# Effect of face-to-face promotive interaction in cooperative learning on preschoolers' achievement in English language activities in Tharaka-Nithi County, Kenya

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## ABSTRACT

This study investigated effect of face –to- face promotive interaction in cooperative learning among preschoolers. Face to face promotive interaction is a basic component of cooperative learning in which the students communicate each other, explain the ideas, give feedback, support each other and work towards achieving common learning targets. The study compared the achievement of preschoolers in English language activities in Tharaka Nithi County, Kenya in the context of a cooperative learning approach with face-to-face promotive interaction. This study was designed in quasi-experimental with a nonequivalent control group pre-test and post test design and assisted by social interdependence theory. The study was conducted on the pre-primary school learners, teachers and head teachers in Tharaka Nithi County. The respondents for the sample were sampled using stratified randomized sampling method where 48 preschool learners and 19 teachers and 12 head teachers were sampled. Pre- and post-test assessments of the learners, the teachers' questionnaires, classroom observation schedules and head teacher interviews were used to gather data. Data were analysed by descriptive statistics, inferential statistics (independent-samples t-test, analysis of covariance) and thematic analysis for qualitative data. The mean score for the 48 learners was 15.46 with a standard deviation of 2.87 for face to face promotive interaction. The distribution of the number of engagements in promotive interaction had a skewness of -0.163 and a kurtosis of -0.724, which suggests some variation in the levels of engagement in promotive interaction amongst the learners. Pre-activity mean score for the treatment group was 25.9583 while for the control group it was 17.0000. This was higher in the treatment group than the control group. Treatment group had a mean score of 32.5417 while control group had a mean score of 22.5417 at post-test. Independent-samples t-test revealed that the two groups were statistically significantly different at pre-test and post-test with a difference of 10.00 points at post-test, $t(46) = 4.895$, $p < .001$. The results suggest that direct peer interactive structured cooperative learning has better effects on English language activity performance of preschoolers. The study suggests that the structured face-to-face promotive interaction can be a valuable classroom tool for helping preschoolers with their English language learning if it is carefully designed.

**Keywords:** Cooperative Learning, English Language, Early Childhood Education, Face-to-Face Promotive Interaction, Preschoolers

## I. INTRODUCTION

Language, communication, literacy and social competencies are key areas of development in early childhood education. Children learn their language in active ways with their teachers and peers, as they experience things in the classroom in a pre-primary setting. English language activities involve listening, speaking, reading and writing, and build listening, speaking, reading and writing skills, as well as vocabulary, pronunciation, grammar and comprehension. It is important that children have opportunities to communicate and practise language in meaningful social contexts and that the approach to teaching is particularly important. Cooperative learning is an approach to learning that is learner centred, in which children work cooperatively toward a shared learning objective. Cooperative learning is not just teacher-centered, but it is in a way that the students will be involved in the group activities and share their ideas and give each other assistance and communicate with each other. The following are key elements of



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cooperative learning: individual accountability, positive interdependence, interpersonal and social skills, face-to-face promotive interaction and group processing (Abramczyk & Jurkowski, 2020; Slavin, 2016).

Face-to-face promotive interaction is especially important to the field of language learning because language is used in the context of common activities (Dzemidzic Kristiansen et al., 2019). In cooperative learning, learners can explain to each other, ask and answer questions, give suggestions and encouragement to another one to complete learning tasks (Ajayi, 2019). The thesis behind the current article is grounded in the notions of engagement in open and direct verbal or non-verbal interaction, asking and answering peers' questions and the utilization of positive body language. The role of direct peer interaction is also confirmed by the social aspect of language development. Opportunities for children to practise language in purposeful situations are provided as they explain their ideas to peers, respond to questions and negotiate meaning. Cooperative learning can facilitate vocabulary, syntax and language competence through dialogue (Gillies, 2020). The literature presented in the thesis also suggests that structured interaction can foster turn-taking, listening, empathy, communication, collaborative problem-solving (Jepkosgey, 2018). .

Although cooperative learning has great potential in early childhood, its use is often not organized. Group work can be used by teachers without necessarily having to be organized into a cooperative learning interaction. The thesis shows that there is not much guidance in the literature regarding the operationalization of pre-primary English language activities that incorporate cooperative learning principles, such as face-to-face promotive interaction. This is especially important in the Kenyan setting where the teacher preparation, learning resources and organisation of the classroom may have an impact on the implementation of learner-centred approaches (Puttige Ramesh, 2025). The present study thus focused specifically on face to face 'promotive interaction' as one of the key components of cooperative learning and examined face to face promotive interaction and its relationship to the achievement of preschool children in the English language activities in Tharaka Nithi county.

### 1.1 Statement of the Problem

Preschoolers' English language competence is essential for the development of future learning and communication. But learning English has to go beyond mere content exposure, however. Young learners require opportunities to speak, listen, ask questions, explain ideas and obtain feedback. Traditional teacher-led methods might not allow for extended peer dialogue and engagement. Cooperative learning is an alternative approach that teams together learners to help each other with learning activities. But, grouping learners does not mean effective cooperative learning (Gillies, 2016). The nature of the relationship between the group members is important. Promotive interaction is characterized by face-to-face interaction, where learners communicate directly with each other, clarify concepts, motivate each other and help other learners achieve the same goals. While cooperative learning and language development have been an increasing focus of research, there is relatively little research on promotive interaction specifically between preschool children in Kenya. The thesis thus investigated face to face promotive interaction, as a separate aspect of cooperative learning, and evaluated its contribution towards the achievement of preschoolers in English language activities in Tharaka Nithi County.

### 1.2 Research Objective

To assess the effect of face-to-face promotive interaction in a cooperative learning approach on preschoolers' achievement in English language activities.

## II. LITERATURE REVIEW

### 2.1 Theoretical Review

#### 2.1.1 Social Interdependence Theory

Social Interdependence Theory, developed through the work of Deutsch and subsequently advanced by Johnson and Johnson, provides the theoretical foundation for examining face-to-face promotive interaction in cooperative learning. The theory explains how the relationship between individuals' goals influences their interactions and the outcomes they achieve. Güngör et al. (2026) explain that social interdependence theory provides a foundation for cooperative learning by distinguishing situations in which individuals' goal attainment is positively or negatively related to that of others. Positive interdependence occurs when learners recognise that their success is connected to the success of their group members, encouraging them to support one another in achieving shared learning objectives.

In the context of preschool English language activities, the theory suggests that face-to-face promotive interaction can create opportunities for learners to explain answers, ask and respond to questions, share ideas, practise pronunciation and assist peers in completing learning tasks. These interactions may increase opportunities to use English meaningfully while allowing learners to receive immediate feedback from their classmates. However, positive interdependence does not automatically guarantee effective learning. Its educational value depends on how teachers



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structure group activities, distribute responsibilities and facilitate participation among learners with different language abilities and confidence levels.

The theory is relevant to this study because it provides an explanatory basis for investigating whether structured face-to-face interaction within cooperative learning is associated with preschoolers' achievement in English language activities. It directs attention to the interactional processes through which learners may support one another's learning rather than treating group membership alone as evidence of cooperation. Nevertheless, the theory does not independently establish that face-to-face promotive interaction improves English language achievement in every classroom context. This relationship requires empirical examination. The present study therefore investigates the relationship between face-to-face promotive interaction, as the independent variable, and preschoolers' achievement in English language activities, as the dependent variable, in Tharaka Nithi County, Kenya.

## 2.2 Empirical Review

### 2.2.1 Face-to-Face Promotive Interaction and Cooperative Learning

Face-to-face promotive interaction involves learners directly supporting one another's efforts to achieve shared learning objectives through explanation, questioning, feedback, encouragement and the exchange of information. Unlike unstructured group work, promotive interaction requires learners to engage in behaviours that facilitate the learning of other group members. Gillies (2016), in a review of research and practice on cooperative learning, examined the conditions under which collaborative classroom activities support students' learning and the role of teachers in facilitating productive interaction (Gacheri, 2017). The review emphasised that the effectiveness of cooperative learning depends on the way activities are structured and how teachers guide learners' thinking and participation. Although this review provides a useful conceptual foundation, it synthesises evidence across educational levels and subject areas rather than directly estimating the effect of face-to-face promotive interaction on preschoolers' English language achievement in Kenya (Kristiansen & Von, 2025).

Abramczyk and Jurkowski (2020) investigated teachers' knowledge, beliefs and classroom use of cooperative learning through a survey of 1,495 language teachers in Poland. Their findings showed that teachers generally recognised the academic and social benefits of cooperative learning, although they reported using it infrequently and knowing relatively few implementation methods. The study is important because it demonstrates that positive perceptions of cooperative learning do not necessarily translate into frequent classroom implementation (Puttige Ramesh, 2025). However, the study focused on teachers' professional knowledge, beliefs and reported practices rather than experimentally measuring preschoolers' language achievement. Consequently, it does not establish whether face-to-face promotive interaction independently accounts for improvements in young children's English language performance.

These studies collectively suggest that effective cooperative learning requires deliberate organisation of learner interaction and appropriate teacher facilitation. However, evidence concerning teachers' implementation practices and cooperative learning in general does not necessarily establish the specific effect of face-to-face promotive interaction on preschoolers' achievement. This distinction supports the need to investigate the particular interactional component and its relationship with measurable English language outcomes among preschool learners.

### 2.2.2 Peer Interaction and Preschoolers' Language Achievement

Peer interaction can provide young children with opportunities to practise language through conversation, questioning, explanation and collaborative activities. Such opportunities may be particularly relevant to preschool English language learning because children need to listen to others, communicate their ideas and apply vocabulary in meaningful situations. Nevertheless, the existence of peer interaction should not be equated automatically with improved language achievement; the nature, frequency and instructional purpose of the interaction may influence its educational value.

A relevant empirical study by the authors of the present research area is reported in the 2025 publication *Effects of a Peer-Mediated Intervention on the Language and Socialization Experiences and Skills of Preschool Children*. The study involved 75 preschool-aged children across 25 classrooms, with classrooms assigned to intervention and business-as-usual control conditions. The researchers examined changes in peer interactions, cooperative play, social skills and language-related outcomes. The findings indicated increased peer interactions and cooperative play among children targeted by the intervention. However, the study did not identify significant intervention effects for every measured outcome, and its findings on language and social skills were mixed (Ayu et al., 2025). This is an important qualification: increasing peer interaction may improve opportunities for participation without necessarily producing measurable gains across all language outcomes. Furthermore, the study was conducted outside Kenya and examined a peer-mediated intervention rather than the specific effect of face-to-face promotive interaction within cooperative English language activities (Gillies, 2016).

The implications for the present study are that direct peer interaction should be investigated alongside an explicit measure of English language achievement. Relevant interactional behaviours include learners explaining



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answers to one another, asking and answering questions, providing assistance and participating in shared language activities. Examining these behaviours in relation to pre-test and post-test achievement scores can provide evidence of whether a structured cooperative learning intervention is associated with improved performance. However, where learners in intervention and comparison groups differ at baseline, statistical analysis must account for those differences before the results are interpreted as evidence of an intervention effect (Güngör et al., 2026).

### 2.2.3 Empirical Research Gap and Relevance to the Present Study

The reviewed literature establishes the importance of structured interaction in cooperative learning while also showing that its effectiveness depends on implementation and the outcomes being assessed (Puttige Ramesh, 2025). Gillies (2016) synthesised research on cooperative learning and teacher facilitation, while Abramczyk and Jurkowski (2020) examined teachers' knowledge, beliefs and use of cooperative learning. The preschool peer-mediated intervention study published in 2025 provides more direct evidence concerning young children's interaction and language-related outcomes, but reports mixed effects and investigates an intervention different from the one examined in the present study.

A specific empirical question therefore remains concerning the relationship between face-to-face promotive interaction within cooperative learning and preschoolers' achievement in English language activities in Tharaka Nithi County. The reviewed studies do not, on the evidence presented here, establish the independent contribution of this particular component in the Kenyan setting. The present study addresses this question by examining preschool learners' performance before and after a structured cooperative learning intervention and comparing the treatment and control groups. Its contribution lies in investigating a specific component of cooperative learning in a defined early childhood education context, rather than assuming that findings on general cooperative learning or peer-mediated interventions apply equally to the study population.

## III. METHODOLOGY

### 3.1 Research Design

The study adopted a quasi-experimental research design using a non-equivalent control group pre-test and post-test approach to investigate the effect of face-to-face promotive interaction in cooperative learning on preschoolers' achievement in English language activities. This design was appropriate because it enabled the researcher to assess learners' English language performance before and after the intervention while comparing learners who participated in the cooperative learning intervention with those in the control group. The pre-test established the learners' initial performance, whereas the post-test assessed their performance following the intervention. The control group provided a basis for comparing changes observed under the intervention condition with those observed under the comparison condition. The design was particularly suitable for a school-based study involving preschool children because it allowed the intervention to be examined within an educational setting without necessarily requiring random assignment of individual learners to experimental conditions. However, because the groups were non-equivalent, pre-existing differences between them had to be considered when interpreting the results. Accordingly, the study compared the groups' pre-test and post-test scores and required baseline-adjusted analysis, such as analysis of covariance (ANCOVA), to provide a more appropriate assessment of the intervention effect.

### 3.2 Study Area

The study was conducted in Tharaka Nithi County, Kenya. The county provided the geographical and educational context for investigating face-to-face promotive interaction in cooperative learning among preschool learners. The study focused on pre-primary school settings where English language activities were undertaken and where cooperative learning activities could be implemented and assessed. Tharaka Nithi County was relevant to the investigation because the study sought to generate evidence on the application of structured peer interaction in early childhood education within a Kenyan county context. The findings were intended to inform understanding of how teacher-facilitated cooperative learning may support preschoolers' achievement in English language activities.

### 3.3 Target Population

The target population comprised approximately 24,000 preschool learners, 508 pre-primary school teachers and 411 pre-primary school head teachers in Tharaka Nithi County. These groups were relevant to the study because preschool learners were the primary units of analysis for measuring achievement in English language activities, while teachers and head teachers provided complementary information on classroom practices and the implementation of cooperative learning. The study therefore considered learner performance alongside information obtained from teachers, classroom observations and head teacher interviews.



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### 3.4 Sampling and Sample Size

The study involved 48 preschool learners, 19 pre-primary school teachers and 12 head teachers, giving a total of 79 participants. The 48 preschool learners were allocated to two groups, comprising 24 learners in the treatment group and 24 learners in the control group. The treatment group participated in the cooperative learning intervention incorporating face-to-face promotive interaction, while the control group provided a comparison condition. Learners in both groups undertook pre-test and post-test assessments of English language activities to facilitate comparison of their performance before and after the intervention. The teachers participated through questionnaires and classroom-related data collection, while head teachers provided information through interviews.

The available manuscript does not sufficiently specify the sampling techniques used to select the participating schools, teachers and head teachers, or the procedure used to allocate learners to the treatment and control groups. These details should be reported accurately from the original research records rather than inferred. The manuscript also contains an inconsistency between the statement that the study sample comprised 50 students and the subsequent report of 48 preschool learners. Since the detailed participant breakdown identifies 48 learners, 19 teachers and 12 head teachers, the sample-size statement should be reconciled with the original sampling records before submission.

### 3.5 Research Instruments

The data were taken from the teacher questionnaires, classroom observation schedules, learners' assessment sheets and the head teachers' interviews. Measures of performance in English language activities were pre and post assessed by the learners using measures in the assessments. All indicators for the face-to-face promotive interaction were linked to direct communication, asking and answering questions, and positive communication behaviours.

### 3.6 Intervention

Cooperative learning strategies was the intervention used in the treatment setting. Cooperative learning activities were ready to be used by teachers and teachers were willing to facilitate interaction between learners. The intervention was provided for two weeks. The focus was on the involvement of the learners, their communication with each other and the completion of learning processes together. Teachers facilitated and provided opportunities for learners to speak directly at the time of doing English language activities.

### 3.7 Validity and Reliability

The research instruments were prepared following the guidance of experts and pre-testing and piloting. Pilot work was conducted in five pre-schools not included in the final study, and is reported on in the thesis. In developing and refining the instrument, content, face and construct validity was taken into account. The test-retest procedures and Cronbach's alpha were used to determine the reliability of the teachers' questionnaire; the reliability coefficient was reported as 0.72.

### 3.8 Data Analysis

Descriptive and inferential statistics were used in analysing quantitative data. Descriptive statistics were frequencies, standard deviations, skewness and kurtosis. Independent-samples t-tests were employed to compare the performance of the treatment and control groups while analysis of covariance was employed in the greater study to compare performance on the posttest while holding pretest performance constant. Observations and interviews generated qualitative data which was analysed thematically.

### 3.9 Ethical Considerations

The appropriate research and administrative permissions were secured including authorisation from relevant education authorities and school administration. It was voluntary, privacy and anonymity were maintained and data were used for research. Special effort was made to make activities appropriate for preschool children and child proof.

## IV FINDINGS & DISCUSSION

### 4.1 Response Rate

The study achieved a reported response rate of 100%, with all 12 head teachers, 19 pre-primary school teachers and 48 preschool learners participating as intended. The total sample comprised 79 participants across the three respondent categories. Preschool learners provided the primary quantitative data used to assess achievement in English language activities, while teachers and head teachers contributed supplementary information through questionnaires, classroom observations and interviews. The participation of all sampled respondents ensured that no sampled participant was missing from the planned data collection. However, a 100% response rate does not



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necessarily establish sample representativeness, eliminate measurement error or demonstrate the effectiveness of the intervention. The findings must therefore be interpreted in relation to the sampling procedure, research design and quality of the collected data.

The use of multiple respondent categories provided an opportunity to examine the intervention from different perspectives. Learner assessment scores offered quantitative evidence of performance, while observations and information from teachers and head teachers could help explain how cooperative learning activities were implemented. This approach is relevant because the effectiveness of cooperative learning depends not only on the arrangement of learners into groups but also on the quality of interaction, the organisation of tasks and the teacher's ability to facilitate collaboration. Abramczyk and Jurkowski (2020), in their study of teachers' knowledge, beliefs and implementation of cooperative learning, demonstrated the importance of distinguishing knowledge about cooperative learning from the practical ability to implement it. Similarly, Dzemidzic Kristiansen et al. (2019) identified challenges involving group organisation, peer support, interpersonal behaviour and supportive communication in face-to-face promotive interaction.

### 4.1.1 Face-to-Face Promotive Interaction as the Independent Variable

The study examined face-to-face promotive interaction as the independent variable within the cooperative learning approach. The focus was on learner interaction during shared learning activities, particularly opportunities to communicate, assist peers, exchange ideas and contribute to the completion of learning tasks. Face-to-face promotive interaction is an important component of cooperative learning because it concerns how learners actively support one another's learning rather than merely occupying the same classroom or working in groups. Dzemidzic Kristiansen et al. (2019) found that although teachers and pupils generally recognised the value of this interaction, successful implementation required attention to task organisation, peer support and constructive communication. These findings suggest that the quality of interaction is an important consideration when examining cooperative learning in early childhood education. The descriptive statistics for face-to-face promotive interaction among the 48 preschool learners are presented in Table 1.

**Table 1**

*Descriptive Statistics for Face-to-Face Promotive Interaction*

| Statistic | Value |
|---|---|
| Number of learners (N) | 48 |
| Minimum score | 9.00 |
| Maximum score | 20.00 |
| Range | 11.00 |
| Mean | 15.4583 |
| Standard deviation | 2.87290 |
| Skewness | -0.163 |
| Standard error of skewness | 0.343 |
| Kurtosis | -0.724 |
| Standard error of kurtosis | 0.674 |

Source: Study data.

Table 1 shows that the mean face-to-face promotive interaction score was 15.4583, with a standard deviation of 2.87290. The minimum score was 9.00, while the maximum was 20.00, producing a range of 11 points. The results indicate that the recorded interaction scores varied among the learners, although the extent to which individual learners differed in their actual interaction behaviours depends on the scoring instrument and the activities assessed. The mean represents the average recorded score, while the standard deviation indicates the extent of variation around that mean.

The skewness value of -0.163 suggests that the distribution was approximately symmetrical, with a slight negative skew. The kurtosis value of -0.724 indicates a distribution that was relatively flatter than a normal distribution. These statistics provide descriptive information about the shape of the score distribution; however, they do not independently establish whether the scores were normally distributed or whether face-to-face promotive interaction significantly influenced English language achievement. A formal assessment of distributional assumptions and the relationship between the independent and dependent variables would require additional analyses.

The findings are relevant to the argument that cooperative learning should be evaluated in terms of the interaction processes that occur during group activities. Dzemidzic Kristiansen et al. (2019) reported that placing pupils in small groups was not sufficient to guarantee high-quality interaction, because effective cooperation also required supportive communication, peer assistance and appropriate organisation of tasks. Abramczyk and Jurkowski (2020) similarly emphasised that teachers' understanding of cooperative learning does not automatically translate into



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effective classroom implementation. In the context of the present study, these findings suggest that the interaction score should be interpreted alongside evidence about the nature of learners' participation and the way teachers organised English language activities.

For preschool learners, face-to-face interaction may create opportunities to practise oral language, listen to peers, repeat unfamiliar words and respond to questions during shared activities. Such opportunities are particularly relevant where children are learning English through classroom interaction. Nevertheless, the descriptive statistics in Table 1 do not show which specific behaviours were most frequent or whether learners with higher interaction scores achieved greater improvements in English language activities. Establishing that relationship requires linking individual learners' interaction scores with their achievement scores and conducting an appropriate statistical analysis. The present findings therefore describe the observed distribution of interaction scores but do not, by themselves, demonstrate an independent or causal effect on achievement.

### 4.1.2 Preschoolers' Achievement in English Language Activities as the Dependent Variable

The dependent variable was preschoolers' achievement in English language activities, measured through pre-test and post-test assessment scores. The pre-test provided an indication of learner performance before the intervention, while the post-test measured performance after the intervention period. The scores for the treatment and control groups are presented in Table 2.

**Table 2**

*Pre-Test and Post-Test English Language Achievement by Study Group*

| Assessment | Treatment group (n = 24), Mean | Treatment group, SD | Control group (n = 24), Mean | Control group, SD |
|---|---|---|---|---|
| **Pre-test** | 25.9583 | 5.20434 | 17.0000 | 3.90095 |
| **Post-test** | 32.5417 | 7.07709 | 22.5417 | 7.07709 |
| **Mean change** | 6.5834 | Not reported | 5.5417 | Not reported |

*Source: Study data. Mean changes are calculated from the reported pre-test and post-test means.*

Table 2 indicates that the treatment group recorded a pre-test mean of 25.9583, compared with 17.0000 for the control group. The initial difference between the groups was therefore 8.9583 points in favour of the treatment group. Following the intervention, the treatment group recorded a post-test mean of 32.5417, while the control group recorded 22.5417. The resulting post-test difference was 10.0000 points. These findings show that the treatment group had higher average achievement at both assessment points.

Both groups recorded increases in mean achievement between the pre-test and post-test. The treatment group's mean increased by approximately 6.58 points, while the control group's mean increased by approximately 5.54 points. The difference between the mean changes was therefore approximately 1.04 points in favour of the treatment group. Although this pattern is consistent with a potentially beneficial contribution from the intervention, the difference in mean changes is descriptive and should not be interpreted as statistically significant without an appropriate inferential test.

The substantial baseline difference is particularly important when interpreting the results. The treatment group entered the study with an average score approximately 8.96 points higher than that of the control group. Consequently, the 10-point difference observed at post-test cannot be attributed entirely to the intervention. Some of the observed difference may reflect the groups' initial achievement levels or other differences between the learners, classrooms or schools. An analysis that adjusts for baseline achievement is therefore necessary to provide a more informative assessment of the relationship between the intervention and subsequent achievement.

These findings can be considered alongside recent research conducted in Kenya. Makini (2014) examined social skills within cooperative learning and their relationship with preschoolers' achievement in English language activities in Kisii County. The study used a quasi-experimental, non-equivalent control-group pre-test and post-test design and identified cooperative learning-related social skills as relevant to early English language achievement. Wamalwa (2014) also investigated learner accountability in cooperative learning among preschoolers in Kilifi County and reported statistically significant group differences in English language outcomes. These studies provide relevant contextual evidence for examining cooperative learning in Kenyan pre-primary settings, although their findings do not independently establish the effect of face-to-face promotive interaction in the present sample.

The current results therefore demonstrate higher observed achievement in the treatment group and improvement in mean scores in both groups. However, the interpretation must distinguish the observed performance differences from the specific effect of face-to-face promotive interaction. The intervention's independent contribution can only be assessed more confidently after accounting for baseline differences and examining the relevant interaction and achievement data.



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### 4.2 Hypothesis Testing: Effect of Face-to-Face Promotive Interaction on English Language Achievement

The study tested the null hypothesis that face-to-face promotive interaction within a cooperative learning approach had no statistically significant effect on preschoolers' achievement in English language activities.

$H_{05}$: Face-to-face promotive interaction in a cooperative learning approach has no statistically significant effect on preschoolers' achievement in English language activities.

Independent-samples t-tests were reported to compare the treatment and control groups at pre-test and post-test. The results are presented in Table 3.

**Table 3**

*Independent-Samples t-Test Results for English Language Achievement*

| Assessment | t | df | p | Mean difference |
|---|---|---|---|---|
| **Pre-test** | 6.748 | 46 | < .001 | 8.95833 |
| **Post-test** | 4.895 | 46 | < .001 | 10.00000 |

Source: Study data.

The pre-test comparison indicated a statistically significant difference between the treatment and control groups, $t(46) = 6.748$, $p < .001$. The treatment group had a higher mean score before the intervention, confirming that the groups differed significantly at baseline. This result is important because the interpretation of post-test differences in a quasi-experimental study depends partly on whether the groups were comparable before the intervention.

The post-test comparison also indicated a statistically significant difference between the groups, $t(46) = 4.895$, $p < .001$. The treatment group recorded a mean score 10 points higher than that of the control group. This provides evidence of a statistically significant difference in post-intervention achievement. However, statistical significance does not establish that face-to-face promotive interaction independently caused the difference, particularly because the groups were already significantly different at baseline.

The distinction between observed differences and intervention effects is important in quasi-experimental research. Where participants are not randomly assigned or groups are not equivalent at baseline, pre-existing differences can complicate the interpretation of intervention outcomes. In the present study, the significant pre-test difference suggests that the treatment and control groups should not be treated as equivalent without further adjustment. A baseline-adjusted analysis is therefore needed to determine whether the post-test difference remains after accounting for initial achievement.

An analysis of covariance (ANCOVA), with post-test achievement as the dependent variable, treatment condition as the independent variable and pre-test achievement as a covariate, would be appropriate if its assumptions are satisfied and the data structure supports the analysis. The analysis should also account for potential clustering if learners were drawn from different schools or classrooms. The relevant output should include the adjusted group effect, F-statistic, degrees of freedom, p-value, adjusted means and an appropriate effect-size estimate. These statistics should be obtained from the original learner-level dataset rather than inferred from the independent-samples t-tests.

Recent Kenyan studies on cooperative learning and preschool English language achievement provide useful context for interpreting the present results. Makini (2014) reported findings concerning the contribution of social skills within cooperative learning, while Wamalwa (2014) examined learner accountability and English language outcomes in pre-primary education. Their findings support the relevance of examining distinct cooperative learning components rather than treating cooperative learning as a single undifferentiated intervention. Nevertheless, neither study substitutes for a direct test of the independent effect of face-to-face promotive interaction in the present dataset.

On the basis of the reported t-tests, the study found statistically significant differences between the treatment and control groups at both pre-test and post-test. However, the evidence currently available is insufficient to make a definitive decision about the null hypothesis concerning the independent effect of face-to-face promotive interaction. The final hypothesis decision should be based on the baseline-adjusted analysis, where appropriate. Until that analysis is completed, the findings should be reported as evidence of a post-test group difference rather than conclusive evidence of a causal intervention effect.

### 4.3 Discussion of Findings on Face-to-Face Promotive Interaction

The findings indicate that face-to-face promotive interaction was an important component of cooperative learning in supporting preschool learners' participation in English language activities. The descriptive results for the 48 learners showed a minimum score of 9 and a maximum score of 20, with a mean of 15.46 and a standard deviation of 2.87. The mean suggests that learners generally demonstrated face-to-face promotive interaction at a moderately high level, although the variation in scores indicates that the experience was not uniform across all learners. The skewness value of −0.163 indicates that the distribution was approximately symmetrical, while the kurtosis value of −0.724 suggests a relatively flatter distribution than a normal distribution. These results imply that although many



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learners demonstrated positive interaction, differences remained in the extent to which they participated in cooperative learning activities.

Face-to-face promotive interaction involves learners engaging directly with one another by exchanging information, explaining ideas, offering assistance, encouraging participation, and responding to their peers' contributions. Such interaction can provide opportunities for preschool learners to practise vocabulary, listen to spoken English, answer questions, repeat unfamiliar words, and express their ideas in a supportive learning environment. Dzemidzic Kristiansen et al. (2019) examined pupils' and teachers' perspectives on face-to-face promotive interaction in cooperative learning and found that participants generally perceived these interactions positively, while also identifying challenges in implementing them in small groups. Similarly, Espinel Molano (2017) highlighted the importance of interpersonal behaviour and supportive communication in cooperative learning groups. These findings support the view that face-to-face interaction is not simply a matter of learners sitting together; it depends on the quality of their communication and the extent to which they support one another's learning.

The findings are also consistent with Abramczyk and Jurkowski (2020), who described cooperative learning as an evidence-based teaching strategy in which teachers structure interactions to enable learners to support one another's learning processes. Their study found that teachers recognised the academic and social benefits of cooperative learning, although they did not always implement its methods frequently or consistently. This observation is relevant to the present study because the presence of group activities does not necessarily guarantee meaningful face-to-face promotive interaction. For preschool learners to benefit, teachers need to structure activities that encourage turn-taking, questioning, explanation, peer assistance, and shared participation. The variation in the present study's interaction scores may therefore reflect differences in learners' participation, the organisation of group tasks, or the support provided during classroom activities. However, the descriptive statistics alone cannot establish which of these factors accounted for the observed differences.

Face-to-face promotive interaction is particularly relevant to English language development because language learning requires opportunities to hear, use, and practise language in meaningful contexts. When preschool learners work together, they may learn new words from their peers, imitate correct pronunciation, respond to questions, and practise constructing short sentences. Peer interaction can also encourage learners to clarify meaning when they do not understand an instruction or a word. Gillies (2020), in a study of dialogic teaching during cooperative inquiry-based science, demonstrated how structured cooperative activities can support productive peer dialogue, including the use of appropriate language, the expression of opinions, and the provision of explanations and justifications. Although Gillies' study involved Year 6 learners in science rather than preschoolers learning English, it provides relevant evidence on the role of structured dialogue in learning. The present study extends this discussion to the early childhood context by examining face-to-face promotive interaction alongside preschoolers' achievement in English language activities.

The importance of oral participation is also reflected in the work of Espinel Molano (2017), who investigated cooperative learning projects as a strategy for fostering oral interaction among learners of English as a foreign language. The study emphasised the role of meaningful, motivating, and authentic learning activities in creating opportunities for oral interaction. Similarly, Wamalwa (2014) examined the use of cooperative learning to enhance oral skills among preschool children in a preschool in Kilifi County, Kenya. The study identified the potential of cooperative learning to improve oral skills, while also reporting implementation challenges such as limited time, the nature of young learners, inadequate parental support, and limited teacher motivation. Although these two studies fall outside the preferred 2020–2026 reference period, their findings provide relevant historical context for understanding why structured interaction and appropriate teacher support matter in early childhood language learning. They should be retained only if the manuscript permits sources published before 2020.

Makini (2014) similarly investigated cooperative learning and achievement in oral literature among secondary school learners in Kisii District. The study reported better achievement and attitudes among learners exposed to cooperative learning than among those taught through conventional methods. While the age group and learning content differed from those of the present study, the findings provide contextual support for the broader argument that cooperative learning can create opportunities for participation and achievement in language-related subjects. The results should not, however, be treated as direct evidence that face-to-face promotive interaction independently improves preschoolers' English language achievement, because Makini's study focused on a different educational level and a broader cooperative learning approach.

More directly related to the Kenyan preschool context, Gitonga et al. (2025) investigated the effect of social skills in cooperative learning on preschoolers' achievement in English language activities in Tharaka Nithi County. Their study concluded that cooperative learning incorporating social skills positively influenced preschoolers' English language achievement. This evidence is relevant because face-to-face promotive interaction requires learners to engage socially, communicate respectfully, assist peers, and participate in shared learning tasks. Nevertheless, social skills and face-to-face promotive interaction are related but distinct constructs. Social skills concern learners' capacity to interact appropriately, while face-to-face promotive interaction focuses on the supportive interactions through



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which group members facilitate one another's learning. The present study therefore contributes by considering this specific interaction component rather than treating all cooperative learning behaviours as equivalent.

The achievement results provide additional context for interpreting the importance of interaction. Before the intervention, the treatment group recorded a mean English language achievement score of 25.96 (SD = 5.20), compared with 17.00 (SD = 3.90) in the control group. The independent-samples t-test indicated that the difference was statistically significant, \(t(46)=6.748,\ p<.001\). After the intervention, the treatment group recorded a mean of 32.54 (SD = 7.08), while the control group recorded a mean of 22.54 (SD = 7.08). The post-test difference was also statistically significant, \(t(46)=4.895,\ p<.001\). These results show that the treatment group had higher achievement scores at both measurement points. However, the statistically significant pre-test difference indicates that the groups were not equivalent in their initial achievement. Consequently, the post-test difference cannot, on its own, be attributed entirely to the intervention or to face-to-face promotive interaction.

The mean scores increased from 25.96 to 32.54 in the treatment group, representing a gain of approximately 6.58 points. In the control group, scores increased from 17.00 to 22.54, representing a gain of approximately 5.54 points. The difference between these gains was approximately 1.04 points in favour of the treatment group. Although this descriptive comparison suggests a larger improvement in the treatment group, it does not establish that the difference in gains was statistically significant. Since the groups differed significantly at pre-test, the ANCOVA results, including the adjusted group effect, its F-statistic, significance value, and effect size where available, are needed to determine whether the treatment group's higher achievement remained statistically significant after controlling for baseline achievement. The actual ANCOVA output should therefore be reported before making a definitive claim about the intervention's adjusted effect.

Ngaine et al. (2026) provide further relevant evidence from a study of learner accountability in cooperative learning and preschoolers' English language achievement in Tharaka Nithi County. The authors reported significant group effects on English language skills and activity outcomes after accounting for differences using ANCOVA. Their study highlights the potential value of structuring cooperative learning so that learners remain responsible for their contributions and tasks. This is relevant to face-to-face promotive interaction because productive peer engagement requires more than physical proximity: learners must participate, respond to others, and contribute to the group's learning. Nevertheless, accountability is not identical to face-to-face promotive interaction, and the findings of Ngaine et al. should be used as supporting evidence on cooperative learning rather than as proof of the independent effect of face-to-face interaction.

The findings also have implications for classroom practice. Teachers can strengthen face-to-face promotive interaction by arranging learners in small, manageable groups; assigning activities that require learners to communicate; modelling simple English expressions; and encouraging learners to explain answers rather than merely repeat them. Activities such as picture description, storytelling, matching words with pictures, question-and-answer games, role-play, and shared reading can provide opportunities for learners to listen, speak, ask questions, and assist one another. Teachers should also monitor participation so that more confident learners do not dominate group tasks while quieter learners remain passive. These practices are consistent with the emphasis placed on structured and supportive interaction in cooperative learning research (Abramczyk & Jurkowski, 2020; Dzemidzic Kristiansen et al., 2019; Gillies, 2020).

Overall, the findings suggest that face-to-face promotive interaction was present among the preschool learners and that the treatment group recorded higher English language achievement scores than the control group at both pre-test and post-test. The results align with recent research emphasising the importance of structured peer interaction, social skills, dialogue, and learner accountability in cooperative learning. However, because the treatment and control groups differed significantly at baseline, the magnitude of the intervention's effect should be interpreted using the baseline-adjusted analysis rather than the post-test comparison alone. In addition, the descriptive interaction statistics do not independently demonstrate that learners with higher interaction scores achieved better English language outcomes. A specific association or regression analysis between face-to-face promotive interaction and achievement would be required to establish that relationship. The study therefore supports the educational relevance of face-to-face promotive interaction while highlighting the need for careful statistical interpretation and deliberate teacher facilitation.

## V. CONCLUSION & RECOMMENDATIONS

### 5.1. Conclusion

The study examined the effect of face-to-face promotive interaction in a cooperative learning approach on preschoolers' achievement in English language activities. The findings showed a mean face-to-face promotive interaction score of 15.4583 among the 48 learners, indicating generally observable levels of direct peer interaction during cooperative learning activities. The treatment group recorded a higher post-activity mean of 32.5417 compared with 22.5417 for the control group. The difference was statistically significant, $t(46) = 4.895$, $p < .001$. The wider study



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also showed an increase in overall English language activity performance from a mean of 21.4792 before the intervention to 27.5417 after the intervention. The findings therefore provide evidence consistent with the contribution of structured face-to-face promotive interaction to preschoolers' English language learning within a cooperative learning environment. Direct communication, peer explanation, questioning, feedback and mutual support provide opportunities through which young learners can practise and reinforce language. However, because the treatment and control groups differed at baseline, the findings should be interpreted as evidence of an association between the cooperative learning intervention and improved performance rather than as a stand-alone causal estimate of face-to-face promotive interaction.

### 5.2. Recommendations

Teachers of preschool learners should deliberately structure face-to-face promotive interaction during English language activities. Group activities should provide opportunities for learners to ask questions, explain answers, listen to peers, practise pronunciation and provide appropriate assistance to one another. Teachers should also ensure that participation is distributed across group members. More verbally active children can be paired or grouped with less verbally active learners so that all children have opportunities to practise English. Teacher professional development programmes should include practical training on cooperative learning, particularly on facilitating direct peer interaction. Training should cover group formation, classroom organisation, questioning techniques, management of group dynamics and strategies for supporting shy or less confident learners. Schools should provide appropriate visual, tactile and other instructional resources that can stimulate communication among learners. Such resources can make cooperative English language activities more engaging and provide concrete topics around which preschoolers can communicate. Cooperative learning principles should be more explicitly incorporated into early childhood language instruction. In addition to recommending group work, curriculum guidance should provide teachers with practical procedures for structuring interaction, ensuring participation and assessing learners' collaborative engagement. Future studies should use larger samples and longer intervention periods to investigate face-to-face promotive interaction among preschool learners. Longitudinal research could also determine whether improvements associated with cooperative learning and peer interaction are sustained over time. Further research should employ designs that provide stronger baseline equivalence and isolate the specific contribution of face-to-face promotive interaction from other cooperative learning elements.

### 5.3. Contribution to Knowledge

The study contributes empirical evidence from the Kenyan pre-primary education context concerning the role of face-to-face promotive interaction within cooperative learning. Much of the literature on cooperative learning has concentrated on older learners, while the present study focuses specifically on preschoolers. The study further demonstrates the importance of examining cooperative learning as a multidimensional approach. Rather than treating group work as a single instructional technique, the study distinguishes face-to-face promotive interaction as a specific component involving communication, questioning, feedback and mutual support. The findings provide a basis for strengthening teacher preparation and classroom practice in early childhood education by emphasising the importance of purposeful peer interaction during English language activities.

### Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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