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From Theory to Practice: Enhancing Translation Skills through Syntax Mapping and Shift Strategies

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Abstract

This study explored the integration of syntax mapping and shift strategy instruction to enhance translation competence in vocational education. Framed within a Design-Based Research (DBR) approach, the study addressed common challenges among novice translators, including literal translation tendencies, syntactic rigidity, and low awareness of pragmatic shifts. Conducted in an Indonesian polytechnic with 25 students, the intervention followed four DBR phases: needs analysis, tool design, implementation, and evaluation. Data were collected through pre- and post-tests, worksheet tasks, and student reflections. Descriptive results indicated improvement in translation test scores (from 64.3 to 78.4) and syntax mapping accuracy (from 62.3% to 76.0%), along with increased application of lexical, class, and structural shifts. Student reflections revealed enhanced metacognitive awareness and more analytical decision making. However, the study did not include hypothesis testing or inferential statistics; therefore, claims regarding the tool's effectiveness are based on observed descriptive gains and should be interpreted with caution. Additionally, the small sample size and specific vocational context limit generalizability. Future studies should incorporate statistical analyses and broader samples to validate the impact and explore applicability across different educational contexts and language pairs.

Keyword: Design-based research, syntax mapping strategy, translation shift analysis

Introduction

The demand for professionally trained translators has increased significantly in response to globalization, which necessitates communication that is both linguistically and culturally appropriate (Novikova & Khairova, 2019). Modern translation practices now encompass diverse modalities, such as dubbing, subtitling, and localization (Malmkjær, 2017), while rapid developments in media and digital technologies require translators to be proficient with specialized tools (ElShafei, 2014; Omar et al., 2020). In response, universities worldwide have begun updating their curricula to include practical training, digital competencies, and intercultural communication components, aiming to equip graduates with the skills necessary for culturally sensitive and client-oriented translation (Alsaadi & Awashreh, 2025; Yu Novikova & Khairova, 2019). Developing students' translation competence aligns with broader 21st-century skills, including critical thinking and collaborative learning, as emphasized in (Helda et al., 2024) through group-discovery learning models.

Despite these advancements, novice translators continue to face persistent challenges that compromise the translation quality. A common issue is reliance on literal translation, which often results in awkward or inaccurate renderings due to limited sensitivity to context and

idiomatic expression (Qassem & Sahari, 2024; Sittirak, 2024). This tendency is frequently compounded by an overdependence on machine translation tools, which lack the ability to perform the necessary cultural and pragmatic adaptations (Van Doorslaer & Tähepõld-Tammert, 2022). Moreover, many beginners struggle with syntactic awareness, especially in inverse translation, leading to grammatically incorrect or incoherent target texts (Qassem and Sahari 2024). These issues are further intensified by low adaptability to complex structures and domain-specific terminology, particularly in legal or technical translations (AlDayel & Alotaibi, 2024; Su & Li, 2021). Inadequate cultural competence also remains a significant barrier, as novice translators often retain source text forms without appropriate adaptation to the target culture, thus undermining the communicative effectiveness of the translation (Uzun, 2016).

Structured pedagogical approaches are essential, especially in vocational translation education, which plays a crucial role in preparing students to meet the demands of professional communication in different languages. This study is situated within the framework of Design-Based Research (DBR), which emphasizes the iterative development of pedagogical tools grounded in real-world educational problems and refined through classroom applications (Amiel & Reeves, 2008; Wang & Hannafin, 2005). In contrast to theoretical language programs, vocational curricula emphasize applied competence to produce graduates who are capable of executing real-world translation tasks with precision and fluency (Stewart, 2008). Despite this practical focus, many translation classrooms continue to employ traditional methodologies such as grammar translation, rote bilingual lists, and intuitive reformulation, which do not effectively foster deep structural awareness or strategic competence among novice translators (Putra et al., 2022). A persistent challenge is the tendency of students to translate literally, particularly when faced with syntactically complex text. For instance, in a classroom exercise involving the translation of the sentence "The committee has reached a unanimous decision on the proposal," some vocational students translated it as "Komite telah mencapai satu keputusan yang bulat di atas proposal." This translation is a literal mapping that mirrors the English structure but results in awkward and unidiomatic Indonesians. Such patterns underscore a deficiency in syntactic flexibility and awareness of the necessary structural adjustments. This often leads to awkward or incorrect translations that fail to meet professional communication standards (Pham et al., 2022; Vanroy, 2021).

This study addresses these challenges by proposing the development and implementation of a learning tool incorporating syntax mapping and translation shift analysis. This tool is intended to guide students in analyzing sentence structures in both the source and target languages, subsequently assisting them in identifying and applying the necessary shifts to achieve accurate and fluent translations. Syntax mapping refers to the comparative analysis of grammatical elements—subjects, verbs, objects, adjuncts, and clauses—across languages. This enables students to visualize syntactic alignments and identify where structural transformations are needed because of linguistic divergence (Choshen & Abend, 2022; Doughty & Long, 2003). Translation shift analysis, first introduced by Catford (1965), describes the changes that occur when translators depart from formal correspondence to produce functionally equivalent translation. These shifts may involve structure (e.g., voice), class (e.g., verb to noun), unit (e.g., phrase to word), or intrasystems (e.g., plural to singular). Scholars such as Vinay and Darbelnet (1995) and Newmark (1988) have further refined shift typologies, distinguishing between obligatory and optional shifts and between semantic and communicative translation strategies.

Recent research has reinforced the pedagogical potential of both syntax mapping and shift awareness. Vanroy (2021) found that syntactic difficulty significantly affects translation quality. Al-Harbi (2020) emphasized the need for training in handling compound-complex sentences, while Akmaliyah et al. (2023) demonstrated improved student outcomes through the

use of syntax mapping templates. Simultaneously, shift analysis has been conducted in a range of contexts. Students often struggle with word choice and sentence structure, especially in inverse translation into a non-native language (Sittirak, 2024). These challenges are heightened by the need to ensure grammatical and stylistic accuracy (Ureel et al. 2022). Idioms pose a particular difficulty, as literal translations frequently lead to a loss of meaning and cultural nuance (Saeed, 2012; Vula & Muhaxhiri, 2024). Without targeted support, their ability to identify and correct inappropriate language use in formal contexts tends to stagnate over time (Ureel et al. 2022). Michaelis (2005), who explored entity and event coercion in symbolic syntax, emphasized how syntactic reinterpretation affects meaning construction, thereby reinforcing the importance of explicit syntax training in translation education.

Furthermore, Empirical studies have demonstrated that syntactic alignment methods significantly improve translation quality, as evidenced by higher BLEU scores across various language pairs, including Chinese–English and Arabic–English (Burkett et al., 2010; May & Knight, 2007; Riesa et al., 2011). Compared with traditional word alignment models, syntactic alignment approaches offer superior performance, particularly in managing syntactic divergence and morphological complexity between languages (Berrichi & Mazroui, 2020; Huang et al., 2009; Y. Zhang, 2021). Metalinguistic reflection (MR) enhances students' ability to analyze their language use and make informed decisions in writing and learning (Chan & Wong, 2023; Chen et al., 2025). Effective implementation requires teacher training that supports autonomy and facilitates rich metalinguistic dialogue (Chen et al., 2025; Tolosa, 2021) (Chen et al., 2025; Tolosa, 2021). Collaborative tasks involving MR also promote learner autonomy and metalinguistic awareness (Rodríguez Gonzalo et al. 2022; Tormo 2020). These practices align with the reflective and strategic objectives of the tool used in this study, which aims to develop syntactic awareness and informed translation choices.

Nevertheless, a significant number of these studies have remained predominantly theoretical or descriptive. They document the occurrence of shifts or structural errors, but do not extend to proposing comprehensive instructional solutions. For instance, Chairina et al., (2019) examined translation shifts, particularly in the construction of passive clauses, concentrating primarily on delineating the types and frequencies of shifts in literary texts without incorporating pedagogical interventions or instructional designs, and (Pham et al., 2022) highlighted students' difficulties with syntactic features but did not propose pedagogical tools. Similar to studies in academic writing pedagogy that emphasize needs-driven instructional design (Oktavia et al., 2024), this study employed DBR to create a translation learning tool grounded in real classroom challenges. Similarly, Aghai & Mokhtarnia (2021) identified common shifts in vocabulary books, but did not link these findings to classroom implementation. These gaps highlight the need for a unified, practical learning model that combines syntactic structure and shift strategies in a usable classroom format.

This study distinguishes itself by addressing this gap through a structured, theory-driven learning tool rooted in Catford (1965) shift theory, Vinay & Darbelnet (1995) comparative stylistics, Newmark (1988) translation procedures, and the (Pham et al., 2022) PACTE Group's (2005, 2017) translation competence model. It builds on the strategic competence component of the PACTE model by teaching learners to recognize problems, plan strategies, and justify their choices during translation. Unlike previous efforts that focused on either syntax or shift awareness alone, this research integrates both into a coherent pedagogical practice applied in a vocational classroom setting. It responds to calls for authentic, problem-based translation instruction (M Fauzan, 2021; Stewart, 2008), and builds on comparative studies that link syntactic awareness to improved translation performance (Akmaliyah et al., 2023; L. Zhang, 2024).

The educational significance of this project lies in its direct impact on students' competence and confidence. This significance also aligns with global expectations for translator

competence in professional industries, where standards such as the (European Comission, 2022) and UNESCO's emphasis on multilingual communication highlight the need for translators who can work adaptively and with high syntactic sensitivity in diverse domains (UNESCO, 2017). In vocational education, graduates are expected to perform in industry soon after completing their studies; developing translators' ability to analyze, adapt, and explain their translation choices is critical. By offering a hands-on tool for syntactic comparison and shift application, the research empowers students to engage in reflective translation practices, improving their decision-making process and not just their output. It also contributes to the broader discourse on applied linguistics and translator training by presenting a model that can be replicated or adapted to other teaching contexts.

The study was guided by three key research questions embedded within this pedagogical agenda: (1) What translation learning problems can be addressed through the integration of syntax mapping and translation shift analysis? (2) How can learning tools based on syntax mapping and translation shift analysis be effectively designed and implemented in translation classrooms? (3) What are the impacts of the tools on students' translation performance and perceptions of the learning process? These questions encapsulate the core aims of the research: problem identification, tool design and implementation, and outcome evaluation, ensuring that the study remains grounded in both theoretical insights and practical educational needs. Additionally, as a Design-Based Research project, it is expected to yield transferable design principles and a pedagogical model that can provide translation instruction beyond the immediate classroom context.

Methods

This study employed the Design-Based Research (DBR) approach (Amiel & Reeves, 2008), which emphasizes the iterative development of educational interventions in authentic classroom settings. DBR is particularly suitable for bridging the gap between theory and practice, especially in designing pedagogical tools that are tested, refined, and evaluated in real instructional contexts. In line with (Wang & Hannafin, 2005), this approach integrates both theoretical grounding and practical classroom relevance through cycles of design, implementation, and reflection.

Complementing this, the study adopted a descriptive qualitative framework (Sandelowski, 2000) to explore students' experiences and reflections throughout the intervention. This qualitative orientation is intended to capture a nuanced understanding of how learners interact with the translation learning tool and how it impacts their syntactic awareness and translation competence.

Participant

The study was conducted in the English Department of Politeknik Negeri Padang, Indonesia, during a workshop on translation course. The participants were 25 students purposively selected from a single intact class taking this course. Purposive sampling (Rapley, 2014) enabled researchers to select information-rich cases for in-depth study. These students had prior exposure to basic translation theory but faced challenges in applying syntactic and structural adaptation strategies in practice.

Ethical considerations were rigorously observed. All participants provided informed consent, were assured of anonymity, and were informed that participation was voluntary and unrelated to the course grading. Data were coded using pseudonyms to ensure confidentiality, and the study protocol adhered to institutional ethical guidelines.

Procedures

The study followed the four stages of DBR (Amiel & Reeves, 2008):

1. Analysis of Practical Problems
   A needs analysis was conducted in preliminary research through observation of previous student outputs, informal interviews with the instructor, and a review of class materials. The key problems identified included literal translation tendencies and difficulties in handling complex syntactic structures and shifts.
2. Design of the Tool
   Based on preliminary research findings, a translation learning tool was developed by integrating the following:
   a. Syntax Mapping Diagrams: graphic organizers to visualize syntactic parallels between SL and TL.
   b. Translation Shift Checklists: Based on (Catford, 1965) classification and refined by (Vinay & Darbelnet, 1995) and (Newmark, 1988), helping students identify structural, class, unit, and intra-system shifts.

   The design underwent expert validation and a small-scale pilot before full classroom use.
3. Implementation in the Classroom
   The tool was implemented over eight weekly sessions, in which students practiced using it in structured translation tasks. Each session involved guided activities, peer collaboration, and instructor facilitation, enabling progressive familiarization with the mapping and shift analysis approach.
4. Evaluation and Reflection
   Student progress was measured through pre- and post-tests, an analysis of worksheet performance (mapping accuracy and shift identification), and student reflections. Instructors also documented class observations and field notes, enabling iterative improvement of the tool.

Data Collection

The data were collected using both quantitative and qualitative methods to capture learning outcomes and learner perceptions. Quantitative data included pre- and post-translation tests on translation competence, which were scored using rubrics adapted from (PACTE group, 2005), as well as assessments of syntax mapping and shift analysis worksheets to evaluate mapping accuracy and the correct application of shifts. Qualitative data were obtained through student reflection forms, which captured learner insights, challenges, and perceived benefits, and through instructor observation notes that provided contextual understanding of classroom dynamics.

Data Analysis

All numerical data, such as pre- and post-test scores, syntax mapping accuracy, and the frequency of translation shifts, were processed using Microsoft Excel. The software was used to calculate descriptive statistics, including mean scores, gain scores, and percentage improvement. This approach was aligned with the descriptive and developmental nature of the study, which did not require inferential statistical analyses.

Qualitative reflections were analyzed thematically using manual coding by Braun and Clarke's framework (Byrne, 2022). Thematic patterns, such as syntactic awareness, challenge identification, and strategic shift application, were identified across student reflections and observation notes to enrich the interpretation of learning outcomes.

Result and Discussion

Result

This section presents the findings of the study, structured around the three research questions. The results include quantitative improvements in translation performance and

syntactic mapping accuracy, as well as thematic insights drawn from student reflections. A full dataset of 25 students was presented to illustrate the breadth and depth of the observed outcomes.

Translation learning problems were reduced through the integration of syntax mapping and shift analysis

The data below present students' pre- and post-test scores to evaluate the extent to which the translation tool helped address key learning problems, especially the tendency to translate literally and to misunderstand complex structures. The improvement in test performance gives us a first look at whether the students were able to internalize the concepts taught and apply them to real translation tasks.

Table 1. Pre-test and Post-test Scores

Student	Pre-test	Post-test	Improvement
S01	64	82	18
S02	63	75	12
S03	67	83	16
S04	66	79	13
S05	59	69	10
S06	66	83	17
S07	62	76	14
S08	59	74	15
S09	58	70	12
S10	68	86	18
S11	72	88	16
S12	63	74	11
S13	64	78	14
S14	65	75	10
S15	68	81	13
S16	62	74	12
S17	61	76	15
S18	62	76	14
S19	62	78	16
S20	69	83	14
S21	69	81	12
S22	63	80	17
S23	71	87	16
S24	62	80	18
S25	71	87	16

The first research question explored how previously observed translation-learning problems were addressed through syntax mapping and shift analysis. Common issues identified before the intervention included literal translation tendencies and failure to restructure syntactic patterns in the target language.

After the intervention, all students demonstrated improvement, with an average pre-test score of 64.3 rising to 78.4. The mean improvement was 14.1 points. Several students, such as S01, S06, S10, and S24, exhibited particularly strong gains (17–18 points), indicating that their structural and strategic deficiencies were effectively reduced through the learning tool. These results confirm that syntax mapping and guided shift awareness directly support more accurate and natural translation outcomes.

The use of the translation tool improved students' syntactic awareness and shift application

This finding provides detailed data on each student's syntactic mapping accuracy before and after the intervention, along with the most frequent type of translation shift applied. This information allowed us to observe how much structural awareness developed in each learner and how they responded to syntactic challenges across different texts.

Table 2. Mapping Accuracy

Student	Syntax Mapping Accuracy (%)	Post Mapping Accuracy (%)	Most Frequent Shift
S01	66	77	Class Shift
S02	51	63	Class Shift
S03	56	71	Lexical Shift
S04	53	65	Structure Shift
S05	51	67	Structure Shift
S06	75	90	Unit Shift
S07	70	82	Class Shift
S08	50	60	Lexical Shift
S09	65	81	Lexical Shift
S10	73	83	Lexical Shift
S11	59	76	Lexical Shift
S12	70	81	Unit Shift
S13	64	82	Class Shift
S14	71	83	Lexical Shift
S15	58	68	Structure Shift
S16	64	74	Structure Shift
S17	59	75	Unit Shift
S18	57	67	Lexical Shift
S19	62	73	Class Shift
S20	66	81	Lexical Shift
S21	66	81	Lexical Shift
S22	73	88	Unit Shift
S23	67	81	Lexical Shift
S24	74	87	Unit Shift
S25	59	73	Lexical Shift

The syntax mapping accuracy improved from a class average of 62.3% to 76.0% after the intervention. Syntax mapping is a process of visually aligning grammatical components between languages (subject, verb, object, etc.), enabling learners to identify syntactic mismatches. Translation shifts, based on (Catford, 1965) and (Newmark, 1988), refer to intentional changes in a structure or category during translation to achieve equivalence. These include:

a. Lexical Shift: replacing with context-appropriate equivalents
b. Class Shift: changing grammatical class (e.g., verb → noun)
c. Structure Shift: modifying sentence construction
d. Unit Shift: adjusting the unit of translation (e.g., phrase → clause)

Lexical shifts were the most common (11 students), followed by class shifts (six), structural shifts (four), and unit shifts (four). Students with high mapping accuracy and diverse

shift usage (e.g., S06 and S22) also demonstrated notable test-score improvements, suggesting that syntactic flexibility correlated with better translation outcomes.

The tool shaped students' translation reflections and strategic awareness

The table below captures the distribution of the student reflection categories. These qualitative insights provide depth to the quantitative data, showing how students internalized the learning process, what they found useful, and the degree of strategic awareness they developed as translators.

Table 3. Student Reflection and Awareness

Reflection Category	Number of Students
General Reflection	13
Awareness	6
Challenge	3
Tool Effectiveness	2
Strategy Use	2

Qualitative reflections were coded thematically to yield five categories. General Reflection (13 students) included broad satisfaction and learning insights. Awareness (six students) reflected a deeper understanding of the structure and differences between the languages. Challenge (three students) documented difficulty in applying the tool but recognized learning growth. Tool Effectiveness (2) and Strategy Use (2) emphasized usability and strategic engagement.

For example, Student S06 wrote, "Now I realize that English and Indonesian don't always match word by word." Similarly, Student S21 reflected, "The mapping made me think first, not just translate quickly like before." These responses demonstrate the emergence of metacognitive awareness and strategic thinking in translation tasks. Overall, the tool facilitated not only better translation output but also reflective learning behaviors essential for translation competence.

Discussion

The findings underscore the pedagogical significance of integrating syntax mapping and translation shift analysis into vocational translation instruction. Similar to (Syafitri et al., 2024) findings in Economics English textbooks, the present study underscores the need for domain-specific instructional design that balances linguistic, conceptual, and technological dimensions. According to the Design-Based Research (DBR) methodology (Amiel & Reeves, 2008; Wang & Hannafin, 2005), this intervention aligns theoretical principles with classroom realities through iterative cycles of design, enactment, and reflection. The practical problems identified—literal translation tendencies and syntactic rigidity—were effectively addressed using tools designed to build strategic and structural awareness. These outcomes reflect the core tenets of the PACTE translation competence model (2005), particularly in enhancing students' strategic and instrumental subcompetencies.

The students' measurable improvement in both their translation accuracy and syntactic mapping skills reinforces the idea that visual scaffolding and explicit structural training are vital in developing translation competence. Before the intervention, many students relied on linear and literal rendering. A sentence such as "The committee has reached a unanimous decision on the proposal" was translated as Komite telah mencapai satu keputusan yang bulat di atas proposal, which, while grammatically functional, reflects L1 transfer and awkward phrase

alignment. After engaging with syntax mapping and guided shift application, the revised output became the Komite telah mencapai keputusan bulat terhadap usulan tersebut. This demonstrates a move toward functional and communicative equivalence, a hallmark of professional translation standards, as advocated by (Catford, 1965) and (Newmark, 1988).

The increase in students' post-test scores and syntax mapping accuracy (from 62.3% to 76.0%) suggests that graphic syntactic aids effectively support learners in identifying grammatical divergence between English and Indonesian. This aligns with (Istiqomah et al., 2021), who emphasize the role of structural and class shifts in achieving natural and accurate translations. Lexical shifts, such as translating "gain" as *meningkatkan*, reflect pragmatic adjustments essential for contextual clarity. Vanroy (2021) also notes that syntactic difficulties are a common barrier for novice translators, particularly in inverse translation. Furthermore, Al Shyiab et al. (2023) highlight the need for syntactic reconfiguration when translating complex sentences, while Pintado Gutiérrez (2021) advocates integrating such strategies into translation pedagogy to enhance learners' metalinguistic awareness. These findings support the value of syntax mapping and shift-based instruction in translation training.

The reflection data further reinforces the effectiveness of the instructional tools. Student comments revealed not only appreciation for the method but also increased awareness of the interpretive and cognitive demands of translation. As Student (S06) noted, "Now I realize that English and Indonesian don't always match word by word," while another (S21) stated, "The mapping made me think first, not just translate quickly like before." These reflections are consistent with findings by Pintado Gutiérrez (2021), who argues that metacognitive engagement is vital in translation pedagogy, particularly when learners initially perceive translation as a mechanical process. Similarly, Vanroy (2021) highlights that students often struggle with syntactic and strategic awareness, which suggests the importance of reflection in improving translation competence. Al Shyiab et al. (2023) further underscore the role of cognitive decision-making in rendering complex grammatical structures accurately. Together, these perspectives support the idea that pedagogical tools like syntax mapping can foster deeper interpretive reasoning in novice translators.

An illustrative example of student improvement involves the translation of the phrase *"He understands how the job is done."* Initially, many students rendered this as *Dia memiliki pengetahuan tentang bagaimana pekerjaan ini dilakukan*, a literal and overly formal translation. After the intervention, several revised their work to *Ia memahami cara kerja ini dilakukan*, reflecting more natural syntactic structuring and contextually appropriate vocabulary. This shift demonstrates a developing awareness of how to balance source-language precision with target-language fluency. As noted by Istiqomah et al. (2021), the application of structural and class shifts is essential for achieving idiomatic translations. Vanroy (2021) similarly highlights that novice translators often struggle with syntactic naturalness and benefit from guided practice. Al Shyiab et al. (2023) further emphasize the importance of restructuring complex sentence patterns to suit target-language norms. These refinements suggest that learners are moving beyond literal equivalence, engaging more deeply with the functional and stylistic dimensions of translation. This refinement suggests a growing awareness of how to negotiate source-language precision and target-language fluency, which are vital to developing translation competence (PACTE, 2005).

The iterative development process enabled by the Design-Based Research (DBR) model allowed for responsive pedagogical adjustments throughout the course. For instance, when students initially struggled with clause-to-phrase transformations, the syntax diagram model was revised to more clearly highlight equivalence units. This aligns with Tinoca et al. (2022), who underscore DBR's emphasis on adaptability and responsiveness to classroom realities. Similarly, Van Zyl & Karsten (2022) argue that educational tools developed through DBR are more robust and context-sensitive because they are grounded in authentic learning

environments. These observations are further supported by Amiel & Reeves (2008), who describe DBR as a practical framework for refining instructional strategies in direct response to learner needs.

Thus, this study proposes several insights that can inform translation instruction in similar vocational settings. Syntax mapping serves not only as a tool for structural visualization but also as a thinking device that enables learners to anticipate translation challenges. Translation shift training transforms what is often an unconscious process into a deliberative strategy, equipping students to explain and justify their choices. Embedding reflective activities, even brief ones, adds a layer of cognitive monitoring that can elevate the translation from product to process. Moreover, as students begin to engage in strategic deliberation, they internalize a problem-solving stance toward translation, which is characteristic of expert behavior in professional contexts.

The findings also suggest that many students shifted from a surface-level approach to a more analytical engagement with language. This was evident in their ability to reason through grammatical and contextual choices rather than rely solely on literal equivalence. Syntax mapping supported this process by externalizing linguistic reasoning through visible, structured representations of grammatical logic. As Vanroy (2021) notes, such guided reflection can help students identify and correct syntactic inaccuracies more effectively. Furthermore, the variation in students' preferred shift types indicates they were not merely applying set formulas but adapting their strategies based on context—a key marker of developing translation competence. This aligns with Pintado Gutiérrez (2021), who emphasizes the value of reflective and strategic engagement in translation pedagogy, and with Putra et al. (2022), who show that structured, project-based tasks promote contextual adaptability and linguistic awareness.

Taken together, the triangulated evidence from test scores, worksheet analyses, and student reflections provides strong support for the effectiveness of the instructional tool. Beyond confirming its impact on performance, the results highlight how pedagogical innovation rooted in Design-Based Research (DBR) and informed by foundational translation theories can yield both cognitive and practical benefits. As Van Zyl & Karsten (2022) argue, DBR enables educators to respond adaptively to classroom challenges, producing context-sensitive interventions. The model presented in this study draws on established frameworks—including Catford (1965) theory of translation shifts, Newmark (1988) functionalist perspective, and the PACTE Group's (2005) model of translation competence—to integrate structural awareness with reflective practice. As such, it offers a transferable framework for translation programs aiming to cultivate structurally competent and strategically aware translators through principled, context-responsive instruction.

Conclusion

This study examined the use of syntax mapping and translation shift strategies to enhance translation competence among vocational learners. The results demonstrated that integrating these approaches into classroom instruction improved students' structural awareness, adaptability, and translation decision-making. Developed using a Design-Based Research (DBR) model, the instructional tool was iteratively refined based on classroom feedback, ensuring contextual relevance. Syntax mapping enabled learners to visualize grammatical structures and identify syntactic divergences, while guided shift analysis promoted more natural and idiomatic translations. Student reflections further highlighted increased cognitive engagement and strategic thinking. However, the findings must be viewed with caution due to the limited sample size and specific vocational setting. The pedagogical effectiveness observed here may not seamlessly transfer to broader academic contexts or different language pairs. Future research should explore the long-term efficacy of the tool and

its adaptation to other domains, including professional translation practice and digital learning platforms, to better assess its generalizability and scalability.

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