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Effectiveness of Parent Training in the Minimal Contrast Approach in Home English Literacy Environments on Preschoolers' English Pronunciation Skills

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Abstract

This pre-experimental study, incorporating predictive and correlational analyses, addresses the persistent challenge of English pronunciation among Thai learners—particularly in producing non-native sounds. It examines the effects of parent-led interventions within the home English literacy environment (HELE) of preschoolers. Although prior research has predominantly emphasized classroom-based instruction and older learners, parental engagement in early pronunciation development remains an underexplored area. This study highlights the role of parents trained in the Minimal Contrast Approach (MCA) in enhancing young children's pronunciation. Fifteen parent–preschooler dyads, recruited through volunteer and purposive sampling, participated in the intervention. Data were collected via pronunciation tests, MCA-based storybooks, and activity logs. Statistical analyses included descriptive statistics, dependent t-tests, simple linear regression, and Spearman's rho. The results showed significant improvement in children's pronunciation after the intervention ($p < .001$; Cohen's $d = 2.49$). Parental pronunciation proficiency significantly predicted children's posttest outcomes, and the duration and frequency of storybook reading positively correlated with children's pronunciation performance, while the quantity of home literacy resources showed no significant association. These findings support the effectiveness of structured parent-led HELE activities in improving preschoolers' pronunciation and provide initial evidence to guide scalable HELE-based interventions in the Thai EFL context. More diverse family contexts and a wider range of English sounds that are typically difficult for Thai learners (e.g., /ʒ/, /ð/) should be further expanded to strengthen the research foundation in early HELE-based pronunciation development.

Keywords: Parent teaching, Preschoolers, English pronunciation skills, home literacy environment, Minimal pairs

Introduction

English pronunciation poses persistent challenges for Thai learners, especially phonemes outside the Thai phonological system such as /r/, /v/, /θ/, /z/, /ʃ/, /ʧ/, and /ʤ/ (Thomma et al., 2021; Kumprom, 2018; Ketkumbonk & Woragittanont, 2017). These difficulties are widely attributed to negative first language (L1) transfer. While various instructional approaches have been explored, most studies focus on school-aged learners in formal settings, leaving a critical gap concerning support during preschool years. This early period is crucial for language development and represents an underexamined opportunity for pronunciation intervention through parental involvement.

The Minimal Contrast Approach (MCA) targets specific phoneme distinctions through minimal pair practice (e.g., “pig” vs “big”) and has been shown to strengthen phonemic awareness and reduce speech errors (Barlow & Gierut, 2002; Altamimi, 2015; Tuan, 2010). Prior exploratory work by the author demonstrated that MCA-based training can effectively improve Thai parents’ pronunciation of challenging English sounds (Poonsup, 2024), suggesting a potential pathway for enhancing children’s exposure to accurate English input in the home.

A strong Home Literacy Environment (HLE) is recognized as a key contributor to early language development (Lau & Richards, 2021; Wasik & Hindman, 2014; Sénéchal & LeFevre, 2002). The theoretical grounding of HLE in ecological, sociocultural, and psychological perspectives emphasizes supportive parent–child interaction as a catalyst for cognitive and linguistic growth. Although well established in first language contexts, research on Home Literacy Environments in Thai EFL homes remains limited.

An important yet underexplored factor in L2-HLE contexts is parental language proficiency. Evidence shows that parental skills (Puglisi et al., 2017) rather than the mere availability of home literacy resources, better predict children’s language outcomes (Silinskas et al., 2012; Leseman & de Jong, 1998) Research in Thailand similarly underscores the need to build parents’ linguistic abilities to ensure effective family language interventions (Khamsuk & Whanchit, 2017). The limited investigation into the impact of trained parental English pronunciation on preschoolers’ learning represents a meaningful research gap.

To address this gap, this study implements MCA-based parent training within a structured Home English Literacy Environment (HELE). The primary purpose of this study is to examine whether improvements in parents’ pronunciation predict gains in preschoolers’ pronunciation performance. based on pretest and posttest outcomes. The study also explores correlations among HLE engagement variables, including duration, frequency, and quantity of home literacy resources.

This study aims to generate practical insights for promoting early English learning through parent-supported activities in the Thai EFL context and to contribute theoretically by clarifying the role of parental pronunciation proficiency as a driver of children’s L2 speech development.

Research objectives

1. To examine the effectiveness of parent training in the Minimal Contrast Approach (MCA) within a Home English Literacy Environment (HELE) on preschoolers' English pronunciation skills, as evidenced by pretest and posttest achievement.

2. To determine the predictive relationship between parents' English pronunciation skills (developed through MCA training) and preschoolers' pronunciation development after the intervention.

3. To examine the correlations between HELE variables (duration, frequency, and quantity of home literacy resources) and preschoolers' posttest pronunciation performance.

Research methodology

This study employed a pre-experimental single-group pretest–posttest design to examine changes in preschoolers' English pronunciation after MCA-based parent training within a Home English Literacy Environment (HELE). The study also analyzed predictive relationships between parental pronunciation skills and children's outcomes, along with correlational analyses of HELE engagement variables.

Population and sample

Participants were 15 parent–preschooler dyads (children aged 3–6 years) selected from a population of 585 dyads enrolled in three kindergartens in Uttaradit province. Sampling occurred in two steps: (1) voluntary sampling identified 55 dyads who consented to participate in the HELE & MCA training, and (2) purposive sampling selected 15 dyads who met the predetermined inclusion criteria, including moderate-to-high levels of five Home English Literacy Environment (HELE) factors (socioeconomic status, parental self-efficacy, parental attitudes toward English, HELE activities, and home literacy resources) and completion of the parental posttest assessment. This study adopted an exploratory sampling approach, focusing on parent–preschooler dyads with moderate-to-high HELE engagement to ensure sufficient exposure to the intervention.

Table 1 Control Variables for Sample Selection

Variables	Mean (SD)	Range
Duration of HLE sessions (min/day)	27.50 (12.40)	15 – >60
HLE frequency (times/week)	4.20 (1.25)	3 – >6
Home literacy resources (items)	6.20 (3.50)	3 – >15
Parental self-efficacy	4.41 (0.63)	Moderate–High
Attitude toward English	4.74 (0.38)	Moderate–High
Socioeconomic status	—	25,001 – >75,000 THB

An additional inclusion criterion required parents to complete MCA pronunciation training and demonstrate post-training performance meeting the required criteria to ensure accurate phonological input, as presented in Table 2. Intervention fidelity was maintained by using the same storybooks, minimal-pair lists, audio-recording procedures, and scoring criteria for both parent and child assessments. All productions were scored by the same trained raters using a ≥66.67% agreement criterion across three raters. The seven MCA lessons were delivered by the researcher, with one standardized 60-minute session per target phoneme prior to home implementation.

Table 2 Parents' Pronunciation Performance Before and After MCA Training (Parents' Posttest)

Measure	Pretest Mean (SD)	Posttest Mean (SD)	t (14)	p	Effect Size (d)
Accuracy (score out of 168)	68.40 (23.16)	153.20 (6.54)	13.47	< .001	3.48

This study adhered to the Declaration of Helsinki and was approved by the University of Phayao Human Ethics Committee (UP-HEC 2.2/085/66). Informed consent was obtained from all participants, with assurances of confidentiality, voluntary participation, and the right to withdraw.

Instrument and content validity

This study utilized three primary instruments with established content validity and reliability.

1. MCA Children's Storybooks: Three interactive storybooks (The Hare and the Tortoise, The Shepherd Boy, The Three Little Pigs) were developed within the HELE framework to promote English phonemic awareness and pronunciation. The books incorporated 42 MCA minimal-contrast pairs (84 concrete words) targeting seven English sounds problematic for Thai learners: /r/, /v/, /θ/, /z/, /ʃ/, /ʧ/, and /ʤ/, along with familiar phonemes (/n/, /f/, /t/, /s/, /d/, /k/, /p/, /g/, /b/) used as controls. Abstract

vocabulary was excluded to ensure developmental suitability for preschoolers (Brysbaert et al., 2014). Expert validation confirmed strong content, format, and bilingual design suitability (M = 4.36, SD = 0.60).

2. Parallel Pronunciation Tests: Pretest and posttest versions assessed the intervention's effectiveness using 2,520-word tokens (7 phonemes × 8 words × 3 rounds × 15 participants). The study by Wren et al. (2021) indicated that a minimum of approximately 75-word tokens may be sufficient for reliable speech sample analysis, supporting the adequacy of our token count for robust segmentation. Expert review by three raters demonstrated high content validity (IOC = .89), ensuring alignment with learning objectives. Three trained raters (two Thai phonetics specialists and one native English-speaking instructor) independently scored children's productions using a binary pass criterion (≥2/3 correct; ≥66.67%). Inter-rater percent agreement across rater pairs exceeded 90% in both pretest and posttest.

3. HELE Activity Log: An online 28-day log recorded frequency, duration, and types of home English literacy engagement. Validation confirmed excellent content relevance (IOC = 1.00), enabling accurate links between HELE behaviors and children's performance outcomes.

Data collection

The data collection process was divided into two phases over a 30-day period.

Phase 1 (Pre- and Post-Testing): Individual pronunciation pre- and post-tests were administered in two separate 30-minute sessions or over two days at the school site. All productions were audio-recorded in MP3 format (44.1 kHz, mono track) using Voice Memos (iOS), Easy Voice Recorder (Android), or Audacity (44.1 kHz, mono) to ensure clear phonetic analysis. A total of 2,520-word tokens were segmented and evaluated.

Children's pronunciations were independently scored by three trained raters using a binary pass criterion (≥ 66.67% rater agreement). Inter-rater percent agreement exceeded 90% in both test phases, indicating strong scoring reliability.

Parents received brief instructions to support daily home reading but were only post-tested to confirm their pronunciation readiness for modeling. Parent outcomes were used solely for correlational analysis relating to children's improvement and the home English literacy environment (HELE) during the 28-day intervention.

Phase 2 (Home Intervention): For 28 days, parents supported HELE daily using the three MCA storybooks. Each session involved shared reading and pronunciation practice, during which the child repeated each target word three times. Parents documented their child's daily reading frequency, reading duration, and use of home literacy resources in an online activity log.

Data analysis

Data were analyzed using descriptive statistics (percentage and frequency), paired samples t-tests, simple linear regression analysis, and Spearman's rank-order correlation (Spearman's rho).

These methods were selected to address the study's objectives: assessing pretest/posttest achievement, analyzing the predictive relationship between parental and child pronunciation skills, and examining correlations between HELE activity variables and children's outcomes.

Findings

The study aimed to compare pretest and posttest results by integrating the HELE and MCA to assess improvements in preschoolers' English pronunciation, and to analyze the predictive relationship between parental and preschoolers' pronunciation skills using post-intervention scores. Results were presented accordingly.

Figure 1 Pretest and Posttest Mean Scores of 2,520 Tokens Pronounced by the 15 Preschoolers

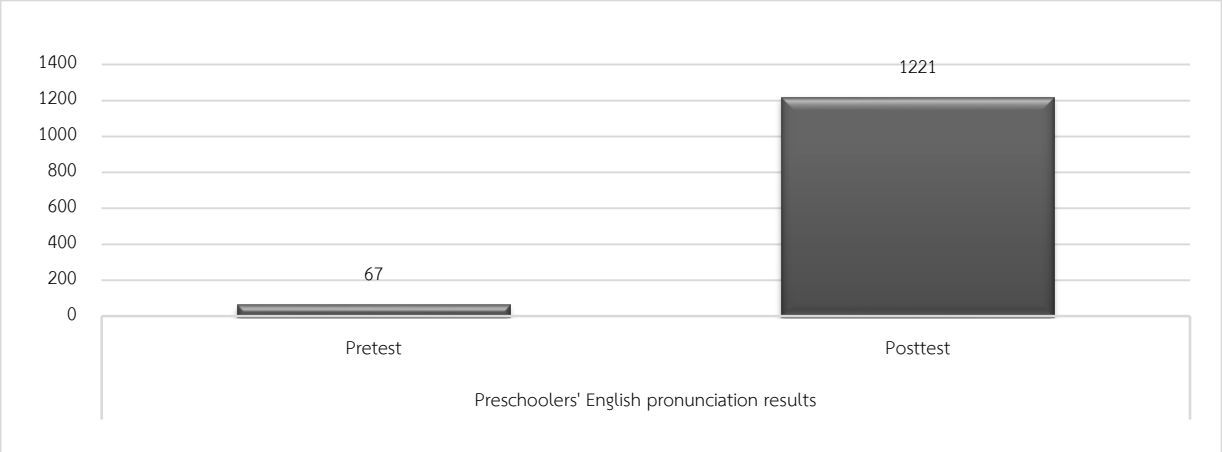

Figure 1 displays the pretest and posttest mean scores of 15 preschoolers' English pronunciation for 2,520 tokens. The pretest mean score was 67 (2.69%), which is relatively low, while the posttest mean score was 1,221 (48.46%), showing a significant increase. The disparity (45.77%) suggests a substantial improvement in the preschoolers' pronunciation as a result of the HELE & MCA interventions.

Table 3 Pretest and Posttest Pronunciation Skill Mean Scores Using Dependent T-test

Tests	M	SD	t	df	P-value	Effect Size (Cohen's d)	95% CI (Lower - Upper)
Pretest (Tokens = 2,520)	4.47	6.62	9.645	14	<.001	2.49	1.437 – 3.523
Posttest (Tokens = 2,520)	81.40	32.55					

Table 3 shows a significant improvement in children's pronunciation after the intervention (t(14) = 9.645, p < .001, d = 2.49). Posttest scores (M = 81.40, SD = 32.55) were notably higher than pretest scores (M = 4.47, SD = 6.62), indicating a large effect size and confirming the intervention's effectiveness.

Table 4 ANOVA[a] of the Simple Linear Regression Analysis between Parents' Posttest and Preschoolers' Posttest

	Model	Sum of Squares	df	Mean Square	F	Sig
1	Regression	6669.794	1	6669.794	10.618	.006[b]
	Residual	8165.806	13	628.139		
	Total		14			

a. Dependent variable: Preschoolers' posttest

b. Predictors: (Constant), Parent's posttest

Table 4 shows the ANOVA results for the simple linear regression model. The F-value is 10.618, with a significant level of p = .006 (p < .01). This indicates that there is a significant relationship between parents' posttest scores of two groups of phonemes: treated sounds and target sounds were also parallelly analyzed to examine the predictive relationship and preschoolers' posttest scores.

Table 5 Coefficients of the Linear Regression between Parents' and Preschoolers' Posttests

Model		Unstandardized Coefficients		Standardized Coefficients	t.	Sig.
		B	Std. Error	Beta		
1	(constant)	-430.069	157.094		-2.738	.017
	Parent's posttest	3.339	1.025	.671	3.259	.006

c. Dependent variable: Preschoolers' posttest

A simple linear regression analysis revealed a significant positive relationship between parents' and preschoolers' posttest scores (B = 3.339, β = .671, p = .006). The regression equation, Y = −430.069 + 3.339X, indicates that each one-point increase in parents' scores predicts a 3.339-point gain in preschoolers' scores.

Table 6 Mean, Standard Deviation (SD) and Spearman's Rho among Variables of HELE

Variables	1	2	3	4
1. Durations	1.00			
2. Frequencies	.597*	1.00		
3. Numbers of Media	.149	-.173	1.00	
4. Preschoolers' posttest	.804**	.734**	-.057	1.00
Mean	2.47	3.40	3.20	81.40
SD.	.52	1.18	1.08	32.55

* Correlation is significant at the .05 level (2-tailed)

** Correlation is significant at the .01 level (2-tailed)

Table 6 shows the mean, SD, and Spearman's rho correlations among HELE variables. Significant positive correlations exist between Duration (ρ = .804, $p < .01$) and Frequency (ρ = .734, $p < .01$) with Preschoolers' Posttest scores, indicating that longer and more frequent literacy activities enhance pronunciation skills. However, HLR quantity shows no significant correlation, suggesting minimal impact. The mean Posttest score is 81.40 (SD = 32.55), indicating variability among participants. Overall, duration and frequency are key factors in improving preschoolers' pronunciation.

Discussion

This study provides compelling evidence for the efficacy of integrating Home English Literacy Environments (HELE) with the Minimal Contrast Approach (MCA) in significantly improving English pronunciation among Thai preschoolers. The findings underscore the critical role of parental pronunciation and consistent home literacy activities, contrasting with the less significant impact of merely having home English literacy resources available. These insights hold particular relevance for English as a Foreign Language (EFL) context like Thailand.

The positive correlations between duration and frequency and children's posttest pronunciation scores indicate that consistent, sustained parent–child reading interactions play a more influential role in phonological development than the mere availability of home literacy resources. This aligns with Silinskas et al. (2012), who found that the frequency of parents' literacy activities predicts children's early reading outcomes. This suggests that the quality and active use of a resource—supported by parents' improved pronunciation skills—matter more than the quantity of books or materials present in the home. The findings reinforce that parental linguistic competence functions as a critical, intangible literacy resource, enabling effective modeling of target phonemes and promoting successful learning outcomes.

To further enrich this discussion, particularly from the perspective of a linguist keen on child language development, it's important to consider how these findings align with, or diverge from, the natural acquisition processes observed in children born into English-proficient environments. While this study highlights the structured intervention needed for L2 pronunciation development in an EFL setting, it implicitly draws parallels with the mechanisms of first language (L1) acquisition. For children naturally acquiring English as their L1, the principles of phonological learning proposed by Barlow & Gierut (2002) are inherently at play. Their environment is saturated with diverse and frequent exposure to phonemic contrasts, allowing for the rapid and unconscious assimilation of the subtle phonetic distinctions that define English. The "perceptual saliency of minimal-contrastive relations in the place, manner, and voicing of a sound" is constantly reinforced through rich linguistic input, facilitating their accurate production without explicit instruction. This contrasts sharply with the Thai preschoolers in this study, whose "very low baseline scores" and "not well established L1 phonological representations" for certain English sounds necessitate targeted interventions like MCA to create the explicit contrasts needed for learning.

Furthermore, the emphasis on the "power of meaningful parent–child literacy interactions" and "sustained involvement of a caregiver as a driver in the early development of a child's language" in this study resonates deeply with how L1 English-speaking children develop their pronunciation. In English-proficient homes, parents naturally model correct pronunciation, provide immediate feedback (both explicit and implicit), and engage in extensive verbal interactions, including shared storybook reading. This constant, high-quality linguistic input, often without conscious effort from the parents, naturally cultivates robust phonological awareness and accurate articulation in their children. The predictive link between parents' pronunciation and children's pronunciation observed in this study for Thai children, particularly for sounds not present in their mother tongue, mirrors the well-established role of parental linguistic input in shaping the phonetic inventory and accuracy of L1 learners. Puglisi et al. (2017) and Khamsuk & Whanchit (2021) validate this parental influence, further emphasizing that maternal language skills can explain a significant portion of the relationship between early home literacy activities and child language development, a phenomenon equally applicable to both L1 and L2 acquisition contexts, albeit with different starting points and developmental trajectories.

Therefore, while the explicit and structured nature of HELE and MCA is crucial for EFL contexts, the underlying principles of consistent exposure, salient contrasts, and active caregiver involvement are universal to successful language acquisition, whether it be an L1 or L2. For children naturally born into English proficiency, these elements are organically integrated into their daily lives, demonstrating the immense power of an immersive and linguistically rich environment. The findings here effectively advocate for the intentional replication of these naturally occurring conditions within an EFL home, recognizing that the quality of interaction and input, rather than just the quantity of resources, is the

driving force behind effective phonological development, echoing Leseman & de Jong (1998)'s assertion that resources are only beneficial when coupled with "activity quality, appropriate use, and, most importantly, a conscious and skilled person who interacts with the child to create a supportive, language-rich environment."

Conclusion

This study demonstrated that integrating HELE with MCA significantly improved Thai preschoolers' pronunciation of English phonemes absent in their first language. Parent-supported shared reading provided repeated exposure to minimal pairs, leading to measurable articulation gains. Parental pronunciation improvements after training also contributed to children's outcomes. Several home literacy covariates, including reading frequency, duration, activity types, and resource availability, were examined to enhance result validity. The small sample size, limited phoneme set, and purposive selection of dyads with moderate-to-high HELE readiness restrict the generalizability of the findings, despite clear intervention effects. Future research should include a wider range of English sounds and more diverse family contexts—varying in HELE readiness, parental workload, socioeconomic factors, and available support—to evaluate the feasibility and scalability of the HELE–MCA model in real-world settings.

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