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Tracing Multimodal Shifts in Chinese English Textbooks: From Text-Heavy to Image-Driven Design

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Abstract

This study examines how multimodal resources in Chinese primary school English textbooks (1983–present) have evolved alongside curriculum reforms and sociopolitical change. Based on a purpose-built corpus and a mixed-methods approach, the findings show a shift from text-heavy to image-rich layouts, with image–text relations moving toward projection and interdependence. Visuals changed from close-up "demand" gazes to medium and long-shot "offer" gazes. Ideologically, textbooks progressed from patriotism (1983) to globalization and multiculturalism (2001), and more recently to cultural confidence and national identity (2023). Early semi-digital icons (e.g., cassette, headphones) marked initial digitalization, while today's e-textbooks represent a full digital turn. Overall, textbooks act not only as teaching tools but also as cultural artifacts, reflecting globalization–localization dynamics and offering insights for design and multimodal literacy.

Keywords

Multimodal discourse analysis; Curriculum reform; Educational policy; Ideological representation; Globalization; Cultural identity; Textbook research

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1. Introduction

Over the past four decades, English education in China has been reshaped by curriculum reforms, globalization, and digitalization[1,2,3]. Textbooks, as central pedagogical tools, not only support instruction but also function as cultural artifacts that embody ideologies, values, and educational philosophies[4,5,6]. Examining their multimodal evolution is thus critical to understanding how pedagogy, culture, and politics intersect[7].

Multimodal discourse analysis (MDA), rooted in Halliday's[8] social semiotics and extended by Kress and van Leeuwen[9,10,11], provides a framework for analyzing how language, images, and other resources jointly construct meaning. While visual grammar has been influential, it has also been critiqued for Eurocentrism and limited empirical validation[12,13]. Recent scholarship[14,15] highlights the need for culturally grounded approaches, as Chinese aesthetics and symbolism often diverge from Western models. Within textbook studies, MDA has revealed how multimodal choices convey knowledge and ideology, with research noting both the rise of multicultural perspectives internationally[16,17] and the intertwining of globalization and national identity in China[18,19,20].

Despite these contributions, gaps remain. Few studies adopt a longitudinal perspective to trace multimodal shifts across curriculum reforms[21,22,23], computational[24,25,26] and corpus-based approaches are rare[27,28,29], and the integration of digital modalities, such as QR codes[30,31,32,33] and AR has been understudied[34,35,36,37]. Addressing these gaps, this study constructs a multimodal corpus of Chinese primary English textbooks (1978–2024) and applies both quantitative and qualitative methods, including deep learning techniques, to examine the evolution of visual design, image–text relations, and ideological representation.

Accordingly, the study seeks to address the following questions:

RQ1. How have multimodal features in Chinese primary English textbooks evolved across successive curriculum reform stages?

RQ1a. What dominant patterns of image–text relations are evident in different historical periods?

RQ1b. How have patterns of multimodal engagement in textbook design evolved across curriculum reform stages?

RQ1c. How have digital and semi-digital modalities been incorporated into textbooks over time?

RQ2. In what ways are these multimodal changes connected to broader sociopolitical transformations and processes of globalisation?

RQ2a. How do multimodal features in different versions of textbooks represent evolving cultural symbols?

RQ2b. How do digital modalities in textbooks respond to global digitalisation agendas and broader educational reforms?

2. Methods

2.1. Corpus Construction

The empirical corpus for this study was drawn from three representative sets of Chinese primary school English textbooks, all published by the People's Education Press (PEP). As the sole official publisher of nationwide English textbooks over the past four decades, PEP provides materials that are both authoritative and representative. To ensure diachronic coverage and comparability, one edition was selected from each of the three major phases of curriculum reform (see **Table 1**).

Priority was given to lower-grade textbooks, as they mark the entry point of English learning and most clearly reveal curricular orientations and ideological features. At this stage, children's cognitive and social development makes textbook design especially formative. The 2023 edition, covering Grade 3 to the end of primary school, was also included. In total, the corpus consists of three editions (1983–2023) with 216 pages, providing a solid basis for longitudinal analysis of how multimodal resources and ideological discourses in textbooks have evolved alongside broader sociopolitical transformations.

2.2. Analytical Techniques

This study adopts a mixed-methods approach integrating quantitative statistics with qualitative discourse analysis to examine multimodal and ideological features in Chinese primary English textbooks. Textbooks were scanned at 300 dpi in PNG format, assigned unique IDs, and processed with Online OCR for bilingual text extraction with positional data. Layout scripts generated bounding boxes for text and image regions, exported as CSV files, with random samples checked for accuracy. Visual regions were annotated using LabelImg, categorizing images

Table 1. Overview of the Textbook Corpus

Period	Edition	Year Range	Publishers	Books	Coverage (Grades)
Early Reform	First Edition, August 1983	1983	People's Education Press, Middle School English Editorial Office	1	Grade 2
New Curriculum Reform	First Edition, April 2001	2001	People's Education Press	1	Grade 1 (lower)
Core Competency Stage	First Edition, June 2023	2023	People's Education Press, Curriculum & Textbook Research Institute	1	Grade 3 (upper)

into types such as illustrations and photos. Quantitative analysis employed Excel and SPSS, including frequency counts, chi-square tests, clustering, correlation analysis, and heatmaps to visualize interactions between image–text relations and ideological themes. Complementing this, qualitative multimodal discourse analysis examined representative cases, focusing on how images, texts, and digital resources co-constructed meanings of patriotism, gender roles, and cultural confidence. Triangulation of quantitative and qualitative findings ensured validity, revealing both diachronic design trends and deeper sociocultural and educational implications.

3. Results

3.1. Evolution of Modal Resources

Figure 1 and **Figure 2** together illustrate the diachronic evolution of modal resources in the three editions of Chinese primary English textbooks (1983, 2001, and 2023). The results reveal a clear shift from text-dominant to increasingly image-rich layouts.

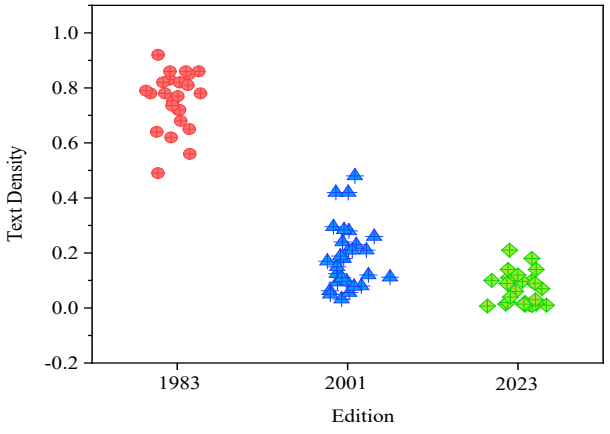

Figure 1. Distribution of text density in primary English textbooks across three curriculum reform phases

First, text density decreased steadily over time. The 1983 edition is characterized by high text density, reflecting a knowledge-transmission model in which written language served as the primary mode of instruction. By 2001, text density had moderated, and by 2023 it had further declined, indicating that textual material was being complemented and partially replaced by alternative semiotic resources.

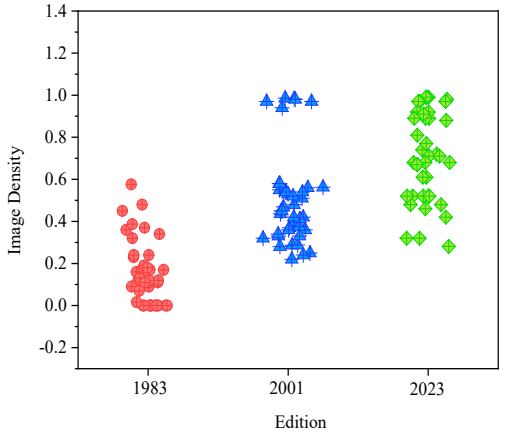

Figure 2. Distribution of image density in primary English textbooks across three curriculum reform phases

Image density increased markedly across editions: the 1983 textbook relied on minimal, decorative visuals; the 2001 edition adopted a more balanced design, with images systematically supporting meaning-making, especially at unit openings; and the 2023 edition reached the highest density, positioning visuals as central to comprehension, engagement, and ideology.

These patterns reveal a paradigmatic shift in textbook design—from text-centered pedagogy (1983), to multimodal communicative orientation (2001), and finally to an integrated multimodal framework (2023). This trajectory reflects broader transformations in Chinese English education, evolving from rote learning to communicative competence, and more recently to fostering cultural identity and global vision through multimodal resources.

3.2. Image–Text Relations across Periods

Figure 3 shows that the distribution of image–text dominance shifted markedly across editions. In 1983, text-dominant pages (cat. 2) prevailed, with minor proportions of image-dominant (cat. 0) and balanced cases (cat. 3). By 2001, image dominance increased substantially, while text dominance decreased. In 2023, image dominance became predominant, with text dominance and balanced relations further reduced.

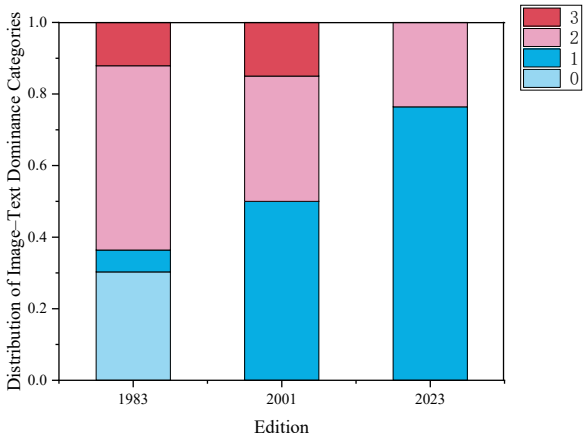

Figure 3. Evolution of Image–Text Dominance in Meaning-Making across Curriculum Reforms
Note. 0 = No image. 1 = Image-dominant. 2 = Text-dominant. 3 = Equal.

Figure 4 indicates that semantic relations also changed significantly. In 1983, elaboration and extension (cat. 1–2) were frequent. By 2001, projection (cat. 3) rose sharply and became the dominant type. In 2023, projection overwhelmingly dominated, with other categories nearly absent.

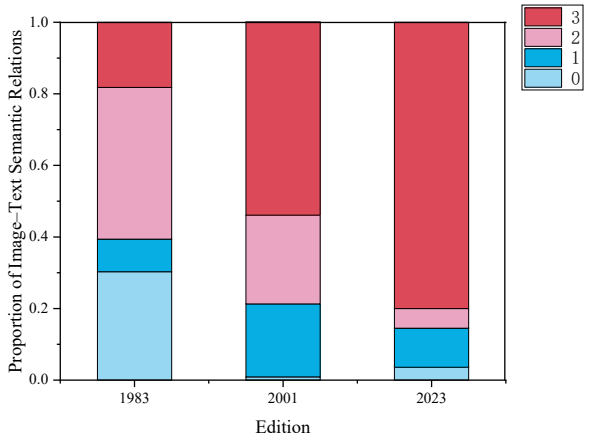

Figure 4. Distribution of Image–Text Semantic Relation Types across Textbooks
Note. 0 = No image. 1 = Elaboration. 2 = Extension. 3 = Projection say.

Figure 5 demonstrates a growing convergence towards Bi-directional dependency (cat. 2). In 1983, unilateral and mutual dependencies coexisted with some independent cases. By 2001, mutual dependency increased, and in 2023 it became nearly exclusive, with independent and unilateral relations largely disappearing.

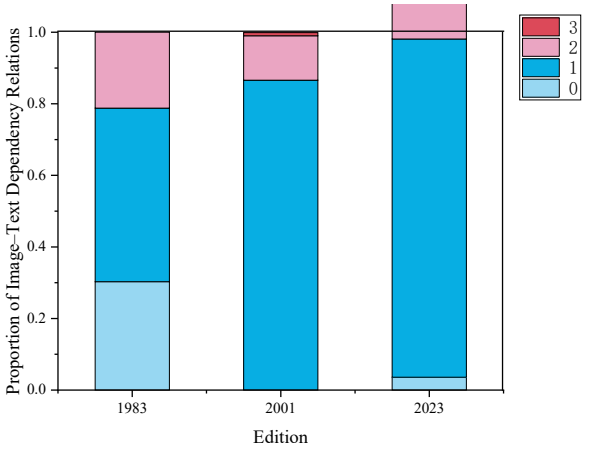

Figure 5. Distribution of Image–Text Dependency Relations across Textbooks
Note. 0 = No image. 1 = Uni-directional dependency. 2 = Bi-directional dependency. 3 = Zero dependency.

Overall, the findings reveal a clear trajectory from text-dominant and supportive visuals in 1983 to image-dominant, projective, and mutually dependent multimodal designs in 2023.

3.3. Patterns of Visual Engagement in Textbook Images

Table 2 shows the diachronic distribution of demand and offer structures. In the 1983 edition, both demand (0.47) and offer (0.53) were present, indicating a relatively balanced use of interactive and informative visual functions. From 2001 onwards, demand structures disappeared, with offer structures (1.0) exclusively dominating in both 2001 and 2023 editions. This shift suggests a clear movement toward an informative rather than interactive visual orientation across curriculum reforms.

Table 2. Distribution of Image Gaze Types (Demand vs. Offer) across Textbook Editions

	demand	offer
1983	0.47	0.53
2001	0	1
2023	0	1

Note: Demand refers to images in which characters look directly at the viewer, creating a sense of interaction and engagement. Offer refers to images where characters look away, perform an action, or present information, functioning primarily as knowledge display.

As shown in **Figure 6**, visual angles were predominantly eye-level (cat. 1) across all editions. In 1983, eye-level views accounted for the majority, with small proportions of high-angle (cat. 0) and low-angle (cat. 2). In 2001, eye-level became almost exclusive, with other angles nearly absent. In 2023, eye-level remained dominant, but both high-angle and low-angle views slightly increased compared with 2001, suggesting a modest diversification of perspectives.

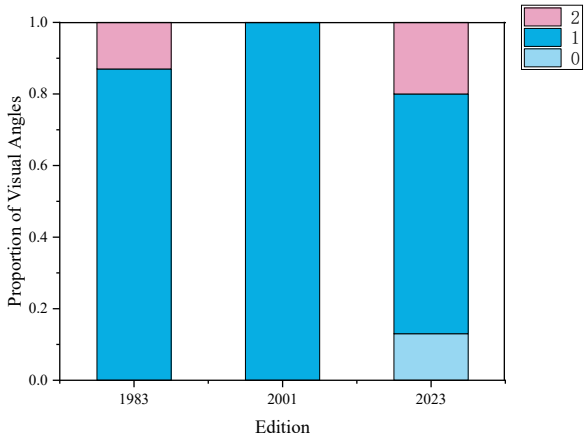

Figure 6. Distribution of Visual Angles (High, Eye, and Low) across Textbooks
Note. 0 = High angle (top-down view). 1 = Eye level. 2 = Low angle (bottom-up view).

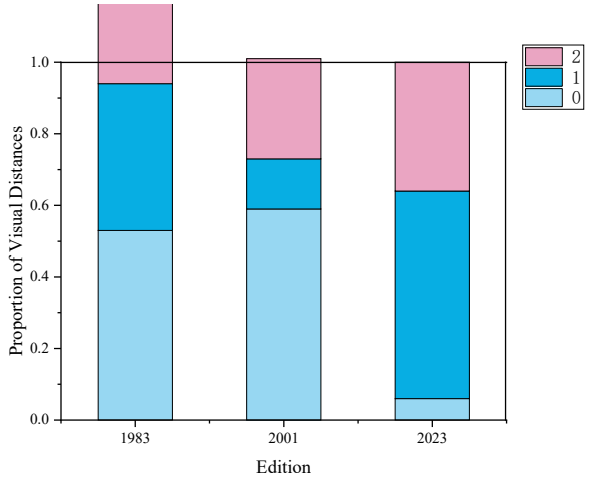

Figure 7. Distribution of Visual Distances (Close, Medium, Far) across Textbooks
Note. 0 = Close-up: A close view or detail of a person or object, usually above the shoulders or a partial feature. 1 = Medium shot. 2 = Long shot.

Figure 7 illustrates changes in visual distance across editions. In the 1983 edition, close shots (cat. 0) and medium shots (cat. 1) dominated, with long shots (cat. 2) only marginally present. By 2001, close shots increased to around 0.6, medium shots declined, and long shots rose markedly. In the 2023 edition, medium shots remained predominant (about 0.6), long shots rebounded to nearly one-third, while close shots almost disappeared. Overall, the results suggest a consistent preference for medium shots across time, with long shots briefly experimented with in 2001 and re-emerging in 2023, whereas close shots gradually diminished and nearly vanished in the latest edition.

3.4. Ideological Representation

Figure 8 shows the diachronic distribution of four categories of ideological elements across the three textbook editions. In the 1983 edition, cultural confidence and traditional heritage (cat. 2) and patriotism/national identity (cat. 4) were relatively prominent, reflecting the emphasis of the sociopolitical discourse of the time on collectivist values and local lived experiences. By contrast, gender stereotypes (cat. 1) and globalization/cross-cultural communication (cat. 3) appeared less frequently, indicating that the overall ideological orientation of the textbooks remained primarily inward-looking.

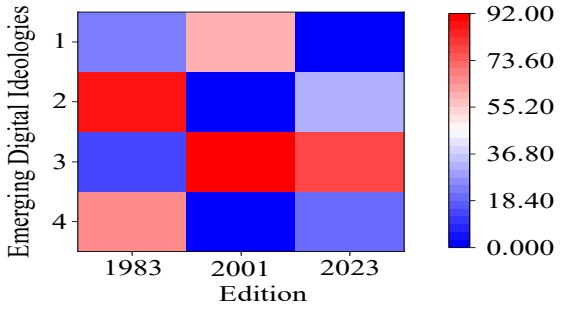

Figure 8. Evolution of Ideological Representations in Textbooks: Gender, Culture, Globalization, and National Identity
Note. 1 = Gender stereotypes. 2 = Cultural confidence and tradition inheritance. 3 = Globalization and intercultural communication. 4 = Patriotism and national identity.

A marked transformation appeared in the 2001 edition: globalization and cross-cultural communication reached their peak, while gender stereotypes also increased, reflecting both the emphasis on intercultural

competence under educational reform and the influence of everyday family and school contexts. At the same time, patriotism/national identity and cultural confidence/ traditional heritage declined.

In the 2023 edition, a new balance emerged: globalization remained salient, gender stereotypes were markedly reduced, patriotism identity resurged, and cultural confidence shifted toward more implicit and aestheticized forms. Overall, the latest edition illustrates an intentional effort to reinforce national identity and cultural subjectivity while sustaining a global outlook.

Beyond these aggregate patterns, ideological change is further revealed in details: labor scenes shifted from collective work to individual learning and vocational skills; traditional motifs such as festival scenes and ink-painting illustrations were reintroduced in more aestheticized forms; and gender roles moved from rigid dichotomies to more balanced portrayals, with women increasingly represented in professional and public domains.

3.5. Emerging Digital Ideologies

The analysis reveals that mediated and semi-digital resources gradually emerged as supplementary modes of interaction. In the 2001 edition, cassette icons and musical scores were introduced, indicating a pedagogical reliance on recorded audio input and rhythm-based language learning. These features extended meaning-making beyond text and image, integrating auditory and musical modalities into classroom practice, and established listening sections as a key component of English learning.

In the 2023 edition, headphone icons and hands-on activities became particularly prominent. The headphone symbol not only marked the normalization of listening practice but also represented its modernization, visually replacing the earlier cassette icon and reflecting technological advances in accessing listening materials. At the same time, task-based activities such as make your book and make some cards effectively fostered experiential interaction and multimodal engagement. By integrating verbal instructions with images and physical actions, these activities facilitated the interplay of language learning and operational practice. They implicitly enhanced learners' English application, review, and oral expression skills, while also increasing interest and classroom participation.

(a)

(b)

Figure 9. Semi-digital resources in the 2001 edition of primary English textbooks
Note. (a) Page combining lyrics, musical notation, and illustrations for rhythm-based language learning. (b) Cassette icon indicating recorded audio input.

(a)

(b)

Figure 10. Semi-digital and interactive resources in the 2023 edition of primary English textbooks
Note. (a) Hands-on paper-craft task ("Make your paper garden") promoting multimodal interaction. (b) Headphone icon indicating audio-supported learning.

Textbook digitalization remained partial and staged. Semi-digital elements such as cassette or CD symbols gradually shifted listening and task-based learning toward digital mediation, while recent editions relied on online supplements (e-textbooks, audio files) instead of embedding QR codes. This cautious trajectory reflected UNESCO and OECD agendas on digital literacy but prioritized equity and accessibility over individualization, given urban–rural disparities.

Beyond digitalization, modal evolution was closely tied to curriculum policy and global agendas. The 1983 edition emphasized patriotism and collectivist values, the 2001 edition incorporated globalization and multicultural imagery, and the 2023 edition highlighted "cultural confidence" by combining traditional Chinese symbols with modern technology. These choices illustrate how textbooks strategically mediated between local values and global discourses.

4. Discussion

The diachronic analysis of Chinese primary English textbooks demonstrates a clear transition from text-heavy layouts to multi-modally integrated designs. Image density rose from ornamental use in 1983 to explanatory visuals in 2001 and full image–task orchestration in 2023, reflecting a pedagogical shift from knowledge transmission to communicative and competency-based learning. Image–text relations evolved from text dominance to projection and bidirectional integration, while visual engagement shifted from demand gazes to offer gazes and situational scenes, positioning learners as observers rather than direct participants. The removal of Chinese annotations further underscored the shift toward immersive English learning through multimodal supports.

Ideologically, textbooks mirrored sociopolitical transformations. The 1983 edition emphasized patriotism and collectivism; the 2001 edition reflected globalization but reinforced gender stereotypes; and the 2023 edition reintroduced cultural heritage while promoting gender equality within global perspectives. Digitalization progressed cautiously, from cassette icons to headphone symbols and sticker tasks, reflecting equity concerns across diverse contexts. Overall, textbooks function as both pedagogical tools and ideological artifacts, selectively appropriating global discourses while reinforcing national identity, cultural values, and the institutional logic of curriculum reform.

In sum, Chinese primary English textbooks operate as both pedagogical tools and ideological artifacts. They mediate between global agendas and local values, balancing multimodal literacy with equitable access. Future textbook design should balance visual projection with textual support, strategically integrate digital resources, and strengthen ideological auditing to ensure that multimodality enhances language learning while

Table 3. Evolution of ideological orientations and visual features in primary English textbooks

Edition	Ideological Orientation	Typical Illustrations / Features
1983	Emphasis on patriotism and national identity; depictions rooted in everyday life; minimal globalization; limited gender stereotypes	Collective labor and patriotic themes; women shown engaging in sports such as basketball; father figures often depicted smoking (gender role stereotypes still present)
2001	Significant increase in globalization and cross-cultural exchange; decline of Chinese cultural elements; rise of anthropomorphic cartoons; most pronounced gender stereotypes	Classroom activities with students from diverse cultural backgrounds; cross-cultural scenes of festivals, friendship, and landmarks; girls always in skirts, boys in trousers; men polishing cars or solving technical problems; the only explicit Chinese symbol was the panda
2023	Balanced integration of global perspectives and national subjectivity; significant reduction of gender stereotypes; greater emphasis on aesthetics and narrative expression	Reintroduction of historical figures, traditional festivals, and cultural heritage; reduction of overt gendered divisions of labor; visuals designed with greater artistic and narrative qualities; diverse roles for characters with increased gender equality

cultivating cultural confidence, inclusivity, and equity in a globalized educational landscape.

5. Conclusion

This study traced the evolution of multimodal resources in Chinese primary English textbooks, revealing how visual, verbal, ideological, and digital modes shifted with curricular and sociopolitical change. The trajectory moved from text-heavy layouts with ornamental images (1983), to explanatory and communicative visuals (2001), and finally to image-driven, task-integrated designs (2023). Image–text relations progressed from unidirectional support to projection and bidirectional integration, while visual engagement shifted from demand gazes to offer gazes and situational scenes. Ideologically, the 1983 edition emphasized patriotism and collectivism, the 2001 edition globalization with gender stereotypes, and the 2023 edition cultural heritage and gender equality within global perspectives. Digitalization advanced cautiously, from cassette icons (2001) to headphone symbols and sticker tasks (2023), reflecting equity concerns. Overall, textbooks function as both pedagogical tools and ideological artifacts. Future design should balance text and image, integrate digital resources strategically, and adopt ideological auditing to enhance multimodal literacy and equitable access.

Disclosure statement

The author declares no conflict of interest.

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