

Applying Variational Translation Theory: An E-C Translation Study of Chapters 8-11 from Lesson Plans to Train Like You Fly

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Abstract

This report focuses on the English-to-Chinese translation of Chapters 8–11 of *Lesson Plans to Train Like You Fly: A Flight Instructor's Reference for Scenario-Based Training*. It explores how Variational Translation Theory, proposed by Huang Zhonglian, can enhance the quality and applicability of professional training materials. Given the growing demand for competent flight instructors in China, and the widespread use of English-language scenario-based training materials, effective translation is essential.

Keywords

Variational Translation Theory; Scenario-Based Training; Aviation Textbook; English-Chinese Translation; Technical Translation

1. Introduction

The global aviation industry has been witnessing an unprecedented expansion in recent years. This growth is driven by multiple factors such as the increasing affluence of the global population, the development of new aviation technologies, and the continuous improvement of the global aviation infrastructure. As a result, the demand for highly qualified pilots has surged dramatically. According to the International Air Transport Association (IATA), global air passenger traffic is projected to reach 8.2 billion by 2037. This indicates a huge potential market for the aviation industry and also poses a great challenge to the supply of aviation professionals, especially pilots.

However, the direct adoption of foreign training materials faces challenges due to linguistic, cultural, and pedagogical differences. For instance, terminology discrepancies, variations in instructional logic, and mismatches between Western SBT

frameworks and China's training systems may hinder the applicability of translated texts. To bridge these gaps, this study employs Variational Translation Theory, proposed by Huang Zhonglian, which advocates adaptive translation strategies—such as adding, deleting, condensing, and altering—to tailor content for specific audiences. While Variational Translation Theory has been applied in technical and tourism translation, its potential in aviation education materials remains underexplored. Existing research predominantly focuses on literary or general technical texts, with limited attention to specialized pedagogical resources like flight training manuals. This study thus pioneers the application of Variational Translation Theory to aviation English translation, aiming to enhance both the fidelity and practicality of translated materials for Chinese flight instructors.

2. Description of the Translation Process

This chapter offers a thorough account of the entire translation process, covering pre - translation preparations, the actual translation process, and post - translation management. The preparatory stage entailed analyzing the features of the source text, identifying potential translation challenges, and consulting relevant references. The translation process itself was composed of three essential stages: drafting, revising, and proofreading. The final stage incorporated peer and professional reviews to guarantee the quality of the translation.

2.1. Pre - translation Preparations

Although the initial step is often regarded as the most challenging, it is also the most vital. In the quest for high - quality translation, the translator painstakingly carried out three fundamental preparatory steps: a comprehensive textual analysis, a systematic identification of potential translation complexities, and a detailed presentation of the relevant references that are essential for facilitating the translation process.

2.2. Translation Process

With the pre - translation preparations completed, the translator embarked on the translation project, which was carried out over a period of time. This process was divided into three crucial stages: drafting, revising, and proofreading, each contributing significantly to the overall quality of the translation.

Guided by Variation Theory, the drafting stage was a systematic and well - planned process. This theory emphasizes adapting the translation to meet the specific needs of the target audience, which was particularly relevant for this aviation - related text.

The revision stage is a critical part of the translation process, aimed at enhancing the overall quality of the translation. In this stage, the translator focused on several areas to improve the translated text.

2.3. Post - translation Management

Following the completion of the drafting, revision, and proofreading stages, the post - translation management phase commenced. This stage was crucial in refining the translation to meet the highest quality standards, and it involved both peer and professional reviews.

To evaluate the cultural relevance of the translated scenarios, the reviewers took on the role of flight instructors. When examining the "Falling Leaf" maneuver, they recognized the need to make it more relatable to the Chinese training context. They recommended contextualizing it with examples specific to Chinese flight training. This would help Chinese learners better understand the maneuver within their familiar training environment, thus bridging the cultural and training - specific gaps between the original and the target audience.

Based on the reviewers' feedback, the translator implemented a series of significant revisions. Moreover, four scenarios were restructured to improve their logical flow. These revisions not only enhanced the readability of the text but also made the overall learning experience more coherent for the readers.

3. Theoretical Basis

3.1. An Introduction to Variational Translation Theory

Variational Translation Theory was prominently proposed and developed by scholar Huang Zhonglian. This theory emerged as a response to the perceived limitations of traditional "full translation" paradigms. At its core, Variational Translation Theory posits that translation is not always a process of complete and direct transference of the source text. Instead, it often involves "variation", where the translator selectively extracts and adapts content from the source text based on the specific communicative conditions and, crucially, the particular needs and cognitive environment of the target audience.

3.2. Major Concepts of Variational Translation Theory

Variational Translation Theory is characterized by its practical approach, offering a toolkit of adaptive strategies or "variation techniques" that translators can employ to achieve optimal relevance and effectiveness for the target audience. These techniques allow for a flexible engagement with the source text. The most commonly cited techniques are detailed below:

3.2.1. Adding

The technique of adding involves the translator incorporating information into the target text that is not explicitly stated in the source text. Such supplementary material is deemed essential for bridging potential knowledge discrepancies, clarifying ambiguities that may arise from cultural or contextual differences, or providing vital

background details that the target reader might require for full comprehension. As Huang (2002c) suggests, appropriate adding can enhance the accessibility and pragmatic force of the translation, ensuring the author's communicative intention is adequately conveyed.

3.2.2. Deleting

Deleting refers to the deliberate exclusion of certain parts of the source text that are judged to be redundant, irrelevant, potentially confusing, or culturally inappropriate for the target audience or the new communicative setting. This strategy is employed not to diminish the core message but to enhance the clarity, conciseness, and overall impact of the target text by removing elements that might impede understanding or reduce relevance for the target reader.

3.2.3. Editing

Editing involves the translator reorganizing, restructuring, or synthesizing information drawn from various segments of the source text. It may also include the integration of information from multiple related sources to construct a target text that presents the material in a more logical, coherent, or reader-friendly manner than a direct translation might allow. This technique is particularly valuable when the source text's original structure or mode of presentation is not optimal for the target readers' cognitive processing or for achieving the intended communicative effect.

3.2.4. Narration/Narrating

This strategy involves rephrasing, explaining, or narrating concepts from the source text in a different form, often simplifying complex ideas or explicating implicit meanings to make the content more accessible and understandable to the target audience. It is about conveying the intended message rather than strictly adhering to the original phrasing.

3.2.5. Condensing

Condensing aims at shortening or summarizing portions of the source text while retaining the core meaning and essential information. This is often employed when the source text contains elaborate descriptions or discussions that can be conveyed more succinctly without loss of critical information for the target purpose.

3.2.6. Integrating

While similar to editing, integrating can specifically refer to merging discrete pieces of information, which might be scattered in the source text, into a more unified segment in the target text to improve flow and understanding.

3.2.7. Altering

Altering is a broader technique that involves modifying the content of the source text to suit the cultural, social, educational, or contextual background of the target audience. This can include changing examples, metaphors, units of measurement, or references to make the text resonate with and be appropriate for the target readers.

4. Case Analysis

Effective knowledge transfer, especially in specialized and safety-critical domains like aviation, demands not just linguistic accuracy but also uncompromising clarity and conceptual precision in instructional texts. Translating complex technical material, such as the Lesson Plans to Train Like You Fly: A Flight Instructor's Reference for Scenario-Based Training, often reveals inherent linguistic and conceptual gaps between English and Chinese.

4.1. Terminology and Readability (Adding and Narrating)

In translating aviation training materials, technical terminology and acronyms demanded particular attention. To ensure that specialized concepts were both accurate and comprehensible, two VTT strategies were employed: Adding (supplementing background information) and Narrating (paraphrasing abstract terms).

4.1.1. Adding: Strategic Addition for Aviation Precision and Pedagogical Effectiveness

Example 1: The PTS — on most practical exams — recovery is expected or required by 500' AGL.

In this example, the amplification strategy is critically applied to enhance clarity and precision for the target audience. The abbreviation "PTS" is fully rendered as "《飞行员实践标准》" (Pilot Practical Test Standards), providing essential context for Chinese readers who may be unfamiliar with this specific document. Similarly, "AGL" is expanded to "离地高度 (AGL)" (Above Ground Level), ensuring an unambiguous understanding of the altitude reference, which is paramount in aviation safety and operational procedures. Furthermore, the nuanced English phrase "expected or required" is translated with stronger emphasis using "明确指出...应在...完成" (explicitly points out...should be completed at...), thereby transforming a general expectation into a more definitive guideline in the target language. This comprehensive amplification, by elaborating on technical abbreviations and strengthening the explicitness of requirements, significantly enhances the pedagogical value and safety implications of the translated material.

Example 2: "Suggested Materials: Whiteboard, markers, POH, and model airplane."

In the source, "POH" is an acronym for Pilot's Operating Handbook. The translator added the full term "飞行员操作手册" before the acronym in the TT. This adding ensures that readers know what POH stands for, preventing confusion. By

providing the expanded form in Chinese, the translator bridges a knowledge gap, as target readers might not immediately recognize this English shorthand. This additive strategy makes the translation more informative and user-friendly without altering the original meaning.

4.1.2. Narrating: Reformulating for Clarity and Conceptual Precision

Example 1: “Behind the power curve”

The phrase “behind the power curve” is technical jargon referring to a flight condition where the aircraft’s drag is so high that more power is required to maintain slow flight than is available – also known as the “region of reversed command.” Translating it literally or word-for-word would yield a non-intelligible result in Chinese. The translator opted to paraphrase this term by explaining its meaning: “需用推力大于可用推力的飞行状态”, which can be translated back as “a flight state in which the required thrust exceeds the available thrust.” This is a clear descriptive paraphrase of the concept. It sacrifices brevity for precision, ensuring that a Chinese reader (especially a student pilot) will grasp what “behind the power curve” means. This is a prime example of narrating as narration: the translator narrated the technical concept in the target language rather than trying to find a terse equivalent.

Example 2: “Go/no-go decision”

“Go/no-go decision” is a specialized aviation term used to describe a critical decision point—usually whether a pilot should proceed with a flight. The translator paraphrases this phrase as “决定是否飞行,” a clear and practical expression that maintains the decision-making nuance without directly mirroring the original format. This example demonstrates how narrating allows for the retention of semantic intent while avoiding awkward or unnatural literal equivalents in Chinese.

4.2. Cultural and Pedagogical Adjustment (Deleting, Altering, and Editing)

Because the source text was produced in a U.S. training environment, some elements required adaptation to fit Chinese aviation pedagogy. Here, three strategies—Deleting, Altering, and Editing—were applied.

4.2.1. Deleting: Streamlining for Clarity and Naturalness

Example 1: “Pilots would normally slow down in the traffic pattern to follow slower traffic, and they must slow down when preparing to land.”

The English sentence explicitly states the reason for slowing down in the traffic pattern: “to follow slower traffic.” In the Chinese translation, this reason was deleted. The TT conveys that pilots slow down in the pattern and before landing, but it omits “to follow slower traffic.” This detail was presumably dropped because it may be considered obvious to the target readers (pilots know they sequence behind slower aircraft) or non-essential for understanding the core point (the necessity of slowing

down). By deleting the explanatory clause, the translator produced a more succinct sentence. The deleting streamlines the information without altering the primary meaning, illustrating how omitting non-critical specifics can prevent redundancy in the TT.

Example 2: "While it's true that pilots normally want to fly as fast as possible, there are many occasions when flying slowly is more desirable."

Here, the phrase "it's true that" functions as a rhetorical device in English, used to acknowledge a general belief before presenting a contrast. In Chinese, however, such affirmation is often implicit and does not require explicit expression. The translator omits "it's true that" and begins the sentence directly with "尽管," which suffices to introduce the contrast. This deleting avoids awkward phrasing and ensures a more idiomatic and fluid expression in Chinese.

4.2.2. Altering: Tailoring Content for Cultural and Pedagogical Appropriateness

Example 1: "Common Errors: Poor airspeed control, inadequate rudder input, failure to clear the area."

The phrase "failure to clear the area" is a culturally embedded aviation expression implying that the pilot failed to visually check for traffic or obstacles before performing a maneuver. A literal translation such as "未清除该区域" would confuse Chinese readers. The translator adapts this into "未目视检查空域," which clearly conveys the intended safety procedure using terminology familiar to Chinese flight instructors and students. This example demonstrates how altering bridges conceptual gaps and ensures the translated content aligns with local operational norms.

Example 2: "Stall recovery techniques"

In this case, the English term "recovery" is translated as "改出" rather than its literal equivalent "恢复." In Chinese aviation discourse, "改出" (literally "pull out of") is the standard term used to describe regaining control from a stall. This is a culturally adapted terminology choice that reflects domain-specific usage. Through this altering, the translator ensures consistency with Chinese pedagogical norms and enhances clarity for trainees.

4.2.3. Editing: Reorganizing Structure for Coherence and Instructional Efficiency

Example 1: "Divide attention: 10 seconds inside, 20 seconds outside, 30 seconds traffic scan."

In this example, the translator applies editing by restructuring the original segmented list into a cohesive, syntactically parallel sentence. The three time-based directives are reformatted into a unified sequence with consistent verb-object structures, enhancing logical flow and readability. This reorganization improves instructional clarity while preserving the full semantic content of the source text.

Example 2: “If you see traffic that may affect you, stop the maneuver, return to straight-and-level flight until the traffic passes, then re-initiate.”

The translator enhanced clarity through targeted micro-editing of both terminology and syntax. To eliminate ambiguity, the generic term "traffic" was explicitly rendered as "其他飞机" ("other aircraft"), specifying its meaning within the aviation context. Furthermore, the logical sequence of the conditional instruction was restructured using the temporal connector "...后" ("after..."), reframing the English structure into a more natural Chinese chronological pattern—"wait until X has happened, then do Y." This syntactic adjustment, alongside precise lexical editing, resulted in a clearer and more idiomatic instruction that maintains the original meaning while aligning with the target language's preferred logical flow.

4.3. Fidelity and Functionality Balance (Condensing and Integrating)

The final challenge was striking a balance between fidelity to the source and functionality for the target audience. Excessive literalness risked awkward or redundant renderings, while over-simplification could distort technical meaning. To resolve this, Condensing and Integrating were applied.

4.3.1. Condensing: Compacting for Brevity without Sacrificing Clarity

Example 1: “The instructor should emphasize the importance of looking outside the aircraft and maintaining situational awareness throughout the maneuver.”

In this example, the original sentence features two parallel phrases—“looking outside the aircraft” and “maintaining situational awareness”—both emphasizing vigilance. The translator condenses these into a single expression with one emphasis structure. “观察外部” implicitly contains the idea of visual scanning outside the cockpit, and “态势感知” succinctly summarizes a broader awareness of surroundings. This approach condenses the sentence while preserving its instructional intent.

Example 2: “If the engine fails at a low altitude, or right after takeoff, you may not have enough time to complete all tasks. Decide which tasks are necessary, using your best judgment.”

The Chinese translation condenses some of the wording while conveying the full warning. The entire guidance is delivered in two Chinese sentences (like the original), but each is more concise: less repetition, integrated context, and some implied words (subject “you”) omitted. This condensing makes the cautionary point sharp and clear. The reader is not burdened with any extra verbiage; the critical idea – limited time, prioritize tasks – comes across swiftly. It exemplifies the general trend in the TT: English conditions and explanations are often rendered with fewer words due to Chinese’ s economy of expression, achieving brevity without losing meaning.

4.3.2. Integrating: Merging for Fluency and Structural Efficiency

Example 1: “Preflight, checklists, engine start, warm-up, normal radio communications on ground, taxi to runway, ready to call tower (if applicable).”

This string of fragmented phrases lists standard preflight steps. The translator uses integrating to consolidate these steps into a streamlined phrase set. By inserting connectors such as “以及,” the translator creates syntactic continuity and coherence, transforming a mechanical list into a smooth procedural description. This not only improves readability but also better matches the expectation of Chinese aviation texts for clarity and logical structure.

Example 2: “In scenario-based training, the primary goal is successful completion of the whole flight, as well as proficiency in individual maneuvers. The maneuvers briefed (like those in this book) help the student understand the elements of the maneuver. By achieving that understanding, the student can make decisions and practice being PIC for part of each flight. Then, add a scenario.”

While the translator maintained the four-sentence structure of the original English text, a clear strategy of micro-level integration was employed to enhance the cohesiveness and logical flow of the Chinese paragraph. For instance, the English coordinate structure “primary goal is A, as well as B” was seamlessly condensed into a single Chinese sentence using the connective “同时” (simultaneously), creating a more unified statement of objectives. Similarly, the coordinated English phrase “make decisions and practice being PIC” was naturally contained within one Chinese sentence through a straightforward serial verb construction. The most significant integration, however, is stylistic. The short, imperative sentence “Then, add a scenario.” was transformed by prefacing it with “然后” (then), explicitly tethering it to the preceding sentence as a sequential step rather than leaving it as an isolated command. This demonstrates that integration is not solely a grammatical act of merging clauses, but can also be a stylistic one—using transitional adverbs to ensure ideas are read as a continuous thread of thought.

5. Conclusion

This translation project demonstrates the successful application of Variational Translation Theory (VTT) in producing a Chinese aviation manual that excels in clarity, coherence, and pedagogical effectiveness. By strategically employing VTT’s adaptive techniques—such as Adding to clarify technical terms like “PTS” and “AOA,” Deleting and Condensing to eliminate redundancy, and Integrating and Editing to restructure content for logical flow—the translator achieved an optimal balance between fidelity to the source and functional relevance for Chinese readers. The result is a text that not only conveys the original intent with precision but also aligns with Chinese linguistic conventions and instructional needs.

Furthermore, the use of Altering and Narrating ensured the manual’s cultural and contextual appropriateness, localizing references to regulations and training scenarios to fit the Chinese aviation environment. Terminology was carefully aligned

with CAAC standards, such as rendering "angle of attack" as "迎角," enhancing both accuracy and acceptability. Overall, the coordinated application of VTT's strategies yielded a translation that is technically accurate, pedagogically coherent, and fully adapted to its communicative purpose—moving beyond rigid literal fidelity to achieve a truly reader-oriented and functionally effective target text.

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