Applying Skopos Theory to Agricultural Science English Translation: A Case Study of the Seed Industry in China

Tingyue Zhang

Xi'an Fanyi University, Xi'an, Shaanxi, China, 710000

Abstrac: Abstract: With the advent of the information era, technological innovation, particularly internet-based technology, has become the core driver of agricultural development. In this context, accurate and efficient translation of agricultural science and technology texts is vital for promoting China's agricultural modernization and enhancing the international dissemination of its achievements. Guided by Skopos Theory, which emphasizes that translation strategies should serve the intended communicative purpose rather than rigid source-text correspondence, this study examines the English translation of *Seed Industry in China* as a representative case. The paper explores how the Skopos Rule, Coherence Rule, and Fidelity Rule can be applied to translate technical terms, abbreviations, complex sentences, and culture-bound expressions in agricultural science and technology contexts. The findings indicate that Skopos Theory provides a flexible and effective framework for balancing accuracy, readability, and audience-specific communicative goals while maintaining fidelity to the source text. This contributes to enhancing the effectiveness of cross-cultural communication in agricultural contexts

Keywords: Skopos Theory; agricultural science and technology; translation strategies; Seed Industry in China

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1.Introduction

With the advent of the information era, technological innovation—represented by internet technology—has become the core driver of agricultural development. This calls for China to further strengthen research in agricultural science and technology, as well as enhance the dissemination of related achievements. Against this backdrop, the accurate and efficient translation of agricultural science and technology papers, scholarly works, research reports, and patent specifications has become an important force in promoting China's agricultural science and technology development and modernization. [1] Particularly in the context of the "Belt and Road" Initiative and the deepening of international agricultural cooperation, English translation of agricultural science and technology materials must not only ensure the authenticity of information transfer but also fulfill diverse communicative functions according to different application scenarios and audience needs.

This aligns closely with the principles of Skopos Theory, which emphasizes that the choice of translation strategies should serve the specific purpose and communicative function of the translation, rather than be constrained by formal correspondence with the source text. Taking the English translation of *Seed Industry in China* as a central case, this paper explores translation strategies for agricultural science and technology English from the perspective of Skopos Theory, aiming to summarize best practices and enhance the cross-cultural communicative power of such texts.

Seed Industry in China systematically reviews the development of China's seed industry, covering the origins of agriculture, scientific understanding and practice of seeds, and the impact of seed technology revolutions on grain production. It approaches these topics from multiple disciplinary perspectives—including geology, biology, botany, economics, and history—detailing humanity's evolving understanding and utilization of seeds, the resolution of China's grain shortages in the New China era, the "grain and seed wars" faced by China, as well as the strategic deployment by the central government in the new era to win the "seed industry turnaround battle" and the responsive measures adopted nationwide.[2] This interdisciplinary, cross-cultural text provides a rich case for examining the

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application of Skopos Theory in agricultural science and technology translation.

2.Theoretical Framework: Skopos Theory

Skopos Theory originated in Germany in the 1970s. Katharina Reiss was the first to introduce functional categories into translation criticism in 1970, laying the groundwork for the development of functionalist translation theory.[3] Subsequently, Hans Vermeer proposed Skopos Theory, which introduced a purposive dimension to translation studies and further refined the theoretical framework.

As a functionalist translation theory, Skopos Theory departs from the traditional equivalence-centered approach, advocating that translation research should transcend strict source-text dominance. Rather than rigidly adhering to the source text, translators should flexibly apply action theory and communication theory during the translation process, striving to achieve a harmonious unity among the source text information, the author's intention, the translator's purpose, the client's requirements, and the broader social purpose—while maintaining fidelity to the source as a fundamental principle.

Guided by Skopos Theory, translators are expected to uphold general principles of accuracy while making purpose-driven decisions based on specific communicative functions and goals. In this way, translation becomes a tool to achieve targeted outcomes. [4] Within this framework, the function and purpose of the translation take precedence. Once these are determined, translators adopt appropriate translation strategies. For example, the domestication approach favors vocabulary oriented toward the target culture to enhance fluency and accessibility, whereas the foreignization approach retains more source culture-specific vocabulary and expressions to preserve the original's cultural uniqueness.

Translation under Skopos Theory must adhere to three main principles:

(1)Skopos Rule – Before starting the translation, the translator must clarify the intended function and purpose of the translation. These serve to guide the entire translation process, working backward from the desired result to inform translation methods and strategies. Although purposes vary, the general aim is to fulfill the communicative function of the target text, such as providing technical support or conveying scientific information. For example, when translating *Seed Industry in China*, if the goal is international academic communication, more technical terminology and detailed data should be preserved; if the goal is science popularization abroad, terminology should be simplified and supplemented with cultural explanations.

(2)Coherence Rule – Coherence means that the target text should conform to the linguistic structures and conventions of the target language, allowing the intended audience to read and understand it smoothly while recognizing its linguistic, cultural, and communicative context. This requires translators to carefully consider the linguistic and cultural background of the target audience. For instance, the expression "*Cang liang yu ji*" can be translated as "ensuring food security through technological innovation" for international policy researchers, with supplementary explanations provided in the main text or footnotes to clarify this agricultural strategy.

(3)Fidelity Rule – Fidelity requires maintaining a connection between source and target texts by accurately conveying the source message and author's intent. For example, "*He xia cheng liang meng*"might present cultural barriers if translated literally, so a purpose-driven translation could render it as "Yuan Longping's dream of rice plants tall enough to rest beneath," supplemented with additional background information.

Among these principles, the Skopos Rule is paramount; both the coherence and fidelity rules must be subordinated to it.

3.Characteristics of Agricultural Science and Technology English

Agricultural science and technology English is a specialized subset of academic language that plays a critical role in facilitating scholarly exchange and advancing scientific research within the agricultural sector. This variety of English is characterized by its dense use of technical terminology, specialized syntactic structures, and unique

stylistic conventions tailored to the precise and objective communication of complex scientific concepts. An in-depth analysis of these linguistic features not only enhances translators' and readers' comprehension but also provides essential guidance for translation practice and pedagogy in related disciplines.

3.1 Lexical Features

One of the most salient characteristics of agricultural science and technology English is its high concentration of specialized terminology. These technical terms often originate from diverse fields such as plant biology, soil science, animal husbandry, crop cultivation, agro-engineering, and biotechnology. For example, terms like essential amino acid and humus represent core concepts that require precise and consistent translation to preserve scientific accuracy. Moreover, abbreviations and acronyms are widely used to enhance conciseness and readability—such as CAP (Canopy Apparent Photosynthesis)—but they demand careful handling to avoid confusion.

From the perspective of Skopos Theory, the handling of terminology must be purpose-driven: when translating for academic or professional audiences, it is essential to retain the exact technical terms to maintain rigor and authority. Conversely, for popular science communication or materials aimed at lay audiences, simplification, paraphrasing, or explanatory glosses are often necessary to improve accessibility and reader engagement without compromising the core meaning.

3.2 Syntactic Features

Agricultural science and technology English tends to favor linguistic structures that emphasize objectivity, clarity, and scientific rigor. Common syntactic features include the frequent use of third-person narration and passive voice, which serve to depersonalize the discourse and focus attention on the research findings or processes rather than on the researchers themselves. Sentences are often lengthy, dense with information, and incorporate nominalizations—transforming verbs and adjectives into nouns—to condense complex ideas and enhance conceptual abstraction.

While these features support the detailed and unambiguous presentation of scientific content, they can pose challenges for readability, especially for non-specialist audiences. Thus, translation must carefully consider the target readership: when maintaining academic rigor is paramount, these complex sentence structures are often preserved through direct and faithful translation. However, for materials intended for general readers or educational outreach, sentences may be broken down into shorter, simpler units and converted into active voice to facilitate comprehension and engagement.

For example, the sentence:

"The large-scale promotion of hybrid rice significantly increased grain yields in southern China."

may be translated literally for specialist readers to preserve the original structure. For the broader public, it could be adapted as:

"The widespread use of hybrid rice greatly boosted harvests in southern China."

This syntactic adjustment retains the key information while making it more approachable.

3.3 Purpose-Driven Translation Focus

Given that agricultural publications often aim to inform, instruct, and facilitate technological exchange across diverse audiences, translators must strike a careful balance between terminological accuracy and audience accessibility. Achieving this balance requires not only linguistic competence but also a thorough understanding of the communicative goals and cultural expectations inherent in the target context.

For example, policy documents and academic papers demand strict adherence to technical vocabulary and formal style, ensuring precision and authority. In contrast, science popularization materials and training manuals might prioritize clarity and ease of understanding, employing simplified language, analogies, and additional explanations to reach practitioners, farmers, or the interested public effectively.

Ultimately, effective translation in agricultural science and technology hinges on the translator's ability to align linguistic choices with the intended function of the text, consistent with the guiding principles of Skopos Theory. This functional approach empowers translators to navigate the tensions between fidelity, coherence, and target audience needs, thereby enhancing cross-cultural communication and knowledge dissemination in this vital field.

4.Translation Strategies in the Case of *Seed Industry in China*

4.1 Terminology Management

In *Seed Industry in China*, technical terms are generally rendered via literal translation to preserve original meaning and ensure accuracy, reflecting the fidelity rule of Skopos Theory."Qi hou shi ying xing xiao mai pin zhong" is translated as climate-adaptive wheat varieties, with a footnote explaining its drought and cold resistance, meeting both academic and popularization purposes. For example, breathing, when used in the context of crop physiology, is rendered as "Fang qi" rather than the general English meaning "respiration" to avoid misunderstanding. This ensures both terminological accuracy and accessibility for diverse audiences.

4.2 Abbreviation Handling

Abbreviations enhance conciseness and professionalism but can be difficult to master. Translators should be familiar with frequently used agricultural abbreviations and consult authoritative sources for others. For instance, "CAP" is first rendered as Canopy Apparent Photosynthesis and subsequently abbreviated throughout the text for consistency.

4.3 Syntactic Adjustment

Long and complex sentences are common, as is passive voice. [5]Translators should first analyze the sentence structure, identify logical relationships, and then decide whether to maintain or adjust sentence form according to purpose. Passive voice may be retained for academic or policy contexts but converted to active voice for popular science.

Example:Seed security is ensured by strengthening the protection and utilization of germplasm resources, improving breeding techniques, and enhancing seed industry management.

Policy report: passive voice retained.

Popular science: We ensure seed security by protecting germplasm resources, improving breeding, and strengthening seed industry management.

4.4 Cultural Adaptation

"Da hao zhong ye fan shen zhang" is rendered as win the turnaround battle in the seed industry, with an explanation that it refers to a national strategy to enhance independent innovation in the seed sector.

"Nan fan ji di" is translated as Southern Breeding Base, with additional clarification that it is located in Hainan and serves as a key winter crop breeding center in China.

These strategies, encompassing terminology precision, abbreviation consistency, syntactic adjustment, and cultural adaptation, work together to fulfill the Skopos Theory's emphasis on purpose-oriented translation. By balancing fidelity to the source text with target audience expectations, the translation of *Seed Industry in China* achieves both academic rigor and communicative effectiveness.

5.Conclusion

Approaching agricultural science and technology English translation from a Skopos Theory perspective can significantly improve translation quality. As China advances its agricultural modernization, international exchange in this field will inevitably become more frequent. Translators must therefore continue to deepen their understanding of Skopos Theory and enhance their ability to handle the vast and complex specialized terminology of agricultural science and technology.

It is advisable to establish a comprehensive, well-structured terminology database or dictionary that not only lists terms but also includes definitions, usage notes, contextual examples, and synonyms or antonyms. The database should be purpose-built for translation practice, populated with terms from relevant documents, websites, manuals, and product descriptions, thereby enriching translators' knowledge reserves.

In agricultural science and technology translation, Skopos Theory is not only a guiding theoretical framework but also the core criterion for strategic decision-making. The English translation of *Seed Industry in China* demonstrates that the Skopos Rule should take precedence over other principles, and that translators must, while remaining faithful to the original, flexibly adapt vocabulary, syntax, and cultural information to meet the communicative needs of different audiences. Future research could expand the application of Skopos Theory to multimedia agricultural communication."

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