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Enhancing Phonetic Accuracy: Explicit Instruction to Reduce Strong Accents among Southern Thai EFL Learners

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Article information	
Abstract	This study investigated the effectiveness of a structured pronunciation training program combining explicit phonetic instruction and corrective feedback in improving English as a Foreign Language learners' perception and production of short vowel sounds in English. The participants were 88 undergraduate students from a university in Southern Thailand whose first language was either Standard Thai or the Southern Thai dialect. The instruments included pretest and posttest measures of short-vowel perception and production in isolated words, a structured pronunciation training program, and self-assessment questionnaires. Paired-sample t-tests, cross-tabulation, and descriptive statistics were used for analysis. The findings indicated that explicit phonetic instruction with corrective feedback improved short-vowel perception and production accuracy, reduced L1 and dialect-related vowel deviations, and enhanced learners' pronunciation confidence.
Keywords	English short vowel sounds, explicit phonetic instruction, L1 interference, Noticing Hypothesis, regional language contact
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1. Introduction

According to Schmidt (1990, 2001), the Noticing Hypothesis emphasizes the role of conscious awareness in language learning, stating that learners must actively notice linguistic input for acquisition to take place. This perspective supports the use of explicit instruction to help learners identify and adjust pronunciation features in a second language (L2) and third language (L3) learning. Considering the Noticing Hypothesis, timely and focused instruction becomes essential, particularly for adult learners. Explicit phonetic instruction improves speech perception and production (Atar, 2018). Such instruction, with self-paced learning, self-monitoring, and correction, supports learners in dealing with specific linguistic difficulties.

Previous studies indicate that explicit phonetic instruction improves speech perception and production (Atar, 2018; Ghorbani et al., 2016) and can also contribute to more confidence in their speech (Mohammed, 2025). Studies also highlight the benefits of targeted exercises, multimedia tools, and explicit feedback in improving L2 pronunciation accuracy (Atar, 2018; Camus, 2020; Stratton, 2023). This is particularly important for adult learners, who may

experience L1 interference, also called first language transfer or mother tongue interference. According to Odlin (1989), L1 interference happens when features from the learner's native language affect how they produce sounds, grammar, or vocabulary in the target language. In terms of pronunciation, learners often transfer the sound patterns and articulation habits from their L1 when speaking in L2 (Major, 2001). Another factor affecting some learners is regional language contact (RLC), which occurs when people regularly use multiple language varieties in their area (Thomason & Kaufman, 1988). This ongoing exposure to different languages shapes how learners hear and produce sounds. In the Southern Thai context, learners use Standard Thai (ST), Southern Thai dialect (STD), and English in their daily lives, which creates complex patterns of linguistic influence. Specifically, the vowel differences between Southern Thai and Standard Thai affect how learners pronounce English short vowels, often leading to systematic errors linked to their dialect background.

The study investigated the effectiveness of the Short Vowel Mastery Course (SVMC), a structured phonetic training program, in improving short-vowel perception and production in isolated words among adult EFL learners from different linguistic backgrounds in Southern Thailand. Participants included ST speakers with exposure to the STD and STD speakers whose L1 contains systematic vowel shifts that differ from both Standard Thai (Thongchuay, 1991) and the English vowel system (Nathong, 2017). As a result, these learners may mispronounce /e/ as /æ/, for example, producing slept /slept/ as slapped /slæpt/ (Sudhinont, 2025). Such substitutions can disrupt intelligibility and lead to miscommunication (Derwing & Munro, 2005), as vowel contrasts signal differences in word meaning.

STD speakers, in particular, encounter an additional layer of difficulty. Their native vowel system influences not only their production of English but also their use of ST, and these shifted patterns may carry over into English speech. Because these phonetic deviations are rooted in systematic dialectal patterns, they may be resistant to change without targeted instruction. Focused training on short vowel contrasts is therefore essential for improving pronunciation accuracy and supporting effective communication.

These challenges are consistent with broader findings that learners' L1 backgrounds shape specific pronunciation difficulties (Avery & Ehrlich, 1992) and that instruction can be designed to address them (Isaacs, 2009). Building on this perspective, the present study examined strategies for reducing short-vowel pronunciation errors associated with L1 interference and RLC.

Because the participants were adults, the instructional design followed the Noticing Hypothesis and emphasized awareness and correction of pronunciation errors. Findings supported broader teaching practices, showing the value of tailored phonetic instruction for adult learners in similar sociolinguistic contexts.

Pronunciation development is closely associated with affective factors such as learner confidence (Mohammed, 2025). Accordingly, this study examined both pronunciation accuracy and learner confidence following the SVMC. Improvements in pronunciation may enhance confidence, which in turn can motivate continued practice and support sustained development (Farabi et al., 2017; Mohammed, 2025). Considering their reciprocal relationship, examining both offers a more comprehensive understanding of the intervention's effects.

The research questions were as follows.

1) How effective is the SVMC in improving the perception and production accuracy of English short vowels in isolated words, and do these effects differ between ST and STD participants?

2) How are perception and production accuracy related, and how does this relationship influence improvement among ST and STD participants?

3) Based on participants' self-assessments, what factors contribute to improvements in pronunciation accuracy and confidence following the SVMC?

2. Literature Review

This section reviews research on explicit phonetic instruction and corrective feedback for improving L2/L3 pronunciation accuracy. Key themes include the Noticing Hypothesis, L1 phonological and dialectal influences, instructional approaches, and cross-linguistic vowel comparisons.

2.1 Noticing Hypothesis

The Noticing Hypothesis, proposed by Schmidt (1990, 2001), states that conscious awareness of linguistic input is essential for language acquisition. Schmidt and Frota (1986) define "noticing" as focused attention to specific forms and transforming input into intake for internalization. Krashen (1981) specifies that language is often learned subconsciously. However, the Noticing Hypothesis emphasizes the importance of paying attention intentionally. This can help adult learners more effectively because they can learn better from explicit instruction and an awareness-raising approach (Long, 1990).

Therefore, effective instruction must provide learners with opportunities to notice, process, and practice the target forms. Swain's (1985) Output Hypothesis supports this by showing that language production helps learners identify gaps in their knowledge and encourages continued learning. Schmidt (1990) emphasized that noticing is necessary for acquisition, making it essential to instructional design. Seong (2009) found that strategies such as imitation and structured output tasks enhance accuracy, particularly in pronunciation. In the Thai EFL context, Pimkote (2020) also observed learners using the Noticing Hypothesis when self-correcting speech, though this approach remains rarely applied in pronunciation teaching.

In summary, the Noticing Hypothesis provides a useful guideline for shaping pronunciation instruction for adult learners. This study adopted the Noticing Hypothesis to guide the development of explicit phonetic instruction to improve pronunciation.

2.2 L1 Phonological Influence and Dialectal Variation in L2 Vowel Perception and Production

L1 phonology and dialectal variation significantly influence learners' perception and production of English vowels as L2 or L3 languages. Research shows that L1 phonological systems influence learners' perception and production of L2 sounds, often resulting in transfer effects on vowel contrasts (Best & Tyler, 2007; Flege, 1995). Mahamontri and Nantasiripol (2019) found that Thai EFL learners often transfer L1 sound patterns into English pronunciation. Similarly, Paramal (2019) and Wayland and Guion (2004) reported difficulties in distinguishing English vowel contrasts absent in Thai.

Flege's (1995) Speech Learning Model argues that L2 vowel development is influenced by how learners perceive similarities between sounds in their L1 and those in the target language. When an L2 vowel is perceived as similar to an existing L1 category, learners may continue to rely on that category rather than establish a new one. While such similarity can sometimes support learning, it may also make it more difficult to form clearly distinct L2 vowel categories.

Building on this view, Best and Tyler (2007) introduced the Perceptual Assimilation Model–L2 (PAM-L2), which explains how unfamiliar L2 sounds are interpreted through the lens of prior L1 phonological experience. In this model, learners typically relate new L2 sounds to the nearest L1 categories available to them. Problems are more likely to occur when L1 and L2 sounds are similar but not identical, especially when fine phonetic differences are not consistently noticed. As a result, these subtle mismatches may influence both perception and production.

Dialectal variation creates additional challenges. Weinreich (1968) emphasizes how regional accents and intra-L1 deviations impact L2 acquisition. Phonological interference from L1 is typically more resistant to change, while phonetic influence from RLC is more adaptable. Flege (1995) notes that phonological categories established early in life are stable, making it difficult to form new ones when L2 vowels closely resemble L1 sounds. Best and Tyler (2007) confirm this, suggesting that pre-existing L1 categories interfere with accurate L2 vowel perception and production.

Major's (2001) Ontogeny Phylogeny Model supports the idea that systematic L1 interference is usually more persistent than variation related to RLC. In contrast, Weinreich (1968) suggests that RLC effects depend on context and are more flexible. This flexibility enables learners affected by RLC, such as the ST group, to adjust more easily than those influenced by their first language, like the STD group. This distinction helps explain why the ST group may show greater improvement in vowel accuracy compared to the STD group.

2.3 Explicit Phonetic Instruction

Explicit phonetic instruction helps learners overcome L1-related perception and production problems by raising their awareness of L2 sound differences and giving them structured practice. This structured approach, which develops from simple to more complex sound–letter patterns, is tailored to learners' levels of development and keeps them involved through direct teaching (Mesmer & Griffith, 2005). Research consistently shows that explicit pronunciation instruction enhances intelligibility and comprehensibility more effectively than implicit methods (Camus, 2020; Chen et al., 2022; Derwing & Munro, 2005; Stratton, 2023). Robinson (2018), moreover, highlights its particular benefit for learners from different language backgrounds.

Studies show that learners have positive attitudes toward explicit instruction, which helps improve the pronunciation of L2 sounds (Pardede, 2018; Saito, 2007; Steed & Delicado, 2014). Moreover, Atar (2018) argues that phonetic instruction should integrate both perception and production while emphasizing practical phonological features. Consistent with this view, explicit phonetic instruction also supports the development of speech perception (Espinoza-Tenezaca & Albán-Neira, 2025; Ghorbani et al., 2016). Ellis (1997) and Robinson (1995) highlight that awareness of language problems is not enough; structured activities are needed to transform input into intake. These activities help learners develop interlanguage

development by highlighting and increasing the problematic features that make it more noticeable and easier to focus on. In addition to improving pronunciation accuracy, explicit phonetic instruction can increase learners' confidence in speaking (Farabi et al., 2017). This is important because confidence influences learners' willingness to communicate and their persistence in practicing pronunciation (Dörnyei & Ryan, 2015). When learners feel more confident about their pronunciation, they engage more actively in speaking tasks and show greater long-term retention (Mohammed, 2025). Therefore, examining both accuracy and confidence provides a comprehensive evaluation of instructional effectiveness.

2.4 Explicit Pronunciation-Focused Corrective Feedback

According to Hedge (2000), effective corrective feedback requires distinguishing between mistakes, which are self-correctable, and errors, which need teacher intervention. This distinction helps shape feedback strategies that are very important for pronunciation improvement. Explicit corrective feedback plays an important role in L2/L3 pronunciation instruction by helping learners notice when their production does not match the target (Lightbown & Spada, 2021). Learners value explicit feedback that promotes awareness and self-correction (Syakira & Nur, 2022), while phonological errors require focused correction (Lyster et al., 2013). Explicit corrective feedback is a key component of explicit L2/L3 pronunciation instruction and can help enhance learners' awareness and outcomes (Lee et al., 2015; Olson, 2014).

When learners feel positive about teacher feedback, their confidence increases, which leads to more accurate pronunciation and fewer repeated errors (Calsiyao, 2015; Nguyen & Luu, 2021). This positive cycle of feedback, confidence, and improved accuracy underscores the importance of measuring both linguistic and affective outcomes in pronunciation interventions. However, learner responses to feedback vary because a lack of response does not imply inattention (Ohta, 2001). Excessive error correction may also overwhelm and discourage learners. Therefore, it is necessary to tailor feedback to individual learner needs for best outcomes (Ellis, 1997; Hendrickson, 1978).

2.5 Pronunciation Training Course Design

Designing effective pronunciation training for adult learners requires a foundation that meets their specific needs. Kissling (2013) compared explicit phonetic instruction with an implicit approach focused on input, practice, and feedback among English-speaking learners of Spanish, finding similar pronunciation gains in both groups. The findings suggest that the quality of input and feedback may have more impact than teaching alone (Venkatagiri & Levis, 2007). They also emphasize the importance of designing instruction that suits the needs of adult learners.

Sanako (2024) identifies three main approaches to pronunciation teaching: (1) introducing phonetic symbols and the IPA to build sound recognition and articulatory awareness; (2) using audio or video imitation to develop natural intonation and fluency; and (3) employing minimal pairs to help learners distinguish similar sounds, particularly vowels. Using multimodal methods helps learners gain greater improvement in their pronunciation learning (Ganapathy & Seetharam, 2016), with visual aids clarifying articulatory techniques (Gick & Derrick, 2009) and IPA incorporation supporting phonetic awareness (Celce-Murcia

et al., 2010). Together, these strategies show the effectiveness of diverse, integrated approaches for improving pronunciation among adult learners.

2.6 Vowel inventory comparison among English, Standard Thai, and the Southern Thai dialect

English has six contrastive short vowels, /ɪ/, /e/, /æ/, /ʌ/, /ʊ/, and /ɒ/, with /ə/ functioning as a reduced vowel in unstressed syllables (Derwing & Munro, 2005; Roach, 2009). The ST vowel inventory comprises 18 monophthongs, of which nine are short, and the remaining are long (Naksakul, 2013). A comparison of the vowel systems of STD, ST, and English reveals clear differences in the quality of several short vowels, leading to systematic vowel correspondences (Thichinpong, 2006; Thongchuay, 1991). Table 1 presents the seven short vowels shared by English and ST, together with their STD counterparts, some of which exhibit short vowel sound correspondences (SVSCs).

Table 1

Comparison of English, ST, and STD Short Vowels Showing SVSCs

English			ST			STD		
IPA	Example		IPA	Example		IPA	Example	
/ɪ/	tin	/tɪn/	/i/	ติ	/tì/	/i/ → /e/	ติ → เตะ	/t̲i̲/ → /t̲è/
/e/	ten	/ten/	/e/	เก่ง	/kèŋ/	/e/ → /ɛ/	เก่ง → แก่ง	/kèŋ/ → /kɛ̀ŋ/
/æ/	tan	/tæn/	/ɛ/	แตะ	/tè/	/ɛ/	แตะ	/tè/
/ʌ/	ton	/tʌn/	/a/	กะ	/kà/	/a/ → /ɔ/	กลับ → หล็อบ	/klàp/ → /lɔ̀p/
/ʊ/	put	/pʊt/	/u/	ทุบ	/túp/	/u/ → /ɔ/	ทุบ → ถ็อบ	/túp/ → /tɔ̀p/
/ɒ/	pot	/pɒt/	/ɔ/	เลาะ	/lɔ́/	/ɔ/	เลาะ	/lɔ́/
/ə/	again	/əˈgen/	/ɤ/	เลอะ	/lɤ́/	/ɤ/	เลอะ	/lɤ́/

Note: Arrows (→) in the STD column indicate vowel correspondences where STD vowels shift from ST vowels. Thai transcriptions follow Ronnakiat & Jitwiriyanont (2012); English transcriptions follow the IPA (1999).

These vowel correspondences in Table 1 help explain why Southern Thai EFL learners struggle with specific English vowels. Because STD features an /i/ → /e/ shift, high front vowels may be lowered in production, leading STD speakers to realize English /ɪ/ as /e/. Similarly, the /e/ → /ɛ/ correspondence reflects a lowering of mid vowels, which may cause English /e/ in words such as ten to be produced with a more open vowel quality, shifting toward /ɛ/.

In addition, the /a/ → /ɔ/ and /u/ → /ɔ/ shifts may lead STD speakers to perceive English /ʌ/ and /ɒ/ as more alike, making them harder to distinguish. Such deviations may occur when speakers draw on familiar dialect vowel patterns during English speech production, especially when the vowel qualities partially overlap. Compared with ST speakers, STD speakers face additional dialect-related vowel shifts that may interfere with the accurate perception and production of some English vowels.

Although L1 interference in English pronunciation has been widely examined (Major, 2001), research in the Thai context has largely centered on ST as the primary source of transfer. Comparatively fewer studies have considered the role of regional dialects, particularly Southern Thai, or how dialectal vowel patterns may interact with ST and English in shaping

learners' perception and production of L2 vowels. While STD influence has been described (Sudhinont, 2025), there is still limited empirical evidence on how instructional interventions function in contexts where learners navigate both dialectal and standard language systems. In addition, it remains unclear whether explicit phonetic instruction yields different outcomes for learners influenced by L1 transfer versus RLC, or how perception and production develop in relation to each other following such training. The present study responds to these issues by investigating a structured phonetic course with corrective feedback for ST and STD learners, focusing on pronunciation accuracy in isolated words as well as learner-reported confidence.

3. Methodology

This study examined the effectiveness of the SVMC, a structured phonetic training program grounded in the Noticing Hypothesis, on participants' perception and production of short vowels. The four-week course comprised four exercises designed to enhance learners' self-monitoring abilities in identifying and correcting pronunciation errors. After each exercise, participants submitted self-recorded pronunciation files via Google Drive. Recordings were reviewed for vowel accuracy, and immediate online feedback was given when dialect-related vowel deviations affected intelligibility; for example, when "look" /lʊk/ was produced as "lock" /lɒk/. The researcher guided participants using phonetic symbols, articulation features, and native-speaker audio files. Following this guidance, participants revised and resubmitted recordings when necessary. To reinforce learning, the researcher gave general feedback in class to strengthen target sounds before moving on to the next exercises. Perception and production skills were assessed using the same lists of isolated words in both the pretest and posttest.

The study targeted six SVSCs in English words, based on both prior literature and instructional observations:

- SVSC1: /ɪ/ → /e/
- SVSC2: /e/ → /ɪ/
- SVSC3: /e/ → /æ/
- SVSC4: /ʌ/ → /ɒ/
- SVSC5: /ɪ/ → /æ/
- SVSC6: /ʊ/ → /ɒ/

The pretest and posttest were given four months apart and used the same word lists; however, the training words did not overlap with any of these items. This separation helped reduce possible memory effects. Following the posttest, participants completed a questionnaire assessing their perceived improvement and confidence in short-vowel pronunciation.

Ethical approval was obtained from the Institutional Review Board. Ethical approval and informed consent were obtained from Prince of Songkla University.

3.1 Participants

Eighty-eight participants were drawn from an initial cohort of 143 students enrolled in an English pronunciation course at Prince of Songkla University. Based on responses to a language background questionnaire, students were categorized according to the primary language used in informal daily interaction, resulting in 43 ST speakers and 100 STD speakers. The STD group reported regular code-switching between Southern Thai in informal contexts and ST in formal academic settings.

A balanced purposive sampling approach with group matching was employed to determine the final analytical sample. Because the ST subgroup comprised 43 participants in total, all were retained for analysis. From the larger STD subgroup, participants with lower pretest performance in the perception and production of short vowels were selected to achieve comparable group sizes for statistical comparison. When tied scores occurred at the cutoff point, all participants with identical scores were included to maintain methodological fairness. This procedure resulted in a final sample of 43 ST and 45 STD participants.

3.2 Research Instruments

Four instruments were used in this study: (1) a language background questionnaire, (2) speech perception and production tests, (3) the SVMC, and (4) a self-assessment questionnaire. All instruments were designed to align with the study's objectives.

Content validity was established through review by three English phonology experts using the Index of Item-Objective Congruence. Items were revised based on their recommendations. Reliability procedures included pilot testing with 30 students from a different pronunciation course to evaluate item clarity and difficulty level. For the production test, recordings were independently scored by the researcher and a native English speaker using predetermined phonetic criteria (see Appendix C) to enhance scoring consistency. Inter-rater agreement was calculated based on the total number of mispronounced short vowels per participant and reached 100% for both the pretest and posttest, indicating complete scoring consistency.

3.2.1 The Language Background Questionnaire

The Post-SVMC Questionnaire assessed participants' self-perceived changes in pronunciation ability and confidence after completing the SVMC (see Appendix A).

3.2.2 The Speech Perception and the Speech Production Tests

The tests measured participants' perception and production of short vowels using isolated words in the pretest and posttest. The perception test consisted of 18 target words presented. Each item presented one target word. Participants then selected the vowel sound they heard from two options: the correct vowel and a corresponding STD-influenced variant. For instance, "bet" vs. "bat" tested perception of /e/. Participants listened to each target word three times and selected the vowel sound they heard from two options. One point was given for each correct response (see Appendix B). The speech production test used the same target words (see Appendix C for the complete word list and scoring criteria). Accuracy scores were calculated based on the number of correct responses.

3.2.3 The Short Vowel Mastery Course (SVMC)

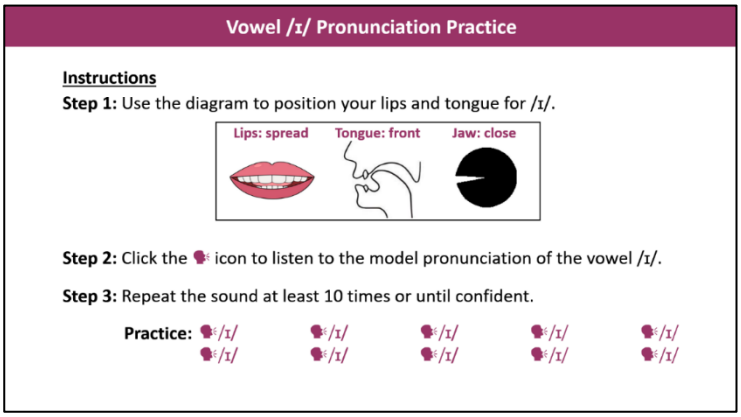
The SVMC was a structured phonetic training program designed and delivered by the researcher using presentation software. Conducted weekly over four weeks, it comprised four phonics-based exercises targeting short-vowel pronunciation. The exercises progressed from isolated vowel sounds to isolated words containing initial and final consonants, enabling participants to distinguish SVSCs in ST and the STD.

The SVMC integrated native-speaker audio models with IPA symbols and articulatory diagrams to support learners' self-monitoring and correction. Weekly perception and

production tasks required participants to submit recorded responses for feedback, creating an iterative cycle of practice, feedback, and revision before advancing to subsequent exercises. Figure 1 illustrates a sample slide from Week 1, designed to train target vowel sounds in isolation.

Figure 1

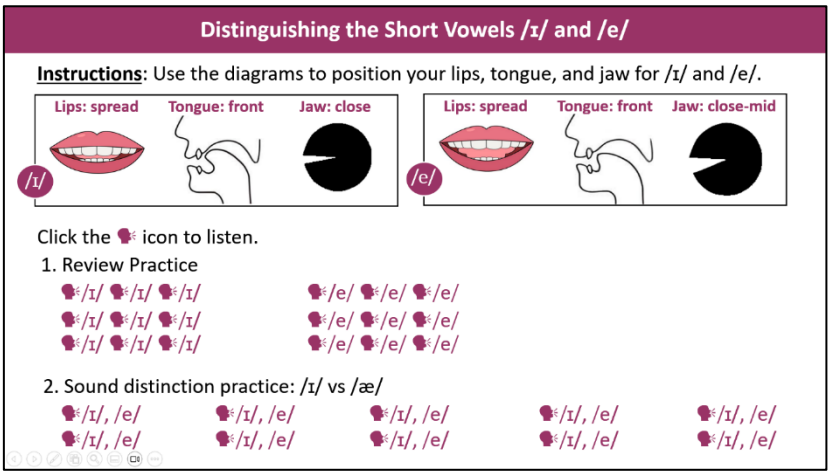
SVMC Instructional Slide for /ɪ/ Articulation and Practice



In Week 2, instruction focused on vowel pairs commonly influenced by STD vowel correspondences when compared to ST. Participants first listened to each vowel and repeated it three times across three rounds. They then alternated between paired vowels at least 10 times, or until satisfactory production was achieved. Figure 2 presents an example of this format using the /ɪ/ and /e/ contrast; the same approach was applied to other dialect-influenced vowel pairs.

Figure 2

SVMC Sound Distinction Practice for /ɪ/ and /e/



Weeks 3 and 4 reviewed earlier vowel contrasts and added initial and final consonants while maintaining the same instructional sequence. Although Figures 1 and 2 are presented in English for clarity, the instructional slides used in class were in Thai to minimize comprehension difficulties and allow learners to focus on vowel perception and production.

Feedback was provided both individually, through online comments on recordings, and collectively during class discussions of recurring pronunciation patterns. Participants revised and resubmitted recordings based on this feedback. The intervention, therefore, combined

auditory modeling, visual articulatory guidance, structured repetition, and corrective feedback within a consistent training sequence.

Although the intervention lasted four weeks, it was designed to provide focused and systematic phonetic practice within each session. Participants engaged in repeated perception–production cycles and received individualized feedback before progressing to subsequent exercises. Research has shown that short-term, explicit pronunciation instruction can produce measurable gains when training is structured and feedback-oriented (Saito, 2018). The SVMC was therefore intended to initiate phonological adjustment within a concentrated timeframe, while recognizing that continued practice may be necessary for long-term stabilization.

2.3.4 The Self-assessment Feedback Questionnaire

After the SVMC, a Thai self-assessment questionnaire was administered to evaluate participants' improvement and confidence in correcting short vowels. It included two closed-ended questions on correction ability and confidence, and one open-ended item for factors supporting their views (see Appendix D). This data helped compare self-perceptions with actual gains in perception and production.

3.3 Data Analysis

Data were analyzed using both quantitative and qualitative methods. Quantitative analysis examined perception and production test scores, comparing pretest and posttest performance within and between groups. Qualitative analysis explored participants' self-assessed confidence and open-ended feedback on the SVMC intervention.

The researcher and a native English speaker independently rated production accuracy using preset criteria. Inter-rater reliability yielded ICC = .991 (pretest) and .958 (posttest). A within-subjects design was used to compare pretest and posttest scores via paired-sample t-tests to assess changes, whereas cross-tabulation examined perception-production relationships in ST and STD groups. The self-assessment questionnaire data were analyzed descriptively.

Data from the second section of the questionnaires, which elicited factors participants believed influenced their pronunciation improvement, were analyzed thematically to identify common themes.

4. Findings

This section reports the results of the SVMC intervention on perception and production of short vowels for ST and STD participants. The findings are organized into three areas: (1) accuracy gains, (2) perception–production patterns, and (3) participant confidence and feedback.

4.1 Effectiveness of the SVMC on Short-Vowel Perception and Production Accuracy

Table 2 presents the pretest and posttest perception and production scores for the ST and STD groups. Both groups demonstrated improved short-vowel pronunciation accuracy in isolated words. Within-group comparisons indicate gains from pretest to posttest in both perception and production measures. Higher SVSC scores indicate more errors in perception and production.

Table 2

Short Vowels Perception and Production Accuracy: Pre- and Post-Short SVMC Analysis

		Pretest		Posttest					
	Max	*M*	*SD*	*M*	*SD*	*t*		*df*	*p*
ST (*n* = 43)									
Perception Test	18	17.16	1.132	17.35	1.152	1.274		42	.21
SVSC1		.09	.294	.05	.213	-1.000		42	.32
SVSC2		.37	.618	.14	.351	-2.892	**	42	.01
SVSC3		.14	.351	.05	.213	-1.666		42	.10
SVSC4		.02	.152	.02	.152	.000		42	1.00
SVSC5		.19	.450	.16	.433	-.374		42	.71
SVSC6		.02	.152	.19	.546	1.858		42	.07
Production Test	18	17.05	1.877	17.86	.639	2.697	**	42	.01
SVSC1		.16	.924	.00	.000	-1.155		42	.25
SVSC2		.05	.213	.09	.479	.813		42	.42
SVSC3		.05	.305	.07	.457	.274		42	.79
SVSC4		.58	1.367	.00	.000	-2.789	**	42	.01
SVSC5		.00[a]	.000	.00[a]	.000				
SVSC6		.12	.498	.07	.457	-.443		42	.66
STD (*n* = 45)									
Perception Test	18	16.04	2.044	16.78	1.757	2.388	*	44	.02
SVSC1		.09	.288	.11	.318	.374		44	.71
SVSC2		.58	.783	.20	.505	-3.145	**	44	.00
SVSC3		.44	.725	.09	.358	-2.874	**	44	.01
SVSC4		.60	.751	.38	.747	-1.812		44	.08
SVSC5		.04	.298	.00	.000	-1.000		44	.32
SVSC6		.20	.625	.29	.589	.813		44	.42
Production Test	18	17.00	1.206	17.96	.298	5.493	**	44	.00
SVSC1		.02	.149	.00	.000	-1.000		44	.32
SVSC2		.00a	.000	.00a	.000	n/a			
SVSC3		.20	.548	.00	.000	-2.449	*	44	.02
SVSC4		.62	1.114	.04	.298	-3.674	**	44	.00
SVSC5		.00a	.000	.00a	.000				
SVSC6		.16	.638	.00	.000	-1.636		44	.11

Note: SVSC1 = /ɪ/ → /e/, SVSC2 = /ʌ/ → /ɒ/, SVSC3 = /e/ → /ɪ/, SVSC4 = /e/ → /æ/, SVSC5 = /ɪ/ → /æ/ , SVSC6 = /ʊ/→ /ɒ/ ; * = $p < .05$ and ** = $p < .001$

Table 2 presents the pretest and posttest scores for the ST group ($n = 43$) and the STD group ($n = 45$). Both groups showed gains after the SVMC. For the ST group, the greatest perceptual improvement was in SVSC2, $t(42) = -2.89$, $p < .01$, and production improved in SVSC4 (/e/ → /æ/), $t(42) = -2.79$, $p < .01$. The STD group also improved in SVSC2, $t(44) = -3.15$, $p < .001$, and in SVSC3, where the mean error decreased from .44 to .09, $t(44) = -2.87$, $p = .001$. Production gains appeared in SVSC3, $t(44) = -2.45$, $p = .02$. and SVSC4, $t(44) = -3.67$, $p < .001$.

Overall, the results indicate gains in short-vowel perception and production for both ST and STD groups following the SVMC intervention.

4.2 Interplay between Perception and Production of Short Vowels

This section presents the pretest and posttest results on the relationship between speech perception and speech production across the six SVSCs. Because perception and production are closely related, responses from participants in both groups were categorized into three patterns: (1) Pattern 1: perception–production alignment, (2) Pattern 2: accurate perception with inaccurate production, and (3) Pattern 3: inaccurate perception with accurate production. The analysis compares the proportion of Pattern 1 responses in the pretest and posttest.

Table 3

Pre- and Post-SVMC Test Results: Interplay between Short-Vowel Perception and Production

Item / Test Phase	Pattern	ST (n=43)		STD (n=45)		χ^2 (2, N=88)	p	V
		n	%	n	%			
SVSC1 (/ɪ/ → /e/)								
Pretest	1	37	86.05	40	88.89	0.41	.817	0.07
	2	4	9.30	4	8.89			
	3	2	4.65	1	2.22			
Posttest	1	41	95.35	40	88.89	1.25	.263	0.12
	2	2	4.65	5	11.11			
	3	0	0	0	0			
SVSC2 (/ʌ/ → /ɒ/)								
Pretest	1	30	69.77	26	57.78	1.44	.487	0.13
	2	9	20.93	14	31.11			
	3	4	9.3	5	11.11			
Posttest	1	35	81.4	38	84.44	2.16	.34	0.16
	2	6	13.95	7	15.56			
	3	2	4.65	0	0			
SVSC3 (/e/ → /ɪ/)								
Pretest	1	37	86.05	28	62.22	6.56	.038*	0.27
	2	5	11.63	13	28.89			
	3	1	2.33	4	8.89			
Posttest	1	40	93.02	42	93.33	1.2	.548	0.12
	2	2	4.65	3	6.67			
	3	1	2.33	0	0			
SVSC4 (/e/ → /æ/)								
Pretest	1	28	65.12	19	42.22	5.31	.07	0.25
	2	6	13.95	14	31.11			

Item / Test Phase	Pattern	ST (*n*=43)		STD (*n*=45)		χ^2 (2, *N*=88)	*p*	*V*
		n	%	*n*	%			
	3	9	20.93	12	26.67			
Posttest	1	37	86.05	33	73.33	2.66	.265	0.17
	2	6	13.95	11	24.44			
	3	0	0	1	2.22			
SVSC5 (/ɪ/ → /æ/)								
Pretest	1	42	97.67	44	97.78	0.01	.974	0.03
	2	1	2.33	1	2.22			
	3	0	0	0	0			
Posttest	1	42	97.67	45	100	1.06	0.304	0.11
	2	1	2.33	0	0			
	3	0	0	0	0			
SVSC6 (/ʊ/ → /ɒ/)								
Pretest	1	39	90.7	38	84.44	1.77	0.413	0.14
	2	1	2.33	4	8.89			
	3	3	6.98	3	6.67			
Posttest	1	37	86.05	35	77.78	2.68	0.262	0.17
	2	5	11.63	10	22.22			
	3	1	2.33	1	1.14			

Note: SVSC1 = /ɪ/ → /e/, SVSC2 = /ʌ/ → /ɒ/, SVSC3 = /e/ → /ɪ/, SVSC4 = /e/ → /æ/, SVSC5 = /ɪ/ → /æ/, SVSC6 = /ʊ/→ /ɒ/; * = $p < .05$

In the pretest, no significant associations were found between group and response type for SVSC1, SVSC2, SVSC5, or SVSC6. A significant association was observed for SVSC3, $\chi^2(2, N = 88) = 6.56$, $p = .038$. The association for SVSC4 was not statistically significant, $\chi^2(2, N = 88) = 5.31$, $p = .07$. For the remaining correspondences, no statistically significant associations were found between group and response type.

An increase in Pattern 1 responses was observed in the posttest. For SVSC2, Pattern 1 increased from 63.64% to 82.95%, with corresponding decreases in Patterns 2 and 3. For SVSC3, Pattern 1 increased from 73.86% to 93.18%. For SVSC4, Pattern 1 increased from 53.41% to 79.55%, and Pattern 3 decreased substantially from 23.86% to 1.14%. Across all six SVSCs, posttest chi-square results indicated no significant associations between group and response type. Percentage gains differed between groups across SVSCs. Detailed pretest and posttest accuracy percentages and gains for each group are presented in Table 4.

Table 4

Pretest and Posttest Accuracy and Gain in Short-Vowel Perception and Production

SVSCs	Group	Pretest Accuracy (%)	Posttest Accuracy (%)	Gain (%)
SVSC1	ST	86.05	95.35	9.30
	STD	88.89	88.89	0.00
SVSC2	ST	69.77	81.40	11.63
	STD	57.78	84.44	26.66
SVSC3	ST	86.05	93.02	6.97
	STD	62.22	93.33	31.11
SVSC4	ST	65.12	86.05	20.93
	STD	42.22	73.33	31.11
SVSC5	ST	97.67	97.67	0.00
	STD	97.78	100.00	2.22
SVSC6	ST	90.70	86.05	-4.65
	STD	84.44	77.78	-6.66
Total	ST	82.56	89.59	7.03
	STD	72.89	86.63	13.74

Note: SVSC1 = /ɪ/ → /e/, SVSC2 = /ʌ/ → /ɒ/, SVSC3 = /e/ → /ɪ/, SVSC4 = /e/ → /æ/, SVSC5 = /ɪ/ → /æ/, SVSC6 = /ʊ/→ /ɒ/

Table 4 presents the pretest–posttest changes in perception and production for both groups. The ST group improved by 7.03% overall (82.56% to 89.59%), whereas the STD group improved by 13.74% (72.89% to 86.63%). Percentage gains varied across contrasts for both groups.

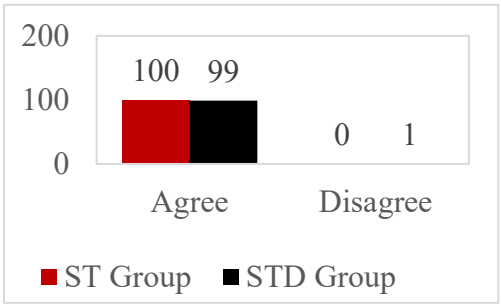
Gains were observed in SVSC2, SVSC3, and SVSC4, with higher percentage increases in the STD group than in the ST group. In SVSC3, the STD group increased by 31.11% (62.22% to 93.33%), compared with the ST group's 6.97% (86.05% to 93.02%). Comparable numerical patterns were observed in SVSC2 and SVSC4. Changes in the remaining contrasts were more limited; SVSC1 improved only for the ST group (+9.30%), and SVSC6 declined for both groups.

4.3 Learner Self-Assessments of Pronunciation Accuracy and Confidence

Self-assessments administered following the SVMC showed that all ST participants (100%) and nearly all STD participants (99%) reported improved short-vowel pronunciation, presented in Figure 3. Open-ended responses frequently mentioned fewer pronunciation errors and increased confidence in producing short-vowel contrasts.

Figure 3

Participants' Self-Assessments of Improvement in Short-Vowel Pronunciation after the SVMC



Participants answered an open-ended question in the self-assessment questionnaire and identified five factors they believed contributed to their short-vowel pronunciation accuracy and confidence: (1) structured pronunciation practice, (2) articulatory positioning awareness, (3) corrective feedback, (4) phonemic awareness, and (5) multi-modal instructional materials. Figure 4 presents the frequency with which each factor was reported by ST and STD participants.

Figure 4

Factors Influencing Short-Vowel Pronunciation Accuracy and Confidence

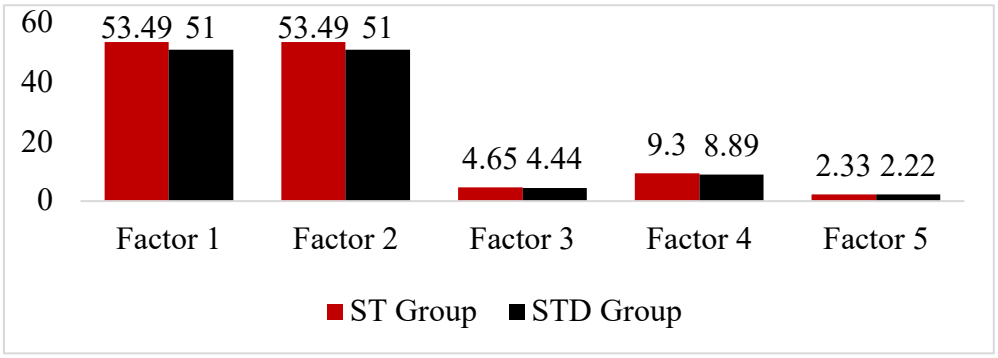


Figure 4 presents the distribution of reported factors across the ST and STD groups. Structured pronunciation practice (Factor 1) and articulatory positioning awareness (Factor 2) were reported by 53.49% of ST participants and 51.00% of STD participants. Corrective feedback was reported by 4.65% of ST participants and 4.44% of STD participants. Phonemic awareness was reported by 9.30% of ST participants and 8.89% of STD participants. Multi-modal instructional materials were reported by 2.33% of ST participants and 2.22% of STD participants. In addition, participants rated their confidence in pronouncing short vowels after completing the SVMC. Figure 5 illustrates the relationship between participants' confidence ratings and improvements in short-vowel pronunciation accuracy.

Figure 5

Comparison of Participants' Self-Confidence Levels in Short-Vowel Pronunciation Accuracy Before and After the SVMC

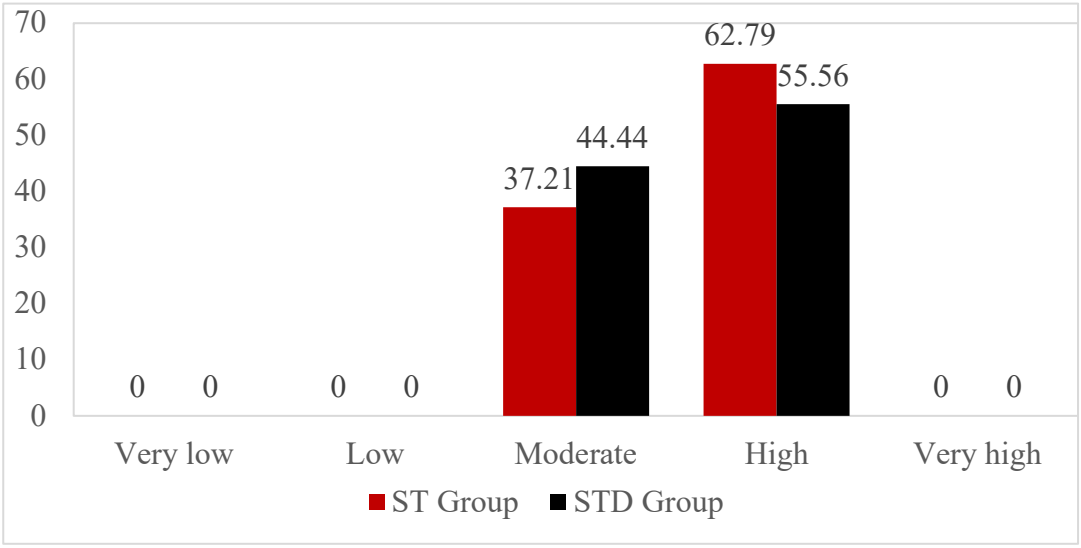


Figure 5 presents self-reported confidence levels after completing the SVMC. A total of 62.79% of ST participants and 55.56% of STD participants reported high confidence. The remaining participants in both groups reported moderate confidence, with no participants selecting low, very low, or very high confidence levels.

In summary, Figures 3–5 revealed the SVMC's strong impact on pronunciation accuracy, awareness of key improvement factors, and confidence. Nearly all participants reported progress (Figure 3). Structured pronunciation practice and articulatory positioning awareness were rated as the most influential (Figure 4), particularly by the ST group. Moreover, confidence gains were notable in both groups, with ST showing slightly higher levels of high confidence (Figure 5) after the SVMC. This intervention included explicit phonetic instruction with corrective feedback.

5. Discussion

This study investigated the effectiveness of the SVMC in enhancing short-vowel perception and production among Thai EFL learners. Overall, both ST and STD participants demonstrated improvement, although the extent and patterns of change differed between the groups. The discussion considers (1) the instructional value of the SVMC and its key components and (2) the differential effects observed in relation to L1 interference and RLC.

5.1 Instructional Impact of the SVMC on Short-Vowel Accuracy

This study investigated the effectiveness of the SVMC in enhancing short-vowel perception and production among Thai EFL learners. Overall, both ST and STD participants demonstrated improvement following the intervention, although the extent and patterns of change differed between the groups. This section discusses the instructional value of the SVMC and examines how learners influenced by L1 interference and regional language contact responded differently to the training.

First, the observed gains in both perception and production suggest that explicit phonetic instruction combined with corrective feedback can address pronunciation challenges

associated with L1 interference and RLC (Chen et al., 2022; Derwing & Munro, 2005). Improvements were particularly evident in vowel contrasts that require fine phonetic discrimination and articulatory adjustment, such as /e/–/ɪ/ and /e/–/æ/. These contrasts involve subtle acoustic and articulatory distinctions that often present difficulties for learners influenced by dialectal variation. The pattern of improvement suggests increased sensitivity to language-specific phonetic cues (Stratton, 2023) and greater control over articulatory positioning.

The multisensory design of the SVMC likely contributed to these outcomes. Explicit phonetic instruction grounded in a phonics-based approach, supported by visual articulatory cues, IPA guidance, audio speech models, and individualized online corrective feedback, provided learners with multiple input channels. Such integrated training may have strengthened auditory discrimination and production accuracy, consistent with findings by Ganapathy and Seetharam (2016) and Gick and Derrick (2009). These components may also have facilitated learners' ability to notice and refine subtle vowel distinctions, aligning with Schmidt's (1990) Noticing Hypothesis.

Corrective feedback appeared to play a central role in facilitating improvement. Individualized articulatory feedback enabled learners to monitor and adjust their production more effectively, reinforcing the value of explicit phonetic guidance (Syakira & Nur, 2022). Although Lingua Franca perspectives emphasize intelligibility rather than native-like accuracy, certain vowel distinctions remain essential for clear communication (Jenkins, 2005). In this respect, focused instruction on English short vowel contrasts remains pedagogically justified. Views on native- and non-native-speaker standards continue to shape expectations in pronunciation teaching. In many EFL contexts, expecting native-like pronunciation may not be realistic. However, attention to key vowel distinctions can improve clarity and communicative effectiveness without promoting strict native-speaker standards.

Second, differences between the ST and STD groups highlight the distinct roles of L1 interference and RLC. Greater variability in the STD group suggests the influence of entrenched dialectal vowel patterns. STD learners regularly use STD in everyday communication, ST in formal contexts, and English as a foreign language. Managing these systems may make phonological adjustment more demanding. Even when English short vowels correspond more closely to ST categories, dialectal vowel shifts may continue to shape production patterns.

In contrast, ST participants demonstrated steadier improvement following the intervention. While their L1 phonology aligns more closely with short vowels, exposure to Southern Thai through RLC may introduce occasional competing patterns. Errors associated with situational dialect exposure may be more responsive to explicit instruction than those rooted in stable L1 phonological categories (Major, 2001; Weinreich, 1968). Together, these findings underscore how different sources of phonological influence shape learners' responsiveness to targeted pronunciation instruction.

5.2 Explaining the Perception–Production Relationship

Another objective of the study was to examine the relationship between perception and production across the six SVSC items. The increased perception–production alignment observed after the SVMC suggests that the intervention strengthened the connection between how learners identified vowel contrasts and how they articulated them. The reduction in

mismatch patterns suggests closer coordination between perceptual judgments and speech production.

This pattern aligns with research suggesting that improved perceptual sensitivity can support more accurate articulation (Schmidt, 1990, 2001; Steed & Delicado, 2014). When learners become more aware of subtle phonetic distinctions, they may develop more stable phonological representations, which in turn facilitate more consistent production (Flege, 1995). The overall shift toward greater alignment, therefore, reflects not only improved accuracy but also strengthened integration between perception and production processes.

However, differences between the ST and STD groups suggest that this interplay is shaped by learners' linguistic backgrounds. While both groups showed increased alignment following instruction, greater variability among STD learners may reflect the influence of multiple phonological systems. From a PAM-L2 perspective (Best & Tyler, 2007), unfamiliar L2 sounds are assimilated to existing L1 categories. For STD learners, vowel categories from the STD may interact with ST representations when processing English vowels. The coexistence of these systems may create competing phonological cues during both perception and production.

This perspective extends beyond noticing alone. Although heightened awareness of vowel contrasts is important, entrenched L1 dialect categories may continue to influence categorization even after explicit instruction. In contrast, pronunciation patterns influenced primarily by RLC may be less firmly established and therefore more responsive once attention is directed to the relevant contrasts. The strengthening of perception–production alignment observed in this study may thus reflect gradual phonological restructuring influenced by the type of prior linguistic experience learners bring to instruction.

Overall, the findings suggest that the SVMC supported closer alignment between perception and production, although the degree of alignment depended on whether learners' pronunciation patterns were rooted in stable L1 interference or in more flexible dialect exposure.

5.3 Interpreting Learner Self-Assessments of Accuracy and Confidence

Following the SVMC, participants completed a self-assessment questionnaire to reflect on their short-vowel pronunciation and confidence. Most participants reported improvement in their short-vowel accuracy, which they attributed to increased awareness of vowel distinctions and improved articulatory control. This pattern is consistent with previous research showing that explicit phonetic instruction and corrective feedback can positively influence learners' perception of progress (Derwing & Munro, 2005; Mesmer & Griffith, 2005; Pardede, 2018; Saito, 2007).

At the same time, differences in objective performance between the ST and STD groups remained. This highlights that perceived improvement and measurable production accuracy may not develop at the same pace. The comparatively lower performance of STD learners may be related to greater phonological distance between STD and English vowel systems (Thichinpong, 2006; Thongchuay, 1991). When L1 and target language vowel systems diverge, pronunciation patterns may be more resistant to change (Best & Tyler, 2007; Saito, 2007).

Participants identified structured pronunciation practice and articulatory positioning awareness as the most helpful components of the SVMC. These perceptions align with prior findings that focused phonetic training can strengthen articulatory precision and phonological

awareness (Derwing & Munro, 2005; Pardede, 2018). Corrective feedback was mentioned less frequently, which may indicate that learners increasingly relied on internal monitoring. Such self-regulation is consistent with Schmidt's (1990, 2001) argument that conscious attention to form supports durable phonological development.

The gains in confidence are also noteworthy. Both groups reported moderate to high confidence after the intervention, suggesting that structured pronunciation practice can enhance not only technical accuracy but also learners' sense of communicative competence. The concept of the Halo Effect in social psychology suggests that positive evaluations in one domain may influence judgments in other domains. In language contexts, pronunciation has been shown to shape listeners' perceptions of competence and credibility (Derwing & Munro, 2009; Lev-Ari & Keysar, 2010). From this perspective, increased pronunciation confidence may reduce anxiety about negative evaluation and support more active communication.

Overall, the SVMC appears to have supported both phonological development and learner confidence. Although learners affected by more persistent L1 interference may require sustained practice, structured phonetic instruction combined with articulatory awareness and guided feedback can promote measurable improvement alongside increased self-assurance.

In summary, the findings demonstrate the effectiveness of the SVMC in improving short-vowel perception, production, and learner confidence while addressing challenges related to L1 interference and RLC. The structured and multisensory design of the intervention appears to have supported both phonological accuracy and self-assurance. At the same time, differences between ST and STD learners highlight the continued influence of L1 phonological background on the rate and stability of improvement. These findings point to the value of targeted instruction, sustained corrective feedback, and explicit articulatory guidance, particularly for learners whose pronunciation patterns are shaped by more entrenched L1 influence.

6. Limitations and Recommendations

Since this research was conducted in Southern Thailand, the generalizability of its findings may be limited. Additionally, the intervention's duration may have been insufficient to assess long-term effects. Future research should involve larger, more diverse samples and extended training periods to address these issues.

Future applications should continue emphasizing explicit instruction and corrective feedback to improve vowel perception and production, particularly in EFL contexts affected by L1 or dialectal interference. According to Robinson (2018), context in L2 learning is valuable; therefore, future research could explore contextualized tasks to confirm the results of this study, which focused on isolated word tasks. Enhancing pronunciation, especially contrasts such as /æ/–/e/, supports intelligibility, which is important for academic and professional communication. Consistent with Schmidt's (1990, 2001) Noticing Hypothesis, raising learners' awareness was beneficial. However, further research is needed on long-term retention and the impact of sustained or repeated training for lasting improvement.

7. Conclusion

This study demonstrates that the SVMC, an explicit phonetic training program incorporating multisensory learning and corrective feedback, significantly enhanced short-vowel pronunciation accuracy among EFL learners in Southern Thailand. The program

increased participants' awareness of L1-English vowel differences, improving perception and production. Notably, it reduced STD interference and improved the articulation of challenging vowels like /æ/, previously substituted with /e/. Findings support Schmidt's (1990, 2001) Noticing Hypothesis, emphasizing conscious awareness in phonological acquisition. Immediate post-training gains underscore SVMC's effectiveness. The study highlights the importance of structured, targeted phonetic training combining phonics-based instruction, multisensory strategies, and feedback to address persistent L1-related pronunciation challenges. These results suggest the SVMC's approach may benefit other L2/L3 learners facing similar phonological difficulties.

8. About the Author

The author teaches English and linguistics at the Department of Foreign Languages, Faculty of Liberal Arts, Prince of Songkla University, Thailand, and her academic work focuses on phonetics, phonology, English pronunciation, and applied linguistics.

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10. Declaration of AI Use

The authors declare that ChatGPT (OpenAI, GPT-5.1) was used solely for grammar correction.

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12. Appendix

Appendix A

Language Background Questionnaire

Instructions: Please complete the questionnaire by marking ✓ in the ○ or filling in the requested information.

Note: All responses will be kept confidential and used solely for research purposes.

1. Gender
   ○ Male ○ Female ○ Other: _____

2. Age
   ○ 20 years or younger ○ 21–25 years ○ Older than 25 years

3. First Language (L1)
   ○ Standard Thai ○ Southern Thai Dialect
   ○ Malay / Local Malay Dialect ○ Other (please specify): _____

4. Language primarily used in academic/formal settings
   ○ Standard Thai ○ Southern Thai Dialect
   ○ Malay / Local Malay Dialect ○ Other (please specify): _____

5. Language primarily used in informal daily interactions (e.g., with family and close friends)
   ○ Standard Thai ○ Southern Thai Dialect
   ○ Malay / Local Malay Dialect ○ Other (please specify): _____

6. Hometown (Province of Birth and Upbringing)

○ Krabi	○ Chumphon	○ Trang	○ Nakhon Si Thammarat
○ Narathiwat	○ Pattani	○ Phang Nga	○ Phatthalung
○ Phuket	○ Ranong	○ Satun	○ Songkhla
○ Surat Thani	○ Yala	○ Other (please specify): _____	

Appendix B

Complete Speech Perception Test Instrument

Instructions

1. The test contains 18 items. Please complete all items.
2. Items must be answered in order, and you cannot go back to previous items.
3. Click the speaker icon 🗣 to hear each word three times, then select the word that matches what you hear.

Test Items	Test Items
1. 🗣 (Click to hear "pit") ○ pit ○ pet	10. 🗣 (Click to hear "wit") ○ wet ○ wit
2. 🗣 (Click to hear "deck") ○ dick ○ deck	11. 🗣 (Click to hear "cut") ○ cot ○ cut
3. 🗣 (Click to hear "hut") ○ hot ○ hut	12. 🗣 (Click to hear "neck") ○ neck ○ Nick
4. 🗣 (Click to hear "fit") ○ fat ○ fit	13. 🗣 (Click to hear "set") ○ sat ○ set
5. 🗣 (Click to hear "bet") ○ bet ○ bat	14. 🗣 (Click to hear "chit") ○ chit ○ chat
6. 🗣 (Click to hear "cook") ○ cock ○ cook	15. 🗣 (Click to hear "look") ○ look ○ lock
7. 🗣 (Click to hear "nut") ○ nut ○ not	16. 🗣 (Click to hear "met") ○ met ○ mat
8. 🗣 (Click to hear "hit") ○ hat ○ hit	17. 🗣 (Click to hear "bit") ○ bet ○ bit
9. 🗣 (Click to hear "peck") ○ pick ○ peck	18. 🗣 (Click to hear "hook") ○ hock ○ hook

Appendix C
Complete Speech Production Test Instrument

Instructions
1. Read aloud all 18 words, pronouncing each one twice.
2. Record a video showing only the lip area while reading. Ensure clear audio with no background noise, then send the video link to the researcher through the assigned channel. Note: Hold the smartphone horizontally, with the microphone on the right side.

	Test Items		Test Items		Test Items
1.	pit	7.	nut	13.	set
2.	bit	8.	cut	14.	bet
3.	wit	9.	hut	15.	met
4.	fit	10.	peck	16.	cook
5.	chit	11.	deck	17.	look
6.	hit	12.	neck	18.	hook

Scoring Criteria: Production responses were scored as 1 (correct) or 0 (incorrect) based on vowel quality accuracy.

Correct (1): The vowel produced matched the target English short vowel phoneme. Minor variations in vowel duration or surrounding consonant articulation did not affect scoring.

Incorrect (0): The vowel produced deviated from the target, resulting in substitution with another vowel phoneme, which could alter word meaning.

Note: Pronunciation errors unrelated to the six target short vowel contrasts (e.g., consonant mispronunciations, aspiration of initial consonant sounds) were noted but excluded from scoring.

Appendix D
Post-SVMC Questionnaire on Confidence in Pronouncing English Short Vowel Sounds

Instructions: Please respond to the following items based on your experience after completing the SVMC. Mark ✓ in the appropriate ○ and provide written responses where requested.

1. Following completion of the SVMC, how would you describe your ability to pronounce English short vowel sounds?
   ○ Improved (Proceed to Question 2) ○ No noticeable change (Proceed to Question 3)

2. If you selected “Improved,” please describe the factors that contributed to your improvement.

_____

_____

3. If you selected “No noticeable change,” please explain the reasons.

_____

_____

4. How has your confidence in pronouncing English short vowel sounds changed after completing the SVMC?

○ Decreased significantly ○ Decreased slightly ○ Remained the same
○ Increased slightly ○ Increased significantly