

Effect of Play on Learning Outcomes Among Lower Primary Schools: Evidence from Kirinyaga East Sub-County, Kenya

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Abstract

This research investigated the effect of play as one of the transformative instructional methods that enhance pupils' academic achievement in lower primary schools in Kirinyaga East sub-county, Kirinyaga County, Kenya. The research employed a descriptive survey research design. The target population was 845 comprising 35 Headteachers, 210 teachers and 600 lower primary pupils. Slovenes formula was employed to compute a sample size of 271, comprising 8headteachers, 55teachers and 193 pupils. Data collection instruments used were semi-structured questionnaires for Headteachers and teachers, interview guidelines for teachers and a lesson observation checklist. The instruments were piloted to determine their validity using a panel of three academic staff experts from Department of Educational Management and Curriculum Studies. The reliability was determined using test-retest approach. After following appropriate ethical requirement of obtaining research permit from the National Commission for Science Technology and Innovation (NACOSTI) and preliminary visits to the County Commissioner, Kirinyaga County and heads of schools sampled, data was collected. The data collection involved administering of questionnaire and interviews from teachers and Headteacher and also lesson observation. Quantitative data was analyzed with the assistance of Statistical Package for Social Sciences (SPSS) to generate both descriptive and inferential statistics. The findings revealed that use of play was not effectively used due to inadequate play materials. It was conclude that if Kenyan youth are able to be prepared effectively using transformative learning centered pedagogy focusing on play to face life challenges of the 21st century ,the country's education managers should ensure adequate teachers are trained on modern pedagogy ,infrastructure improved in schools and teachers morale improved .The most important recommendation is that systematic teacher training on use of play and resources in schools should be provided for effective implementation and learner-centered teaching.

Keywords: Transformative, learner-centered, play, pedagogy, lower primary schools.

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1.0. INTRODUCTION AND CONTEXT OF THE STUDY

1.1 Context of the Study

Strategies for classroom education have significantly developed during the last 50 years (Daniel, 2020). This advancement has been encouraged by the development of various learning philosophies and techniques of education, including active learning, student-centered learning, collaborative learning, experiential learning, and problem-based learning (Daniel, 2020). Significant growth in the amount of information on human development and learning also allows for a more remarkable ability to design more effective educational methods (Linda et al., 2020). Understanding the many ways that pupils learn is essential for academic achievement since everyone learns differently. Understanding how different pupils learn may be very helpful for both teachers and students (Linda et al., 2020). By comprehending the learning process, teachers can make the most of their efforts and design learning environments that support students.

Transformational teaching entails building dynamic interactions between instructors, students, and a standard body of knowledge to encourage student learning and personal development (Castillo, 2020). From this approach, teachers are intellectual coaches who construct teams of students that cooperate and their teachers to master material bodies (Frerejean, 2020). Teachers undertake the conventional function of aiding students' acquisition of essential course topics while promoting students' personal development and attitudes toward learning (Frerejean, 2020). According to the theory of transformational teaching, transformative education's goal goes beyond just imparting knowledge. Instead of being content-focused, transformational instructors assist students in developing their critical thinking, goal-setting, and reflection skills, as well as their ability to

participate in the learning process meta-critically (Thieman, 2021).

1.2 . Play and learning outcome

Play is essential to development because it contributes to children and youth's cognitive, physical, social, and emotional well-being (National Academies of Sciences, Engineering, and Medicine, 2020). Play provides teachers and children with a chance to fully engage in learning and teaching during class (Marchant et al., 2019). Article 31 of the Convention on the Rights of the Child (CRC) recognizes child rights ranging from the right to rest, play, leisure, free recreational activities, and participation in artistic life and their culture. Pupils with families that play together are more cooperative and helpful and have better communication skills (Michelle, 2020).

Spencer et al. (2019) contend that play gives children a chance to think creatively and develop their imagination and cognitive and emotional strength. Yogman et al. (2018) noted that children could interact and engage in the world through play. Further, he observed that children could conquer their fear and the world they live in through play. Likewise, (Waters & Loton (2019) observed that through play, children could advance their competencies, enhance their resilience, and boost their confidence.

In a similar vein, Yogman et al. (2018), in their research, established play help children to work in group work, resolve conflict, negotiate, share and learn new skills. Development of decision-making abilities is also possible via play. Not only should they go at their speed, but they should also explore new areas of interest and eventually follow the hobbies and interests they most strongly want. Similarly, Graber et al. (2021) add that play is integral to the academic environment. The school can develop not only the social and emotional development of children but children develop cognitive skills as well. Through play, the children can adjust to the school setting, improve their learning readiness and behaviour and develop skills for solving daily problems.

It is instructive to note that the UN Committee on the rights of children (2022) reaffirms that play is a fundamental and vital component as it enhances the mastering of facts and information. According to the committee, schools must integrate play and learning to boost the academic strength of children. Dong, Cao & Li (2020) highlights play as an interactive nature that facilitates the construction of knowledge; through play, a child is prepared for school. Engaging in play activities helps nurture social and language skills (Oranga et al, 2022).

Campbell (2018) explains that when children engage in play activities, it helps refine their listening and reasoning skills. Yogman et al. (2018) assert that play helps to enhance the child's readiness for more formalized learning. Facilitators will be efficient if they harmoniously employ play and other helpful methods to teach children (Ismail, 2022).

Jenkins et al, (2018) suggests that the child should be the centre of the curriculum process. This approach recommends playing in the learning processes as it enhances creativity in the child. Play and physical activities allow children to interact among themselves and thus develop social skills (Hinkley et al., 2018). According to Razavipour & Rezagah (2018) tutors ignore play time and use it to cover their lagged behind syllabus.

Pupils pay more attention to academic tasks when given frequent brief opportunities to play (Clark et al., 2020). Lower primary tutors should provide enough play time if a school's academic performance is the objective (Haug & Mork, 2021). Children pay more attention to academics when play is part of the process (Li, Z., & Qiu, 2018). No research has been conducted on the impact of play as a transformative instructional method to enhance pupils' learning outcomes in Kirinyaga County.

1.3 Statement of the Problem.

Most public primary school pupils transition from lower primary to upper primary without literacy skills and the ability to express themselves effectively. They achieve poorly in their academic performances in lower classes, upper primary levels, and KCPE. Despite the Government's effort to channel resources to promote primary education, academic performances remain a problem in many public schools. Little attention has been given to instructional methods, yet they enable pupils to focus and help teachers provide a suitable platform for strategic learning. More so, the focus on lower primary performance has not been dealt with, which forms the base of pupils' future excellence in upper primary and secondary levels. The main problem is that there is a gap in knowledge regarding the effect of transformative pedagogy using play and its effect on learning outcomes of lower primary schools in Kirinyaga East Sub-County, Kirinyaga County, Kenya.

1.4 Purpose of the study.

The study's primary purpose was to investigate how transformative (learner centered) instructional methods using play activities contribute to pupils' academic achievement in lower primary schools. The specific objective was to determine the relationship between play and pupil's learning outcome in lower classes.

1.5 Theoretical Framework.

The research was informed by the learning as well as instructional approaches theories. It was guided by Lilli

Nielsen's (1998) theory of “Active learning”. According to this theory, the learning process should involve students more directly. It asserts that students participate in the learning process at the point when they are accomplishing something other than inactively tuning in; they should peruse, compose, examine, or be occupied with taking care of issues. Dynamic learning connects with understudies in two perspectives getting things done and considering things they are doing. Nielsen urges teachers and caregivers to create a conducive environment that will motivate youngsters to connect and investigate their environmental factors utilizing materials such as a little room and a reverberation board. Nielsen's little room is a central dynamic learning climate, giving kids a resounding, warm, rich, and sheltered spot to lock in.

In this methodology, the child is furnished with occasions to learn through active investigation and assessment of the climate. Educators and guardians set up formatively suitable conditions that urge the youngster to contact, move and investigate the activities and sounds and relate with the kid as per their degree of interest and overall improvement. Active learning theory suggests learning involves: learning through play, activity-based learning, group work, project methods, and learner-centered approaches. Lilli Nielson (1998) asserted that active learning as a strategy promotes achievement levels, and content mastery is possible

1.6 Conceptual framework

The study employed a conceptual framework depicted in figure 1 to indicate the nature of relationship between the independent variable (Learner centered instructional method) and the dependent variable (Pupil's learning outcome). The conceptual framework provides a snap shot of the interplay between the diverse components of learner centered instructional methods and its effect in the pupils learning outcomes (Orodho,2017).

The main independent variables was frequency of organized play. The dependent variable (pupils learning outcome) , measured by the pupil's performance in various practical activities, literacy and numeracy skills acquired and the creation of learning centers. The intervening variable are the type of school, culture and leadership

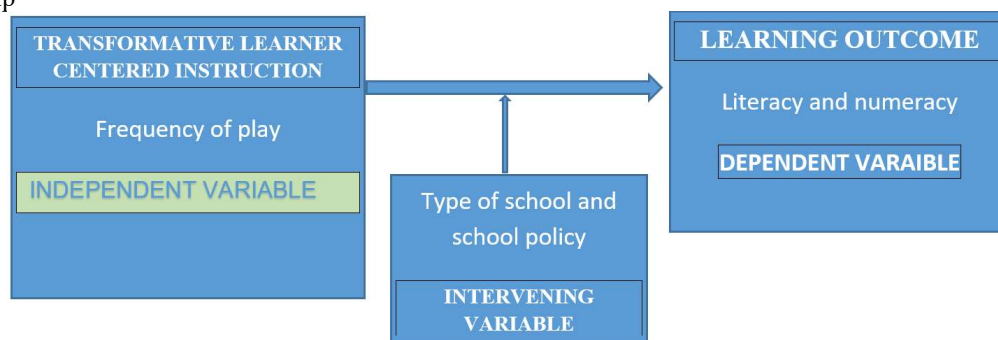


Figure 1.1.: Conceptual framework showing relationship between Transformative instructional methods using play and pupil's learning outcomes

Source: Developed by the researcher, 2022

This framework is in tandem with the chosen theoretical framework by Lily Nelson (1998) which strongly argues for the learning process to actively involve the pupil thus, like in this study Lily focuses on teaching styles that actively involve pupils.

2.0 RESEARCH DESIGN AND METHODOLOGY

2.1. Research Design

The research employed descriptive research to collect data to determine the relationship between transformative (Learner centered) instructional methods and pupils 'learning outcome. This design is applicable in this study because the research aimed at collecting opinions and altitudes from Headteachers and lower primary teachers regarding the use of learner centered pedagogy as procedure to enhance pupil's learning outcome (Orodho, 2017). The design was chosen due to its efficiency in collecting data from a large population in a short time. Trisovic et al, (2022) asserts that descriptive research gathers data from a relatively large number of cases at a particular time. He suggests that descriptive research has also been broadly utilized in education research and social sciences issues. Aspers& Corte (2019) describe descriptive research as a practice of collecting data regarding the current status of subjects being investigated; it helps the researcher research and determines the relationship between variables.

2.2. Study Variables and Local

The independent variable was the transformative instructional method using play while the dependent variable was the pupils learning outcome measured as performance in numeracy and literacy. The intervening variable was the type of school and climate.

The study was conducted in primary schools located in Kirinyaga East, sub-county in Kirinyaga county, Kenya. The focus was on lower primary school referred to as grade 1 to grade 3 under the competency-based curriculum(CBC). The area was chosen because of the low pupil transition and mastery of expected competencies for this level of education as evidenced by low national pupils' performance in the area (County Government of Kirinyaga, 2020)

2.3 Target Population and Sampling

The target population for this study was 845 comprising 35 Headteachers ,210 lower primary teachers and 600 pupil's drawn from 35 public schools in Kirinyaga East Sub-County, Kirinyaga County (Kirinyaga County Development Plan, 2020). The study employed Slovin's formula as quoted by Orodho (2017) to determine the sample size. This was in line with Borg and Gall, (1989) who emphasized that in planning every research project, the researcher must determine the size of the sample necessary to obtain the objectives of the planned research. Orodho (2017) similarly counsel that although generally a sample is conceptualized as a small portion of the population, it should be determined scientifically using appropriate formula to ensure that the generated sample is representative of the population.

The Slovin's formula is mathematically provided as :

$$n = \frac{N}{1+Ne^2}$$

where

n= the desired sample size

N= the target population= 845

e = is the margin of error given as 5% (0.05)

By substituting relevant values in the formula, the sample size was obtained as;

$$n = \frac{N}{1+Ne^2} = \frac{845}{1+2.115} = \frac{845}{3.115} = 271$$

The sample size of 271 was hence obtained.

A proportionate sample allocation technique was employed to distribute the obtained sample in the three categories of Headteachers, Teacher and Pupils. This was accomplished by working the proportion to be multiplied by all sub populations in the strata using the ratio:

$$\text{Proportion formula} = \frac{\text{sample}}{\text{Population}} = \frac{n}{N} = \frac{271}{845} = 0.321$$

Hence multiplying the Headteachers population of 35 by 0.321 yielded a sample of 11 Headteachers. Similarly, multiplying the teacher and student populations of 210 and 600 by 0.320 yielded a sample of 67 and 193 pupils, respectively. The data was summarized as shown in Table1..

Table 3.1: table showing sample size allocation

category	Population	Sample	%
Headteachers	35	11	4.06
Teachers	210	67	24.72
Pupils	600	193	71.22
Total	845	271	100

Source: Developed by researcher 2018

Data collection Instruments and Procedure for data collection

Data Collection Instruments and Piloting

The study utilized semi-structured questionnaires for Headteachers and teachers and an observation checklist for pupil/teacher interaction during instructional by teachers. The semi-structured questionnaires were used collect data from Headteachers and teachers on aspect of teaching using various variants of transformative learner centered/child centered methods and their assessment regarding the effect of the methodology of pupils learning outcome. Qualitative data was collected using interview guides for lower primary teachers and an observation checklist. The researcher observed (3) lessons per school making a total observation of 33 in the 8 schools. The key aspect observed were the way in which class teachers were delivering the lesson using various learner centered instructional methods.i.e frequency of use of play, group work an learning Centre of interest

Piloting helps the researcher test the research instruments' reliability and validity before collecting the data from the field. Kiekens et al (2022) asserts that the purpose of the pilot research is to inform the research about the instrument's adequacy in terms of length, language, focus, questionnaire defects, or ambiguity. The researchers administered the questionnaires to four tutors of a public school and then repeated the same after one week. The researcher also selected a pair of pupils from class one to class three in diverse schools an repeated the same after one week.

This study used the test re-test method of determining the reliability index of the research instrument, particularly the questionnaires. Invariably, Kiekens et al (2022) describes reliability as the extent to which a questionnaire tests observation or any other measurement produces the same results on repeated trials. Orodho, Nzabwirwa, Odundo, Waweru and Ndayambaje (2016) also aver that the reliability of an instrument is the measure of the degree to which the research instrument yields consistent results or data after repeated trials. To establish the reliability of the questionnaire test and retest technique was utilized.

2.5. Data Collection and Analyses Methods

Before embarking on the actual data collection exercise, permission was sought from the National Council of Science and Technology and Innovation (NACOSTI) who later granted permission to carry out the research. On obtaining the Research Permit from NACOSTI, the researcher made a courtesy call to the County and Sub-County Education Officers in Kirinyaga County and Kirinya East sub-County regarding the upcoming study for them to introduce the researcher to the Headteachers of the sampled schools. The researcher personally visited the sampled schools.

Both quantitative and qualitative methods of data analysis were used in this study. It is instructive to note from the counsel of Orodho (2017) that data analysis is the process of systematically searching and arranging research instruments including questionnaires and interview transcripts, field notes, and other materials obtained from the area to increase your understanding of the collected data and enable the researcher to present them to others.

Quantitative data from questionnaire was analyzed using statistical package for social sciences (SPSS) Computer Software to generate descriptive statistics (means and standard deviations). The qualitative data from interview schedules were analyzed thematically along the study objectives. The data collected through interviews were analyzed thematically in line with the objectives of the study. The analyzed data were reported using quotes. The qualitative data collected using observation checklist during classroom and field observations in the school fields and other learning centers were analyzed by showing the extent to which the learner centered method were used and an estimate of their effect in learning outcomes. The qualitative data were reported using quotes to present the quantitative data from the questionnaires.

The quantitative aspects of the observation were analyzed using SPSS while the qualitative aspects were reported using narratives. The overall data processed were presented in the form of percentages, tables, charts, and graphs upon which the results could be interpreted. The information from the qualitative and quantitative data was then integrated into the interpretation of the overall results

2.6. Ethical considerations

The researcher considered getting informed consent from the participants before interviewing them. She assured using information only for the disclosed purpose, respect their right to withdraw at any time, submitting honest results, and treating the participants with dignity. To ensure that the participants felt comfortable while responding to the questions, the researcher attached a letter of introduction to each questionnaire. She also explained to each of the participants the purpose of the research. They were also assured that the information obtained was purely for academic learning and that there was no likelihood of victimization.

3.0. DATA ANALYSIS, PRESENTATION, AND DISCUSSION

3.1. Demographic background of Teachers and Pupils

3.1.1. Teaching experience of teachers by designation

The teachers were requested to indicate their teaching experience by actual years of teaching in primary school at lower primary school level and results depicted in Figure 1. The results carried in the table shows that majority of teachers who took part in this study had wide teaching experience measured by years of teaching at the lower primary school level. The results in Figure 1 reveals that there were no Headteachers in the sample who had less than 2 years of experience. In this category, only 2.7 percent of interviewed lower primary teachers had taught for less than 2 years.

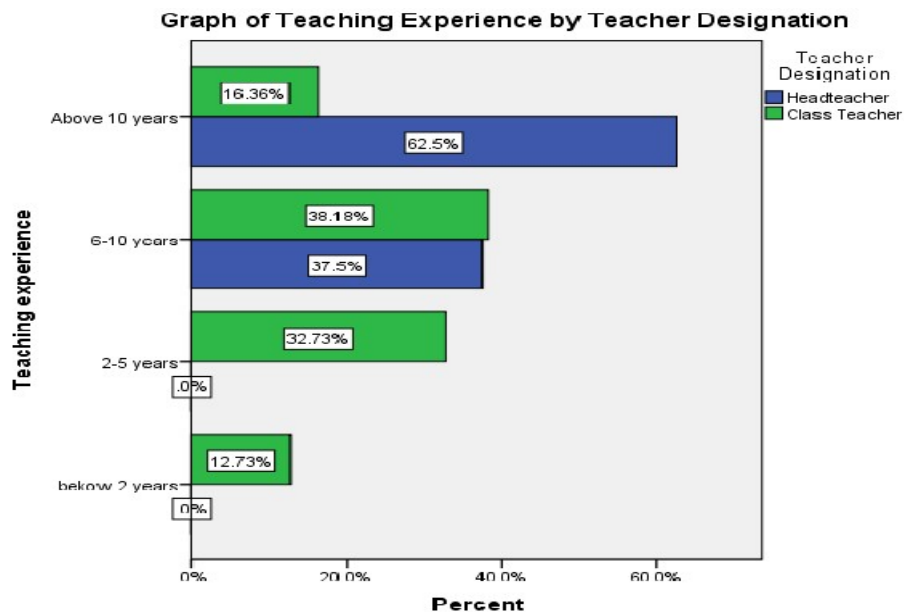


Figure 1 : Graph of Teaching Experience by Teacher Designation
 Source researcher 2022

The data in figure 1 reveals that while their proportion of Headteachers and teachers in the group of 6-10 years was nearly similar, the Headteachers dominated the group of highly experienced teachers indicating that teachers comprised 16.36 percent while the Headteachers took the loons share of 62.5 percent. Intuitively, it is noted that no Headteachers in the sample had less than 6 years of experience, implying that schools in the sample were being managed by highly experienced school managers.

3.1.2. Numeracy and literacy skills of pupils

This section presents information on clustered bar graph of teacher rating of pupils’ proficiency in numeracy and literacy by teacher designation. The information is captured in figure 2 .

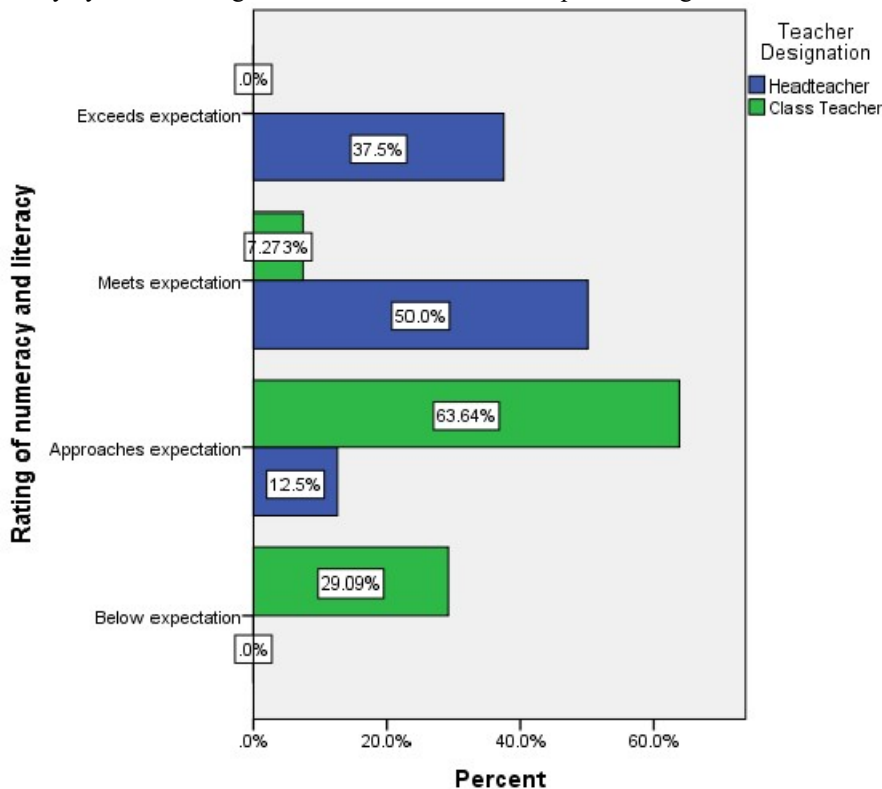


Figure 2: Bar graph showing the rating of numeracy and literacy skills of pupils
 source: developed by researcher 2022

Numeracy and literacy skills of lower primary skills rated by their teachers showed that most pupils could read and write at average levels. 52.6% (20 out of 35) of teachers rated the talent of their pupils as average. Poor skills were rated at 32% by 10 out of 35 teachers. Minority pupils (16%) had ratings as average. That indicated that very few pupils knew to read, write, and do mathematics without experiencing problems. It was derived from 5 out of 38 teachers rating pupils' numeracy and literacy skills as excellent. Literacy encompasses students' knowledge and skills to access, understand, analyze and evaluate information (Falloon, 2020). Numeracy encompasses the knowledge, skills, behaviors, and dispositions students need to use mathematics in various situations (Gal, 2020). Literacy and numeracy skills underpin workforce participation, productivity, and the broader economy and can impact social and health outcomes. People with higher language, literacy, and numeracy skills are more likely to be employed, participate in their community, experience better health, and engage in further training.

3.2. Effect of Play on Pupils performance

The main objective of this study was to investigate the effect of play on pupils learning and outcome. The question was conceived against the background that research studies suggests that play-based learning practices positively influence children's literacy, mathematical, social-emotional and language skills as they explore academic and social concepts within indoor and outdoor learning environments. For instance, educators intentionally observe, analyses, plan, implement and review all learning experiences in alignment with individual and group learning needs of children.

3.2.1. Perceptions of teachers regarding effect of play on pupils learning outcome

In this context, teachers and Headteachers were requested to indicate the extent to which they considered play-based learning to influence students learning and learning outcomes in lower primary schools in Kirinyaga East sub-County., Kirinyaga County. The results are displayed in Figure 3 .

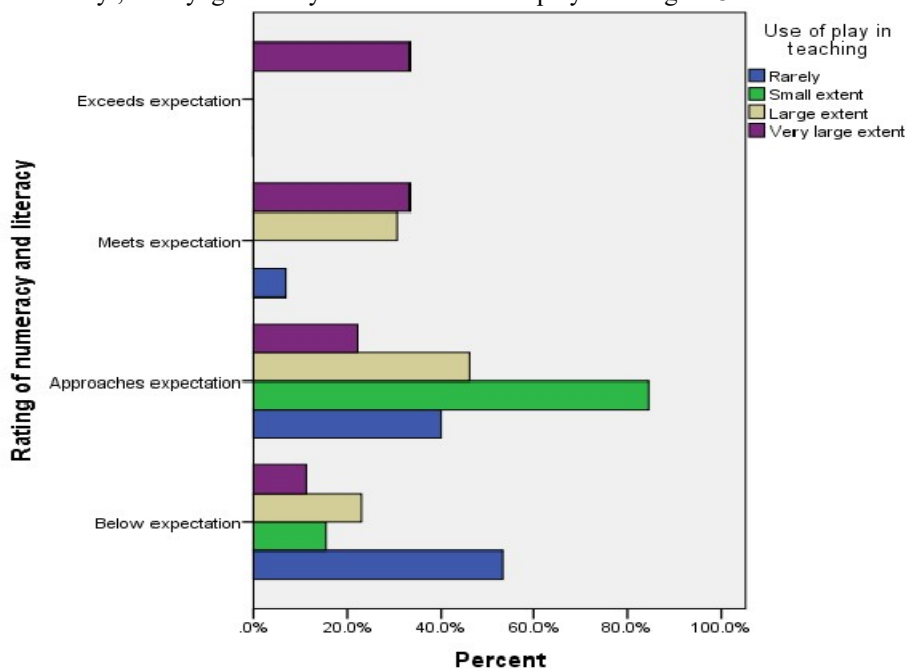


Figure 3 : Effect of play on pupils learning outcome

3.2.2. Availability of play equipment and materials

This section presents information on the availability of play equipment and materials. This information is captured in Figure 4.

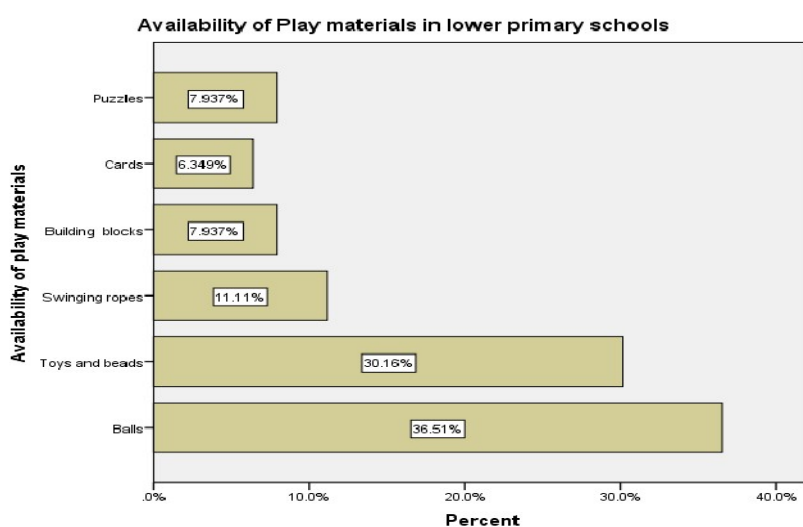


Figure 4.6.: Availability of play materials in Lower Primary Schools

Source: Developed by researcher 2022

The research sought to establish whether the schools had playing materials and resources. A table with necessary playing materials was found, and teachers and pupils were supposed to tick on available materials. Most schools have ball games dominating other kinds of playing materials. Play items such as puzzles, block boards, patterning cards, toys and beads, and building blocks had the lowest availability records.

3.2.3. Effect of play on Numeracy and Literacy

The respondents were requested to indicate the extent to which they considered play to enhance numeracy and literacy. The results carried in Table 2 indicate that a majority of lower primary school teachers constituting 26 (41.3 %) considered play to enhance numeracy and literacy to a small extent. In fact, 41(65.1 %) considered play to enhance numeracy and literacy to either rarely or to a small extent.

Table 2 : Effect of Play on Numeracy and Literacy

Use of play and numeracy and literacy	Mean	N	Std. Deviation
Rarely	1.533	15	.640
Small extent	1.846	26	.368
Large extent	2.079	13	.759
Very large extent	2.889	9	1.054
Total	1.968	63	.763

The results in the table further show that 22 (34.9) either considered play to enhance numeracy and literacy to a large or very large extent. This finding indicates that majority of lower primary schoolteachers do not perceive play as a contributor to pupils enhanced performance in numeracy and literacy.

These findings rather contradict the high premium attached to play as motivator to learning. Play has been found to be essential to development of the pupil because it contributes to children and youth's cognitive, physical, social, and emotional well-being (National Academies of Sciences, Engineering, and Medicine, 2020). Play provides teachers and children with a chance to fully engage in learning and teaching during class (Marchant et al., 2019). Article 31 of the Convention on the Rights of the Child (CRC) recognizes child rights ranging from the right to rest, play, leisure, free recreational activities, and participation in artistic life and their culture. Pupils with families that play together are more cooperative and helpful and have better communication skills (Michelle, 2020).

and role play recorded a low frequency of 5 (62.5 percent) of the schools sampled. Building block had a frequency of only 3 (37.5) schools and finally registering the lowest number was washing activities applied in only 1 (12.5 percent) of the schools.

3.0. CONCLUSIONS, AND RECOMMENDATIONS

3.1. Conclusion

The first objective was to investigate the relationship between play and pupils' academic performance. Play is a vital determinant of pupils' academic achievement, and the research broke down information on play into the kind of play, time for play, and monitoring of play. The researcher noted that most of the playing fields were not maintained, and pupils themselves locally made balls utilized to play. Moreover, teachers were not observed accompanying pupils in the area or offering playing materials like balls throughout the research period.

The interviewed teachers indicated that the only time they accompanied pupils to play was during P.E

lessons which were once per week. The majority of teachers said they usually utilized the P.E lesson for teaching to cover the syllabus. Others claimed the playing ground was not maintained, and that was why they did not accompany pupils to play. Few teachers claimed that their age barred them from playing with their pupils. Notably, most teachers focused on covering the syllabus, which implied their time with pupils was only utilized to teach. Other teachers said that the only time they involve play is during inter-school competitions, which were noted to happen once per year.

When asked about play's relevance in boosting academic performance, most teachers quickly find play irrelevant to educational performance issues. Some termed it a waste of time, and others of no benefit to the teaching schedule. Most teachers believed the time allocated for breaks between lessons was enough for students to get refreshments and thus no need to allocate more time for play. On the kind of play preferred majority choose ball games and athletic sports. They preferred the two due to their schools' available playing equipment and materials. Others quickly note that it is the only type of game they knew to conduct training and guidance. That was contrary to the results (IPA, 2013) that Play allows children to use their creativity while developing their imagination, skill, and physical, cognitive, and emotional strength. According to Lorna (2016), play is essential to healthy brain development; it is through play that children at a very early age engage and interact with the world around them.

3.2. Recommendations

1. Teachers should employ as many teaching methods as possible to enable pupils to acquire vast knowledge and skills depending on the relevance of the method, age of the learner, and background characteristics of pupils and the school.
2. Through the Ministry of Education, the government should consider allocating all schools with playing materials and equipment and playtime in the curriculum so that pupils' creativity and innovation are boosted and hence good performance.
3. Teachers must embrace active learning where students are more involved compared to the traditional methods of delivery which were teacher-centered. Alongside question and answer method and also drilling, teachers must employ teaching games like puzzles, patterning cards, group work, and areas of interest to pupils.

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