventional method. This is line with the study of Obafemi et al., (2024). revealed that treatment had a significant effect on pupils' academic performance in mathematics. Similarly, it corroborates with the study of Ajayi, Hammed and Obafemi (2022) whose study examined the effects of concrete-representational-abstract on pupils' academic performance in numeracy One of the findings of the study revealed that there was significant main effect of treatment on pupils' academic performance in numeracy. Another findings of the study revealed that treatment and gender had no significant effect on pupils' academic performance in numeracy in Okene Local Government Area of Kogi State. This is in line with the study of Basila and Jajua, (2019). Their study revealed that there is no significant difference in the academic performance of students taught using demonstration and discussion strategies based on gender. However, this negates the study of Amedu (2015) who carried out a study on performance of male and female students taught using jigsaw instructional strategy.

This study also examined the interactive effect of treatment, gender and school type on pupils' academic performance numeracy in Okene Local Government Area of Kogi State. This contradicts the study of Vanda (2023) which revealed that a significant difference was recorded in students' scores based on their gender and school type. Also, it is against the study of Sulyman,

et al (2022), whose findings of the study revealed that the type of school had a significant impact on students' academic performance.

Conclusion

From the findings of the study, it is evident and clear that rally coach has effect on the academic performance of pupils in Numeracy. This teaching pedagogy can bring about improvement in the academic performance of pupils in numeracy regardless of gender and the school they attend.

Recommendations

Based on the findings, the following recommendations were made:

1. Teachers of numeracy should adopt rally coach in delivering knowledge to the pupils.
2. Seminars, workshops, conferences and training programs should be organized periodically for teachers to get acquainted with the use rally coach to enhance pupils' learning outcomes.
3. There is need for the Ministry of Education to start periodic training sessions for teachers who are already in the field to be retrained on recent discovery regarding the use of rally coach in teaching numeracy in primary schools.
4. Teachers should not restrict their knowledge to what they were taught while in training they should be updated by sourcing for information on the internet to find out various methods to improve individual pupils' performance in the classrooms. .

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