

Research on the Demand for Talent in Cross-border E-commerce Independent Websites Based on Text Analysis and OBE Educational Philosophy

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ABSTRACT

To address the mismatch between the supply and demand for talent in the management and operation of cross-border e-commerce independent websites in higher education institutions, which lags behind the needs of enterprises. Based on the Outcome-Based Education (OBE) philosophy, this study uses outcome-oriented approaches to identify the key requirements for talent in enterprise positions. By collecting job postings related to cross-border e-commerce independent websites from major recruitment websites, the study conducts text analysis to extract job requirements and core competency indicators for these positions. The study found that most companies do not have high requirements for work experience, and there are no specific restrictions on English certificates. Instead, they place greater emphasis on practical operational capabilities. Core job competencies primarily focus on website traffic conversion, data strategy, overseas promotion, platform operations, and product and customer management. The research findings provide valuable insights for universities to optimize talent cultivation in cross-border e-commerce independent platforms and offer direction for effectively aligning corporate talent needs with university talent cultivation efforts.

Keywords: OBE, Job openings, Cross-border E-commerce independent sites, LDA.

INTRODUCTION

With the development of global digital trade, cross-border e-commerce independent websites have gradually gained favor in the industry due to their increased autonomy and influence, becoming one of the key channels for enterprises to expand their products overseas. There is a strong demand for talent in the operation and management of cross-border e-commerce independent websites, but traditional education models lag behind

industry needs, resulting in insufficient training effectiveness. Against this backdrop, based on the Outcome-Based Education (OBE) philosophy, teaching content is designed in reverse, with the outcomes of enterprise job skill requirements as the guiding principle, providing a new direction for university teaching content reform [1]. Regarding the extraction of enterprise job skill requirements, job postings on recruitment websites are one effective method [2, 3].

Therefore, to accurately obtain the skill

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requirements for cross-border e-commerce independent site positions, we collected job postings related to cross-border e-commerce independent sites from recruitment websites and used a text analysis system to extract core competency indicators for independent sites. The results of this study will assist universities in precisely optimizing their independent site curriculum and teaching content, driving the transformation of cross-border e-commerce independent site talent cultivation toward a “demand-oriented” approach.

Literature review and evaluation

Research on OBE Educational Philosophy

The origins of OBE can be traced back to the mid-20th century, particularly to William Tyler’s theory of educational objectives proposed in 1949, which emphasized the systematic planning of educational objectives and laid the foundation for OBE [4]. However, the modern form of OBE originated in the 1970s, with its core philosophy influenced by behaviorist learning theories, such as the research of Watson, Pavlov, and Skinner, which emphasized measuring learning outcomes through observable behaviors [5]. In the 1980s, American scholar Spady further advanced the development of OBE, proposing its core principles: clear learning outcomes, expanded opportunities, backward design, and high expectations [6]. By the early 1990s, OBE had become widely adopted in the U.S. education system and was extensively applied in professional fields such as engineering and medicine [5]. Currently, OBE is widely applied in many countries. Extracting core competencies for job positions is an effective approach to defining learning outcomes and serves as the starting point for designing OBE instructional directions. In terms of research on extracting core competencies for job positions, Wang suggested analyzing the demand for cross-border e-commerce talent in enterprises to identify the competencies students need to develop for their future careers [7].

Yang proposed a method for extracting core competencies based on text mining and LDA topic analysis [8].

Research on the Impact of Online Recruitment Information on Education

Taking online job postings as a starting point, this study delves into their implicit requirements for talent, summarizing and refining the research findings. and distilling key insights, this analysis can provide a basis for optimizing talent development programs [9]. Qu and Wang used data mining methods to analyze corporate online recruitment texts, clarifying the characteristics of talent demand in the statistics field, thereby providing a basis for student job searches and university teaching [9]. Smith and Ali took the programming industry as an example, systematically organizing relevant job information to accurately identify the demand for professional skills and research tools, thereby providing a basis for universities to develop related courses [10]. Sun et al. took logistics-related majors as the research object, used web scraping technology to collect online recruitment information, and based on this, constructed a knowledge graph to intuitively and clearly reveal the talent demand trends of entrepreneurial enterprises, providing a basis for relevant training institutions to develop training programs [11].

Evaluation

The existing literature systematically reviews the theoretical evolution and practical pathways of OBE educational philosophy, clearly identifying its core characteristics of outcome-based and backward design. By integrating job analysis capabilities with industry demands, it establishes a logical framework for aligning educational objectives with industrial needs, providing a theoretical framework and methodological reference for this study. Additionally, research on how corporate recruitment information informs education has demonstrated the technical

advantages of text analysis in capturing dynamic talent needs, aligning closely with this study's approach of text analysis based on recruitment data from cross-border e-commerce independent platforms. However, the integration of OBE principles with the emerging niche field of cross-border e-commerce independent platforms remains limited, with a lack of specialized construction of job competency models tailored to this sector. This study focuses on the industry's unique characteristics to deepen the integration mechanism between text analysis and OBE educational logic.

Data collection and processing

Data collection

Using “independent station” as the search keyword, Python was used to collect 1,560 pieces of data on job openings for cross-border e-commerce independent stations from the well-known Chinese job recruitment website [12]. Each job opening includes three parts: job title, job responsibilities, and job requirements.

Data processing

Through manual cleaning, 1,380 job postings for cross-border e-commerce independent websites were obtained, with punctuation marks, numbers, English words, empty values, and duplicate items removed. At the same time, for non-structured data such as Chinese, word segmentation is an important step, mainly involving the conversion of sentences into word representations. Through word segmentation, text is vectorized, and a word frequency matrix is constructed based on statistical analysis, converting text information into digital information.

Data analysis

Talent Profile

In the current boom of cross-border e-commerce, independent websites have become an important platform for companies to expand overseas, and the demand for talent in this field

exhibits unique qualification characteristics. The following analysis examines the qualification profile of talent required for cross-border e-commerce independent websites based on three key data points: work experience, language proficiency, and educational qualifications.

Based on the data regarding work experience requirements (Fig. 1), among positions related to cross-border e-commerce independent websites, 491 positions have “no work experience requirements,” accounting for the highest proportion. This indicates that the industry maintains an open attitude toward talent recruitment, welcoming recent graduates, career changers, and others to join, thereby providing entry opportunities for individuals lacking experience but possessing a strong desire to learn and potential for growth. Meanwhile, positions with work experience requirements also account for a certain proportion, with 214 positions requiring over one year of experience and 156 positions requiring over two years of experience. This reflects that independent site operations involve multiple stages such as product selection, marketing promotion, and user experience optimization. Candidates with actual work experience can adapt more quickly and handle business challenges, such as those familiar with overseas social media marketing strategies or independent site setup tools, giving them a competitive edge in job competition.

Language requirement data (Fig. 2) shows that 72 % of job positions are categorized as “other,” meaning there are no specific language certification requirements or a greater emphasis on practical language application skills; 20 % of positions require CET - 4, 8 % require CET - 6, and only 1 % require TEM8.

In cross-border e-commerce independent site operations, communicating with overseas customers, managing English-language page content, and conducting overseas marketing and promotion all require English as a foundational tool. The English proficiency levels corresponding

to CET-4 and CET-6 generally meet the requirements for daily email communication, page copywriting, and basic communication needs. However, the low demand for advanced English proficiency levels like TEM8 indicates that independent site business operations prioritize practical business English scenarios rather than highly academic or specialized language skills. Nevertheless, possessing strong English listening, speaking, reading, and writing abilities remains a crucial foundational requirement for entering this field.

According to the data on educational requirements (Fig. 3), there are 539 positions

with “no requirements,” far exceeding those requiring a bachelor’s degree or higher (291) and an associate’s degree or higher (240). Positions requiring a master’s degree or higher and a junior high school education or higher each account for only one. This indicates that the cross-border e-commerce independent platform industry places greater emphasis on the suitability of talent for specific roles rather than strict educational qualifications. Independent site operations emphasize practical skills, such as understanding cross-border e-commerce platform rules, being able to build and optimize independent site pages, and planning effective

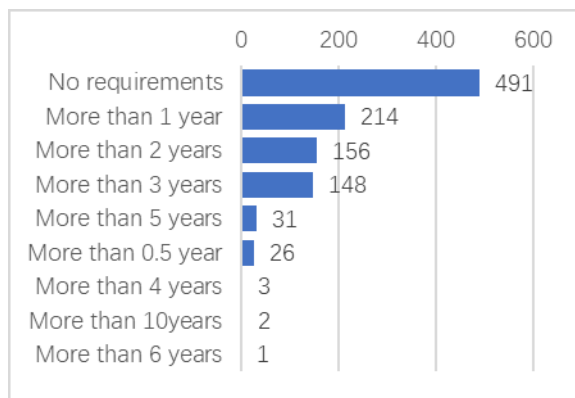


Fig. 1. Work experience requirements.

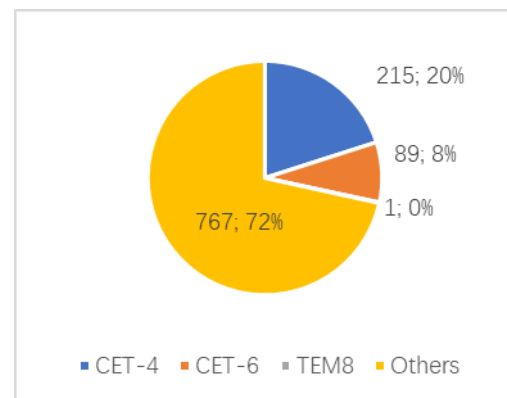


Fig. 2. English language requirements.

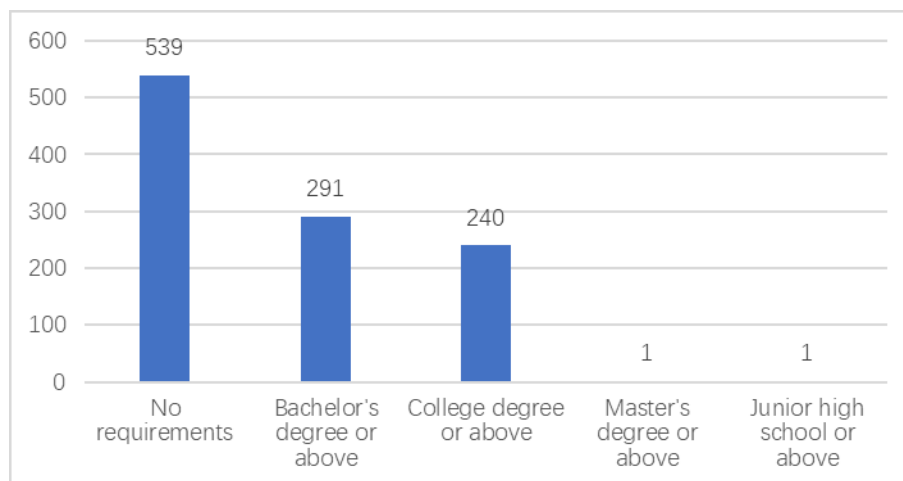


Fig. 3. Educational requirements.

overseas marketing activities. Whether it is a practitioner with a lower educational background but rich practical experience, or a highly educated individual lacking industry practice, companies are more concerned with whether they can quickly get up to speed with the business and create value. However, positions requiring a bachelor's degree or higher also account for a certain proportion, indicating that when it comes to more complex business processes such as brand strategy planning and data analysis modeling, companies tend to hire candidates with higher educational backgrounds and more comprehensive knowledge systems.

Thematic analysis

LDA (Latent Dirichlet Allocation) is a document generation model and an unsupervised machine learning technique that assumes a document contains multiple topics, each

corresponding to different words. The process of constructing a document begins by selecting a topic with a certain probability, followed by selecting a word within that topic with a certain probability, thereby generating the first word of the document. This process is repeated iteratively to generate the entire article. The application of LDA is the inverse process of the aforementioned document generation process, i.e., given a document, it identifies the topics within the document and the words associated with those topics.

In order to understand the characteristics of enterprises' demand for cross-border e-commerce independent station talent, we first estimated topic models for data. The metrics (Fig. 4) suggested by Juan et al. [13] and Deveaud et al. [14] propose that a five-topic model could be used to sufficiently explain the data, whereas the other metrics were uninformative. We decided to

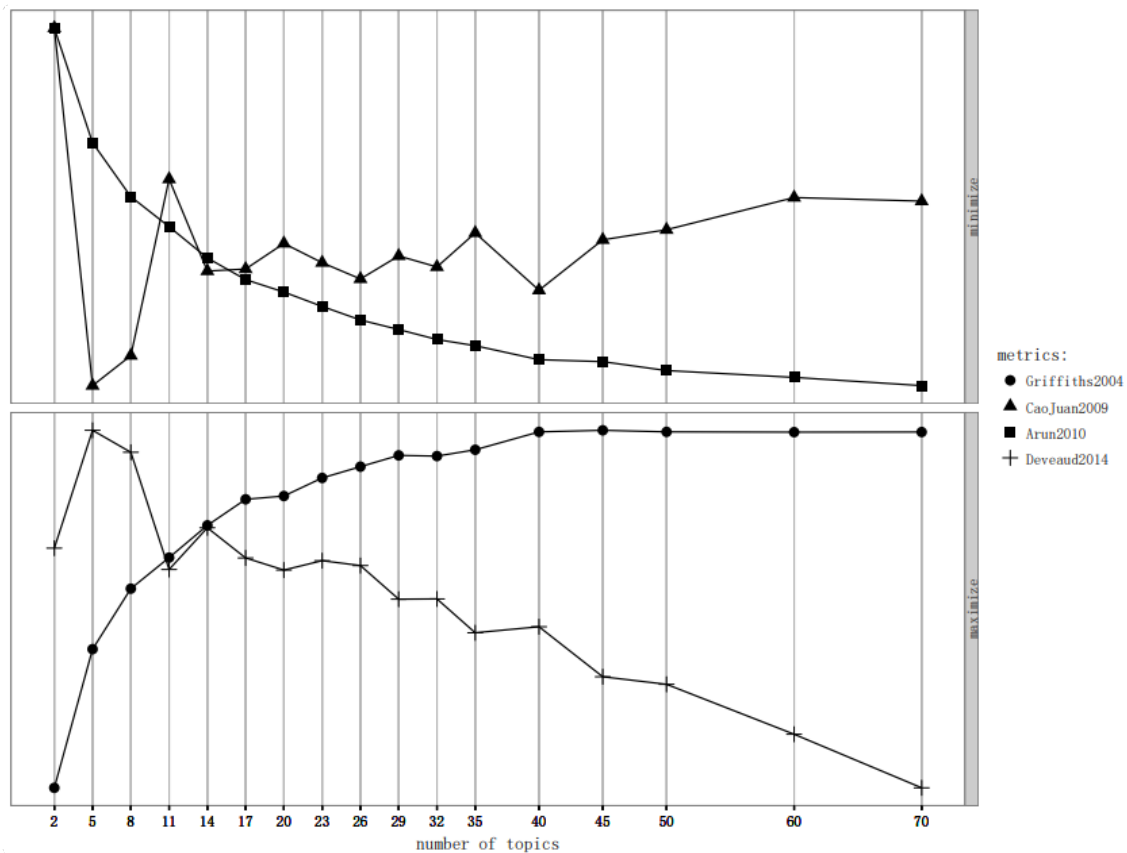


Fig. 4. Results plotted from the 'FindTopicNumber' - helper function.

proceed with five topics.

After setting the number of topics to 5, five keywords were extracted through LDA topic analysis (Table 1).

The results of the LDA thematic analysis reveal the core directions of job functions in talent recruitment for cross-border e-commerce independent websites.

Topic 1: Independent Website Traffic and Conversion Optimization. Keywords focus on “optimization, website, improvement, users, content, traffic, increase, SEO, conversion rate, keywords,” and other aspects. This topic centers on the foundational aspects of independent website operations, emphasizing the use of SEO optimization and high-quality content creation to enhance website traffic and user conversion rates. The role requires practical website optimization skills, familiarity with SEO guidelines, the ability to analyze user needs, and the capacity to produce tailored content. Through traffic operation strategies, the goal is to drive user visits and facilitate conversions. These are the cornerstones of building a solid foundation for cross-border e-commerce independent website operations and are critical to ensuring the basic operational efficiency of the website.

Theme 2: Data-driven strategy planning.

Keywords include “analysis, data, strategy, market, capabilities, solutions, adjustments, effectiveness, proficiency, and tools.” This theme highlights the central role of data in the operation of cross-border e-commerce independent websites, requiring staff to proficiently utilize data analysis tools to extract value from market and operational data, gain insights into market trends and user behavior, and thereby formulate and adjust operational strategies and solutions. Optimizing resource allocation based on data to ensure the effectiveness of cross-border e-commerce independent site operations is a key enabler for achieving refined and scientific operations.

Theme 3: Overseas Marketing and Promotion Expansion. This includes keywords such as “promotion, advertising, marketing, placement, events, brand, planning, Google, overseas, Facebook,” etc. Focusing on overseas market promotion for independent websites, this role leverages mainstream overseas platforms such as Google and Facebook to conduct advertising campaigns, plan marketing activities, and build a brand communication system. The position requires familiarity with the overseas marketing ecosystem and proficiency in multi-platform promotion skills. Through precise targeting and

Table 1. Topic feature words for different topics.

Theme	Keyword
Theme 1	Optimization, Website, Improvement, Users, Content, Traffic, Increase, SEO, Conversion rate, Keywords
Theme 2	Analysis, Data, Strategy, Market, Capabilities, Solutions, Adjustments, Effectiveness, Equipped with, Tools
Theme 3	Promotion, Advertising, Marketing, Placement, Events, Branding, Planning, Google, Overseas, Facebook
Theme 4	Operations, Responsible, Work, Platform, Experience, Familiar, Daily, Shopify, Management, Store
Theme 5	Products, Customers, Sales, Responsibility, Team, Management, Goals, Assurance, Design, Maintenance

creative activities, the role aims to enhance the brand awareness and user reach of independent websites in overseas markets. These capabilities are also the core focus areas for expanding the overseas business footprint.

Theme 4: Platform Operations and Store Management. Keywords include “operations, responsibility, work, platform, experience, familiarity, daily, Shopify, management, and store.” Focusing on independent platforms such as Shopify, this theme emphasizes daily operational management capabilities, requiring familiarity with platform rules and operational processes, responsibility for daily store operations, and the ability to optimize store pages and order processing based on operational experience to ensure the efficient operation of independent stores. These capabilities are the foundation for the implementation of cross-border e-commerce independent store businesses.

Theme 5: End-to-end management of products and customers. Key terms include “product, customer, sales, responsibility, team, management, objectives, ensure, design, and maintenance.” This role involves coordinating resources across the entire product and customer lifecycle—from product design and sales to customer maintenance and team management—to achieve business objectives. The position requires controlling product requirements, driving sales conversions, maintaining customer relationships, and ensuring product and service quality through team collaboration. These capabilities are critical to achieving a closed-loop cross-border e-commerce independent site business and enhancing customer loyalty.

The five major themes traffic conversion, data strategy, overseas promotion, platform operations, and product customer management form the basis of the job function system for cross-border e-commerce independent site talent recruitment, outlining the key modules of cross-border e-commerce independent site operations and the skills required of talent.

CONCLUSIONS

This study is based on the OBE educational philosophy, with a focus on outcome-based education. It uses text analysis technology to mine corporate recruitment data and systematically explores the core competency requirements for cross-border e-commerce independent station positions, aiming to address the disconnect between university talent cultivation and corporate needs. The study found that the cross-border e-commerce independent platform industry places a strong emphasis on skills over experience and adaptability over academic qualifications. Additionally, companies highly value practical operational capabilities, particularly in five key areas: traffic conversion, data strategy, overseas promotion, platform operations, and product/customer management, forming a clear set of required competencies. For example, skills such as SEO optimization, data analysis tool application, Google/Facebook ad placement, and Shopify platform operations are in high demand, reflecting the dual requirements of technical expertise and strategic planning in independent site operations. The study used LDA topic modeling to identify five key capability themes, constructing a comprehensive capability map spanning from traffic acquisition to user conversion, and from data-driven strategies to brand promotion, providing precise guidance for universities to optimize their curriculum systems.

This study combines the OBE concept with text analysis technology, focusing on the emerging field of cross-border e-commerce independent websites, to reveal the talent needs of enterprises. By reverse-engineering job competencies, it achieves a precise alignment between educational objectives and industry demands, thereby upgrading talent cultivation for cross-border e-commerce independent websites from “knowledge accumulation” to “practical empowerment.”

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