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Thai deaf students' writing errors: The influence of Thai sign language and interlanguage development in L2 Thai acquisition

Nattawit Suppasin, Sarawut Kraisame*,†

Research Institute for Languages and Cultures of Asia, Mahidol University, Nakhon Pathom 73170, Thailand

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Abstract

This study investigates linguistic errors in written Thai as a second language (L2) among Thai deaf students, emphasizing the influence of Thai Sign Language (ThSL) grammar. Data were collected from six ThSL teachers, two native Thai speakers, and ten deaf students. The students completed narrative writing tasks based on two picture books over four tests. The research revealed that certain syntactic errors were influenced by ThSL grammar, whilst others originated from interlanguage development. Errors associated with ThSL included the omission of subjects, copulative and existential verbs, conjunctions, and verb misorderings. Errors unaffected by ThSL comprised the omission of verbs, objects, and locative phrases, in addition to overinclusions and misselections. Throughout four tests, the incidence of errors diminished; still, structural misordering remained, indicating challenges in syntactic transfer. Factors contributing to errors encompass inadequate exposure to standard Thai, the intricacies of Thai grammar, cognitive overload, and suboptimal teaching approaches. These findings highlight the importance of employing ThSL in literacy education for deaf children and the need for thorough contrastive grammar training.

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* Corresponding author.
E-mail address: sarawut.kra@mahidol.ac.th (Kraisame, S.).
† Co-first authors.

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Introduction

Writing is a basic skill in language acquisition that allows individuals to communicate, construct meaning, and engage in academic and professional discourse. However, writing acquisition in deaf students is marked with certain linguistic and cognitive challenges, namely, when their native or first language (L1) is a signed instead of a spoken one. Deaf students who acquire written language as a second language (L2) are likely to exhibit grammatical errors influenced by their L1 syntax, which is a result of differences in linguistic structure, modality, and cognitive processing (Knoors & Marschark, 2014; Strassman & Schirmer, 2013).

In Thai deaf students, Thai Sign Language (ThSL) is a native language, and written Thai is a L2 learned in formal education. ThSL is different from spoken Thai in that it is a visual-spatial modality and a topic-comment construction, as opposed to Thai's subject-verb-object (SVO) word order (Thepud, 2005). Thai deaf students therefore have syntactic transfer problems, with resultant word order errors, subject omission, verb selection errors, and conjunction use. Similar trends have been noted in other signed languages, for instance, American Sign Language (ASL) and German Sign Language (DGS) (Plaza-Pust, 2016; Wolbers et al., 2014), in which learners' written English has sign-influenced errors.

Linguistic research has revealed that as their access to written language is delayed and mediated through signed instead of spoken forms, deaf students are usually behind hearing students in writing skills (Lederberg et al., 2012; Mayberry, 2007;). While deaf students usually learn to write Thai via direct instruction without hearing feedback, hearing students learn to speak Thai before writing. This produces two main challenges:

- Structural Transfer from ThSL to Thai Writing: Morphosyntactic errors from differences between signed and spoken languages can be omissions of copulative verbs such as เป็น ‘to be’ or misusage of conjunctions.

- L2 Students' Interlanguage: With greater L2 writing proficiency, interlanguage features emerge, with progressive internalization of rules causing changing errors (Selinker, 1972).

Previous research has explored overall writing errors in Thai deaf learners (Thepud, 2005) but has not systematically differentiated between ThSL-influenced errors and overall interlanguage developmental errors. It is crucial to have a knowledge of how L1 (ThSL) and L2 (written Thai) interact in order to develop effective literacy interventions.

Research Gaps and the Significance of the Study

Although studies on second language writing errors are increasing, few have methodically investigated how ThSL's structure might influence errors in written Thai. While past studies like Thepud (2005) have offered descriptive assessments of errors, little study has been done on how teaching tactics affect error reduction or how error patterns change with time.

Moreover, whereas contrastive analysis approaches have been extensively used in L2 writing in spoken languages (James, 2013), their application in sign language settings is still mostly unrecorded. Research on American Sign Language (ASL) and written English, as well as, German Sign Language (DGS) and written German (Plaza-Pust, 2016; Wolbers et al., 2014) points to targeted training in contrastive grammar improving deaf students' writing ability. Still, such strategies have not been methodically applied in the Thai educational system.

Research Objectives

This study aims to address these gaps by investigating the effect of ThSL on the writing of Thai deaf students and tracking the development of interlanguage among several writing assessments. The main goals of this study are as follows:

- To categorize and examine writing errors in Thai compositions created by deaf students.

- To Differentiate common L2 developmental errors from those affected by ThSL.

- To evaluate how teaching comments affect error decrease over time.

Research Questions

These objectives lead to the following research questions:

- What types of errors in Thai writing are influenced by ThSL?

- How can feedback be used to gradually eliminate mistakes over time?

- What instructional strategies can help reduce ThSL interference in L2 Thai writing?

Implications of the Study

By determining the particular impact of ThSL on Thai writing and tracking interlanguage development over several

writing activities, this study advances both linguistics and instructional practice.

The results will help in numerous respects:

- Teachers can use contrastive lessons specifically addressing L1-L2 syntactic variances.
- Curriculum developers can create more successful L2 writing courses specifically for deaf students.
- Linguistically, models of interlanguage development in bilingual-bimodal settings can be improved.

All things considered, this study offers insightful analysis that promotes linguistic studies on sign-influenced L2 writing and helps Thai deaf students to have better literacy results.

Literature Review

Language Acquisition and Writing Challenges in Deaf Students

Deaf people learn language differently than hearing people due to early language exposure. Deaf children learn sign language spontaneously, but most are born to hearing parents, delaying language development (Mayberry, 2007; Newport & Meier, 1985). Early and rich exposure to a fully accessible L1 enhances cognitive and linguistic development and L2 reading skills (Cummins, 2006; Gärdenfors, 2023; Hall et al., 2017; Niederberger, 2008).

Research indicates that the written language competency of deaf students is inferior to that of their hearing peers, attributable to variations in modality (signed versus written language) and structural discrepancies (Knoors & Marschark, 2014). Studies indicate that deaf students frequently have difficulties with sentence form, morphology, and discourse coherence (Dostal & Wolbers, 2014; Strassman & Schirmer, 2013; Williams & Mayer, 2015).

Methodology

Participants

The study comprised six deaf Thai Sign Language (ThSL) teachers, all of whom are native ThSL users with expertise in sign language linguistics.

Two native Thai speakers, both proficient in ThSL, participated to ensure precise error classification.

Teachers of ThSL and native Thai speakers collaboratively assessed the writing of deaf students to examine the influence of ThSL on their Thai writing skills.

Ten Thai deaf students between the ages of 18 and 20 who were selected from a university to participate. The Thai deaf students use ThSL as their primary communication method and are descended from a number of deaf schools throughout Thailand. This diverse educational background offers a thorough understanding of the substantial linguistic obstacles encountered by deaf pupils in Thailand.

Data Collection

The research gathered 40 writing samples from Thai deaf students. The samples originated from writing assignments related to two picture books: "Frog Where Are You?" (Mayer, 1969) and "A Boy, a Frog, and a Dog" (Mayer, 1978). These picture books were selected for their simplicity and capacity to inspire narrative writing, rendering them appropriate for assessing students' written language proficiency.

Students engaged in four narrative writing tests derived from picture books for data gathering. **Writing Test 1:** Preliminary composition on 'A Boy, a Frog, and a Dog' without critique. **Writing Test 2:** Amended iteration of Test 1 following critique. Composition **Writing Test 3:** Composition on 'Frog, Where Are You?' **Writing Test 4:** Amended iteration of Test 3 subsequent to critique.

This iterative procedure facilitated the examination of alterations and enhancements in students' writing over time, yielding insights into the effects of feedback and training.

After the first and third writing tests, the researcher delivered comprehensive, organized feedback emphasizing student intention, error correction, alternative phrasing, and grammatical structure. Students changed their papers upon the receipt of this structured feedback. ThSL served as the medium of teaching in these sessions to facilitate clear communication and comprehension,

with the objective of assisting students in internalizing errors and implementing them in future writing assignments.

Analysis and Interpretation of Data

The data analysis is a systematic, multi-tiered procedure designed to discover linguistic errors in Thai writing among deaf students, assess the impact of ThSL on these errors, and explore broader educational implications. The analysis includes several fundamental components: error analysis, contrastive

analysis, quantitative analysis, and critical insight during the feedback session.

The error analysis adheres to James' (2013) methodology, a methodical strategy for classifying linguistic errors. This paradigm delineates five primary categories of errors: Omission (absence of essential subjects, verbs, or other components), Overinclusion (insertion of superfluous words), Misselection (erroneous lexical or grammatical choices), Misordering (disruption of syntax due to inappropriate word arrangement), and Blending (convergence of several structures into non-standard forms). This classification offers a coherent framework for examining the syntactic difficulties encountered by deaf students in acquiring written Thai. All 40 writing samples were rigorously examined using this methodology to systematically identify and categorise faults, providing a thorough insight of students' writing difficulties.

A contrastive analysis was done to assess the influence of Thai Sign Language (ThSL) on students' writing errors by comparing ThSL structures with Thai writing conventions. This study adapted analytical frameworks from Bishop and Hicks (2005), Plaza-Pust (2016), Valli et al. (2000), and Wolbers et al. (2014), which were originally developed for American Sign Language (ASL) and German Sign Language (DGS) concerning English and German writing, as no prior research has specifically examined this influence. This adaptation considered syntactic differences between ThSL and ASL (or DGS) and grammatical distinctions among Thai, English, and German. To guarantee accuracy, ThSL educators and native Thai speakers authenticated the analysis. Indicators of ThSL influence were subject omission, omission of copulative, existential verbs, and conjunctions, as well as verb misordering, demonstrating direct syntactic transfer from ThSL. The indicators are encapsulated in Table 1

Errors not attributable to ThSL effect were analyzed independently, taking into account characteristics such as restricted exposure to written Thai, cognitive processing limitations, and difficulty associated with second-language acquisition. This classification guaranteed that mistake analysis was methodical, linguistically based, and differentiated between sign language transfer and other learning challenges.

The errors were classified and measured for each writing assessment. These data were utilized to generate graphs illustrating the quantity of errors categorized by kind and sentence structure for each assessment. The graphic representations offered a concise summary of the students' mistake patterns and their development throughout the four writing tasks.

The research also evaluated the efficacy of feedback and instruction in mitigating these errors, offering significant insights into the feasibility of utilizing ThSL as a medium for L2 Thai writing teaching for deaf students. The methodology is encapsulated in Figure 1.

Table 1 Indicators of ThSL influence

Error type	ThSL Characteristic Leading to the Error	Example in ThSL	Example in Thai Writing
Subject Omission	ThSL allows dropping subjects when context is clear	|TIMBER| |$CL_{timber\text{-}left}$-$CL_{person\text{-}right}$-GO|	/cʰăn.pay.tʰî:.kʰɔ̌:n.má:y/ I go at timber 'I went to the timber'
Copulative Omission	No direct equivalent of "to be" in ThSL	|$HE_{pointing\ at\ 3rd\ person\ spatial}$| |FRIEND|	/kʰăw.pen.pʰûː.cʰăn/ he is friend my 'He is my friend'
Verb Misordering	ThSL follows a topic - comment, verb-ending structure rather than SVO	|RIVER| |FROG| |CL_{frog}-STAY|	/kòp.yù:.tʰî:.mæ̂:.ná:m/ frog stay at river 'The frog was in the river'

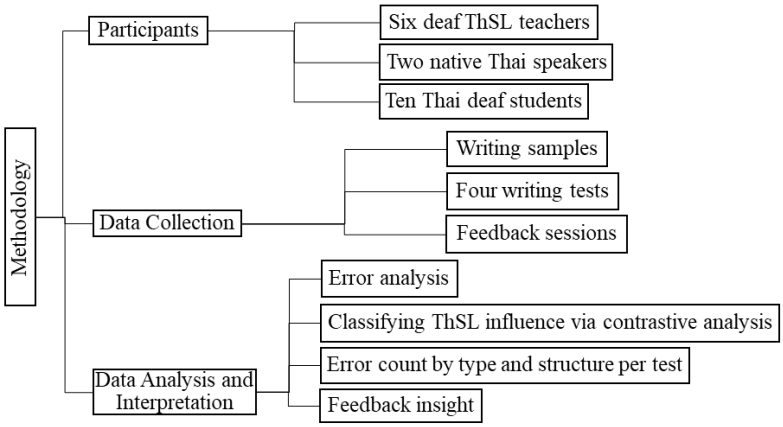


Figure 1 Summary of methodology

Results

Errors in the writing of deaf students included omissions, overinclusions, misselections, misorderings, and blending. Among them, omissions were the most prevalent, manifesting across all sentence structures and signifying syntactic transfer from ThSL. Other error categories were seen with lesser frequency, with coordinate sentences displaying the highest incidence of errors, followed by transitive and intransitive sentences.

Throughout the four writing tests, a cumulative total of 419 errors were detected, with fluctuations in frequency offering insights into the effects of feedback and teaching. Although misselection and overinclusion errors decreased over time, indicating effective intervention, misordering errors persisted, highlighting the students' challenges in adapting to Thai SVO syntax. The persistent occurrence of misordering mistakes underscores the necessity for focused education to more effectively address the structural disparities between ThSL and Thai.

The initial writing test indicated the greatest frequency of errors, with omissions being the most common. Omissions constituted 204 errors (48.7%), followed by misselections at 11 (2.6%), misordering at 9 (2.1%), and overinclusions at 5 (1.2%). In terms of error frequency in sentences, coordinate sentences accounted for 76 errors (18.1%), followed by transitive with 69 errors (16.5%), intransitive with 62 errors (14.8%), subordinate with 14 errors (3.3%), and both copulative and existential with 4 errors each (1%). This test underscored the students' preliminary difficulties with sentence completion and grammatical precision.

In response to comments, the second test demonstrated a notable decrease in errors, especially in omissions and misselections. The number of omissions declined to 32 (7.6%), and misselections reduced to 7 (1.7%). Misordering and blending, however, rose little to 12 (2.9%) and 3 (0.7%), respectively. Overinclusions exhibited relative stability. The number of errors in sentences decreased, with coordinate falling to 17 (4.1%), intransitive to 16 (3.8%), transitive to 15 (3.6%), and existential to 3 (0.7%). Copulative remained consistent at 4 (1%), signifying persistent difficulties with sentence construction.

The third test exhibited a varied outcome, showing a general rise in errors relative to the second test. Omissions were the predominant error category at 64 (15.3%), but misordering rose to 18 (4.3%). Overinclusions and misselections showed minor decreases, reflecting the introduction of more complex sentence structures by the students. Concerning the errors in sentences, coordinate sentences continued to have the most errors 35 (8.4%), followed by transitive 23 (5.5%), intransitive 18 (4.3%), subordinate 8 (1.9%), existential 3 (0.7%), and copulative 1 (0.2%).

The final test exhibited the fewest errors, indicating that the accumulated feedback and training were beneficial. Omissions constituted 17 (4.1%) of errors, misordering reduced to 14 (3.3%), and misselections diminished to 3 (0.7%). Instances of overinclusions and blending errors were minimal. In terms of the errors in sentences, transitive errors represented 18 (4.3%), followed by coordinate 11 (2.6%), intransitive 7 (1.7%), and subordinate 6 (1.4%). The copulative and existential sentences were error-free in this test, indicating improved grammatical awareness and sentence construction.

The number of writing errors from the four writing tests is summarized in Table 2.

The comparison of the number of errors in each type of error and sentence errors of the four writing tests is shown in Figure 2.

Table 2 Number of writing errors for each type of error and each type of sentence

Test	Omission	Overinclusion	Misselection	Misordering	Blending
1	204 (48.7%)	5 (1.2%)	11 (2.6%)	9 (2.1%)	0
2	32 (7.6%)	5 (1.2%)	7 (1.7%)	12 (2.9%)	3 (0.7%)
3	64 (15.3%)	3 (0.7%)	3 (0.7%)	18 (4.3%)	0
4	17 (4.1%)	9 (2.1%)	3 (0.7%)	14 (3.3%)	0

Test	Intransitive	Transitive	Copulative	Existential	Coordinate	Subordinate
1	62 (14.8%)	69 (16.5%)	4 (1%)	4 (1%)	76 (18.1%)	14 (3.3%)
2	16 (3.8%)	15 (3.6%)	4 (1%)	3 (0.7%)	17 (4.1%)	6 (1.4%)
3	18 (4.3%)	23 (5.5%)	1 (0.2%)	3 (0.7%)	35 (8.4%)	8 (1.9%)
4	7 (1.7%)	18 (4.3%)	0	0	11 (2.6%)	6 (1.4%)

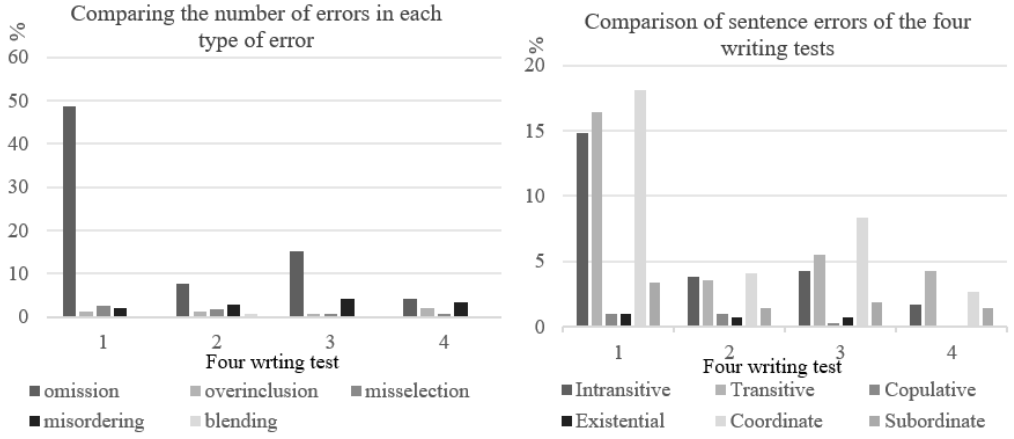


Figure 2 Comparison of the number of errors in each type of error and sentence errors of the four writing tests

While discrepancies in error frequencies among assessments offer insight into students' advancement in grammatical precision, they do not comprehensively reflect overall writing development. Writing development includes factors such as enhanced syntactic complexity, a broader range of sentence forms, and improved discourse coherence (Dostal & Wolbers, 2014). Subsequent research may investigate these qualitative dimensions to provide a more thorough comprehension of writing development.

Errors Influenced by Thai Sign Language

Omission errors

Omission errors consistently emerged as the primary difficulty in all assessments, underscoring a basic barrier in the pupils' writing. Though the feedback was provided, these errors still remained, highlighting the ThSL influence, specifically the omission of subject, copulative verb, and existential verb.

After the first test, the student said that the intention to write was 'the boy hurries to catch a frog'. The complete sentence should be "เด็กผู้ชายรีบจับกบ" /dèk.phûː.chaːy.rîːp.càp.kòp/.

However, the writing appeared with only verb “กำลังจับ” /kam.laŋ.càp/ ‘to be catching’ and object "กบ" /kòp/ ‘frog’; the subject “เด็กผู้ชาย” /dèk.phûː.chaːy/ ‘the boy’ was omitted. This error mirrors the ThSL-influence, wherein the omission of a subject is allowed when the context is clear.

Misordering errors

The increase in misordering errors on the second and third tests indicates that students encountered difficulties in appropriately organizing materials while attempting more complicated phrases. This tendency reflects the impact of ThSL, wherein verb placement deviates from conventional Thai norms. In contrast, the subsequent decline noted in the fourth test suggests that students started to assimilate the right Thai sentence form over time, facilitated by regular practice and constructive feedback.

For instance, consider the statement ‘the frog is at the river’ or ‘the frog hides in the river’. The correct structure for such statements should follow the pattern +Subject +Verb ±Location. In this instance, the student wrote “แม่น้ำกบอยู่” /maêː.náːm.kòp.yùː/. The term /kòp/ ‘frog’ and the verb /yùː/ ‘stay or to be’ were incorrectly positioned, with the locative phrase "แม่น้ำ" /mæ̂ː.náːm/ ‘river’ following. To rectify this, the sentence should be: "มันซ่อนตัวอยู่ที่แม่น้ำ" /man.sɔ̂ːn.tua.yùː.thîː.mæ̂ː.náːm/ 'the frog hides in the river.' This error exemplifies the influence of ThSL, where verbs are typically placed at the end of the sentence, contrasting with the structural norms of the Thai language, which position verbs differently in the middle of the sentence.

Errors not Influenced by Thai Sign Language

Errors in the written Thai of deaf students, independent of ThSL influence, arise from diverse linguistic and cognitive causes. The intricacy of Thai grammar, especially its syntactic and morphological regulations, presents difficulties for L2 learners, including deaf students. Restricted exposure to written Thai may result in deficiencies in grammatical comprehension, while cognitive processing limitations and difficulty in second-language acquisition exacerbate inaccuracies. Additional research is required to elucidate the interaction of these elements and their respective influence on writing errors. Inadequate linguistic input and structured training may cause students to grapple with the complexities of Thai, resulting in errors not attributable to ThSL effect. Difficulties in mastering Thai's verb-object interactions can lead to omissions of verbs and objects, while erroneous grammatical transfer from prior learning experiences may cause excessive use of verbs or wrong use of conjunctions.

Omission errors

Verb omission, in the statement ‘the boy caught the dog instead of the frog’. the verb "จับ" /càp/ 'catch' was removed, resulting in "เด็กชาย" /dèk.chaːy/ 'the boy' and "สุนัข" /su.nák/ 'the dog' without a verb. An accurate writing would be "เด็กชายจับสุนัขได้แทน" /dèk.chaːy.càp.su.nák.dâːy.thæːn/ This inaccuracy does not arise from the influence of ThSL, as both Thai and ThSL necessitate a verb as the core of a sentence. Students choose to create drawings instead, owing to their uncertainties regarding this verb.

Omission of Object, In the sentence 'the boy hurriedly caught the frog,' the student wrote “เด็กกำลังจับ” ‘the boy was catching’ by omitting the object "กบ" /kòp/ ‘frog’, resulting in only the subject "เด็ก" /dèk/ ‘child’ and the verb "กำลังจับ" /kam.laŋ.càp/ ‘catching’. A complete sentence would be "เด็กรีบจับกบ" /dèk.rîːp.càp.kòp/. This error does not reflect the influence of ThSL, as transitive verbs in ThSL also require an object. Omission of Location phrase; in the statement 'the dog goes to the branch,' the student wrote “หมาไป” ‘the dog goes’ by omitting the location phrase "ที่กิ่งไม้" /tʰîː.kìŋ.máːy/ ‘to the branch’, resulting in only the subject "หมา" /măː/ ‘dog’ and the verb "ไป" /pay/ ‘to go’. A complete sentence would be "หมาไปที่กิ่งไม้" /măː.pay.thîː.kìŋ.máːy/. This error does not indicate the influence of ThSL, as both Thai and ThSL utilize location phrases.

Misordering, overinclusion, misselection and blending error

In the sentence 'the frog had planned that when they were both asleep, it would escape from the jar,' the conjunction "พอ" /pʰɔː/ ‘when’ was mispositioned: "พอกบวางแผนว่าทั้งสองนอนหลับแล้ว กบตกลงใจหนีไปจากขวดโหล". The correct sentence should be "กบวางแผนว่าพอทั้งสองนอนหลับแล้ว ก็จะหนีไปจากขวดโหล". This misordering does not reflect the ThSL structure in Thai writing, as ThSL does not use conjunctions in the same manner.

In the sentence "เด็กเห็นกบ" /dèk.hěn.kòp/ ‘the child saw the frog’, the student included two verbs, "เห็น" /hěn/ ‘to see’ and "จับ" /càp/ ‘to catch’, resulting in redundancy. This error does not indicate the influence of ThSL, as ThSL does not utilize serial verbs. For the sentence 'the boy told the dog to go to the right side, while he went to the left side simultaneously,' the incorrect conjunction "แล้ว" /láéː.w/ ‘already’ was used: “เด็กชายบอก

ว่า สุนัขไปขวา แล้วเด็กชายซ้ายพร้อม". The appropriate conjunctions are "ส่วน" /sùan/ 'meanwhile' or "ในขณะที่" /nay.kʰanà.tʰîː/ 'while': "เด็กชายบอกว่าสุนัขไปทางขวา ส่วนเขาไปทางซ้ายพร้อมกัน". This misselection does not reflect the influence of ThSL on Thai writing because complex sentences in ThSL that depict events happening simultaneously will use two-handed sign (Danthanavanich, 2008). The student who wrote "เด็กผู้ชายกับหมาเลิกจับกบ เพราะจับไม่ได้สักที ทำให้กบจึงรู้สึกเหงาและโดดเดี่ยว" intended to convey that 'the boy and the dog stopped catching the frog because they could not catch it, causing the frog to feel lonely.' However, the two cause and effect conjunctions "ทำให้" /tʰam.hây/ 'causing' and "จึง" /cɯŋ/ 'therefore' were used together. The student can choose one of the conjunctions to link the clauses to the coordinate sentence. The sentence should be "เด็กผู้ชายกับหมาเลิกจับกบ เพราะจับไม่ได้สักที กบจึงรู้สึกเหงาและโดดเดี่ยว" or "เด็กผู้ชายกับหมาเลิกจับกบ เพราะจับไม่ได้สักที ทำให้กบรู้สึกเหงาและโดดเดี่ยว". This error does not indicate the influence of ThSL on Thai writing because ThSL does not use conjunctions in the same way Thai does.

Corrective Feedback Session: Critical Insights

The feedback sessions significantly reduced certain error categories, especially omissions and misselections. The rise in misordering mistakes following feedback underscores the intricacy of resolving syntactic disparities between ThSL and Thai. Misordering errors persisted at a considerable level, signifying structural transfer from ThSL, as students continued to utilize ThSL-based syntactic patterns in formulating Thai sentences. This indicates that whereas feedback effectively addresses simpler grammatical problems, such as subject omission, copulative verb omission, and verb misordering, more intricate difficulties, including structural misordering of clauses and improper conjunction usage, necessitate more focused teaching. The incorporation of increasingly intricate sentence patterns in the third and fourth tests resulted in a transient rise in errors, indicative of the students' efforts to implement new grammatical rules. This pattern highlights the necessity of ongoing practice and iterative feedback to assist students in mastering advanced writing abilities and progressively mitigating the impact of ThSL syntax on their Thai writing. The contrastive analysis indicated that some errors, like the omission of subjects, copulative verbs, and conjunctions, are directly influenced by ThSL grammar. These findings align with Thepud (2005) and underscore the necessity for instructional strategies that target these particular impacts. The recurrence of specific errors indicates that students depend on ThSL grammars, especially when explicit instruction on Thai syntax is lacking.

Discussion

This study elucidates the influence of Thai Sign Language (ThSL) on the written Thai of deaf students and the function of interlanguage development in their writing skills. The prevalence of omission errors, especially the exclusion of subjects, copulative verbs, and existential verbs, highlights a basic grammatical difficulty. These errors correspond with prior studies on the impact of sign language on written text (Thepud, 2005; Wolbers et al., 2014) and underscore the necessity for focused instructional strategies.

First and Second Language Acquisition in Deaf Individuals

First language acquisition is essential for cognitive and linguistic development. Children who are deaf and learn sign language as their first language from birth establish a robust linguistic foundation that enhances second language acquisition (Cummins, 2006; Hall et al., 2017). Many deaf children, especially those with hearing parents, encounter delayed or inconsistent language exposure, resulting in linguistic deprivation (Mayberry, 2007). This delay affects their capacity to attain written Thai as a second language, as they do not possess a fully developed first language to facilitate literacy advancement.

This study revealed that students made errors due to both L1 transfer and interlanguage growth. Errors like subject omission and verb misordering reflect a direct effect from ThSL, wherein non-manual indicators and spatial grammar express syntactic links rather than explicit lexical components (Plaza-Pust, 2016). Errors not associated with ThSL, such as overinclusion and misselection, indicate developmental difficulties in L2 acquisition rather than direct transfer from sign language.

Interlanguage Development and the Role of Feedback

The fluctuating error rates in the four writing tests indicate the fluidity of interlanguage development. Initially, students predominantly utilized ThSL structures; however, with continuous feedback and teaching, they started to integrate other Thai grammatical elements. This corresponds with

Selinker's (1972) interlanguage theory, which delineates how learners develop a dynamic language system shaped by both L1 and L2.

The noted decrease in errors over time underscores the efficacy of iterative feedback, especially in rectifying omissions and misselections. The continued occurrence of misordering errors indicates that feedback alone may be inadequate for addressing more profound grammatical problems. This finding corroborates previous studies suggesting that explicit instruction in grammatical structures is crucial for deaf students (Knoors & Marschark, 2014; Wolbers et al., 2014). Moreover, although iterative feedback might diminish certain writing errors, such as omissions and misselection, a simple decrease in writing errors cannot be construed as meaningful communication or writing development. Writing development necessitates not only grammatical precision but also the employment of varied grammatical structures, enhanced coherence, and organization at the discourse level. Consequently, in addition to grammatical precision, subsequent research should investigate these qualitative elements as indications of writing progression.

Implications for Teaching and Policy

The results indicate that utilizing ThSL as an instructional medium can improve L2 Thai learning by offering students a recognizable linguistic structure. Educators must also design explicit instructional strategies to address syntactic disparities between ThSL and Thai. This encompasses targeted instruction on Thai syntactic structure, conjunction application, and verb-object interactions. Furthermore, teacher training programs should integrate contrastive analysis methodologies to assist educators in recognizing and addressing errors arising from L1 influence as opposed to general SLA difficulties.

Curriculum design at the policy level should integrate bilingual methodologies that acknowledge the significance of sign language in literacy development. This corresponds with global frameworks indicating that bilingual-bicultural education has enhanced literacy results for deaf students (Niederberger, 2008; Gärdenfors, 2023). Additional research is required to investigate the long-term effects of utilizing ThSL as a framework for L2 Thai literacy advancement.

These findings underscore the imperative of contrastive grammar training to address the syntactic disparities between ThSL and Thai. Effective educational methods should incorporate interactive feedback procedures, which have proven to be superior than conventional corrective techniques. Structured feedback loops that offer iterative, grammar-centric adjustments can enhance syntactic precision. Moreover, contrastive analysis exercises, including side-by-side comparisons of ThSL and Thai sentence patterns, can augment learners' knowledge of linguistic distinctions. To enhance literacy development, visual learning tools, including infographics and video-based training, should be utilized to convey grammatical distinctions in a Deaf-friendly manner. By implementing these tactics, instructors can enhance the facilitation of Thai literacy acquisition for deaf students learning it as a second language.

Conclusion and Recommendation

This study examines Thai writing errors by deaf students, focusing on Thai Sign Language (ThSL), interlanguage development, and instructional methodologies. The most frequent omission errors involved subjects, copulative verbs, and existential verbs, demonstrating Thai syntax difficulties with ThSL grammar. Syntactic transfer from ThSL to Thai showed subject omission, copulative and existential verbs, and verb misordering, highlighting the need for specific teaching. Iterative feedback reduced omissions and misselections but not complicated syntax like verb ordering, demonstrating that feedback alone is insufficient for syntactic development. Students initially used ThSL frameworks but subsequently adopted Thai grammatical elements through regular training.

These data suggest explicit contrastive grammar training and organized feedback cycles improve writing correctness. ThSL should be used for initial instruction, with explicit grammar, systematic practice, and continuing feedback. Contrastive grammar education should compare Thai syntax to ThSL so students may identify syntactic discrepancies. Interactive feedback like peer review and iterative cycles can boost learning. Bilingual literacy programs should also use sign language as a scaffolding tool in L2 instruction to facilitate ThSL-Thai cognitive and linguistic linkages. To improve deaf students' written Thai, unique teaching materials and specialized educator training are needed to overcome ThSL and Thai syntactic gaps.

Conflict of Interest

The authors declare that there is no conflict of interest.

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