

Teachers' Use of Phonics Approach and Learners' Reading Achievements among Grade one Learners in Meru County, Kenya

Martin Kinyua M'amai, Prof. Teresa Mwoma, Dr. Wanjohi Githinji

Kenyatta University

DOI: <https://dx.doi.org/10.47772/IJRISS.2025.907000241>

Received: 28 June 2025; Accepted: 05 July 2025; Published: 11 August 2025

ABSTRACT

This study sought to explore whether there is a relationship between teachers' use of the phonics approach and learners' reading achievements among Grade 1 learners in Meru County, Kenya. Gough and Tunmer's Simple View of Reading and Adams' Alphabetic Principle Theory guided the study. A mixed methods design involving causal-comparative and quasi-experimental approaches was used. The study targeted 61,870 learners, from which a sample of 406 learners from 234 schools was selected. Data collection involved semi-structured interviews, lesson observations, and learner assessments adapted from the Hasbrouck Quick Phonics Screener and EGRA tools. Quantitative data were analysed using SPSS Version 28, with descriptive statistics, regression analysis, and paired t-tests, while qualitative data were analysed thematically. The study findings established that the mean scores for the pretest scores were significantly lower ($m=38.57$, $STD=9.48$) compared to the post test scores ($m=52.68$, $STD=14.24$) with $P=0.000<0.05$) which implied that the use of phonics strategies significantly boosted performance. Sample t-test revealed that there existed a high positive correlation between teachers' use of phonics approach and reading achievements among learners in grade one in Meru County ($B = 0.891$), and the p -value was significant ($p = 0.000 < 0.05$). Thus, there was enough evidence to reject the null hypothesis and adopt the alternate hypothesis that there is a significant relationship between teachers' use of phonics instruction approach and reading achievements among learners in grade one in Meru County. The study concludes that, teacher related dynamics such as use of the phonics approach in teaching reading skills is a critical pillar towards learners reading achievements. Based on the positive impact of phonics instruction on reading achievement, it is recommended that phonics-based teaching strategies be integrated into the curriculum as the primary method for teaching reading in grade one. Schools should ensure that teachers have access to resources, training, and ongoing support to effectively implement phonics-based instruction.

Keywords: Achievement, Grade one Learners; Phonics Approach; Reading skills; Teachers' use of Phonics approach

INTRODUCTION

English language, being an essential study tool, undoubtedly needs special attention on how it is taught during foundational years. English, being a universal language, has high demand to learn it; thus, many non-English-speaking countries have declared it a compulsory primary school subject (Sun Jung et al., 2020). Recent worldwide studies on English language learning indicate that the language's universal demands necessitate an urgent response to its teaching, learning, teacher education, assessment, and policy (Tan et al., 2020). Learning to read in English language is a critical milestone for successful academic achievements (Chen et al., 2022). Learners with early childhood English learning exposure have significantly better chances of academic achievements thus learning English from early years can be a suitable way to improve English language. Learners with difficulties in learning to read are disadvantaged and need to gain a substantial amount of reading skills, failure to which may result in reading deficiencies (Liswaniso, 2023).

In America, Avvisati (2023), in his United States Global Literacy Ranking (PISA), reports that literacy levels for learners have not increased since 2000 and a substantial number of learners in the lower grades cannot read well at their grade level. Elsewhere, Crawford et al., (2024) and Kaffenberger (2024) report that some pupils in low- and middle-income regions in developing countries have critical deficits in basic reading skills. This is exacerbated by inadequate interventions by teachers since they have inadequate reading instructional skills to enable them provide the required interventions. However, research has shown that reading can be facilitated through phonics instruction (Stainthorp, 2020). Phonics instruction is crucial for early reading intervention. The approach ought to be introduced in early years to enable children learn that written words can be represented by spoken sounds and can be read through decoding involving breaking or joining a word into separate sounds (Nkurunziza, 2024).

In underdeveloped countries in Africa like Zambia, the government and other key educational players have spent huge amounts of resources and efforts towards the achievement of reading competencies in children. Despite these endeavours, countries such as Zambia have continuously reported low levels of reading achievements among children (Iversen & Mkandawire, 2021). Likewise, the Southern Africa Consortium for Monitoring and Education Quality (SACMEQ) (2019) reports that Malawi recorded the lowest reading achievement scores for grade 6 at 5.5% followed by Zambia (9.5%), Mozambique (17.4%), Lesotho (20.2%), Zimbabwe (26.7%), Uganda (28.2%), Zanzibar (34.2%), Namibia (34.9%), and South Africa (36.1%). Nonetheless, the scores still fell below the world standards. Similarly, Uganda is not an exception in terms of low reading levels. Uwezo (2019) maintains that the percentage of learners in primary grade 3 to primary grade 7 who could read and comprehend an elementary story at primary 2 level decreased from 39% in 2014 to 33% in 2018. In addition, recent studies in Namibia continue to report insignificant success in advancing literacy levels among Namibian learners.

Studies conducted in Kenya established that the most popular method of teaching reading was the rote learning alphabetic method characterised by the teachers' leading pupils in chants of the letters of the alphabet in order to memorize them (Jaluo, 2019). Majority of the teachers in Kenyan classrooms are using didactic methods of teaching that have not been significant in aiding children to acquire reading skills to bridge their reading problems. Similarly, Ngure et al., (2019) accedes that 50% of learners in grade three are below average in alphabetic letters and letter sound identification indicating low levels of reading foundation. Both Serede and Mwoma (2022) as well as Murong'a et al., (2020) strongly affirm that teaching learners reading skills early sets a solid foundation for later academic achievements. Across Kenya as a nation, several studies have indicated low reading achievements at lower primary levels (Njiru & Karuri, 2024; Cherobon & Atoni, 2022 & Wawire, 2020). However, the alarming issue is that very little has been done to offer remedies to learners overwhelming low reading achievements across the country and beyond (Ngure, 2019).

Moreover, related studies in Meru County conducted by Kithinji (2019) observed that most grade 4 learners' reading fluency was slow, lacked autonomy and was characterized by frequent errors. The study revealed that the phonics approach tended to be ignored by the early years' education teachers therefore emphasizing on teachers and learners' acquisition of letter sound knowledge. There is also a dearth of knowledge on teachers' status of use of phonics approach in teaching children's reading competencies. Despite constant reports across the nation, region and beyond concerning the ever worrying and stagnating low reading standards by learners in early grades, very little has been done and only few studies appear to offer a reliable solution. This study, therefore investigated teachers- related dynamics in use of phonics approach in teaching reading skills among grade one learners in Meru County, Kenya. Reading is a critical skill that significantly impacts a child's academic success, with early reading ability serving as a key predictor of future achievement. Ideally, effective phonics instruction is a proven approach to enhancing reading skills, particularly word recognition and comprehension. However, in Meru County, Kenya, many first-grade learners face persistent challenges in acquiring basic reading skills, largely due to inadequacies in teacher training and the underutilization of phonics techniques. Despite the recognized importance of phonics, research on its application in Kenya's lower primary schools remains limited, and the majority of studies focus on higher education levels or general literacy factors.

Objectives of the Study

1. To examine the differences in reading achievement between Grade 1 learners exposed to the phonics approach and those not exposed to the phonics approach in Meru County, Kenya

Research Hypothesis

Ho1: There is no statistically significant difference in reading achievement between Grade 1 learners exposed to the phonics approach and those not exposed to the phonics approach in Meru County, Kenya.

LITERATURE REVIEW

Theoretical Review

The Adams Alphabetic Principle Theory (1990) provided the theoretical foundation for this study. Adams' Alphabetic Principle Theory provides a foundational explanation of how children learn to read, particularly emphasizing the importance of understanding the systematic relationship between letters and sounds in written language. The theory asserts that proficient reading begins with the mastery of the alphabetic principle, which entail the understanding that letters and combinations of letters represent specific sounds (phonemes) in spoken language. This principle forms the core of phonics-based instruction and is essential in enabling early readers to decode unfamiliar words, build vocabulary and develop fluency. The theory is grounded on four key tenets. The phonemic awareness (the ability to hear, identify and manipulate individual sounds in spoken words). The other key principle is that learners must acquire alphabetic understanding, recognizing that letters and sounds are linked in predictable ways. The theory provides that decoding skills be developed through direct instruction, enabling children to sound out and blend phonemes to read unfamiliar words. The theory also indicates that with continued practice, decoding becomes automatic, allowing the reader to focus more on meaning and comprehension rather than word recognition. In the context of the current study, which aimed to examine the differences in reading achievement between Grade 1 learners exposed to the phonics approach and those not exposed in Meru County, Kenya, Adams' Alphabetic Principle Theory offered a relevant and robust theoretical framework. The phonics approach, which emphasizes direct instruction in letter-sound correspondence and decoding, directly reflects the theory's principles. Learners exposed to phonics are more likely to develop foundational reading skills such as decoding, phonemic awareness and automatic word recognition, which contribute to overall reading achievement. This theoretical perspective supported the study's hypothesis that phonics instruction may lead to measurable differences in learners' reading outcomes. Several scholars have applied Adams' theory to guide research in early reading development. For instance, Ehri et al. (2001) and Snow, Burns and Griffin (1998) have extensively used the theory to advocate for systematic phonics instruction in early grades. Moreover, studies in Sub-Saharan Africa, such as those by Piper et al. (2018), have applied the alphabetic principle to develop phonics-based literacy programs like Tusome in Kenya, showing significant improvements in early grade reading outcomes. These applications affirm the relevance and validity of Adams' theory across diverse linguistic and educational contexts, including the Kenyan early grade literacy landscape.

Empirical review

Reading achievement is one of the most complex basic essential skills that every learner has to competently develop if one has to remarkably gain academic success (Haile & Mendisu, 2023; Wyse & Bradbury, 2022). It is complex since spoken language is represented in written version in form of codes that a learner has to decode and infer meaning for an exhaustive reading comprehension. The learner has to be aware of the complex phonetic structures of the speech language and decode alphabetic codes that are sometimes irregular or inconsistent. The extent to which a teacher is extensively knowledgeable and effectively uses the phonics approach is an essential component resulting to increased learners' reading achievement (Scull & Lyons, 2024; Early Grade Reading Assessment, 2019). However, reading failure during a child's early years of learning may

result to poor start, inability to cope up with other subject content, damaged self-esteem, shame, massive stigma, feeling different from others, academic failure, poor peer relationship, unsupportive teachers or school staff and parents, being a victim of bullying, poor transition and grade repetitions among many other challenges (Boyes et al., 2020).

Inability to acquire significant reading skills is closely linked to a series of challenges in subsequent years. Consequently, proficient reading ability relates to a fruitful academic progress as well as success in life (Haile & Mendisu, 2023). It is essential to understand that, the “what” and “how” teachers use the phonics approach will significantly relate to learners’ reading achievements (Scull & Lyons, 2024). Failure to offer quality and comprehensive reading intervention in early years is likely to substantially contribute to reading failures, increased number of learners struggling to read hence dismal academic achievements and frustrations. For this reason, Anglia (2023) and Zhang, (2023) assert that phonics instruction is pivotal in helping learners acquire solid foundation in reading since the ability to read significantly relates to the learners’ understanding of phonics. Similarly, a review of several studies concludes that, systematic phonics instruction is more effective in teaching reading during the initial stages of a child (Ehri, 2020). Buckingham (2020) asserts that teaching through systematic phonics is the most urgently required reform to meet the needs of struggling readers as well as the dyslexic (International Dyslexia Association, 2020). Mullis and Martin (2022) posit that, the policy shift saw Britain significantly improve in reading levels for young readers from position fifteen in 2006 to position eleven in 2011, position eight in 2016 and position four in 2021 globally in the Progress in International Reading Literacy Study (PIRLS) assessments.

In Ghana, Anku (2024) investigated the efficacy of Phonics instructions and phonemic awareness on the reading competencies of learners with reading deficiencies. The study utilized a factorial design, stratified random sampling technique to sample thirty (30) students. A t-test and a two-way ANOVA for inferential statistics were utilized to test hypotheses. The findings revealed a statistically significant effect implying that phonics instruction and phonemic awareness had a significant influence on reading competencies. Conclusions indicated that phonemic awareness and phonics instructions have a significantly positive impact on students’ reading achievements hence teachers need to incorporate the approaches in teaching reading to learners. However, the current study focused on ordinary learners in grade one in the Kenyan context with emphasis on the impact of teachers’ use of phonics approach and learners reading gains. Likewise, Kenyan household survey conducted by Uwezo (2021) revealed no national level changes in literacy from 2009- 2021 regardless of more than 25 literacy interventions initiated nationally. The initial Uwezo national study conducted between 2009 and 2010 exhibited low reading levels where only about 3 out of 10 learners (33%) in class 3 were able to perform class 2 level tasks.

In the same vein, USAID (2023) reports that through the Tusome early grade reading activity, the number of learners in Grade 2 who read at the Grade 2 levels rose by around 30% for both English and Kiswahili (from 34 % to 65 % for English, and for Kiswahili from 37 % to 66 %). The Tusome literacy program evaluation in Kiswahili and English learning outcomes revealed programs impacts of 0.6 to 1.0 standard deviation. Phonological awareness, especially letter sounds and blending, was the major pedagogical approach that was applied in the Tusome initiative resulting in a significant impact. Nevertheless, the study targeted learners in grade one and grade two with a broader focus on literacy in English and Kiswahili as well as numeracy in general. The random controlled trials for different treatment groups sought to determine the most cost-effective ways of improving literacy and numeracy for grade one and grade 2 learners. However, not much attention was particularly directed towards the impact of phonics approach in promoting early reading achievements with special interest in grade one which this current study endeavoured to unfold.

Conceptual Framework

Figure 1 presents the Diagrammatic Illustration on the Relationship between Teachers’ use of Phonics Approach and Learners’ Reading Achievements.

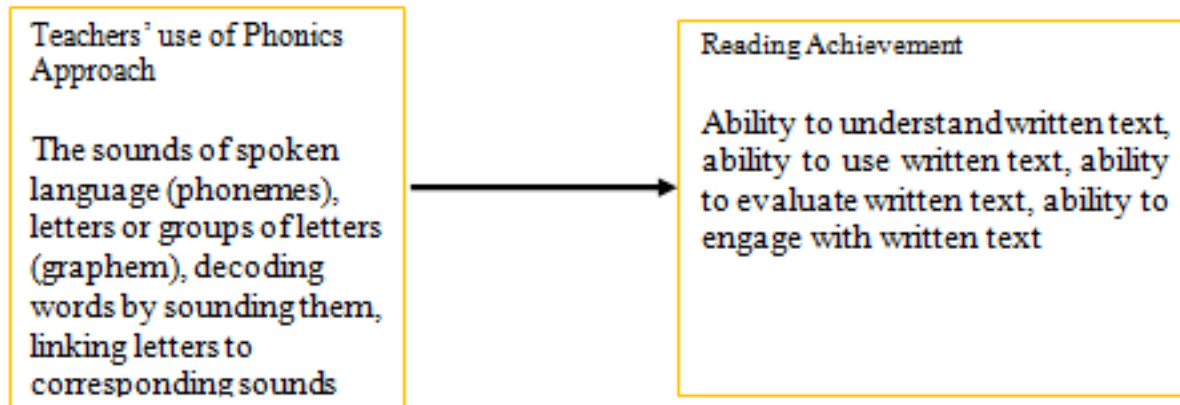


Figure 1: Conceptual Framework

METHODOLOGY

Study area

The study was carried out in Meru County, Kenya based on several factors among them findings by Uwezo Kenya national assessment. Majority of learners especially in public primary schools have consistently been unable to demonstrate basic reading skills since the first national assessment in 2009 (Uwezo, 2021). The low reading levels cut across all classes to the extent that out of 1000 children completing class eight, 50 cannot read a class two story, while one out of four (25%) of children in class 5 cannot read a story of class two level. Meru County Schools are not an exception to this trend whereby a number of children in early childhood classes are characterized by inability to read at the expected levels. There has been public outcry over poor performance in KCPE and KCSE examinations in Meru County over a long period of time. For example, before national KCPE and KCSE rankings were abolished in 2014, Meru County was ranked position 33 out of 47 Counties in Kenya for two consecutive years in KCPE in 2012 and 2013 (Ministry of Education, 2012; 2013).

The County was ranked at position 33 out of the 47 counties countrywide both in 2020 and 2016 (Kneec, 2020; 2016) thus suggesting a negative trend between the year 2016 and 2020. This was an indication that the county has not been doing well especially in English language. Poor academic performance in class eight and grade three can be traced back from the foundational years particularly in grade one class. The choice of the study area was also informed by the manner in which English reading skill is introduced particularly in Meru County.

Research Design

This study adopted a quasi-experimental design involving an experimental group of 30 Grade 1 learners to examine the effectiveness of the phonics approach on reading achievement. The design followed a pre-test–post-test structure without random assignment, which is appropriate in natural classroom settings where learners cannot be randomly assigned due to ethical and administrative constraints. Learners in the experimental group were first given a pre-test to assess their baseline reading achievement before any instruction using the phonics approach. Thereafter, teachers implemented phonics-based instruction over a defined period. At the end of the intervention, the same group of learners was given a post-test to measure any changes or gains in reading achievement attributable to the phonics instruction. This approach enabled the researcher to assess the impact of the phonics method within a real school environment, providing insights into its practical effectiveness. According to Campbell and Stanley (1963), the pre-test–post-test design in quasi-experimental studies is useful for measuring changes resulting from an intervention when randomization is not feasible. Creswell (2014) also supports its use in applied educational research, where it can offer valid causal inferences under structured implementation.

Study population

The study population included 61,870 learners, from which a sample of 400 learners from 234 schools was selected (Meru County Education Office, 2021). Learners in grade one classes were the targeted population since these learners are assumed to have spent almost two years in pre-school and have gained substantial basic reading skills in grade one. Learners in grade one classes were targeted since this level of learning to read is the pillar for a child's future academic success. Grade one teachers were also included in this study as they are the key pillars and prime movers in the implementation of the English language learning activities mainly reading skills. Teachers are involved in the daily routine of curriculum content implementation therefore they are central figures in this study.

Sampling Procedure and Sample Size

Probability and non- probability sampling methods using cluster, simple random, multi-stage and purposive sampling techniques were employed. Cluster sampling was found necessary to sample subjects in various categories of schools such as public, private, rural and urban schools for comparison purposes. This was achieved by putting all public, private, rural and urban schools into clusters followed by randomly selecting the required school samples. Simple random sampling technique was used to select the required number of schools and teachers from each cluster. A sampling frame that comprised of various categories of schools was obtained from the County Director of Education. Sampling was subjected to some further conditions so as to settle at suitable samples. Schools with less than 30 learners did not meet the expected conditions of quasi-experiment that requires a minimum sample size of 30 cases for individual, blocks or clusters (Singh 2023; Naz, 2024). Only those who purported to be using phonics approach were purposely selected after meeting the required conditions.

Given the rigorous nature of quasi-experimental studies, it was not feasible to involve all learners from the 99 identified schools in Meru County. Instead, purposive sampling was employed by examining enrolment data for Grade 1 learners in each of the schools, as obtained from the County Education Offices. This process identified six schools that had two streams and more than 30 Grade 1 learners per stream. These schools were selected to ensure both logistical feasibility and representativeness across different regions. From these six schools, one school per region was chosen, resulting in six schools, each contributing two Grade 1 classes (one designated as the experimental group and the other as the control group). In total, the study involved 12 Grade 1 teachers and 12 classes. The experimental group consisted of 30 learners who received reading instruction through the phonics approach, while the control group also consisted of 30 learners who were taught using the conventional (non-phonics) method. Learners in both groups undertook a pre-test to assess their initial reading achievement levels. After the intervention, during which the phonics approach was applied in the experimental classes, a post-test was administered to all learners to measure changes in reading outcomes. This non-equivalent groups pre-test–post-test design provided a practical yet structured framework for assessing the impact of the phonics approach on reading achievement, without the need for random assignment.

The sample size for the study was determined using Krejcie and Morgan's (1970) sample size determination formula, based on a target population of 61,870 Grade One learners in Meru County. Sampling was conducted in two stages. First, a general survey identified 99 schools where teachers indicated that the phonics approach was being used in teaching Grade 1 learners. However, due to the intensive requirements of a quasi-experimental design, it was not feasible to involve all learners from the identified schools. Subsequently, purposive sampling was used to select schools that had two parallel Grade 1 streams and a minimum of 30 learners per stream. From this process, six schools were selected across different regions of Meru County. In each school, one Grade One stream was randomly assigned to the experimental group (phonics instruction), and the other to the control group (conventional instruction), resulting in 12 classes. Each learner participated in a pre-test to assess baseline reading achievement. The experimental groups were then exposed to phonics-based instruction, while the control groups continued with the regular reading instruction. After the intervention period, a post-test was administered to all learners. This design enabled the researcher to statistically determine the effect of the phonics approach on reading achievement. In total, 400 Grade One learners from 12 classes in 6 schools participated in the study.

Table 1: Distribution of Sample

Category	Total Population	Sampling Method	Sample	Actual Sample Size
Schools	1199	Cluster / Multi-stage / Purposive	234	6
Learners	61,870	Cluster / Purposive	400	400
Total	61,870		634	406

Source: Meru County Education Office: 2021.

Tools for Data Collection

The researcher adapted the test from Hasbrouck's (2017) assessment tool (Quick Phonics Screener) and Early Grade Reading Assessment tool (EGRA) to collect data. A pre-test and post-test were administered to assess the learners' competencies in phonics use and reading skills. It was designed to assess beginning readers to assist teachers quickly and accurately diagnose the learners' instructional needs in phonics and decoding skills. It is a criterion- referenced assessment tool which is not timed but measures learners' ability to decode, pronounce and recognize phonetic concepts such as letter names, letter sounds, consonant digraphs, short vowels, long vowels, silent letter words among others (Hasbrouck, 2017). Similarly, some components from Early Grade Reading Assessment (EGRA) tool which is internationally and regionally recognized were adapted to complement Quick Phonics Screener (QPS). EGRA tool was considered very essential in the current study since it comprises of lower order reading skills such as letter sound knowledge, phonemic awareness and decoding skills which have been found to be predictive of later reading achievement (Snow, 2007). Basically, the tool comprises of five components- phonological awareness, phonics (sound- symbol relationship), fluency, vocabulary, dictation and comprehension. Alphabetic knowledge and decoding skills adapted included letter sound identification, syllable identification and simple familiar word reading subtasks.

Techniques for Data Collection

Prior to the study, the researcher made visits to the 6 schools prior to the actual data collection. Prior visits were found necessary for familiarization with the school administration mainly the head teachers, teachers as well as the learners. All the study participants including the head teachers of the schools were given the authorization letters from the County Commissioner and County Director of Education and were further briefed on the purpose of the study. All the teachers and the head teachers in the 6 schools gave informed consent to participate in the study and voluntarily assist where need arose. The researcher used to report to the schools very early in the morning and attended the morning school assembly sessions or class level assembly. After the assembly, the researcher interacted with both the teachers and learners in all the schools' routine tasks such as morning lessons, tea break, outdoor play activities, mid- morning learning activities, lunch time, resting time up to the time the learners were released to go home. After being granted permission by the school administrators, the researcher proceeded to the classes that were sampled, met the teacher and learners who were already familiar with the researcher. The researcher would briefly explain to the regular class teacher of what was expected during every visit while ensuring minimum class interruptions. Data collection began by observing teachers as they taught in class to avoid providing a stimulus. An observation schedule was used to measure the frequency of teachers' use of phonics instruction and phonemic elements in teaching reading. To minimize on the observer's effect during lesson observation, the researcher avoided interrupting the normal running of the school by observing the lessons as they appeared on the time table. The observations were carefully noted down on a note book by tallying the frequencies of use of certain phonics element or phonemic skills by the individual teacher in three separate lessons lasting 30 minutes. Specific key areas that were observed included tallying the frequency of certain phonics elements such as the 26 phonemes, short vowel words syllables, long vowel words, double sound words and application of simple phonics rules.

Interviews were conducted after observations to avoid participants knowing what the researcher was looking for hence pre- emptying the content on the observation schedule. The face-to-face interviews lasted for about

40- 50 minutes per the teacher in all schools conducted after the teacher completed the required school activities. During the interviews, the spoken words were recorded using a note book and a voice recorder. The voice recorder was a necessary tool that helped the researcher to back up or capture all the details that could otherwise be omitted as the researcher noted down what was discussed. The voice recorder was referred to during the data organization and analysis process. Direct quotations were transcribed and recorded on the note book. The tool was considered appropriate for qualitative data collection since both the researcher and the interviewee had a chance to get clarifications whenever there were any misinterpretations. In-depth data was guaranteed since the researcher could use probing skills to get reliable data.

Finally, quantitative data was collected through the researcher's self-designed and validated achievement tests adapted from Hasbrouck's Quick Phonics Screening tests and Early Grade Reading Assessment (EGRA). The choice for adapting the two tests was to complement each other in terms of each test's strengths and weaknesses. The lead researcher, together with the already oriented research assistants (regular class teachers) selected from the participating schools, administered the pre- test. Pre- test administered to the learners was meant to gauge the learners current reading status as well as the entry reading behaviour. The participating learners involved in the Quasi experiment were from the 6 schools with a total of 12 grade one classes. Schools that had two grade one classes together with their teachers participated in the quasi experiment such that in every school, one grade one class was randomly assigned to intervention and the other stream assigned to control procedures. Pre- test was administered to individual learners with the help of the class teachers mostly during break time, lunch time and in the afternoon when learners were free from regular class activities. Intervention using phonics approach elements, phonemic and phonological strategies was subjected to learners in six grade one classes for a period of one and a half months. Intervention through the phonics approach was done by the regular class teachers (research assistants) in the presence of the researcher. Instructional guidelines, drawn from grade one curriculum design, were used to orient the participating class teachers. The other six grade one classes assigned to control procedures were also taught by their regular class teachers but were taught conventionally using non- phonics approach such as whole word (sight) or whole language method. The same procedures used during pre- tests were followed during administration of post- tests and the scores computed in readiness for analysis.

Piloting of the Research Tools

The research instruments were piloted to teachers and learners in one public and one private primary school in Meru County that were not included in the final study. The two schools representing about 1% of the entire sample size as recommended by Orodho (2010) were randomly selected after clustering them first into public and private to reduce any biases. Four teachers teaching grade one classes in the selected pilot schools were observed while teaching and later interviewed to ascertain the appropriateness, feasibility and worthiness of the study tools. While the teachers were teaching during the English language lessons, the researcher noted down key areas that needed to be adjusted or improved to ensure quality. After piloting the instruments, two irrelevant items in the interview guide for teachers were excluded since they were redundant. For example, the word "strategy" was used in the first item in the interview guide and the word "approach" was used in the second item in the interview guide. This was found to be a repetition thus eliminated. Other errors that were rectified were items that were lengthy to comprehend, ambiguous, unclear thus modified.

Validity

Content validity was done by ensuring that all the topics were fully covered in all the study instruments namely the interview schedule and questionnaires for the teachers and the reading test for the learners. Consequently, construct validity was established by correlating and comparing both pre- tests/ post-tests reading scores with EGRA for the grade one which was found to have a correlation coefficient (r)= 0.75. A correlation coefficient between two instruments measuring the same construct such as reading achievements above (r)= 0.60 is said to be high implying that it was accurate, right, dependable and obtained what it was supposed to measure (Kasomo, 2007). Triangulation was also made possible through comparing different viewpoints of the respondents during the interview and what was evident during the observations. Where there were significantly

varying responses noted, the researcher made clarifications through seeking feedback from the respondents thus coming to an agreement and ensuring validity.

Reliability

One of the ways of ensuring reliability was by visiting the schools under study prior to the commencement of the actual study. This was meant to ensure initial familiarity with the study schools, study respondents and reducing stranger anxiety. Learners and participating teachers developed confidence, honesty and trust with the researcher hence credibility was ensured. Research professionals were also consulted and engaged in reviewing the ongoing study work especially during pre- testing of the instruments. Reliability of qualitative items was ascertained through frequent debriefing sessions between the researcher and respondents. In addition, the researcher invited respondents to read transcripts of dialogues in which they had participated to confirm authenticity. Feedback from the participants was useful in establishing reliability since they confirmed their actual dialogues hence clarification done where necessary. Test- retest reliability was further utilized to correlate pre- test and post- tests scores administered during piloting at different times rather than once. Same learners in the same pilot schools were subjected to pre- test and post- tests during the second week of piloting process and the scores correlated with the scores of the same tests administered after two weeks. Correlation coefficients for the two tests computed using Cronbach's alpha- internal consistency were found to be $\alpha = 0.80$ and $\alpha = 0.75$ for pre- test and post- tests respectively. A measure between $\alpha = 0.7$ to $\alpha = 0.9$ is acceptable meaning the current achievement tests were found to be reliable. Adjustments, improvements or corrections were done to the study tools while conducting observations, interviews and tests administration.

Data Analysis

The researcher employed thematic analysis in order to categorize data based on shared characteristics in relation to particular research inquiries, as well as similar findings gathered under overarching themes and assigned codes. The organization and synthesis of both quantitative and qualitative data involved summarization, quantitative content analysis, tabulation, and the creation of tables and pie charts for additional examination. A thematic analysis and coding helped evaluate textual data from the interviews to arrive at a conclusion. Quantitative data were coded and then run through the SPSS (version 26.0) analysis tool. The analyzed data were summarized using inferential statistics and presented using tables and the graphs. Research questions were answered through descriptive statistics and one sample t-test from the collected data. Additionally, chi-square tests and correlation analyses were performed and the results were used to answer the research questions. Qualitative data was analyzed using the content analysis technique, in which words, themes, patterns, and concepts within the texts were determined and arranged as per the study objective. The following null hypothesis was tested:

H₀₁: There is no significant relationship between teachers' experience and use of phonics in reading achievements among grade one learners in Meru County

The hypotheses were tested using the p values generated from the Multiple Regression Analysis as expressed as: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$. Where: Y = Reading Achievements; β_0 = Constant (coefficient of intercept); X_1 = Frequency of teachers' use of Phonic approach; X_2 = Teachers' Level of Training in phonics; X_3 = Teachers' Experience in teaching phonics; and $\beta_1 \dots \beta_3$ = Regression coefficient of three variables.

Logistics and Ethical Considerations

Permission to conduct this study was sought from Post Graduate School, Kenyatta University. The researcher thereafter sought a research permit from the National Commission for science, Technology and Innovations (NACOSTI). Likewise, permission to carry out the study in Meru County was sought from the County Director of Education and the County Commissioner. Head teachers of the sampled schools were consulted to allow the study to be carried out in their schools. The researcher asked for permission from the sampled teachers and requested them to provide the researcher with their teaching time tables. This enabled the researcher to prepare

a visitation schedule to the schools. The purpose of the research was explained thoroughly to the head teachers and teachers. The researcher obtained informed consent from all the participants by means of a dialogue, during which each participant was informed of the purpose of the study and assured of the confidentiality of the data they gave. Participants were provided with adequate information regarding the procedures that were to be followed during the research. The participants were also assured of their anonymity and the confidentiality of their responses. The researcher avoided influencing the teaching environment in which the lessons were taught.

FINDINGS AND DISCUSSIONS

General Information

The information with regards to the School Category, Nature of School Administration and Number of Teachers was necessary to guide the selection of the schools that participated in the quasi-experiment procedures.

Table 2: School Category, Nature of School Administration and Number of Teachers

School Category	Nature of the School	Frequency	Percentage
Public	Rural Schools	87	35
	Urban Schools	50	20
Private	Rural Schools	37	15
	Urban Schools	74	30
Total		248	100

Table 2 indicates that majority of teachers were from the public rural schools 87 (35%), followed by private urban schools 74 (30%), public urban schools 50 (20%) and lastly the private urban schools 37 (15%). This implies that there are more primary schools situated in rural areas compared to schools located in the urban areas in the County. The information was necessary to guide the selection of the schools that participated in the quasi-experiment procedures.

Relationship Between Teachers' Use of Phonics Approach and Learners' Reading Achievement

The study sought to assess the relationship between teachers' use of phonics approach and reading achievements among learners in grade one in Meru County. The Pre- test was administered to all the learners in the 12 classes (treatment and control classes) prior to teaching them using phonics approach. Pre- test was a situational analysis test meant to gauge learners' current reading status before the intervention. Pre- test scores for every child were out of a total of 100% for a learner who read all the items correctly. In addition, learners were required to provide the meaning of words and short sentences as a way of ascertaining basic reading comprehension at the grade level. Individual scores were noted and average scores for all learners who participated computed. The marks learners obtained in the reading test were recorded and used to grade their level of reading competencies before the start of the intervention.

Six equal number of grade one classes were assigned to either treatment or control procedures. The intervention classes were subjected to use of the phonics approach as guided by their regular class teachers in the presence of the researcher. The control class or groups of learners were subjected to reading approach without any phonics elements, that is, they were taught conventionally using such methods as the whole word. At the end of the intervention period, all the learners who participated as either control or treatment classes were subjected to post- test to determine whether there were changes in the reading scores for the two sets of tests. The pretest and post test results for individual classes, the kind of treatment assigned to each class and overall gain scores are summarized in table 3.

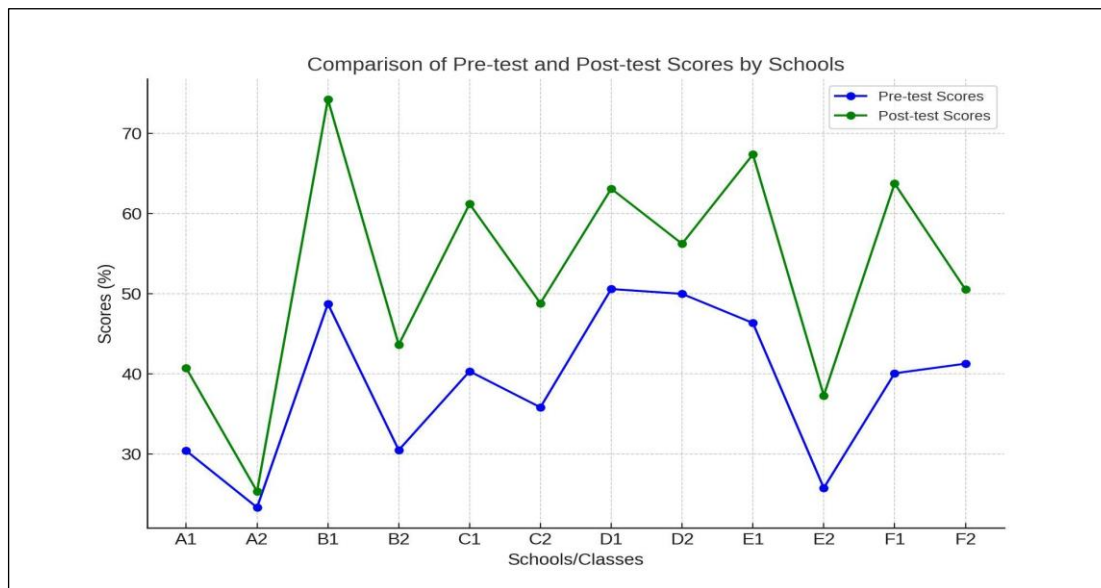
Table 3: Summarized Pre-and Post- Test Scores with Overall Gains

Schools/classes	Treatment(phonics used) Control (No phonics used)	Type of school by management	% Average reading pre-test ascores	% Average reading post-test scores	% Over-all gain scores	% Post- test/Pre- test mean score deviations
A1	Treatment group	Rural public	30.38	40.7	10.32	8.32
A2	Control group	Rural public	23.3	25.3	2	
B1	Treatment group	Urban private	48.73	74.25	25.52	12.36
B2	Control group	Urban private	30.46	43.62	13.16	
C1	Treatment group	Rural public	40.3	61.2	20.9	7.9
C2	Control group	Rural public	35.8	48.8	13	
D1	Treatment group	Rural private	50.57	63.1	12.53	6.28
D2	Control group	Rural private	49.97	56.22	6.25	
E1	Treatment group	Urban public	46.33	67.38	21.05	9.51
E2	Control group	Urban public	25.73	37.27	11.54	
F1	Treatment group	Urban private	40.05	63.74	23.69	14.42
F2	Control group	Urban private	41.25	50.52	9.27	
Total dev.			462.87	632.1	169.23	
			38.57	52.68	14.1	

Findings from table 3 indicate that, there was at least some improvement in reading competencies for all the schools that participated in the study whether there was intervention or none. However, the mean gains for all the six intervention groups and those under control indicated a change that may have been attributed to phonics intervention. For example, intervention class in school F1 had a mean gain of 23.69% compared to the control class in the same school F2 with a mean gain of 9.27% and an overall mean difference of 14.42%. Both the intervention and control groups in all the schools were in the same category of school with similar characteristics such as age, social economic status and background yet there were differences in mean gains. The greatest gains were all from the intervention schools which ranged from 10.32% to the highest 25.81% compared to control group which ranged between 2.00% to 13.16%. This implies that schools that were subjected to intervention through the phonics approach had better reading competencies compared to those schools that were taught through other ordinary approaches devoid of phonics elements. This therefore implies that there is a relationship between teachers' use of phonics approach and reading achievements in grade one classes in Meru County.

The findings are in agreement with study results by Wheldall et al., (2020) who affirmed that, learners' reading skills can substantially be improved by including phonics instruction components such as letter- sound knowledge, decoding skills and phonemic awareness. Likewise, Shanahan (2020) asserts that systematic phonics approach is an effective approach to teaching reading during the early stages of a learner thus the use of phonics approach significantly enhances children's reading competencies. Similarly, Tierney and Pearson (2024) maintained that phonics instruction is an effective reading approach especially during the initial stages of reading. Other studies that coincide with the current study are those conducted by (Stainthorp, (2020); Tunmer et al. (2019); Anku, (2024) and Nkurunziza, (2024) all of which affirm that the phonics approach significantly impacts learners' reading skills especially during the early years of learning to read words. Further, a comparative analysis was carried out to clearly show data patterns between pre- tests and pos-test scores for each class. The scores were captured and recorded in a trend curve as shown in figure 2

Figure 2: Pre -Test and Post-Test Score Results



Entry Behavior Tests (pre-tests) scores were low in all schools since all schools had a mean below 50% apart from school D1 that had a score slightly above 50% (50.57%). This implies that reading levels in almost all schools were low before the treatment. The study findings coincide with Yıldız et al., (2023) whose study affirmed low pre- test scores before phonics intervention and higher post- tests scores. Consequently, Yıldız et al., (2023) conclude that phonics reading intervention during the early years of a learner significantly influences later academic competencies. Similar assertions are those by Murong'a et al., (2020) who assent that acquisition of pre reading competencies early in a child's life is a strong precursor to smooth transition and greater understanding of other learning areas hence academic achievements. The same study finding was subjected to a null hypothesis. The following null hypothesis was tested:

H₀₁: There is no significant relationship between teachers' use of phonics approach and learners' reading achievements among learners in grade one in Meru County.

To test the relationship between teachers' use of the phonics approach and reading achievements among learners in grade one in Meru County, a paired t- test was used to compare the learners' reading achievements before and after experimental treatment carried out at two different points in time. The paired sample t- test findings are summarized in Table 4 and 5.

Table 4: Paired Sample T-Test for Pre- Test and Post Scores

Test type	Mean	N	STD	Std. Error Mean	Correlation	Sig.
Pre test	38.57	12	9.48	2.74	.891	.000
Post test	52.68	12	14.24	4.11		

Table 5: Test Score Gains/ Paired Sample T- Test

		Paired Differences					T	df	Sig.(2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre test	14.11	7.22	2.08	9.51	18.69	-6.76	11	0
	post test								

The mean scores for the pretest scores were significantly lower ($m=38.57$, $STD=9.48$) compared to the post test scores ($m=52.68$, $STD=14.24$) with $P=0.000<0.05$) which implied that the use of phonics strategies significantly boosted performance. Sample t-test findings as indicated in Table 5 reveal that there existed a high positive correlation between teachers' use of phonics approach and reading achievements among learners in grade one in Meru County ($B = 0.891$). Further, the p -value was significant ($p = 0.000 < 0.05$). Based on these findings, the researcher had enough evidence to reject the null hypothesis and adopt the alternate hypothesis that there is a significant relationship between teachers' use of phonics instruction approach and reading achievements among learners in grade one in Meru County. The paired sample t-test showed that the entry behaviour test mean score was far much below the normal expected average score of 50% with a total mean score of 38.57%. After the intervention through the phonics approach for a period of about one and half a months, the post test score increased from a mean of 38.57% to 52.68% which was equivalent to 14.10%. This implies that, holding other factors constant, the intervention through phonics yielded quite a substantial gain over a short period of time. Consequently, it means that through the phonics approach, learners' reading achievement could be increased significantly thus teachers' adequate inclusion of the phonics approach could help increase reading achievements.

The findings are in agreement with Valde's (2024) study outcome that revealed that phonics instruction is scientifically proven to be an essential reading instruction approach especially during the early stages of reading. The study outcomes confirmed that the decoding skills were significantly better for the experimental group. Synthetic phonics was found to be an effective instructional approach for development of early reading competencies for learners struggling to read (Kasprick, 2023). Other relevant studies that are congruent with the current findings are those conducted by Giovianna and Kamariah (2023) who concluded that systematic phonics such as Jolly Phonics program is an effective alternative technique for improving the mastery of reading skills particularly beginning readers. Similarly, Ohaka (2022) consents that Jolly phonics has a positive effect in improving reading skills especially for emergent readers. Benefits associated with phonics-based intervention for beginning readers put the learners at a significant advantage.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

There was a high positive correlation between teachers' use of the phonics approach and reading achievements among grade one learners. The study established that in classes where the phonics approach was used as an intervention, results were significantly higher compared to non-phonics approaches such as whole word or whole language. The study concludes that, teacher related dynamics such as use of the phonics approach in teaching reading skills is a critical pillar towards learners, reading achievements.

Recommendations

Results from the situational analysis and intervention period showed that phonics-based instruction significantly improved learners' reading achievement. Intervention groups exposed to phonics outperformed control groups using other methods. Based on the positive impact of phonics instruction on reading achievement, it is recommended that phonics-based teaching strategies be integrated into the curriculum as the primary method for teaching reading in grade one. Schools should ensure that teachers have access to resources, training, and ongoing support to effectively implement phonics-based instruction. Additionally, intervention programs should continue to be prioritized to ensure that students benefit from intensive, targeted phonics instruction.

ACKNOWLEDGEMENT

First and foremost, gratitude goes to my supervisors, Dr. Wanjohi Githinji and Prof. Teresa Mwoma, for their professional guidance, resourcefulness, frequent feedback and expertise, which shaped and sharpened my research skills up to completion. My profound gratitude goes to all the study participants, research assistants

and the institutional staff who participated in the study. I am also grateful to my professional colleagues who tirelessly dedicated their time and excellent constructive criticisms for a well-refined document. I wish to thank the entire academic staff members of Kenyatta University Department of Early Childhood and Special Needs Education, University examiners and the defense panellists who provided a scholarly critique. I am also indebted to those who took me through the coursework for their invaluable suggestions and recommendations – Prof. Gladwell Wambiri, Prof. Teresa Mwoma, Dr Rachel Kang’ethe, Dr Maureen Mweru, Dr Esther Waithaka and Wycliff Akaka. Special thanks go to my wife, Charity Kawira Kinyua and my children, Rodgers Koome and Joy Makena Kinyua who gave me moral and financial support. Last but not least, Meru ECE Teachers’ Training College office staff: Macklon, Margaret, Daniel P.O, Duncan and Tharaka University staff Prof Karuri, Dr Charles Mwirigi and Dr Njagi, who also need special mention for being compassionate and for offering technical support in editing, data analysis and typesetting.

Conflict of Interest Statement

The authors declare no conflicts of interest.

About the Author(s)

Martin Kinyua M’amai is a Lecturer in the Department of Education, Faculty of Education at Tharaka University. Before joining Tharaka University, Martin served as a Part time Lecturer in the Department of Education at Chuka University from 2015- 2019. Prior to joining and working in the University, Martin served as the Director of Meru Early Childhood Education Teachers Training College, Tharaka ECE TTC and Mumoni ECE TTC from 2008- 2022. He previously worked as Deputy Principal Kitui ECE TTC, Early Childhood Development and Education Officer under Christian Children’s Fund Int’l (CCF) based in Loitoktok Mt. Kilimanjaro Cluster, Amicus College in Conjunction with Froebel College of Education Dublin (Ireland), Kiraria Primary School, Redemmed Gospel Christian School Gitimbine, St. Patrick’s Hill School Kiserian and St. Christopher’s Int’l School among others. Other accomplishments include- Guidance and counselling, Schools and Colleges workshop facilitator, Youth mentorship, Motivational speaker, Youth life skills trainer, Mental Health facilitator.

Prof. Teresa Mwoma

Prof. Mwoma is an Associate Professor at Kenyatta University in the Department of Early Childhood and Special Needs Education. She is the Executive Director, African Council for Distance Education and the 1st African woman to head the Council’s Secretariat. Before joining ACDE, Prof. Mwoma was managing higher education in emergencies for refugees in Kakuma and Dadaab refugee camps in Kenya. Prior to that, Prof. Mwoma was the Director International Centre for Capacity Development Kenyatta University. In addition, Prof. Mwoma is the founder and National Coordinator Early Childhood Development Network for Kenya (ECDNeK) hosted in the Department of Early Childhood and Special Needs Education Kenyatta University. Through ECDNeK, Prof. Mwoma is championing the ECD agenda in Kenya since 2015. Prof. Mwoma is currently supporting Tharaka Nithi County Childcare programme funded by The Gates foundation as part of the Kenyatta University and Yale University Randomized Control Trial as Co-Principal Investigator Curriculum Intervention. Besides that, Prof. Mwoma has successfully mentored and supervised over 40 postgraduate students who have graduated with Masters and PhD in early childhood studies in the Department of Early Childhood and Special Needs. She is the Kenya Country Coordinator European Early Childhood Education Research Association. She is a researcher and consultant in early childhood development, care and education with over 25 years’ experience in the field of early childhood. She has conducted over 20 studies focusing on children’s learning, development and care. Prof. Teresa has taught several courses in early childhood studies at institutions of higher learning. She has trained preschool teachers in various institutions of early childhood education and taught preschool children both in rural and urban set ups. Her research interest is to find solutions that can enhance nurturing care to promote children’s development and wellbeing through, research, capacity building, programming, advocacy, and policy. She is now venturing into open, distance and e-learning. Prof. Mwoma is determined to influence policy and uptake of open, distance and e-

learning in Africa borrowing on lessons learned from COVID 19 indicating that education cannot survive on face-to-face learning alone, but by embracing virtual learning. Prof. Mwoma is a DAAD scholar who holds a Ph.D. in Early Childhood Studies from Kenyatta University. She also completed a Post-Doctoral Research Fellowship in Education and Care in Childhood from University of Johannesburg South Africa. She was a Visiting Scholar to University of Agder, Norway in 2020.

Dr. Wanjohi Githinji is a Senior Lecturer in the Department of Early Childhood and Special Needs Education Kenyatta University, with expertise in education research. He is an accomplished educationist, policy advisor and lecturer at Kenyatta University's Department of Early Childhood and Special Needs Education. He has a PhD in Education focusing on Early Childhood Studies, with a wealth of academic insight and practical experience in education systems, policy implementation and capacity development. Dr. Wanjohi is a respected voice in the field of child development and education policy. He has conducted extensive research and training on early childhood education, curriculum reform and inclusive practices. He has also been instrumental in the design and rollout of programs aimed at enhancing the quality of learning environments for young children. Currently serving as the Chairman of the Nyeri County Education Board, Dr. Wanjohi provides strategic leadership in education governance, policy domestication and stakeholder engagement. His commitment to child-centered policies has informed county and national-level dialogues on education reforms.

REFERENCES

1. Anku, F. (2024). The Impact of Phonemic Awareness and Phonics Instructions on the Reading Skills of Learners with Reading Difficulties. *International Journal of Research and Scientific Innovation*. 88-107.
2. Arrow, A., Braid, C., & Chapman, J. (2019). Explicit linguistic knowledge is necessary, but not sufficient, for the provision of explicit early literacy instruction. *Annals of Dyslexia*, 69(1), 99-113.
3. Australian Government Department of Education. (2023). Year 1 phonics check. <https://www.education.gov.au/australian-curriculum/year-1-phonics-check>
4. Avvisati, F. (2023). What can we learn from the PISA reading-fluency test?": *PISA in Focus*, No. 121. Paris: OECD Publishing.
5. Boyes, M., Leita, S., Claessen, M., Badcock, N., Nayton, M. (2020). Understanding links between reading difficulties, self-esteem, and child mental health. 52. 14-1.
6. Buckingham, J., & Meeks, L. (2019). Shortchanged: Preparation to Teach Reading in Initial Teacher Education.
7. Chapman, J. W., Greaney, K. T., Arrow, A. W., & Tunmer, W. E. (2018). Teachers' use of phonics, knowledge of language constructs, and preferred word identification prompts in relation to beginning readers. *Australian Journal of Learning Difficulties*, 23(1), 87-104.
8. Chen, Minjie, Hock Seng Goh, Ruey Shing Soo, and Guojie Yin. (2022). "The effectiveness of an instructional guide on Chinese pre-service EFL teachers' knowledge in teaching phonics." *Studies in English Language and Education*9, (2), 554-73.
9. Cherobon, V. & Atoni, R. (2022). Reading Abilities of Learners in Public Primary Schools in Nandi County, Kenya. *East African Journal of Education Studies*, 5(2), 61-68.
10. Chris, C; Steve, H; Louise, G & Pauline, D. (2021). The effect of different teacher literacy training programmes on student's word reading abilities in government primary schools in Northern Nigeria, School Effectiveness and School Improvement. *An International Journal of Research, Policy and Practice*, 33(2):1-20.
11. Crawford, M., Raheel, N., Korochkina, M. (2024). Inadequate Foundational Decoding Skills Constrain Global Literacy Goals for Pupils in Low- and Middle-Income Countries. *Nat Hum Behav*.
12. Creswell, J. W., Klassen, A. C., Plano Clark, V. L., & Smith, K. C. (2017). Best practices for mixed methods research in the health sciences. Bethesda (Maryland): *National Institutes of Health*, 2013, 541-545.
13. Denzin, N. & Lincoln, Y. (2005). Introduction: The Discipline and Practice of Qualitative Research. *Handbook of Qualitative Research*. California: Sage Publications.

14. Department for Education (2023). 'The Reading Framework document. London: Department for Education.
15. Dilgard, C. & Hodges, T. (2022). Phonics Instruction in Early Literacy: Examining Professional Learning, Instructional Resources and Intervention Intensity. *Reading Psychology*. 43. 10.1080/02702711.2022.2126045.
16. Double, K. S., McGrane, J. A., Stiff, J. C., & Hopfenbeck, T. N. (2019). The importance of early phonics improvements for predicting later reading comprehension. *British Educational Research Journal*, 45(6), 1220-1234
17. Early Grade Reading Assessment. (2019). *Reading for Kenyans Achievement Developed Monitoring and Evaluation (READ M and E)*, USAID.
18. Ehri, L. C. (2020). The science of learning to read words: A case for systematic phonics instruction. *Reading Research Quarterly*. 55, S45–S60.
19. Gedik, O. & Akyol, H. (2022). Reading Difficulty and Development of Fluent Reading Skills: Action Research. *International Journal of Progressive Education*, 18(2), 2022.
20. Gehsmann, K. And Mesmer, H. (2023). The Alphabetic Principle and Concept of Word in Text: Two Priorities for Learners in the Emergent Stage of Literacy Development. *Read Teach*, 77: 156-166.
21. Gillon, G., McNeill, B., Scott, A., Denston, A., Wilson, L., Carson, K., & Macfarlane, A. H. (2019). A better start to literacy learning: Findings from a teacher-implemented intervention in children's first year at school. *Reading and Writing*, 32(8), 1989–2012.
22. Gingras, M., & Sénéchal, M. (2019). Evidence of Statistical Learning of Orthographic Representations in Grades 1–5: The Case of Silent Letters and Double Consonants in French. *Scientific Studies of Reading*, 23(1), 37-48.
23. Giovianna, G. N., Kamariah, A. B. (2023). The use of the Jolly Phonics method in improving English reading and writing skills among preschool students. *International Journal of Academic Research in Business & Social Sciences*, 3726-3738.
24. Githinji, W. & Ndiangui, P. (2024). Synthesizing policy and practice: an examination of child-related policy implementation in elementary education within Nyeri County. *Research in Educational Policy and Management*. 6. 117-135.
25. Githinji, W. (2022). Implementation of Child-Related Policies in Schooling: Policy versus Practice in Primary Schools in Nyeri County, Kenya. *Open Journal of Learning and Development*, 1(1).
26. Graham, S. (2020). The Sciences of Reading and Writing Must become More Fully Integrated. *Reading Research Quarterly*. 55, S35-S44.
27. Graham, S., Aiken, A., Hebert, A., Camping, A., Santagelo, T., Harris, K., Eustice, K., Sweet, J., & Ng, C. (2021). Do children with reading difficulties experience writing difficulties? A meta-analysis. *Journal of Educational Psychology*, 113(8), 1481–1506.
28. Haile, S & Mendisu, B. (2023). Early-Grade Reading: The Challenges that Affect Teachers' Practice of Phonological Awareness: The Case of Koorete Language. *Education Research International*. 1(1), 1-14.
29. Hasbrouck, J. & Tindal, G., (2017). *An update to compiled ORF norms*(Technical Report No. 1702), Behavioral Research and Teaching, University of Oregon, Eugene.
30. Hasbrouck, J. & Tindal, G., (2006). 'Oral reading fluency norms: A valuable assessment tool for reading teachers. *The Reading Teacher*, 59(7), 636–644.
31. Hasbrouck, J. (2006; 2011; 2017). QPS Quick Phonics Screener: A Diagnostic Phonics Assessment.
32. Hikida, M., Chamberlain, K., Tily, S., Daly-Lesch, A., Warner, J., & Schallert, D. (2019). Reviewing how preservice teachers are prepared to teach reading processes: What the literature suggests and overlooks. *Journal of Literacy Research*, 51(2), 177–195.
33. Hoover, W. A., & Tunmer, W. E. (2022). The Primacy of Science in Communicating Advances in the Science of Reading. *Reading Research Quarterly*, 57(2), 399–408.
34. Irvine, J. (2019). Relationship Between Teaching Experience and Teacher Effectiveness: Implications for Policy Decisions. 22.
35. Isnawan, M. (2022). Quasi-Experimental Design. Bajur, West Lombok, Indonesia: Nashir Al-Kutub.

36. Iversen, J., & Mkandawire, S. (2021). Comparing Language Ideologies in Multilingual Classrooms Across Norway and Zambia. *Multilingual Margins: A Journal of Multilingualism from The Periphery*, 7(3), 33-33.
37. Jalu, M. (2019). Assessment of Phonics Instructional Method in English Language Reading Readiness of Children in Class One at Kericho Rehabilitation School, Kenya. *Journal of African Interdisciplinary Studies*. 3(4), 68 – 78.
38. Kaffenberger, M. (2024). Child literacy in low- and middle-income countries. *Nat Hum Behav*.
39. Kamanzi, V., & Seni, A. (2024). How Teachers in Tanzania Understand and Implement Phonics Instructional Approach for The Teaching of Reading in Early Grades. *Cogent Education*, 11(1).
40. Kasomo, D. (2007). *Research Methods in Humanities and Education. Research, Statistics, Measurement, Evaluation and Testing*. Eldoret: Zapf Chancery.
41. Kasprick, B. (2023). "The Effectiveness of Using Phonics Instruction and Interventions in Elementary Classrooms". Dissertations, Theses, and Projects. 820.
42. Kim, Y., Harris, K., Goldstone, R., Camping, A., & Graham, S. (2024). The Science of Teaching Reading is Incomplete Without the Science of Writing: A Randomized Control Trial of Integrated Teaching of Reading and Writing. *Scientific Studies of Reading*, 1–23.
43. Kithinji, M. (2019). *Reading Fluency Among Class Four Learners and Its Impact on Writing: A Case of Two Schools in Meru County*. Nairobi: University of Nairobi.
44. Krejcie, R. V., & Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, 30(3), 607-610.
45. Lane, H., Contesse, V., Gage, N., & Burns, M. (2025). Effect of an Instructional Program in Foundational Reading Skills on Early Literacy Skills of Students in Kindergarten and First Grade. *Reading Research Quarterly*.
46. Liswaniso, B. (2023). Failing to Progress or not being Supported to make Progress: Examining Variability in Reading. *South African Journal of Childhood Education*, 13(1), 13-15.
47. Long, K., & Bowles, T. (2024). No-Fee School Consistently Outperforms Progress in International Reading and Literacy Benchmarks: Presenting Early Grade Reading Data from A Case in Makhandla, Eastern Cape. *South African Journal of Childhood Education*, 14(1), 1-11.
48. Mesmer, H., & Kambach, A. (2022). Beyond Labels and Agendas: Research Teachers Need To Know About Phonics And Phonological Awareness. *Reading Teacher*, 1-11.
49. Min, J., Chen, G., Hock, S., Soo, R., Shing, Y., Guo, J., Raja, N., Raja, H., & Charanjit, Kaur, S. (2022). Identification of Content Knowledge Required for Chinese Pre-Service EFL Teachers to Teach Phonics. *World Journal of English Language* 12, (8). 219.
50. Mullis, I., & Martin, M. (2022). IEA's TIMSS and PIRLS: Measuring Long-Term Trends in Student Achievement. In: Nilsen, T., Stancel-Piątak, A., Gustafsson, JE. (Eds) *International Handbook of Comparative Large-Scale Studies in Education*. Springer International Handbooks of Education. Springer, Cham.
51. Mwanza, D. (2012). *The Language of Initial Literacy in A Cosmopolitan Environment: A Case of Cinyanja in Lusaka District*. Unpublished Masters' Dissertation, University of Zambia. Zambia.
52. Mwoma, T. (2017). Children's Reading Ability in Early Primary Schooling: Challenges for A Kenyan Rural Community. *Issues in Educational Research*, 27(2), 347-364.
53. Naz, S. (2024). Minimum Number of Participants in the Experimental Study? Retrieved From: <https://www.researchgate.net>
54. Ngure W. (2019). *Instructional Strategies and Resources Used in Teaching Reading: An Implication on Grade Three Pupils' Reading Skills in Nairobi County*. (Unpublished Doctoral Dissertation), Kenyatta University, Kenya.
55. Ngure, W. Mwoma, T & Buna, Y. (2019). *Instructional Strategies and Resources Used in Teaching Reading: An Implication on Grade Three Pupils' Reading Skills in Nairobi County*. Doctoral Dissertation), Kenyatta University, Kenya.
56. Njagi, N., & Karuri, D. (2022). Phonemic Awareness Strategies Used in Teaching English Language Literacy Skills to Grade Three Pupils in Public Primary Schools in Embu County, Kenya. *International Journal on Studies in English Language and Literature*.

57. Njiru, F & Karuri, M. (2024). Phonemic Awareness in English Language Literacy Among Grade Three Pupils in Public Primary Schools in Embu County, Kenya.
58. Nkurunziza, S. (2024). The Role of Phonological Awareness in Early Reading Development. *European Journal of Linguistics*, 3(3), 15–26.
59. Ohaka, E. (2022). How ‘Jolly Phonics’ Can Fix Learning Imbalance in Nigeria. *Business Day (Nigeria)*.
60. Orodho, J. (2010). Techniques of Writing Research Projects and Reports in Education and Social Sciences. *Nairobi: Kanazja HP Enterprises*.
61. Rao, P. (2019). The Role of English as A Global Language. *Research Journal of English*, 4(1), 65-79.
62. Ren, L. (2020). Discuss the Importance of Phonetic Teaching in Primary School English Teaching. *Little Learner Magazine*, 3(2), 94-94.
63. SACMEQ. (2019a). SACMEQ III: Main Study: Manual for Data Collectors. Paris: SACMEQ.
64. Scull, J. & Lyons, D. (2024). Teaching Phonics in Context: Stories of Teachers’ Practice and Students’ Outcomes. *The Australian Journal of Language and Literacy* 47(5)181-201.
65. Serede, V., & Mwoma, T. (2022). Teaching of Language and Pre-Primary School Children’s Reading Readiness in Vihiga County, Kenya. *East African Journal of Education Studies*, 5(2), 148-163.
66. Shanahan, T. (2020). Reading Workshop: How Not to Teach Reading Comprehension Shanahan on Literacy. Retrieved November 15, 2019.
67. Singh, A. (2023). What is the Minimum Sample Size for a Quasi-Experiment? Retrieved From:https://www.researchgate.net/post/What_is_the_minimum_sample_size_for_a_quasi_experiment/64a65b1158b01225060dc7fb/citation/download.
68. Stainthorp, R. (2020). A National Intervention in Teaching Phonics: A Case Study from England. *The Educational and Developmental Psychologist*, 37(2), 114-122.
69. Tan, K., Farashaiyan, A., Sahragard, R., & Faryabi, F. (2020). Implications of English as an International Language for Language Pedagogy. *International Journal of Higher Education*, 9(1), 22-31.
70. Thompson Center on Public Leadership & Tommy, G. (2023). Thompson Center Summit on Early Literacy (Youtube Video). University of Wisconsin-Madison. [https:// Youtube. Com/Watch ? V=W_Snmp4brtw_](https://Youtube.Com/Watch?V=W_Snmp4brtw_).
71. Tierney, R. & Pearson, P. (2024). Fact-Checking the Science of Reading: Opening Up the Conversation. Literacy Research Commons. https://Literacyresearchcommons.Org_.
72. Tunmer, W. E., & Hoover, W. A. (2019). The Cognitive Foundations of Learning to Read: A Framework for Preventing and Remediating Reading Difficulties. *Australian Journal of Learning Difficulties*, 24(1), 75-93.
73. USAID. (2023). USAID Kenya Tusome Early Grade Reading Activity. Nairobi: RTI.
74. Uwezo (2021). Are All Our Children Learning? Uwezo 7th Learning Assessment Report Nairobi: Usawa Agenda. Copyright Usawa Agenda 2022.
75. Valde, R. (2024). Orton-Gillingham Approach: Its Effects on the Reading Ability of Grade Two Pupils. *SSRN Electronic Journal*. 9. B336-B351.
76. Villamin, P., Lopez, V., Thapa, D. & Cleary, M. (2024). A Worked Example of Qualitative Descriptive Design: A Step-By-Step Guide for Novice and Early Career Researchers. *J Adv Nurs*.
77. Vygotsky, L. (1987). The Collected Works of LS Vygotsky: Problems of the Theory and History of Psychology.
78. Wawire, B. (2020). Promoting Effective Early Grade Reading: The Case Study of Primary Teachers’ Preparation Programmes in Kenya. *The Curriculum Journal*. 32 (69), 10-100.
79. Wheldall, K. & Bell, N. (2020). Recent Advances in Reading Instruction. *Educational and Developmental Psychologist* 37:2, 95-96.
80. World Bank. (2019). Ending Learning Poverty: What Will it Take, Washington, D C: World Bank, Accessed 2019. United Nations Children’s Fund, Annual Results Report.
81. Wyse, D., & Bradbury, A. (2022). Reading Wars or Reading Reconciliation? A Critical Examination of Robust Research Evidence, Curriculum Policy and Teachers’ Practices for Teaching Phonics and Reading. *Review of Education*, 10, E3314.

82. Yıldız, M., Özdemir, C., Meryem, K., Engin, K., Selçuk, A., & Elif, Y. (2023). Whole Language Method or Phonics Method. *Participatory Educational Research*. 11. 121-141.
83. Zhang, X. (2023). The Applications of Phonics in Primary School English Teaching in China. *Nanjing University of Chinese Medicine, Nanjing*, 6(1), 1-25.