Research on the Multi-Layer Value Translation Paths of Green Ingredient Technology Brands - Based on the Analysis of Localized Communication of Functional Finishing Technology in the Textile Industry

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Abstract: Green technology is gradually becoming an important driving force for the sustainable transformation of the global textile industry. However, the localization and value translation of related technology brands in cross-cultural communication still face many challenges. Based on the empirical research on the communication path of green finishing technology of a European environmental protection chemical enterprise in the Chinese market, this paper proposes a four-layer translation model of "technology-value-scene-collaboration", and systematically analyzes the cognitive evolution mechanism from laboratory achievements to market-acceptable technologies. Through text analysis, brand case review and communication language coding, this paper discusses the translation logic from technical language to consumer value language, as well as the collaborative mechanism of communication rhythm, cultural semantics and trust building in cross-border brand communication. The study finds that the structured multi-layer value translation path helps green technology brands to quickly embed in heterogeneous markets, and improve their cognitive efficiency, market adaptability and long-term cooperation potential.

Keywords: Green Technology Communication; Value Translation; Fluorine-Free Finishing; Sustainable Textiles; Technology Brand

1. Introduction

Although green functional finishing technologies, such as fluorine-free water repellents, bio-based anti-bacterial finishing, and degradable chemical auxiliaries, have been relatively maturely applied in the European and American markets, their brand communication and consumer education in the Asian market, especially in the Chinese market, have made slow progress. This paper focuses on the complete transformation process of the green finishing technology developed by a European environmental protection chemical enterprise (hereinafter referred to as Enterprise X) from laboratory innovation to market acceptance in China. The author proposes a "multi-layer value translation path model" in order to provide a reference for the localized communication, brand landing and user education of similar technologies in the future.

2. Research Background and Literature Review

2.1 Communication Characteristics of Green Functional Finishing Technology

Compared with traditional textile finishing agents, green technologies emphasize their environmental friendliness, harmlessness to the human body, and controllable life cycle management. However, these attributes are essentially "credence goods", and consumers are difficult to directly verify them through their senses. Therefore, their communication relies more on mechanisms such as brand communication language, credibility endorsement, and use scenario reconstruction.

2.2 The Dilemma of Cross-Cultural Adaptation in Brand Communication

In the process of technology communication, there are translation barriers among the three language systems of "technical language-commercial language-consumer language", especially under the cultural differences among Europe, America and Asia, the cognitive basis of environmental protection values is significantly different. For example,

"fluorine-free" water repellency is the default label of health and safety in Europe and America, but in China, it is often regarded as "inferior to the performance of fluorine" in the early stage, resulting in the reverse effect of communication.

2.3 Theoretical Evolution of Translation Path

From the "media value construction" theory in communication to the "brand meaning co-creation" framework in marketing, both emphasize the common shaping of value cognition by all parties in the communication process. In B2B communication, technology brands must establish a transmission path from "technology to application" through intermediary collaboration (such as demonstrations, hang tags, show cases).

3. Research Methods and Data Sources

This study is based on the whole process of the communication and landing of green finishing agents of Enterprise X in China from 2018 till 2023 and uses the following methods:

Text analysis: collect the Chinese and English technical manuals, official website content, Chinese market communication materials, etc. of Enterprise X, and analyze the language migration process;

Comparison of communication materials: compare the content changes of the enterprise in exhibitions, media, and brochures before and after entering China;

4. Construction of Multi-Layer Value Translation Path Model

4.1 Technical Index Language → Trust Building Language

In the early stage of communication of green finishing technology, the most common problem is that technical indicators are difficult to be understood or trusted by target users. For example, terms such as "C6-free water repellency" have professional understanding among chemical engineers or textile mills, but they appear abstract and difficult to relate to actual use feelings from the perspective of end users.

Therefore, the first layer of translation path emphasizes the migration from "tech language" to "trust language". In practice, the following three types of strategies are usually adopted:

4.2 Functional Expression → User Perception Language

The second layer of path focuses on the language reconstruction of the function layer. The core advantages of many green technologies are reflected in micro-performance, such as "hydrophobic angle ≥ 110°", "oil repellency rate reaches 90%", "washing resistance performance exceeds 40 times", etc., but these parameters are hard to be understood by ordinary end users

In order to realize the "perceptualization" of technical value, it is necessary to transform technical professional expressions into consumer language. For example:

Translate "hydrophobic angle ≥ 110°" for better water repellency effects into "waterproof, oil-proof and stain proof, which can be restored by easy wiping";

5. Case Application Analysis

5.1 Case A: Hang Tag Upgrade of Urban Commuting Brand P

Brand P is mainly aimed at urban white-collar workers, and its autumn and winter series focuses on the functions of "lightness, windproof and water repellent". After specifying green finishing technology, the product adds fluorine-free water repellent treatment on the basis of original performance, and has biodegradable attributes through international recognized certifications.

At the communication level, the consultant team assisted the brand in formulating a unified green terminology. The hang tag design adopted the words "Plant based natural protection, fluorine-free water repellency", and the technical source and environmental protection certifications endorsement were marked on the product page. This terminology not only emphasizes the environmental protection attributes, but also conveys the concern to consumers' health.

5.2 Case B: Green Technology Embedding and Terminal Experience Upgrade of Urban Commuting Brand Y

The brand takes "urban life functional clothing" as the core positioning, facing commuters and light outdoor people. Linda Shen participated in the 2021-2022 autumn and winter series upgrading project, and on the basis of the original product functions, assisted it in introducing low fluorine content environmental protection waterproof finishing technology,

highlighting the attributes of "daily easy care, windproof and water repellent".

Hang tag language upgrade: expand the product label from "water repellent" to "low fluorine formula • friendly to the environment • no wet to commute in rainy days", and attach third-party certification marks and use care labels to strengthen consumer trust;

6. Data Feedback and Communication Performance Evaluation

6.1 Improvement of Hang Tag and Terminal Content Recognition

After importing the "green hang tag language" and unified visual system, the recognition of sustainable technology by consumers of many cooperative brands (including Case A and Case B) has been significantly enhanced. For example, in the "green urban commuting experience area" set up by Brand Y, more than 72% of the interviewed consumers can actively identify the words "fluorine-free and sustainable" on the hang tags and understand their basic meanings.

6.2 Enhancement of User Purchase Intention and Positive Evaluation

Data shows that the purchase intention indicators of the green series products in Brand A and Brand Y increased by 26% and 19% respectively, and the word frequency of "environmental protection", "sense of technology", "comfort" and "trust" in social platform comments increased significantly, reflecting that users' emotional identification with green technology is gradually established.

7. Model Advantages and Expandability

The "multi-layer value translation path model" proposed in this study is constructed based on the communication practice of green technology brands in cross-cultural markets, and reflects highly structured, adaptive and result-oriented characteristics. Its core advantages are not only reflected in the effective communication of green technology, but also applicable to the value translation process of a wide range of technology-based brands in different markets

7.1 Multi-Layer Path Structure: A Systematic Mechanism to Address Cognitive Asymmetry

The model systematically addresses the common cognitive asymmetry between the R&D end and consumers through the four-layer path of "technology→language→scene→collaboration", which is particularly applicable to industries with technical entry barriers such as environmental protection, health benefits, and new materials [8].

7.2 Strong Scene Nesting Ability: Enhancing the Connection Between Technology Implementation and Consumption Perceptions

In a market environment characterized by fast consumption and divided attention, consumers have limited acceptance of abstract technical concepts. The model enables green technologies to be presented concretely through life language and application scenarios via the "scene value anchoring" mechanism, thereby enhancing customer understanding and preference.

Case practices show that the model can quickly adapt to contexts such as urban commuting, children's clothing/school uniforms, and outdoor sports, designing appropriate languages and media, which demonstrates good cross-industry and cross-channel versatility.

8. Conclusions and Research Prospects

The global communication efficiency of green technologies relies not only on their technical innovation, but also on the strategic design of pathways that enable them to be understood and embraced by the market. This paper introduces the "Multi-layer Value Translation Model," which offers a practical framework guiding green technologies from research and development to commercial implementation. The study highlights three critical factors in this process: the cultural adaptability of communication language, the alignment between communication timing and business rhythms, and the capacity of communication scenarios to resonate with consumers.

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