

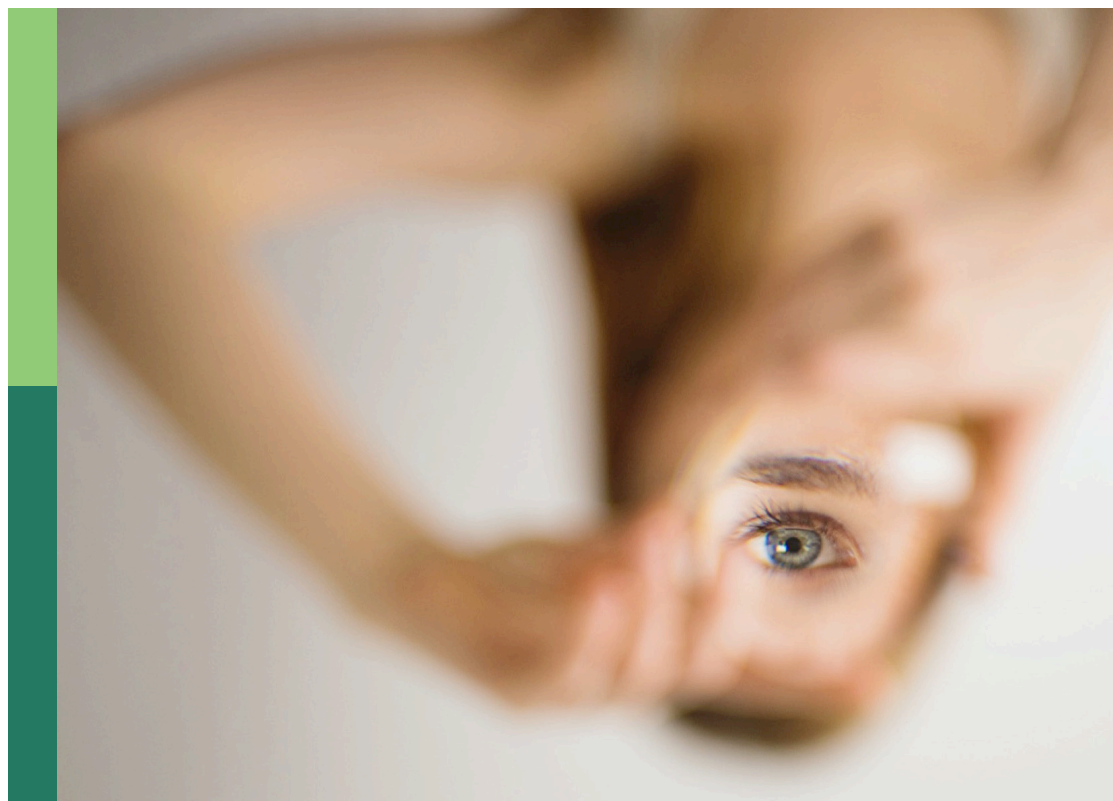
Discourse, conversation and argumentation: theoretical perspectives and innovative empirical studies, volume IV

Edited by

Antonio Bova, Lise Haddouk, Carlo Galimberti
and Francesco Arcidiacono

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Discourse, conversation and argumentation: theoretical perspectives and innovative empirical studies, volume IV

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Editorial: Discourse, conversation and argumentation: theoretical perspectives and innovative empirical studies, volume IV

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Editorial on the Research Topic

[Discourse, conversation and argumentation: theoretical perspectives and innovative empirical studies, volume IV](#)

Despite the central role of discourse, conversation, and argumentation in social life, psychological research still lacks a unified framework for understanding these communicative phenomena across contexts, methods, and theoretical traditions. Investigations of language use, dialogic interactions, and argumentative processes continue to develop within partially separate research communities, often limiting the possibility of a systematic interdisciplinary exchange.

This fourth volume of the Research Topic “*Discourse, conversation and argumentation: theoretical perspectives and innovative empirical studies*” aims to further bridge this divide by bringing together innovative contributions that examine communicative practices from a broad psychological and socio-discursive perspective. The papers collected in this Research Topic explore the place of discourse within institutional, educational, interpersonal, media, and intercultural contexts, while also advancing a methodological reflection through corpora analyses, meta-analyses, comparative discourse analyses, stories completion, and functional linguistic approaches.

Taken together, the contributions presented in this volume demonstrate the vitality and diversity of contemporary research on communication: they show how discourse and interaction are deeply implicated in the construction of identities, values, institutional positions, epistemic stances, and moral responsibilities. At the same time, they reveal how communicative practices are shaped by historical changes, cultural contexts, technological environments, and shifting social norms. By assembling studies that range from media representations and diplomatic discourses to educational dialogues, research writings, executive identities, and digital subtitles, this volume offers a rich and multifaceted account of the psychological significance of language in use.

Zhang opens the volume with a diachronic corpus-based investigation of the construction of Henan province's regional image in Western mainstream media. Combining text mining with transitivity-based social role analysis, the study traces how semantic themes and role configurations have changed over time. The findings reveal a shift from a predominantly crisis-oriented and goal-positioned representation toward a more agentive construction in which Henan increasingly appears as actor, thereby illustrating how discourse contributes to the historical reconfiguration of regional identity.

Rühlemann addresses one of the foundational questions of conversation research: how speakers recognize that a turn is nearing completion. Drawing on the Freiburg multimodal interaction corpus, the study explores whether frequency and frequency-related measures can function as cues for turn completion. By comparing question turn-constructual units with storytelling units, the paper shows how word-frequency patterns may help listeners anticipate turn transition, thus offering an original contribution to the study of turn-taking as a socially organized and cognitively informed process.

Xing et al. examine the effects of interactive reading on young children's narrative abilities through a meta-analysis of 25 studies. Their findings show a medium positive overall effect of interactive reading on narrative development, while also identifying intervention duration and peer sharing as important moderators. The study provides robust quantitative evidence for the educational value of interactive reading and highlights the relevance of dialogic practices in supporting children's communicative and developmental trajectories.

Schwarz et al. focus on ethical learning in educational dialogue. Using the analytical distinction between dialogue on ethics and ethics of dialogue, their case study illuminates the conditions under which ethical thinking and ethical conduct can reinforce one another in classroom interaction. Their analysis shows that the coordination of epistemic and behavioral dimensions of ethical learning depends crucially on dialogic design principles, thereby contributing to research on democratic education and values-oriented interaction.

Zheng offers a cross-lingual analysis of attitudinal meaning in the publicity discourses of Anglo-American and Chinese universities. Drawing on the appraisal system, the study reveals significant differences in the distribution of affective, judgmental, and appreciative resources across the two linguistic and cultural contexts. The findings show how university discourse encodes distinct communicative priorities, with implications not only for cross-cultural discourse research but also for institutions seeking to strengthen their global communication strategies.

Yang and Guo examine changing patterns of epistemic positioning in research writing across education, history, mechanical engineering, and physics over three historical periods. Their analysis of hedges and boosters reveals a longitudinal decrease in overt epistemic positioning, suggesting a broader shift toward a more impersonal and data-oriented scientific style. This study contributes to our understanding of how disciplinary

discourse evolves over time and how knowledge claims are rhetorically calibrated in changing academic cultures.

Liu turns attention to the discursive construction of scholar identity through a critical genre analysis of Chinese and English academic biographies. By combining textual analysis with interview data, the study identifies both common rhetorical structures and culturally specific identity strategies. The paper demonstrates how academic selves are constructed not only through genre conventions but also through institutional and socio-cultural expectations, offering valuable insights into identity work in academic communication.

Li and Pan analyze the discursive strategies used by spokespersons of China's ministry of foreign affairs during a public health crisis. Their corpus-driven study shows how communicative, offensive, and juxtapositional strategies were employed to articulate national positions, counter criticism, and construct geopolitical alignments. The paper highlights the role of diplomatic discourse in managing crisis narratives and shaping international legitimacy.

Zeng explores danmu subtitling on Bilibili as a self-regulative and ethically complex translation practice. By extending Chesterman's models of translation ethics and proposing an ethics of digital technology, the study shows how user-generated subtitles are governed by multiple and sometimes competing ethical principles. This research makes an important contribution to the study of digital participatory discourse, translation practices, and the ethical dimensions of collaborative online communication.

Manca et al. investigate how executive managers in Italy and the United Kingdom narratively reconfigured the self in the wake of COVID-19. Using the story completion method, the authors identify alternative self-definitions emerging at the intersection of work, family, and cultural expectations. The study shows how major societal disruptions can open new identity trajectories, including becoming a work-life balance advocate, a family man, or a renewed ideal worker.

Finally, **Xiang** examines the Mandarin construction "Taishang zuo-zhe zhuxituan" through the lens of Cardiff grammar. The study clarifies the process type, participant roles, syntactic structure, and discourse-functional motivations of this construction, showing how grammatical analysis can illuminate the relationship between linguistic form and communicative function. In doing so, it contributes to a deeper understanding of Mandarin grammar and to broader functional approaches to discourse.

The studies collected in this fourth volume offer compelling evidence of the breadth, complexity, and methodological richness of current research on discourse, conversation, and argumentation. Whether focusing on interactional cues, educational dialogue, academic identity, media representation, diplomatic communication, or digital translation, these contributions show that communicative practices are central to the ways individuals and institutions construct meaning, negotiate values, and respond to social change. We hope that this volume will stimulate further interdisciplinary dialogue and inspire new research at the intersection of psychology, discourse studies, and communication.

Author contributions

AB: Writing – original draft, Writing – review & editing. FA: Writing – original draft, Writing – review & editing. CG: Writing – original draft, Writing – review & editing. LH: Writing – original draft, Writing – review & editing.

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The construction of “Taishang zuo-zhe zhuxituan” in mandarin: a Cardiff grammar approach

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Based on Cardiff Grammar, this paper studies the construction of “Taishang zuo-zhe zhuxituan” (“There is the presidium sitting on the stage”) in Mandarin, aiming to answer three key questions: (i) What Process type and Participant Roles are expressed by the construction? (ii) What is the functional syntactic structure of the construction? (iii) What are the functional motivations for using the construction? Guided by the principles of functional linguistic description, this study reveals that this construction realizes a Locational Relational Process, with two Participant Roles of Location and Carrier, which is different in meaning from similar constructions like “Zhuxituan zuo zaitaishang” (“The presidium sits on the stage”) and “Zhuxituan zaitaishang zuo-zhe” (“On the stage, the presidium sits”). The functional syntax of the construction is “S $\wedge$ P $\wedge$ C,” with the Subject conflated with Location, Complement with Carrier, and *zhe* following the verb *zuo* is an Aspect particle, which is part of the Predicator. The functional motivations of the construction include making *taishang* the Subject Theme, setting the scene for the discourse, and enhancing the state of existence of *zhuxituan*. This paper has implications for the study of other “location + V-zhe + thing” constructions in Mandarin and some similar linguistic phenomenon in other world languages.

KEYWORDS

Taishang zuo-zhe zhuxituan, Mandarin, Cardiff grammar, participant role, functional syntax, functional motivation

1 Introduction

The construction of “Taishang zuo-zhe zhuxituan” (台上坐着主席团, “There is the presidium sitting on the stage”) in Mandarin has garnered substantial scholarly attention in the field of Chinese linguistics since the 1950s (Lü et al., 1956). To elucidate the phenomenon, we shall examine this construction closely, as illustrated in (1)¹.

(1)	台上	坐	着	主席团。
	Taishang	zuo	zhe	zhuxituan.
	stage-on	sit	ASP	presidium.
	“There is the presidium sitting on the stage”			

1 Keys used in this study: V = verb; ASP = Aspect particle; Cl = Clause; S=Subject; M = Main Verb; C=Complement; O=Operator; P=Predicator; X = Auxiliary; A = Adjunct; PR = Participant Role; CR = Circumstantial Role; Pro = Process; Ag = Agent; Ca = Carrier; Loc = Location; Ag-Ca = Agent-Carrier; Af-Ca = Affected Carrier; ngp = nominal group; h = head; dd = deictic determiner; $\wedge$ =followed by; /=conflated with; | = consist of; — = filled by; $\triangle$ = expounded by. Note that following the systemic functional tradition, names of structural functions are spelt with an initial capital and names of systems with upper case.

This construction expresses the meaning of “there exists a thing at some places” with the pattern of “location + V-zhe + thing,” including three components: a locative *taishang* (“on the stage”), a verb *zuo* (“sit”) followed by an aspect particle *zhe*², and a noun *zhuxituan* (“the presidium”) in that order. The construction has been deemed “noteworthy” in the Chinese linguistic literature due to the semantic and syntactic mismatch it has exhibited. It is generally argued in the literature that the construction logically means *zhuxituan zuo-zhe* (“The presidium sits”) (Peng, 2018: 200; Lü, 2002: 302; Wang, 2002: 374). In other words, the logical Subject of the verb *zuo*, i.e., *zhuxituan*, which should conventionally occupy the initial position of the clause, is instead found at the end, while *taishang*, typically an adjunct in Mandarin, assumes the Subject position. However, this construction seems not to be a solitary case but a common one in Mandarin because a number of other verbs can also enter into this construction, such as *zhan* (“stand”), *tang* (“lie”), *zhu* (“live”), *gua* (“hang”), etc. There are 5,372 tokens with the pattern of “location + V-zhe + thing” in the BCC (Chinese Corpus constructed by Beijing Language and Culture University Corpus Center). Here are some similar expressions:

(2)	墙上	挂	着	一幅画。(BCC)
	Qiangshang	gua	zhe	yifu hua.
	wall-on	hang	ASP	a picture.
	“There is a picture hanging on the wall.”			

(3)	窗外	飘	着	雪。(BCC)
	Chuangwai	piao	zhe	xue.
	window-outside	drift	ASP	snow.
	“There is the snow drifting outside the window.”			

Owing to these distinctive characteristics, this construction is frequently cited as a quintessential example of “locative inversion” constructions, presenting significant challenges for grammatical description and elucidation within the field of Chinese linguistics. The scholarly discourse has seen a variety of theoretical frameworks put forth for the syntactic and semantic analysis of this construction, with a particular focus on the grammatical function of the locative *taishang*, viz. whether it can be analyzed as the Subject of the clause (Lü et al., 1956; Song, 1991; Li, 2001; Zhu, 2001; Lü, 2002; Wang, 2002; Wang and Xu, 2013; Li, 2011; Deng, 2016; He, 2016; Wang, 2016; Yang, 2019; Xu and Pan, 2019). Although new proposals are emerging, the problems remain unresolved. However, little attention has been paid to the particular insights into such a construction that can be obtained

from an analysis by drawing on Cardiff Grammar (CG), a model of Systemic Functional Linguistics (SFL). The purpose of this paper is to put forward this kind of analysis.

In this paper, the construction of “Taishang zuo-zhe zhuxituan” will be studied within the framework of CG (Fawcett, 1980, 2008, 2010, 2011, 2013, 2017; Tucker, 1998; He et al., 2015)—a cognitive-interactive model of SFL. From the perspective of CG, the crux of the matter in this construction is insufficient linguistic description and explication in Mandarin. Through functional semantic and syntactic analysis, this paper aims to answer three specific questions related to this construction: (i) What Process type and Participant Roles are expressed by the construction? (ii) What is the functional syntactic structure of the construction? (iii) What are the functional motivations for using the construction? By addressing these three pivotal questions, we aim to show that the framework of CG can illuminate the intrinsic nature of this construction both theoretically and practically.

The subsequent sections of this paper are organized as follows. Section 2 makes a sketch of the previous studies of this construction, where different viewpoints will be reviewed critically. Section 3 provides a brief overview of CG with the purpose to prepare the ground for the analysis of the construction. Section 4 focuses on the process and Participant Role (PR) analysis of this construction. Section 5 delves into the functional syntax of the construction. Section 6 investigates the functional motivations underlying the use of the construction, and Section 7 synthesizes the findings and presents the concluding remarks.

2 Previous studies of “Taishang zuo-zhe zhuxituan”

The construction of “Taishang zuo-zhe zhuxituan” has often been treated as one particular kind of existential constructions in the Chinese linguistic literature. Since the period of “Subject and object discussion” in the 1950s (Lü et al., 1956), it has interested many scholars from different branches of linguistics, including traditional grammar, formal linguistics, cognitive-functional linguistics and linguistic typology to determine which element serves as the Subject in the construction. Since convergence and divergence are identified among different linguistic branches, we will review previous studies from various perspectives on the analysis of *taishang* in the construction. Generally, there are four views: the adjunct view, the Subject view, the Big Subject view, and the complement view. Each view encompasses distinct rationales. Given the comprehensive nature of previous studies, this section will elucidate each view with resort to representative figures.

2.1 The adjunct view

The Adjunct view holds that *taishang* is an Adjunct. It is argued that locatives in Mandarin are adjuncts, as they typically lack semantic relations whatsoever with the verbs of the clauses. Two sub-types are found within this view: View A and View B. The former claims that the construction has the syntactic structure of “A $\wedge$ P $\wedge$ S,” i.e., *taishang* is

² In Mandarin Chinese, the item *zhe* (着) has various functions in clauses, such as expressing the continuous aspect, representing the continuation of state, emphasizing the imperative mood, etc. For the sake of simplicity, this paper just glosses it as an Aspect particle (see Song, 1991; He, 2016; Li, 2011).

the Adjunct, *zuo-zhe* is the Predicator³, and *zhuxituan* is the Subject (Peng, 2018: 200; Lü, 2002: 302; Wang, 2002: 374; Chen et al., 2023). The latter argues that its syntactic structure is “A ^ P ^ C,” that is, *taishang* is the adjunct, *zuo-zhe* is the predicator, and *zhuxituan* is the complement⁴. There is no Subject in this construction (Sun, 1958; Gao, 1986; Wang, 2016).

View A is fundamentally grounded in the semantics among the three elements of the construction, with a focus on the “Agent-Affected (‘patient’ in other grammar)” relationship. The Predicator *zuo-zhe* is semantically linked exclusively to the animate Agent *zhuxituan* rather than *taishang*, indicating that the action denoted by *zuo-zhe* is attributed to *zhuxituan*. Thus, it is the Subject. However, this Subject is not a conventional one. It is a “dependent Subject” because it is contingent upon the Predicator *zuo-zhe* (Wang, 2002: 374). Consequently, View A is occasionally referred to as the “semantic school.” It posits that the construction is semantically equivalent to *Zhuxituan zuo zaitaishang* (“the presidium sits on the stage”), with *taishang* being thematized, i.e., an inversion of *Zhuxituan zuo zaitaishang*. This view is to some extent functionally oriented. Nevertheless, the problems with this view are also apparent. One is that it ignores the semantic role of *taishang*, not accounting for its obligatory presence, which contradicts “S ^ P ^ C” tendencies in Mandarin. The other is that the traditional concept of inversion must be redefined, given that the standard definition of inversion is the movement of an element from its canonical position to a non-canonical one without altering the constituent elements (Quirk et al., 1985: 1377–1379). In other words, scholars must prove that *zuo-zhe* and *zuo zai* (“sit at”) are semantically equivalent. In fact, the placement of the Agent at the end of the construction is a prevalent rule in Mandarin (Lü, 2002: 523; Li, 2011: 111).

View B posits that the construction in question is an existential clause, a notion distinct from the English language, which necessitates a semantically empty Subject *there*. Unlike English, Mandarin does not mandate the presence of a Subject in existential clauses. This view categorizes the construction as a non-Subject clause, reflective of Chinese characteristics. However, this view encounters two challenges. One is that it lacks compelling evidence to categorize a substantial number of such clauses in Mandarin as non-Subject clauses. The other is that the construction diverges significantly in both form and meaning from prototypical non-Subject clauses, exemplified by *Xia Yu le* (“It rains”), where there is no Subject, and *yu* (“rain”) is a Complement rather than a Subject. Consequently, the functional validity of View B is also open to scrutiny, which lacks empirical support.

³ Note that we use the term “Predicator,” not “Predicate.” The latter term has been used in traditional grammar, formal grammar (where it is roughly equivalent to VP, or Verb Phrase). It should be noted that CG uses the term Main Verb. Considering that the Process meaning in Mandarin Chinese can be realized not only by verbs but also by nouns, adjectives, and other items, we, following Halliday and Matthiessen (2014: 151), use the term “Predicator.”

⁴ Some scholars differentiate “Object” from “Complement” especially in the traditional grammar, but in SFL the division is not needed, since the distinction between them can be modelled in the explicitly semantic categories of the types of PRs. Following the systemic tradition, we will unify the two terms as Complement for convenience.

To summarize, the Adjunct view is profoundly rooted in the traditional grammar, where a rigid one-to-one correspondence between clause elements and word groups has been unconsciously maintained, including a direct mapping from subjects to nominal groups, Adjuncts to prepositional groups (phrases), complements to adjective groups, and so forth (Quirk et al., 1985: 60). Given that locatives in Mandarin bear a close semantic resemblance to prepositional groups, they are consequently categorized as Adjuncts.

2.2 The subject view

The Subject view asserts that *taishang* functions as the Subject within a syntactic structure of “S ^ P ^ C” (Song, 1991: 119–120; Zhu, 2001: 408–409; Yang, 2019). This view, often referred to as the “word order school” or “positionalism,” primarily relies on linguistic form, specifically word order, to identify Subjects. According to this criterion, if a nominal group precedes the verb, it is a Subject; conversely, if it follows the verb, it is deemed the complement. Zhu (2001: 411) claims that the challenge of identifying a clause element as a subject or complement hinges on discerning whether the structure containing the element is “subject-predicate” or “predicate-complement.” It is claimed that subjects and complements in Mandarin are less influenced by semantic roles and are more determined by their structural positions. This view further argues that temporal and locative elements share formal features with Agents, suggesting they should be categorized as the same grammatical category. Given that the locative *taishang* precedes the verb *zuo* in the construction, it is considered a special noun, and by extension, a Subject.

The principal advantage of the Subject view lies in its simplicity and ease of application in identifying Subjects and Complements, aligning with the traditional definition of the Topic as the Subject (Chao, 1968: 69; Song, 2018: 200). However, the shortcomings of this view are equally evident. Wang (2002: 367), from the “semantic school,” critiques this view for its exclusive focus on linguistic form, which obscures the boundary between rhetoric and grammar. The consequence is that the diverse and vibrant expressions in Mandarin have been restricted into a set of rigid rules. For instance, treating the underlined item *mingtian* in *Mingtian yao kaihui* (“Tomorrow there is a meeting”) as a Subject contradicts the conventional grammatical description in Mandarin, where it is typically regarded as an Adjunct.

In essence, the Subject view overemphasizes word order, treating *taishang* as Subject solely due to its position, while neglecting its semantic role as Location. This leads to inconsistencies as stated above.

2.3 The big subject view

The Big Subject view posits that the construction is a “subject-predicate predicate clause,” where *taishang* is identified as the Big Subject, and *zhuxituan* serves as the Little Subject within the clause *zuo-zhe zhuxituan* (literally “sit the presidium”) (Li, 2001: 342–345). This view suggests that the “subject-predicate” structure of *zuo-zhe zhuxituan* functions as the predicate of the Big Subject *taishang*. Thus, the proposed syntactic structure of the construction is “S_{big} ^ P ^ S_{little},” with an inversion of the Little Subject and the verb.

In this view, *taishang* is deemed the Subject of the main clause, and *zuo-zhe zhuxituan*, regardless of its internal structure, i.e., *zuo-zhe zhuxituan* or *zhuxituan zuo-zhe* (“The presidium sits”), operates as its predicate. Functionally, this view delineates the psychological subject (Theme in SFL) as the big subject and the logical subject as the little subject. The core tenet of this view is that topics in Mandarin equate to subjects. This view shares an advantage with the subject view in that it aligns with the traditional definition of the topic as the subject. However, two issues require resolution. On the one hand, this view does not consider the semantic interrelations among the three elements of the construction within the broader syntactic pattern, recognizing only the semantic connection between the verb *zuo* and the noun *zhuxituan*, while denying the semantic relations between the Predicator *zuo-zhe* and the locative *taishang*. This stance partially aligns with View A in the Adjunct view, which also regards *zuo-zhe zhuxituan* as an inversion of *zhuxituan zuo-zhe*. On the other hand, this construction diverges from the typical “subject-predicate predicate clauses” (see He, 2017), exemplified by *Ta shenti jiankang* (“He is physically healthy”), where the embedded clause *Shenti jiankang* (“The body is healthy”) adheres to “subject + predicate” structure. This divergence implies a significant expansion of the “subject-predicate predicate clauses” in Mandarin.

In a word, functionally a topic is a semantic (pragmatic) concept (Lü, 2002: 616) and does not occupy the same categorical level as the subject and the complement. Although related, they are distinct entities. Thus, equating the topic as the subject may lead to confusion between semantic and syntactic structures.

2.4 The complement view

The Complement view claims that *taishang* in this construction functions as a complement, with *zhuxituan* assuming the function of the subject within a syntactic structure characterized as “C $\wedge$ P $\wedge$ S” (Deng, 2016). This view shares certain affinities with the Adjunct view, where *taishang* is deemed ineligible for Subject status, and *zhuxituan* is recognized as the indisputable subject. However, diverging from the adjunct view, the complement view regards *taishang* as an inherent syntactic element, i.e., a complement, instead of an adjunct. This stance admits the semantic relationships between *taishang* and the verb *zuo*, yet demurs from recognizing it as the subject, given that *zhuxituan* fulfills the role of agent. Functionally, this view echoes the traditional grammar, where subjects are often agents, and agents are accorded precedence in subject assignment.

The advantage of this view is its recognition of *taishang* as an inherent syntactic element, realizing a PR. Nonetheless, it overlooks the basic syntactic sequence “S $\wedge$ P $\wedge$ C” in Mandarin, where agents constitute only half of the subjects within clauses (Shen, 2017). Other elements such as time, locatives, tools, and so forth, are also capable of serving as subjects. Thus, while this view has a functional orientation, its functional scope is unduly constricted, effectively confining the subject to agents alone, which may ignore Mandarin’s flexibility in assigning subjects to locatives and temporals.

All in all, the above views diverge in their interpretations of the nature of the construction, particularly concerning the locative *taishang*, and none of these competing views has gained the most ground for the time being. To a certain extent, the adjunct view and complement view are meaning-oriented, whereas the subject view and

the big subject view are form-oriented. Although all these views claim that they have taken both form and meaning into consideration, i.e., the long-recognized methodological principle of “integration of both form and meaning” within Chinese linguistic tradition (Zhu, 2001: 146; Fan, 2018), the ongoing debate surrounding the construction of “Taishang *zuo-zhe zhuxituan*” highlights the lack of consensus on implementing this principle, especially the unresolved issue of mutual verification between form and meaning. All these indicate that a new approach focusing on the perspective of semantic-and-syntactic alignment is needed to shed light on the very nature of the construction in question. Distinct from other grammatical approaches, CG regards the system network as the generative base of a linguistic structure. Therefore, meaning and function, and their syntactic realization have become the main focus of this grammar. A CG approach is capable of not only uncovering the semantic and functional features of the construction, but also elucidating the distinctions between this construction and analogous ones. Prior to delving into this construction, we will provide a concise overview of the basic notions within CG to establish the theoretical framework.

3 A brief overview of Cardiff grammar

CG has its basis in SFL theory and, in particular, in Halliday’s earlier work in the 1960s and 1970s (Schulz and Fontaine, 2019: 230). As a cognitive-interactive model within SFL (Fawcett, 2008: 20), CG places greater emphasis on the role of the “interacting mind” in constructing a model of language and its use, striving to achieve a balance between the descriptive, generative, and cognitive aspects of language. This section aims to delineate the basic notions of CG for the purpose to provide an analytical framework for this study. Three pivotal aspects will be specified: the relationship between meaning and form, the basic principles that underpin the analysis of Processes and PRs, and the basic syntactic categories and relations.

3.1 The relationship between meaning and form in CG

Within the framework of cognitive-functional linguistic theories, CG shares a foundational commitment to explicating linguistic structures through bidirectional form-meaning correlations. Following Saussurean duality principles, Fawcett’s (2008: 37) and Fawcett’s (2010: 34) theoretical premise maintains that linguistic signs inherently possess dual aspects: formal manifestations and semantic content, proposing an inseparable dialectic where formal analysis necessitates concurrent semantic consideration. This conceptualization extends beyond conventional semantic parameters in SFL, particularly through Halliday’s functional expansion where three meta-functions proliferate into eight distinct meaning dimensions within CG: experiential, interpersonal, thematic, logical relationships, polarity, validity, affective and informational (Fawcett, 2008: 242).

CG operationalizes paradigmatic analysis through semantic opposition rather than formal differentiation, positing that forms are meaning realizations. The model’s organizational axiom establishes the formal stratum as encompassing all meaning-realization mechanisms, including syntax, items, intonation, and punctuation. Furthermore, CG theoretically distinguishes between language as a

systemic resource (the potential) and its contextualized implementation (instantiated text), with instantiation processes mediating between these ontological levels. This form-meaning dynamic finds visual representation in Figure 1, illustrating their interdependent relationship within the CG paradigm.

In Figure 1, the boxes under the label “potential” are concerned with the language as a system, while those labeled as “instance” refer to the products of particular uses of that system, i.e., texts, defined as instances of language in use. In this model, lexicogrammar has two main components that specify “potentials” (on the left), and two outputs that specify “instances” (on the right). Therefore, the system network of semantic features specifies the language’s meaning potential, and the realization rules specify its form potential, their output being a syntactic unit and its elements. As it shows, the result of instantiation at the level of meaning is a semantic selection expression, consisting of all the features selected from the semantic networks in the generation of a particular clause, and the results of instantiations at the level of form are the complete structures for the units under generation. The two levels of form and meaning are connected through the fact that the output from the level of meaning is the input to the level of form. If an element of the generated unit needs to be filled by a further unit, a realization rule (represented by the arrow on the left) specifies re-entry to the network to generate one.

3.2 Basic principles in the analysis of processes and PRs

Within the meaning potential, a pivotal domain is the network for TRANSITIVITY, which encompasses two key concepts: (i) Process, which is typically realized in the Main Verb of a clause, and (ii) Participant Roles (PRs), which are roles that are “expected” by the Process, and are typically conflated with the Subject or the Complement. CG has proposed several principles when analyzing Processes and PRs (see Fawcett, 2011):

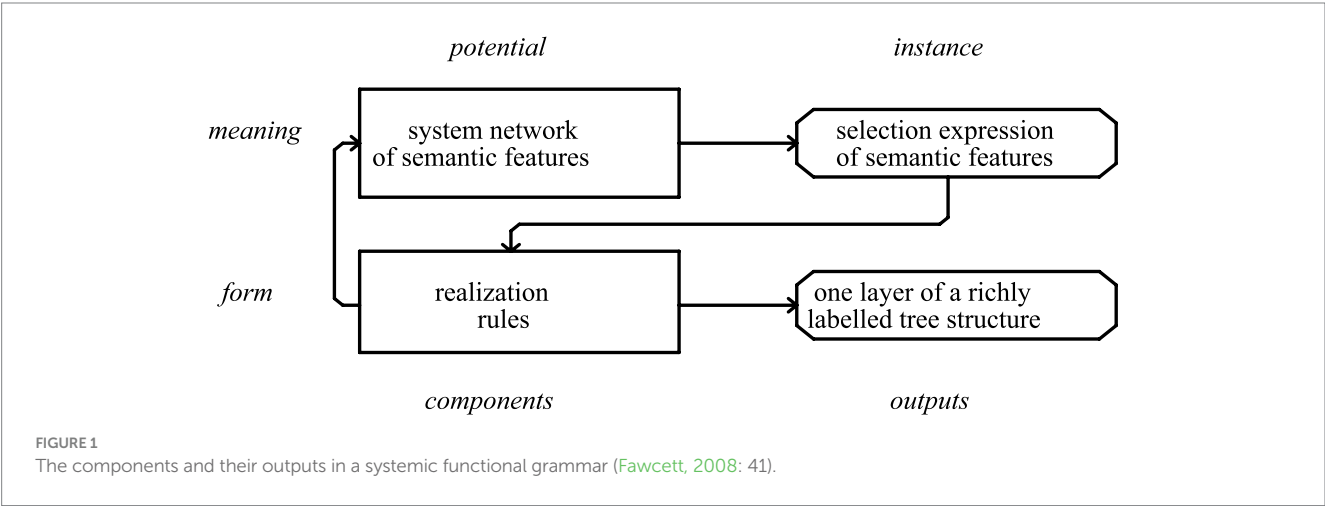
- (i) There must be no more than one of each type of PR in any one clause;
- (ii) There must be a test for each PR, to enable the analyst to check in cases of doubt;

- (iii) The same configuration of PRs is not used for more than one major Process;
- (iv) In identifying the Processes or PRs, PRs should come first.

CG delineates six principal processes within the TRANSITIVITY system: action process, relational process, mental process, environmental process, influential process, and event-relating process. Each of these processes is characterized by distinct configurations of PRs. Within the relational process, five subcategories are identified: attributive, locational, directional, possessive and matching. Given the close relevance of the construction under discussion to the Locational Process, we will delve deeper into this particular subcategory. In CG, a Location can pertain to either space or time, which is usually “static.” Locations in space are more common, because the sort of entity that typically gets located in time is an event, and events are typically realized as clauses (Fawcett, 2010: 210). If a Location includes a preposition, that preposition is always part of the Location. According to Fawcett (2011), locational process in English is characterized by four distinct configurations of PRs as below.

- A Carrier+Process+Location: Ivy[Ca] lives/is/works[Pro] in Cardiff[Loc].
- B There+Carrier+Process+Location: There is[Pro] a fly[Ca] in my soup[Loc].
- C Affected-Carrier+Process+Location: His luggage[Af-Ca] stayed[Pro] in Cardiff[Loc].
- D Agent-Carrier+Process+Location: Ivy[Ag-Ca] remained[Pro] in Cardiff[Loc].
- E Agent+Process+Affected-Carrier+Location: Ivy[Ag] kept[Pro] the baby[Af-Ca] at home[Loc].

Type A features a simple carrier and is the most frequent, accounting for 97% (Fawcett, 2011). This type includes a subcategory characterized by the “there be” construction, wherein the existential *there* does not conflate any PR. This subcategory is to present the Carrier as an “enhanced theme” in a Process that typically encapsulates a state of “being” at a certain Location in space or, less frequently, in time. Its discourse function is to introduce a new “object” to the discourse, which is why it almost invariably appears with an unparticularized (indefinite) nominal group as the carrier. Type B is



distinguished from type A by having a compound PR, i.e., Affected-Carrier. In this type, the Carrier bears no responsibility for the decision that dictates its presence in the Location. Type C involves a positive decision on the part of the Carrier to maintain its state, exemplified by *Ivy* not merely being a simple carrier but also functioning as an Agent-Carrier. This compound role is capable of passing the re-expression tests for both Agent and Carrier, as pointed out by Fawcett (2011). Type D pertains to actions in the “psychological” realm, where the agent decides to keep something in a specific location. Here in this case, the location is defined by the presence of *the baby*, rendering *Ivy* the agent, and the carrier, i.e., *the baby*, not just a simple carrier but an affected-carrier.

3.3 Three principles for functional syntax

The most prominent feature of CG lies in its construction of a theory of syntax for SFL. Three major principles are identified for functional syntax within SFL (Huang, 2007; He, 2017; He, 2023: 359–360). The first principle is that language is multi-functional, which implies that linguistic forms reflect multi-dimensional rather than single-dimensional meanings. The second principle is that meaning is primary, and form is the realization of meaning. The cardinal principle in CG is that meaning potential is the generative basis for linguistic forms, and semantic features must be realized in linguistic forms. In other words, syntactic analysis is based on semantic analysis and is a refinement of semantic features. The third principle says that the semantic features of the semantic layer are realized by a single syntactic structure at the level of form. The implications of this principle are that elements may be conflated with each other, one element may realize more than one semantic feature, and different elements combined may realize different strands of meaning.

Based on these three principles, four functional syntactic categories and relations are posited (Fawcett, 2008, 2010). The former includes unit, element, place, and item, while the latter encompasses

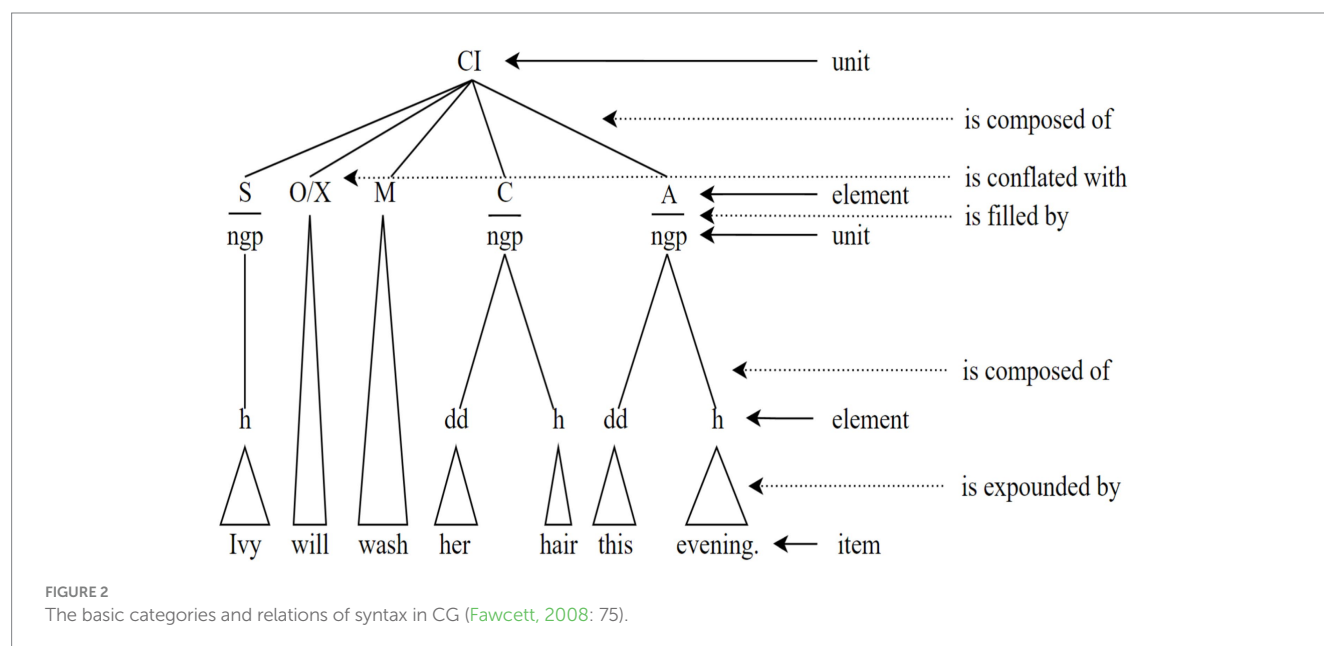
componence, filling, exponence, and conflation. The basic syntactic categories and relations in CG can be represented in Figure 2.

In Figure 2, this clause is composed of five elements: subject, operator/auxiliary, main verb, complement, and adjunct. The subject is filled by a nominal group, which is composed of head only and expounded by the item *Ivy*. The operator is conflated with auxiliary, expounded by the item *will*. The main verb is expounded by the item *wash*. The complement is filled by a nominal group, which has two elements, i.e., a deictic determiner expounded by *her* and a head expounded by *hair*. The adjunct is filled by a nominal group composed of two elements, i.e., a deictic determiner expounded by *this* and a head expounded by *evening*.

From the vantage point of CG, a robust functional linguistic theory must exhibit the strength at both the functional and formal levels, for the simple reason that every functional description must, if it is to be sufficiently explicit to be testable, also attend carefully to the level of form (Fawcett, 2008: 15). The result is that the purely formal contrasts in a language play no role in how the grammar operates in the generation of a sentence. CG provides a cognitive-interactive model of the interacting mind that also incorporates knowledge of the socio-cultural factors relevant to generating and understanding language-texts. This grammar has been and is being developed around the world and in different languages, for example, in work on Mandarin (Zhou, 1997; He et al., 2015; Yan and He, 2022), German (Schulz, 2015), and Japanese (Tatsuki, 2020). In the ensuing section, we will analyze the semantics and functional syntax of the construction of “Taishang zuo-zhe zhuxituan” from a CG approach. It will be seen that CG is applicable to Mandarin, and the seemingly irresolvable problem of this “special” construction can be properly handled with simplicity in this grammar.

4 The functional semantics of the construction

Within CG, the experiential strand of meaning in clauses is primarily conveyed through the system of TRANSITIVITY, which



defines (i) the range of types of process that is possible to express through the language concerned and (ii) the PRs in each of those types process (Fawcett, 2008: 47). As pivotal elements for the experiential meaning, the analysis of processes and PRs provides a methodology for elucidating the perspective and worldview of the text's performer, be it a speaker or a writer. This section first analyzes the process and PRs of the construction in question, and then makes comparisons with analogous constructions.

4.1 The process and PR analysis of the construction

The construction of “Taishang zuo-zhe zhuxituan” is fundamentally contingent upon the semantic interplay among its three elements: *Taishang*, *zuo-zhe*, and *zhuxituan*. If *zuo-zhe* is intransitive, it expects only one participant, whereas a transitive reading expects two participants. There is a scholarly consensus on identifying *zhuxituan* as a PR, but opinions diverge regarding *taishang*. Thus, the key to resolving this issue lies in determining the grammatical function of *taishang*—whether it is a PR or a Circumstantial Role (CR). According to CG, if it is a PR, it is expected by the Process, an intrinsic element; if it is a CR, it is not expected by the Process, an optional element (Fawcett, 2008: 137). Given that processes are typically expressed by verbs, the meaning of the verb *zuo* must be examined first. The fifth edition of the Modern Chinese Dictionary (Cao et al., 2007: 1828) indicates that *zuo* can function both transitively and intransitively, for example *zuo chuan* (“take a boat”) and *qing zuo* (“please take a seat”). This suggests that the traditional distinction between transitive and intransitive verbs in Mandarin is not always clear-cut, as verbs can exhibit both behaviors depending on contexts, as keenly noted by Shen (2018). Through corpus investigation in the BCC, it is found that there are 3,070 tokens with the pattern of “zuo-zhe + ngp” among 26,528 tokens with “zuo-zhe,” accounting for 11.6%. This suggests that this construction warrants particular consideration and should be recognized as a common pattern, as argued by Lü (2002: 523).

In CG, it is meaning rather than form that is the pivotal factor in process and PR analysis. Adhering to CG's criteria for identifying PRs, should the Process of “zuo-zhe” expect two PRs or only one PR? In other words, should it be regarded as transitive or intransitive? This raises a very important question, i.e., in identifying the process and PRs, which should come first? Fawcett (2011) points out that “we focus first on identifying the PRs.” There are two reasons: (i) the first is that the simplest and most reliable way to identify a Process type is via its PRs; (ii) the second is that identifying the types PR is typically more revealing than identifying the type of the Process. From this point, if we regard the 3,070 tokens (11.6%) with the pattern of “zuo-zhe + ngp” as intransitive, it seems not very convincing, since *taishang* and *zhuxituan* are two “potential” PRs in the construction. Based on this observation, we claim that the Process of “zuo-zhe” in this construction expects two PRs in this particular context. Of course, we do not claim that the Process of “zuo-zhe” will always expect two PRs. In some contexts, it is indeed the case that it expects only one PR, see Section 4.2 for further discussion. Therefore, the meaning of the construction is “Moudi zuo-zhe mouren” (“somewhere sits someone”), which means that *taishang* is an intrinsic PR, not a CR, as it is expected by the Process of “zuo-zhe.” Should *taishang* be omitted from the

construction, the clause (i.e., *Zuo-zhe zhuxituan*, “sit the presidium”) would be unacceptable, as emphasized by Song (1991: 122). Without contextual information, an Addressee would inevitably inquire “Nali zuo-zhe zhuxituan?” (“Where does the presidium sit?”), highlighting the indispensability of *taishang* in the construction. This reveals the fact that the construction of “Taishang zuo-zhe zhuxituan” is different from the construction “Zhuxituan zaitaishang zuo-zhe,” in which the Process of “zuo-zhe” expects only one PR (see Section 4.2 for further discussion).

Therefore, according to CG, the construction of “Taishang zuo-zhe zhuxituan” realizes a locational relational process, which consists of two PRs, i.e., location and carrier. The configuration of PRs in this construction is “Location + Process + Carrier,” where *taishang* expresses the location, *zuo-zhe* expresses the process, and *zhuxituan* expresses the carrier. It is important to note that in this construction the carrier *zhuxituan* is a simple carrier without an associated agent role. This is attributed to the fact that the construction is a “static” description of *taishang*, and *zhuxituan*, despite being an animate noun, does not exert any agency in maintaining this state. In essence, the construction is experientially equivalent to *Taishang shi zhuxituan* (“There is the presidium on the stage”) or *Taishang you zhuxituan* (“There exists the presidium on the stage”), as posited by Lu (2009) and Li (2011: 112). They argue that existential clauses in Mandarin can be structured by *shi* (“be”) and *you* (“have”), which also serve to describe the Location of objects (see (4)).

(4) a. Limian[Loc] shi[Pro] baozang[Ca] (“There are treasures inside”). (BCC)

b. Shuili[Loc] you[Pro] yu[Ca] (“There are fish in the water”). (BCC)

According to CG, re-expression tests are employed to ensure the reliability and validity of PR analysis. As outlined by Fawcett (2011), if X is the Location and Y is the Carrier, the clause can be re-expressed as “X is where Y was.”⁵ The construction can be re-expressed as *Taishang shi zhuxituan de suozai zhichu* (“on the stage was where the presidium was”). So, *taishang* as the PR of Location can pass the test. If X is a simple Carrier in a Locational Process, the clause can be re-expressed as “The thing about X was that...” The construction can be re-expressed as *Guanyu zhuxituan de shi shi tamen zai taishang* (“The thing about the presidium was that they were on the stage”). So, *zhuxituan* as the PR of carrier can pass the test. Some scholars contend that *zhuxituan* assumes the agent role in this construction (Peng, 2018: 200; Lü, 2002: 302; Wang, 2002: 374). In CG, the test for an agent states that if X is the Agent, the clause can be re-expressed as “What X did was to ...” It is very odd for the construction to be re-expressed as *Zhuxituan suo zuo de shi zuo zaitaishang* (“What the presidium did was to sit on the stage”), since this construction does not convey this kind of meaning. This test is actually used for the construction *Zhuxiantuan zuo zaitaishang* (“The presidium sits on the stage”) (see section 4.2 below). Others argue that *zhuxituan* is a compound PR of Agent-Carrier (Deng, 2016). According to Fawcett (2011), the test for Agent-Carrier in Relational Processes can be re-expressed as “The thing about X was that ... as a result.” It is quite odd to re-express the construction as *Guanyu zhuxituan de shi shi*

5 Some may claim that we cannot simply use the test for English to prove a Chinese structure. Our claim is that the test at least is comparable to Chinese experientially, since transitivity is universal almost in all world languages.

tamen zuizhong zuo zaitaishang (“The thing about the presidium was that they sat on the stage as a result”). Therefore, the widely recognized Agent role of *zhuxituan* in this construction must be revisited. Contrary to other views, we argue that in this construction, *zhuxituan* is not a PR of Agent capable of controlling the process; instead the location assumes a more central PR. In fact, Li (2011: 113, 114) and Song (1991: 111), and many others have previously argued that the verb in this construction does not convey an action but rather a state of existence, signifying that it has relinquished “control” over the noun it is followed by, irrespective of whether it is animate or not. Among the 416 tokens with the pattern of “location + *zuo-zhe* + thing” in the BCC, no tokens are found with an agent “thing.” In other words, when verbs are followed by the aspect particle *zhe* in this pattern, their functions are not literal but serve to express the continuation of the state of existence.

4.2 Process and PR analysis of analogous constructions compared

In the literature, some linguists argue that the construction is semantically equivalent to other related clause patterns (Deng, 2015; Li, 2001: 342–345; Peng, 2018: 200; Lü, 2002: 302; Wang, 2002: 374), such as (5) and (6) below. While distinctions among these patterns have been noted, a comprehensive and targeted comparative analysis, particularly within a unified theoretical framework, has been conspicuously absent. It is the aim of this section to bridge this gap by conducting a systematic comparison that elucidates the nuanced differences among these constructions.

(5)	主席团	坐	在台上。
	zhuxituan	zuo	zai taishang.
	presidium	sit	on the stage.
	“The presidium sits on the stage.”		

(6)	主席团	在台上	坐着。
	zhuxituan	zai taishang	zuo-zhe.
	at the door	at stage-on	sit ASP.
	“On the stage, the presidium sits.”		

In (5), *zaitaishang* (“on the stage”) is a prepositional group. According to CG, the Process expressed by the verb *zuo* in (5) expects two PRs. In other words, the meaning of (5) is “mouren zuo zaimoudi” (“someone sits at somewhere”), which is apt to respond to the query of *Zhuxituan zuo zai nali?* (“Where does the presidium sit?”). In this clause, *zaitaishang* is also an intrinsic PR, since the omission of it generates an unacceptable clause *Zhuxituan zuo* (“The presidium sits”), which is semantically incomplete. Therefore, in accordance with CG, example (5) expresses a Locational Relational Process, where *zhuxituan* has the PR of Agent-Carrier, and *taishang* the Location. Accordingly, the PR configuration of (5) is “Agent-Carrier + Process + Location.”

It seems that (1) and (5) share the same Process type and PRs. However, a notable distinction arises in (5), where *zhuxituan* is a compound PR of Agent-Carrier. This implies that *zhuxituan* in (5) is not merely a Carrier but also an Agent. To elucidate, we can resort to

CG’s re-expression tests for an Agent and a Carrier. Example (5) can be re-expressed as *Zhuxituan suo zuo de shi zuo zaitaishang* (“What the presidium did was to sit on the stage”) and *Guanyu zhuxituan de shi shi tamen zaitaishang* (“The thing about the presidium was that they were on the stage”), thereby confirming *zhuxituan* as both an Agent and a Carrier. In accordance with Fawcett’s (2011) further test for agent-carrier in relational processes, the clause can be re-expressed as *Guanyu zhuxituan de shi shi tamen zuizhong zuo zaitaishang* (“The thing about the presidium was that they sat on the stage as a result”). Thus, *zhuxituan* in (5) is indeed not just a simple carrier, but an agent-carrier. This suggests that *zhuxituan* in (5) as an animate noun involves a positive decision on the part of the Carrier to maintain the state, such as choosing to sit rather than stand, or on the stage instead of elsewhere. From the perspective of CG, the distinction between (1) and (5) lies in the meanings of the processes realized by the predicators *zuo-zhe* and *zuo*, respectively. Despite the fact that they express the same process of location, they expect different PR configurations. At this juncture, it is plausible to assert that *zuo-zhe* is distinct from *zuo*. When the verb *zuo* and its subsequent element become semantically unbalanced, they necessitate contextual adjustment and re-organization. This underscores the notion that word order is an intrinsic aspect of linguistic form in Mandarin.

According to CG, *zuo-zhe* in (6) expects a solitary PR, thereby conveying the meaning “Mouren zuo-zhe” (“someone sits”), which is likely to respond the query *Zhuxituan zainali zuo-zhe?* (“Where does the presidium sit?”). According to CG’s process types (Fawcett, 2011), it realizes an action process, with *Zhuxituan* realizing the mere PR of agent. Consequently, the PR configuration for (6) is succinctly characterized as “Agent + Process.” To validate the role of *zhuxituan* as an agent, CG’s re-expression test can be applied. The clause can be re-expressed as *Zhuxituan suo zuo de shi zuo-zhe* (“What the presidium did was to sit”). So, as an Agent, *zhuxituan* can pass the test successfully in (6). It is important to note that in this clause, *zaitaishang* is a CR, not a PR, as it is not expected by the Process of “*zuo-zhe*.” The omission of this CR does not render the clause meaningless, thereby preserving the coherence of *zhuxituan zuo-zhe* (“The presidium sits”). There may be a variant form of (6), such as *zaitaishang zhuxituan zuo-zhe* (“on the stage, the presidium sits”). Here, *zaitaishang* is still a CR, which enjoys a degree of syntactic flexibility in the clause, akin to its counterpart in English. Therefore, the analysis suggests that (6) is also distinct from (1), not only in process type but also in PRs.

To sum up, the process and PR analyses of (5) and (6) reveal that they are different from (1), indicative of unique constructions. This proves the fact that distinct structural patterns map divergent semantic contents (Hunston and Francis, 2000). Therefore, the problem for scholars who equate the above clauses is that they ignore the different shades of meaning constructed by disparate patterns. From the perspective of CG, these varied syntactic patterns, replete with distinct Processes and PR configurations, serve as potent tools for generating a spectrum of meanings and performing a variety of functions in a range of linguistic contexts.

5 The functional syntax of the construction

Based on the three major principles proposed by CG for functional syntax as stated in Section 3, this section is devoted to the functional

syntax of the construction, aiming at providing a systematic syntactic description consistent with the meaning it expresses. Before our functional syntactic analysis of the construction, it is imperative to establish a lucid comprehension of the concept of Subject in Mandarin.

5.1 Subject and its identification

The term Subject is a basic concept to the Western tradition of grammatical analysis. Various interpretations have developed around the Subject notion, ascribing to it a number of rather different functions, which can be summarized below:

- (i) that which is the concern of the message;
- (ii) that of which something is being predicated;
- (iii) the doer of the action.

These three definitions are obviously not synonymous; they are defining different concepts. In the second half of the nineteenth century, when there was a renewal of interest in grammatical theory, three terms came to be used, that is, psychological Subject, grammatical Subject, and logical Subject (Halliday and Matthiessen, 2014: 79). The term Subject generally refers to the grammatical Subject, a construct rooted in the Indo-European grammatical tradition that integrates semantic, pragmatic and morpho-syntactic dimensions (Song, 2018: 9). In English, the Subject and Predicate are the two basic components of a simple clause. The Subject is the component that defines the topic of the sentence, i.e., what the clause is about. It is typically a nominal group, precedes the verb, and may assume the ergative case, among other characteristics (Quirk et al., 1985: 724–726). This illustrates that the Subject is not a self-contained grammatical concept that encapsulates both form and meaning. Given the linguistic disparities between Chinese and Indo-European languages, a majority of scholars in Chinese linguistics propose that the concept of Subject should be recalibrated for the analysis of Mandarin. They emphasize the principle of “integration of both form and meaning” in defining the subject (Lü, 2002: 514), that is, taking both the semantic and pragmatic standpoints and word order into consideration. However, a consensus for applying this principle to the process of Subject identification has yet to be established. The crux of the construction under discussion can be ascribed to this, which underscores the tension between semantics and pragmatics, as well as between semantic content and word order.

CG holds that the Subject pertains to the formal level, specifically the syntactic category, and stands as one of the pivotal components of clause structure, often conflated with a PR (Fawcett, 1999, 2008: 51). Since a PR is usually expected by the Process, any clause component that is expected by the Process, irrespective of its formal realization, is either a Subject or a Complement. In transitivity, the semantic structure of a clause is generally “Participant + Process + Participant,” with the corresponding syntactic structure being “S ^ M ^ C.” In CG, it is contended that a PR is typically realized by a nominal group or a quality group (adjectives and adverbs), while a CR is typically realized by a prepositional group. Fawcett (2008: 142, 143) notes that a PR is not necessarily a “thing” or “quality,” rather it may be “place,” “direction,” “location,” “time,” etc. So, a PR can also be used to answer the question “where,” and “when.” This is because PRs are all inherent in the Process. The removal of a PR results in an incomplete clause

meaning. For instance, in the clause of *Ivy lives in Cardiff*, the underlined segment is a Complement, not an Adjunct, as it represents a PR expected by the Process of “live.” Although *in Cardiff* takes the form of a prepositional group, it maintains its semantic role as a Participant. As a formal category in CG, the term Subject has a variety of functions rather than being confined to a single form that realizes interpersonal meaning, as described by Halliday and Matthiessen (2014: 139). Specifically, the Subject, in conjunction with the Main Verb and the Complement, realizes the experiential meaning of the clause and shapes the transitivity structure. The Subject, together with the Operator (Finite), realizes interpersonal meaning of the clause and forms the mood structure. Furthermore, as the Subject is typically positioned at the beginning of the clause and states what the clause is about, any Subject that conflates with a PR functions as the Subject Theme.

In the framework of CG, the identification of the English Subject is guided by the Mood Test (Fawcett, 2008: 66), which is conducted in three steps. The first step is to find the Operator. The Operator is either a modal verb such as *may*, *shall*, *can* or one of a small number of other verbs. The second step is to re-express the “information giver” (declarative) as an “information seeker” (interrogative). The last step is to identify the Subject, that is, the Subject is the item which, by occurring before or after the Operator, tells you whether the clause is an “information giver” or an “information seeker.” The Concept of the Subject in CG offers at least four implications for understanding the Subject in Mandarin: (i) the Subject is intricately linked to the semantics of the clause verb, suggesting that context should be a factor in Subject identification due to the variable meanings verbs may assume in different contexts; (ii) the Subject is typically conflated with a PR, indicating that PRs within the transitivity structure should be taken into account during the identification process; (iii) the Subject is typically the Subject Theme, positioned at the beginning of the clause, implying that word order of the structural components of the clause must be considered; (iv) there is only one Subject in each clause capable of realizing multiple functions, negating the possibility of multiple Subjects.

Adhering to the methodological principle of “integration of both form and meaning” in grammatical analysis maintained in Chinese linguistic tradition, we propose that the recognition of the Subject in Mandarin should integrate both semantic functions and word order (position). Drawing from CG, the general rule for Subject identification in Mandarin is that if a word is a leading Participant expected by the Process and prior to the Predicator, it is deemed the Subject. Conversely, if a word does not fulfill the role of a leading Participant, it is a Complement, even if it precedes the Predicator. By “leading Participant,” we mean logically and broadly the “doer of the action” in the Performer’s decision making, encompassing the Agent in Action Processes, the Carrier in Relational Processes, the Sensor in Mental Processes, etc. One of the difficulties for the Subject identification in Mandarin is the case where two PRs precede the verb. For instance, in the clause of *Jiu wo bu he* (“Wine, I do not drink”), *jiu* (“wine”) and *wo* (“I”) are two PRs preceding the verb. In this case, we have to resort to the belief system with the underlying transitivity structure, i.e., the clause logically expresses the meaning “Wo he jiu” (“I drink wine”). In other words, *wo* (“I”) is the leading PR. Therefore, in this clause *wo* (“I”) is the Subject rather than *jiu* (“wine”), because *wo* is the leading participant in the process of “he” (“drink”) and is situated before the Predicator *he* (“drink”). The leading participant is

strictly contingent upon the meaning of the verb. If the same verb (i.e., in the same form) expresses different Processes, the leading Participant may vary accordingly. In other words, the principle of “integration of both form and meaning” should be maintained in Subject identification. According to Fawcett (2013: 125), the decision-making process involves a higher component (i.e., belief system) which causes the appropriate choices to be made in the system networks for TRANSITIVITY, MOOD, etc. Therefore, theoretically any PRs may have the potential to become the leading Participant in specific linguistic constructions within the Performer’s decision making process.

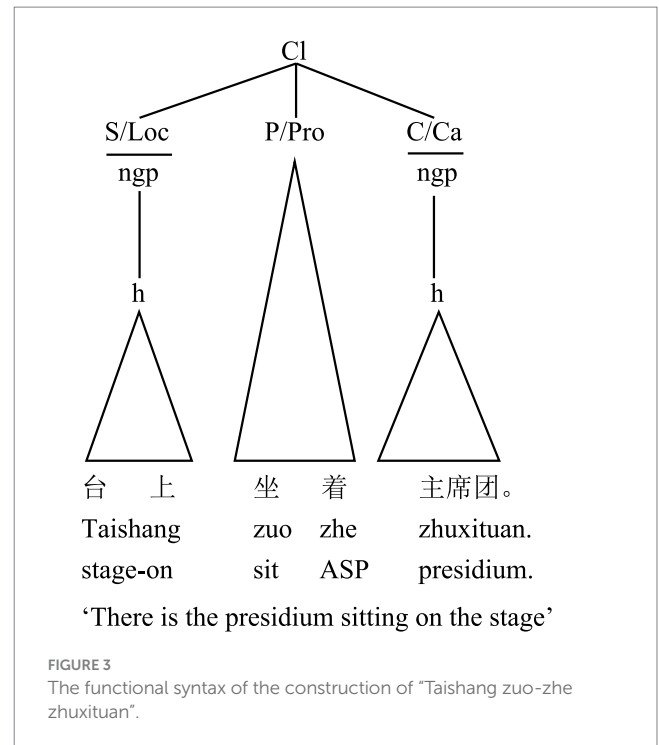
5.2 The functional syntactic analysis of the construction

The cardinal principle in CG is that meaning potential is the generative basis for linguistic forms (Fawcett, 2008: 40). Therefore, the syntactic description in CG is meaning-centered. Given that *taishang* in the construction is a PR as analyzed above, the Adjunct analysis must be dismissed. The question then is whether it should be analyzed as a Subject or a Complement. In light of aforementioned criteria for the Subject identification, since *taishang* precedes the Predicator *zuo-zhe* and the construction logically conveys the meaning of “somewhere sits someone,” *taishang* is the leading PR. Therefore, it is *taishang* that qualifies as the Subject in this construction. This analysis is echoed by He (2016) in her analysis of the Subject in Chinese existential constructions based on CG. Based on the above understanding, the functional syntax of the construction of “Taishang zuo-zhe zhuxituan” can be illustrated as Figure 3.

As we can see from Figure 3, the construction syntactically has three key elements: a Subject, a Predicator, and a Complement. The Subject is conflated with the PR of Location and filled by the nominal group *taishang*, which has only one element, i.e., the head. The predicator is conflated with the process, i.e., locational relational process. The complement is conflated with the PR of carrier, which is filled by the nominal group *zhuxituan*, and it has only one element, i.e., the head. The item expounded by the aspect particle *zhe* is part of the predicator.

As for the standards of grammatical analysis in Mandarin, Lü (2002: 542) emphasizes that they should be simple, specific, easy to base, and a little flexible. The merit of the functional syntactic analysis presented herein lies in its adherence to the principle of “integration of both form and meaning,” a tenet that is deeply ingrained in the Chinese linguistic tradition. This analysis is underpinned by two observations: one is that the locative *taishang* is the leading PR in the transitivity structure, and the other is that Mandarin is characterized as having the basic syntactic order of “S ^ P ^ C” among verbal clauses (Chao, 1968: 94; Li and Thompson, 1981: 23). Therefore, from the perspective of CG there is no semantic and syntactic mismatch in this construction. The essence of this so-called “locative inversion” construction resides in the re-working or re-organization of the relationship between semantic choice and the lexicogrammatical potential for the realization of semantic choice. To concretely elucidate the strengths of our syntactic analysis, we will briefly compare it with alternative approaches stated in Section 2.

In contrast to the Adjunct view, our analysis admits the PR status of *taishang*, thereby affirming that this construction constitutes a



unique syntactic pattern of its own. In CG’s term, it forms its own PR configuration and is realized by a different syntax. The consequence is that it challenges the conventional idea that syntactic element of Adjuncts are to locatives or prepositional groups. In fact, Quirk et al. (1985: 60/658) also explicitly note that Subjects and Complements can be realized by prepositional groups other than nominal groups. For instance, the underlined prepositional groups in (7) all serve as Subjects. In the English language, the Subject may occasionally follow the Main Verb in specific contexts, exemplified by the so-called full inversion (see the underlined part in (8)). In other words, the Subject retains its function as the Subject and is not subsumed by the Complement, primarily due to the agreement rule required for the Subject and the Main Verb. However, in Mandarin there is no such agreement rule in the Subject description, i.e., lacking of inflectional variations, and word order thus plays the pivotal factor in distinguishing one syntactic element from another. Even the same semantics may resort to different linguistic forms. From the perspective of multi-functional approach endorsed by SFL, especially CG, while certain constructions might share similar experiential structures, their informational and thematic meanings can diverge. This implies that different constructions fulfill distinct functions across various contexts to meet disparate communicative demands. Therefore, it is not particularly compelling to regard the construction of “Taishang zuo-zhe zhuxituan” as merely an inversion of (5) or as a variant of (6), as is done in other linguistic approaches.

(7) a. On Tuesday will be fine. (Quirk et al., 1985: 658)

b. During the vacation is what we decided. (Quirk et al., 1985: 658)

(8) a. In the doorway stood my brother. (Quirk et al., 1985: 522)

b. On the very top of the hill lives a hermit. (Quirk et al., 1985: 522)

Compared with the Subject view, while there appears to be a superficial alignment with our syntactic analysis—specifically, the shared view that *taishang* functions as the Subject—there are actually essential differences in the identification of the Subject. The Subject

view bases on the linguistic form alone, i.e., word order, to determine the Subject status of *taishang*. This viewpoint could inadvertently propagate the misconception that all nouns preceding the verbs automatically qualify as Subjects. Our analysis, however, is predicated on a meaning-centered approach to identifying the Subject, complemented by an appropriate consideration of linguistic form—*taishang* is recognized as a PR that appears before the verb. Within the framework of CG, the underlined part in (9), despite their varied linguistic forms, are all considered Subjects, as they all represent inherent PRs that are expected by the process of *you* (“have”) and are positioned before the verb *you*. This analysis aligns with the arguments presented by He (2016) and Song (1991: 124).

(9) a. Being you zuo gugong (“Beijing has a Palace Museum”).

b. Beijing chengli you zuo gugong (“There is a Palace Museum in Beijing city”).

c. Zai Beijing chengli you zuo gugong (“In Beijing city, there is a Palace Museum”).

The Big Subject view encapsulates the ongoing debate between “Subject-Predicate” and “Topic-Comment” frameworks in Mandarin description. Some scholars, with a more radical stance, contend that Mandarin should be classified as a “Topic-Comment” language, advocating for the abandonment of the “Subject-Predicate” model due to the perceived negligible role of the Subject in Mandarin syntax (Li and Thompson, 1981: 19; Shen, 2017). However, from CG’s standpoints, this view seems to overlook the multi-stratal nature of language, necessitating distinct descriptions at different levels. Consequently, this view confuses semantic and syntactic structures. Zhu (2001: 409) has strongly criticized this practice. As highlighted by Peng (2018: 214), the concept of the subject, while originating from the Indo-European grammatical tradition, retains certain universal categorizations that are applicable across languages. It is our conviction that it remains essential to uphold the concept of the Subject in Mandarin. Therefore, from the perspective of CG, treating *taishang* as the Big Subject disrupts the semantic and syntactic integrity of the construction in question. The ramification of such an approach may lead to a significant expansion of what is termed “subject-predicate predicate clauses” in Mandarin.

The Complement view recognizes that *taishang* is a PR, thereby recognizing the semantic relationship between the Predicator *zuo-zhe* and the locative *taishang*. However, this view persists in denying *taishang* the status of the Subject, instead considering only *zhuxituan* as the Subject. This stance may stem from the misguided assumption that *zhuxituan* still retains the role of Agent, given that Agents are conventionally seen as the default Subjects across world languages in traditional frameworks. By designating *taishang* as the Subject and *zhuxituan* as the Complement, our analysis might conflict with the traditional analyses that prioritize Agenthood as the primary criterion for Subjecthood, and challenges the conventional expectation that Subjects are typically nominal entities performing actions. However, the benefits of this approach within CG are significant, as CG emphasizes that the Subject is determined by both form (word order) and meaning (PRs). By recognizing *taishang* as the Subject, CG aligns with the principle of “integration of both form and meaning” maintained in Mandarin linguistic tradition. The locative *taishang* occupies the initial position, a key indicator of Subjecthood in Mandarin, and serves as the Theme of the clause, setting the scene for the discourse. This analysis captures the functional motivation behind the construction, which is to highlight the location as the starting

point of the message. Treating *zhuxituan* as a complement (carrier) reflects its role as the entity whose existence is being stated, adhering to the relational process framework in CG where locations and carriers are key PRs. Thus, from the perspective of CG, the complement view seems to ignore the significance of word order as a crucial linguistic form in realizing meanings in Mandarin, which is deemed partially functional.

All in all, the functional syntactic analysis of this construction within the theoretical framework of CG presents a functionally motivated perspective that prioritizes discourse needs and semantic roles over traditional agent-subject alignment. While it risks contradicting conventional syntactic analyses, its strength lies in offering a more integrate form-meaning account tailored to Mandarin’s linguistic structure. Ultimately, our analysis enriches Mandarin syntax by bridging Hallidayan functionalism with Mandarin’s topic-comment pragmatics, offering a template for analyzing other “special” constructions in discourse-oriented languages.

6 Functional motivations of the construction

Within SFL, every aspect of grammar is intrinsically linked to the communicative role of language. A text-sentence should not be examined in isolation from the discourse that frames it, given that the choices made by a Performer in the context of the discourse momentarily become part of the short-term knowledge base that influences the semantic decisions within the text-sentence (Fawcett, 1980: 90). An in-depth investigation of the BCC corpus data, together with a review of pertinent scholarly works in the literature, reveals that there are a minimum of three functional motivations that underpin the usage of this particular construction.

The first functional motivation is to make *taishang* the subject theme. Thematic meanings are linguistic meanings between which a user of a language chooses in order to serve the various purposes that may arise in a developing discourse (Huang, 2017: 164). In CG, different types of theme are recognized, including subject theme, enhanced theme, marked PR theme, etc. The system of Subject Theme is dependent on the system of TRANSITIVITY (Fawcett, 2011), since the grammar is not in a position to state which elements are available to be chosen for presentation as the subject theme until it knows which PRs have been selected and which PRs will actually be present in the clause. Fawcett (2008: 109) claims that the subject theme of a clause is the aspect of the meaning of a typical subject that tells the addressee “what the clause is about.” In the construction “*Taishang zuo-zhe zhuxituan*,” *taishang*, as the PR of location, signifies that the focus of the clause is on the location, specifically *taishang*, rather than some other places. It is natural then for *taishang* rather than *zhuxituan* to be designated as the subject theme. This construction essentially serves as a description of *taishang*, utilizing the entire clause to highlight the event occurring on the stage. Consequently, this construction is more appropriately employed to address inquiries such as *What about taishang?* This distinction further elucidates the divergence between this construction and (5), where *zhuxituan* assumes the subject theme. In other words, (5) is about *zhuxituan* rather than *taishang*. It is more appropriate to answer the question of *What about zhuxituan?*

The second functional motivation is to set the scene for the discourse, i.e., representing background information. If we analyze the semantics and syntax of a clause just from the perspective of the clause itself, the result may not be so satisfactory, because the natural environment of a clause is not standing alone as a numbered example, but as an element in the discourse structure of a longer text (Fawcett, 2008: 39). As argued by Song (1991: 98), this construction typically serves descriptive rather than narrative function, a usage frequently encountered in the descriptive segments of operas or environmental depictions in novels. Through corpus investigation, it reveals that this construction is particularly appropriate for scene-setting, since the employment of locatives as the point of departure is a conventional method for environmental description. Consider the underlined clause in (10) from the BCC, which illustrates this point effectively.

(10) *Chuangwai fang-zhe yanhuo, meiyixiang dou rang wodexin yinyinzuotong* (“There are fireworks setting off outside the window, and every sound hurt my heart”). (BCC)

In (10), the underlined clause provides the background information, offering a rationale that sets the scene for the subsequent clause. Of the 416 samples we collected in the BCC featuring the pattern of “location + *zuo-zhe* + thing,” a substantial 76% are utilized for scene-setting purposes. From a functional perspective, it can be argued that particular syntactic patterns often arise from verbs that appear with high frequency. In other words, there is a tendency that the more frequently-used verbs are employed, the greater the likelihood of their transition from foreground to background usage, potentially culminating in innovative applications. In this construction, it is precisely because of the frequent use of *zuo-zhe* in Mandarin that the so-called “locative inversion” usage of this construction is generated. Upon the investigation of the corpus data in the BCC, it reveals that verbs within the “location + *zuo-zhe* + thing” pattern exhibit similar functional characteristics. These clauses are usually used as “scene-setting” clauses in attributive or conditional constructions by providing background information for the whole discourse. It is therefore an important discourse purpose for the construction to set the scene in longer texts.

The third functional motivation is to enhance the state of “existence” associated with *zhuxituan*. As previously discussed, numerous scholars categorize this construction within the realm of existential clauses. From the perspective of CG, existential clauses fall under the umbrella of Relational Processes, because locational and existential clauses share PRs. Given this categorization, one might question why the Performer does not simply employ the conventional existential clause introduced by the verb *you* (“have”), as in *Taishang you zhuxituan* (“There exists the presidium on the stage”). Song (1991: 100) argues that the quintessential existential clauses, led by *you* in Mandarin, are utilized expressly and merely to denote the existence of entities, rather than the state of their existence. Therefore, this construction, by means of amalgamating the verb with the aspect particle *zhe*, forms a distinctive pattern designed to portray the state of existence of certain entities, be they static or dynamic. In other words, *zuo-zhe* is employed to vividly describe the static state in which the entity *zhuxituan* exists, as opposed to *zhan-zhe* (“stand”) or something like that. To accentuate the existential state of *zhuxituan*, native Mandarin speakers tend to use this construction when the existence of *zhuxituan* is of particular interest. Functionally, it is the overall syntactic pattern that determines the meaning of the construction. Thus, different verbs in the “V-*zhe*” formation are

harnessed to accentuate different processes. Song (1991: 99) further argues that verbs within the “location + *zuo-zhe* + thing” pattern can be bifurcated into static and dynamic. The two categories of verbs are used to describe distinctive states. Let us compare the construction of “Taishang *zuo-zhe zhuxituan*” with (11) to elucidate these points.

(11)	台上	唱	着	黄梅	戏。
	Taishang	chang	zhe	huangmei	xi.
	stage-on	sing	ASP	Huangmei	opera.
	“There is the Huangmei opera singing on the stage”.				

In (11), the verb *chang* (“sing”) plus the Aspect particle *zhe* serves to emphasize the dynamic state of existence of the Huangmei opera, signifying that it is currently being performed on the stage. In contrast, “Taishang *zuo-zhe zhuxituan*” emphasizes the static state of existence of the presidium. This distinction illustrates that in evaluating the meanings of structures, we need to take account of the words that expound the elements as well as the syntax of the elements, as divergent verbal meanings can engender distinct communicative functions. The construction in question is used to convey the performer’s intended meaning—specifically, the state of existence—in a manner that is more straightforward, expedient, and natural. It further proves that this construction is not an inversion of (5) or (6), and that word order is an important grammatical-rhetoric device in Mandarin, as Chen (1984: 56) has compellingly argued.

7 Conclusion

In this study, we investigated the construction of “Taishang *zuo-zhe zhuxituan*” in Mandarin from a CG approach. The emerging dispute with regard to the grammatical function of the locative *taishang* in this construction can be attributed to the fact that few studies have investigated the construction from a form-meaning matching perspective. In light of this, we argue that a comprehensive study of a linguistic construction should take both semantics and syntax into consideration, and a holistic investigation must also account for functional motivations, aligning with the Performer’s discourse purposes.

Adhering to CG’s functional linguistic framework, we then examined the Process and PRs, functional syntax, and functional motivations of the construction. The findings show that the construction expresses a locational relational process, with *taishang* expressing the PR of location, *zuo-zhe* expressing the process, and *zhuxituan* expressing the PR of carrier. The PR configuration of this construction distinguishes itself from those of other similar constructions, such as “Zhuxituan *zuo zaitaishang*” (“The presidium sits on the stage”) and “Zhuxituan *zaitaishang zuo-zhe*” (“On the stage, the presidium sits”). The functional syntax of this construction is “S ^ P ^ C”, where the subject is conflated with the PR of location, the predicator with the process, the complement with the carrier, and *zhe* after the verb *zuo* is an aspect particle which is part of the predicator. The functional motivations underpinning the usage of this construction are multifaceted: to make *taishang* the subject theme, to set the scene for the discourse, and to enhance the state of existence of *zhuxituan*. The study further substantiates that there is no semantic

and syntactic mismatch within the construction, dispelling the notion that it represents a “locative inversion” construction.

This study’s analysis of the Mandarin existential construction “Taishang zuo-zhe zhuxituan” within the CG framework elucidates its syntactic-semantic dynamics, resolving longstanding debates by redefining the locative *taishang* as a subject theme and underscoring the role of the aspect marker *zhe* in encoding durative states rather than mere existence. The CG approach demonstrates Mandarin’s syntactic flexibility, where locatives assume Subject roles to prioritize thematic prominence and scene-setting, reflecting the language’s topic-comment orientation (Li and Thompson, 1981). By reclassifying *zhuxituan* as a Complement conflated with the carrier role—rather than a “delayed Subject”—this analysis challenges traditional formal syntax paradigms, offering a unified framework for similar constructions (e.g., *Qiangshang gua-zhe yifu hua*). The findings reveal existentiality in Mandarin as inherently process-oriented, blending relational and material processes through verbs like *zuo* (“sit”) or *gua* (“hang”), which fuse existence with dynamic or static states. These insights hold significant pedagogical value for L2 instruction: contrastive analysis with English existential structures (e.g., *there is/are*) can address common learner errors, such as omitting *zhe* or misplacing locatives, while targeted exercises on aspectual awareness and scene-setting narratives can enhance communicative competence. Beyond pedagogy, the study identifies critical future research avenues, including cross-construction analysis to explain verb frequency hierarchies (e.g., why *zhan* (“stand”) is common but *pao* (“run”) is rare), dialectal comparisons (e.g., Cantonese’s *jau⁵* vs. Mandarin’s *zhe*), typologically distinct languages (e.g., Japanese-*te iru* constructions) to identify universal and language-specific features, and psycholinguistic experiments to validate native speakers’ cognitive processing of thematic roles. Computational applications, such as integrating CG principles into natural language processing tools, could improve parsing accuracy for non-canonical structures. Theoretically, CG’s semantically grounded syntax bridges SFL and cognitive approaches, illustrating how functional motivations shape syntactic choices—a perspective pivotal for rethinking Mandarin beyond Eurocentric models. By advocating corpus-driven, multifunctional methodologies, this study underscores the richness of Chinese existential constructions and the need to embrace multiplicity in grammatical analysis. While the CG-based interpretation remains exploratory, it opens pathways for redefining syntactic ambiguity, emphasizing the interplay of form, meaning, and context in Mandarin and beyond. Ultimately, this work contributes to a broader understanding of how languages grammaticize existence, offering a template for cross-linguistic studies and reinforcing CG’s utility in addressing

the complexity of “special” constructions in typologically diverse languages.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

DX: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Writing – original draft, Writing – review & editing.

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Generative AI statement

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The good executive in the wake of COVID-19: using story completion to study the rise and development of alternative selves

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Introduction: The COVID-19 pandemic was a turning point that had the potential to shape how individuals manage their work-family interface, possibly bringing the emergence of alternative self-definitions that are tied to changing cultural norms. This study aims to explore whether and how executive managers have developed an alternative self after the pandemic, shedding light on the interplay between cultural norms, gendered assumptions, and executive identity formation.

Methods: To understand the development of self-concept as intertwined with cultural norms and gendered assumptions, we used the story completion method that requires participants to create autonomous stories based on a provided "cue." We analyzed stories written by 32 executives based in Italy and the United Kingdom (14 males and 18 females) who reflected upon contemporary discourses on what it takes to be a good executive when the scaffolding between work and family life has been disrupted.

Findings: This study highlights that the pandemic has served as a turning point that elicited alternative views about self and cultural meanings for the executives. These alternative views trigger three distinct patterns for the development of alternative selves i.e., *becoming a work-life balance advocate*, *becoming a family man*, and *reasserting the ideal worker*.

Discussion: This study sheds new light on the dynamics at the intersection between individual experiences in work and family management and broader societal expectations and cultural norms. It highlights how executives adapt their self-concept in response to major turning points, and how cultural norms conflate into this process. This allows us to offer new insights into the relationship between turning points, identity shifts, and societal expectations.

KEYWORDS

alternative self, cultural schemas, executive, story completion, work devotion

1 Introduction

The way people manage their work-family interface has changed over time due to key turning points in our society. Turning points are events that generate significant alterations in the meaning, purpose, or direction of a person's life (Pillemer, 2001; Wethington et al., 1997). These events can be triggered by external shocks such as wars, migrations, and economic downturns that affect how individuals manage their lives and may elicit alternative views about

the perception of self and cultural meanings (Dumas and Sanchez-Burks, 2015). Yet, beyond an immediate disruption, there remains limited understanding of whether and how major turning points can trigger a more profound and enduring shift in attitudes, behaviors, and identities related to the management of the work-family interface.

In this respect, the COVID-19 pandemic may have constituted a significant turning point for many. In particular, the abrupt and widespread shift to remote arrangements significantly altered the spatial and temporal boundaries of work, prompting people to reinterpret and renegotiate their roles, responsibilities, and priorities across multiple domains (Choudhury et al., 2021; Kniffin et al., 2021). In this paper, we aim to explore these alterations for professionals, specifically focusing on executive managers (hereinafter executives), who faced a sudden overlap between their personal and professional lives due to COVID-19. This overlap compelled them to confront previously compartmentalized roles, potentially eliciting alternative views of the self as intertwined with changing cultural norms.

This line of inquiry is particularly compelling in masculine work cultures, such as those in Italy and the United Kingdom, where rigid norms of overwork and inflexibility historically persist. Indeed, in such contexts, individuals are often expected to orient their lives either toward career or family, typically along gendered lines (cf. Cannito and Scavarda, 2020; Chung, 2023; Chung and Van der Horst, 2020). These cultural expectations reflect two competing cultural schemas: work devotion and family devotion (Blair-Loy, 2003). Work devotion entails an intense commitment to paid labor, epitomized by the “ideal worker” who prioritizes paid work above all else (Acker, 1990). Family devotion, conversely, demands unwavering commitment to caregiving duties, especially from women (Blair-Loy, 2003; de Laat, 2025). Historically, these schemas have drawn strict boundaries between work and family, casting them as mutually exclusive domains. However, the COVID-19 pandemic may have unsettled these boundaries, creating openings to challenge cultural norms and enabling individuals to renegotiate roles, responsibilities, and priorities across domains (de Laat, 2025; Turner et al., 2022). This major shift could have been particularly consequential on executives, whose prevailing occupational script focuses on professional commitments. The archetype of the “good executive” indeed portrays either a man fully focused on the job with a stay-at-home wife, or a woman (preferably single or childless) equally absorbed in her career (Blair-Loy and Amy, 2004; Dumas and Sanchez-Burks, 2015).

Therefore, we investigate whether and how executives, especially in masculine work cultures, have developed alternative self-definitions following the alteration of their work-family routine caused by the COVID-19 pandemic, highlighting the role cultural norms might have played in this process. In order to do this, we embrace the methodological approach of story completion (Clarke et al., 2019; Gravett, 2019) and draw upon the stories shared by 32 executives working in Italy and the United Kingdom. This methodology requires participants not to share their actual experiences but to imagine how a proposed hypothetical scenario would play out based on some initial information provided (Clarke et al., 2017). Unlike interviews, story completion enables us to look beyond the glare of actuality, highlighting the self-redefining role of the alternative experienced by executives during the pandemic. Drawing upon executives’ stories, we outline how self-development and cultural meanings play out when managing the work-family interface. By doing so, we address the call launched by Williams et al. (2016) to integrate research on individual experiences of

work and family with an examination of how cultural norms shape attitudes and behaviors at the intersection of these domains. More specifically, we enhance our understanding of how macro-level disruptions, like the recent pandemic, may open space for shifts in cultural norms and self-concept definitions, particularly for individuals belonging to occupational groups in which cultural schemas have historically proven resistant to change (cf. Blair-Loy and Amy, 2004; Dumas and Sanchez-Burks, 2015).

The contribution of the study is multifaceted. First, by drawing on the collected stories, we found that the pandemic brought executives to embrace alternative views around cultural meanings and self-concepts. The abrupt change in the management of the work-family interface made extremely salient in our respondents’ minds an alternative pathway to work devotion, which triggered, at an individual level, the formation and development of an alternative self: a self-redefining counterfactual of who a person might have become if something had turned out differently in the past (Obodaru, 2012). The temporary actualization of an alternative self brought executives to experience some tensions that stem from the perceived incompatibility between alternative self-representations and the embodied image of the good executive as an ideal worker, suggesting that competing schemas still have a firm grasp on our respondents. This allows us to contribute to the ongoing debate of whether cultural schemas hold even while facing major turning points (cf. de Laat, 2025; Cannito and Scavarda, 2020; Chung, 2023). Nonetheless, we also observed that several executives in our sample solved that tension by crafting new occupational scripts, incorporating a new role as wellbeing advocates into their self-concept. This is important as executives not only face distinct pressures and expectations, but their attitudes and approaches to work-life balance can shape organizational norms, influence policy uptake, and collaborators’ work-family decisions, and reflect deeper social and gender dynamics (Adamson et al., 2021).

By integrating research on turning points (Pillemer, 2001; Wethington et al., 1997), alternative self (Obodaru, 2012), and cultural schemas (Blair-Loy, 2001; Williams et al., 2016), we advance our understanding of how macro-level disruptions can catalyze identity renegotiation among professionals and how the work-life interface is managed. We found that the COVID-19 pandemic has been a significant turning point, activating alternative self-concepts that challenged dominant cultural schemas of work and family devotion. While previous research emphasized the resilience of these schemas, our findings reveal that extraordinary contextual shocks can temporarily disrupt their normative power, creating spaces for executives to explore alternative pathways. Nevertheless, the enduring emotional and cognitive pull of the ideal worker norm suggests that identity redefinition remains contested, especially within masculine work cultures. In doing so, we offer an additional perspective of identity negotiation for executives, expanding theoretical conversations about the interplay between societal shocks, cultural meaning systems, and self-concept development at the intersection of work and family life.

2 Literature background

2.1 The rise and development of an alternative self for executives

The self-concept is a dynamic cognitive structure reflecting multiple self-representations (Markus and Wurf, 1987). Self-representations are images of who the person is in the present—the

current self—according to one's multiple societal roles and group memberships or self-definitions (Higgins, 1987). Self-definitions also include hypothetical self-images, such as the past self (Albert, 1977), the future self (Markus and Nurius, 1986), the relational self (Morandin et al., 2021), the ideal self, and the ought self (Higgins, 1987), which all have a self-redefining power, as they influence how individuals see themselves, set goals, and actively adapt and grow in response to changing circumstances.

On the same line, Obodaru (2012) introduced an additional type of self-image: the alternative self. The alternative self entails representations of what a person might have become in the present if something in the past had turned out differently. Alternative self-representations are often triggered by counterfactual thoughts resulting from exceptional events. These thoughts can give rise to better or worse alternative realities, leading to a potential redefinition of one's self-concept; in this case, the counterfactual thought is self-redefining and constitutes an alternative self (Obodaru, 2012).

Extraordinary and unusual events can represent turning points that cause significant deviations from norms and routines, making an alternative reality more salient in one's mind (Habermas and Bluck, 2000; Kahneman and Miller, 1986; Thorne et al., 2004). In this respect, we contend that COVID-19 represented a significant turning point for executives, who are often required to adhere to the cultural norms of the ideal worker, available to work 24/7 and motivated to put work at the first place in life, even when it does not correspond to personal preferences and needs (Blair-Loy, 2003). Depicting the “good executive” as an ideal worker has made it difficult—and even penalizing (Reid, 2015)—for executives to participate in the day-to-day life and activities of their families. By limiting executives' travel and requiring them to stay home for extended periods, COVID-19 made an alternative self more salient in the executives' minds. When an alternative self is perceived as better or worse than the current self, it can trigger either positive or negative emotions and attitudes, resulting in executives reassessing their current state (Obodaru, 2012). Hence, we can expect that a perceived discrepancy between the alternative and current self may enhance the motivation for executives to change, shaping important work and family life decisions.

2.2 The importance of cultural schemas for the development of the alternative self

The alternative self does not develop in a vacuum, but in a socio-cultural context that influences its development. To describe how cultural meanings conflate with personal experiences to develop the alternative self, we draw on the concept of cultural schema, which is “an ordered, socially constructed, and taken-for-granted framework for understanding and evaluating self and society, for thinking and for acting” (Blair-Loy, 2001; p. 689). Cultural schemas enable individuals to identify the aspects they must care about, outlining a clear direction on how to do that, influencing their social and personal identities (Blair-Loy, 2005). Executives' choices are sculpted by the two cultural schemas based on gendered roles: work and family devotion (Blair-Loy, 2001). As above mentioned, the work devotion schema reflects the deeply rooted cultural assumption of work “as a potent site of moral prescriptions” (Williams et al., 2013; p. 211) that demands and deserves continuous time and commitment (Blair-Loy, 2005). Individuals adhering to this schema prioritize work before

personal and family needs (Williams et al., 2013). They internalize the ideal worker norm (Acker, 1990), regarding work devotion as an end, worthy of being pursued with utmost passionate devotion (Weber, 1946). Differently, the family devotion schema signals home and family as a woman's primary commitment (Blair-Loy, 2001). The schema also stipulates the model of ideal motherhood that aligns with Hays' (1996) *ideology of intensive motherhood*: a cultural structure that posits motherhood as a woman's sacred duty that is “child-centred, expert-guided, emotionally absorbing, labour-intensive, and financially expensive” (p. 129). Thus, a woman is expected to be devoted first and foremost to her family, even if she is working outside the home, and must find contentment, meaning, and intimacy in her role as a mother (Blair-Loy and Erin, 2017).

Williams et al. (2016) identified four identities shaped by cultural schemas and ideal worker norms: the good worker, the good man, the good woman, and the good person. The good worker sees work as a moral duty, aligning with the work devotion schema and the ideal worker representation (Williams et al., 2016). The good man views work as a masculinity contest with unquestioned availability to work as a heroic endeavor (cf. Ely and Meyerson, 2000; Epstein et al., 2014). Conversely, the good woman perceives work as a moral hazard, bearing the burden of conflicting ideal worker and ideal mother expectations (Benard and Shelley, 2010). Finally, the good person regards dedication to work as a class act, with hard work and competence symbolizing strong moral character and purity (Lamont, 1992). Research suggests that social norms intersect with individual identities in influencing the management of the work-family interface.

Each schema demands unwavering commitment, portraying work and family as opposing and mutually exclusive aspects of life (Halrynjo and Lyng, 2009). These schemas have been repeatedly contested owing to women's increasing participation in the workforce (Blair-Loy, 2001). Recent studies have also suggested that COVID-19 might have accelerated a cultural change, inducing fewer penalties for workers not adhering to these schemas as they increasingly use, for instance, flexible work arrangements for family purposes (cf. Chung, 2023). However, scholars have also argued that these schemas retain a firm cognitive, emotional, and normative influence on individuals (e.g., Padavic et al., 2019). Thus, while the experience of an unprecedented pandemic may have suspended social norms (for further discussions on the topic, see Chung, 2023; de Laat, 2025) and unsettled certain expectations, the durability of cultural schemas suggests that any shifts in self-concept would be fraught with tension and negotiation.

Consequently, in this study, we question whether the alternative selves activated during the pandemic experience, following the change in their work-life routines, led executives to renegotiate their work and family identities and whether these shifts became integrated into their self-concept, highlighting the role that socio-contextual forces might have played in this process. In doing so, we contribute to the ongoing conversation about whether macro-level disruptions like COVID-19 merely pause or shift long-standing cultural norms at the work-family interface (Cannito and Scavarda, 2020; Blair-Loy and Amy, 2004; Dumas and Sanchez-Burks, 2015).

3 Research methodology

As we dig into cultural meanings and alternative self-definitions that might deviate from established roles and identities, we decided

to use story completion that provides the opportunity to foreground the role of cultural meanings in shaping alternative self-definitions. Indeed, story completion has been presented as a valuable tool not only for accessing psychological meanings but also for exploring social discourses (Clarke et al., 2019). Bruner (1990) considered stories as manifestations of “culturally-shaped notions in terms of which people organize their views of themselves, of others, and of the world in which they live” (p. 137). Story completion is a qualitative methodology that was originally employed within the psychoanalytic (clinical) tradition as a projective technique, which involves conducting tests by presenting the subject with an ambiguous stimulus, thereby allowing them to project their hidden emotions and motivations onto the test (Pong et al., 2024). The main aim was to reveal unconscious “truths” by avoiding two barriers: the barrier of awareness, where the subject may not be consciously aware of certain feelings or motivations, and the barrier of admissibility, where the subject might be unwilling to admit certain emotions when directly questioned.

More traditional qualitative research methodologies typically rely on self-report techniques for data collection, such as interviews or focus groups, to provide insights into individuals’ personal experiences and perspectives through their own accounts. Differently, story completion requires participants to craft a story based on an initial stem or “cue” provided to them (Clarke et al., 2019). Notably, story completion does not involve descriptions of events as they occurred but allows researchers to gain insight into the cultural discourses and meanings that enable participants to make sense of the research topic (Clarke et al., 2017). Through stories, we can understand how people produce and re-produce a shared sense of meaning that informs and constrains their identity, actions, and interpretation of reality (Weick et al., 2005).

In accordance with recommendations on constructing story stems (Braun et al., 2019) and research that suggests differences in strategies employed by male and female executives in managing their work-family interface (Reid, 2015), we presented participants with a story stem that featured a variation in the gender of the main character, portraying an executive adhering to the work devotion schema but forced to remain at home due to the lockdown measures in response to the COVID-19 spread.

The story stem was initially piloted with a small group of five managers to understand the potential and pitfalls of the research instrument. Once we assessed the final version of the script, we recruited a convenience sample (Etikan et al., 2016) of 16 executives who were more easily accessible through the researchers’ personal and professional networks. In identifying these executives, we looked for diversity of profiles in terms of gender, provenance, and industry. Starting with these participants, we asked them to refer others in the same company who fit the study criteria (i.e., holding an executive role position and having stayed at home for most of the pandemic period due to social restrictions). This combination of convenience and snowball sampling was employed as the participants were business executives, a group that is often difficult to access when considering topics that pertain to the management of the work-family interface. We reached a final number of 32 business executives, employed in telecommunication, consumer-goods, machinery, and educational industry. Participation was voluntary, and confidentiality and anonymity were ensured throughout the study, with all data

handled in compliance with applicable data protection regulations. Participants were also informed that there were no potential risks of participating in the study and were encouraged to get in touch with the researchers if they had any questions or concerns. The final sample included 14 male and 18 female executives who were randomly assigned to a specific stem reflecting one male or female executive forced to remain at home due to the pandemic. 62% of the respondents had at least one child. The average age was 48 years, with an average tenure in a managerial role of 16 years.

The final stems were the following:

- **Male executive.**
Marc is always busy due to his role as Executive Director. He is firmly convinced that a good manager should be available to work 24/7 so this situation is all right for him also considering that his partner does not have a job and takes care of the family. Since February 2020, due to COVID-19 pandemic, Marc has spent almost all days at home with his partner and children, participating as never before in the day-to-day life of his young family.
- **Female executive.**
Rebecca is always busy due to her role as Executive Director. She is firmly convinced that a good manager should be available to work 24/7 so this situation is all right for her also considering that her partner does not have a job and takes care of the family. Since February 2020, due to COVID-19 pandemic, Rebecca has spent almost all days at home with her partner and children, participating as never before in the day-to-day life of her young family.

Participants were invited to read the story stem and then write what would happen next. They were informed that there were no right or wrong ways to complete the story and were required to invest at least 10 min in writing. We asked participants to complete the story based on the assigned stem, to reflect not on real-life events, but on contemporary discourses upon which they try to make sense of their own individual experiences (Kitzinger and Powell, 1995). We asked them to do so in a way to reflect such experiences in their stories, along with their own attitudes and beliefs. This instruction made it possible for us to use the language of the “self” although participants told their stories in third person to favor candor.

In developing the analysis, we built upon a Burkean approach to stories (Burke, 1969) by considering storylines that are fragmented and non-linear, as well as coherent narratives with a clear beginning, middle, and an end. To analyze the data, we adapted the three-level framework to narrative research from Bamberg (1997). This allows us to entail three complexity aspects: the (fictional) evolutionary timeline of the alternative self-development, the role of the dominant cultural schemas, and the positionality of the main character. Subsequently, we implemented the three levels of data analysis described below.

Level 1: storylines. First, we created complete storylines by connecting story elements that arose from the individual accounts into coherent plots. These elements include: (1) the *exposition*, an opening act that reveals the emergence of a conflict or a precipitating event—this element corresponds to the “stem” provided to respondents; (2) the *climax*, representing the turning point of

suspense; (3) the falling actions that follow the climax to let the protagonist deal with the situation; (4) the *resolution*, or end of the story, in which the conflict is solved. Most of the stories encompassed all these elements. During coding, we primarily focused on the management of work-family interface.

Level 2: context. To acknowledge the role of the broader sociocultural context, we coded for the elements connected with cultural schemas. Drawing on the good worker, good man, good woman, and good person ideals (Williams et al., 2016), we contend that cultural schemas could be found in the gendered assumptions of (a) *work as a masculine contest*, (b) *work as a moral act*, (c) *work as a moral hazard*, and (d) *work as a class act*. Based on these contextual elements in the storyline, we could see how the main characters developed awareness on these assumptions and either rejected or reasserted them.

Level 3: positionality. Finally, we analyzed how the storylines were negotiated by different executives based on their social positioning—their gender, the gender of the main characters of their stories, and how these have been represented throughout the narrative (e.g., workaholic, dad, married, ambitious professional, etc.).

The analysis was an iterative process between these three levels, driven by the constant comparison of differences and similarities between the stories that allowed us to identify three emerging patterns presented in the findings. Although story completion is inherently subjective as it draws on interviewers' interpretations of provided accounts, the research team took several steps to establish the validity and reliability of the method to ensure the trustworthiness of the findings. The authors ensured validity by providing participants with a clear and relevant story stem to elicit meaningful responses. The final story stem was developed after obtaining feedback from colleagues who are familiar with qualitative research and after a pilot test. Furthermore, the authors ensured that the story stem and instructions were consistent for all the participants to minimize variability. The data analysis process involved two authors independently coding the data as soon as they started receiving stories. Having multiple coders analyzing the stories using the same framework helped to keep individual authors' biases in check, ensuring that they did not unduly influence the data analysis and produce reliable results. Throughout the data analysis process, the authors conducted regular meetings to discuss the emerging themes and to ensure that data analysis was closely aligned with the participants' stories.

4 Findings

We found that the COVID-19 pandemic has made salient in the respondents' minds an alternative reality. This alternative pathway triggered tensions between past self-definitions and alternative selves, arising at the level of self-representations linked to cultural schemas. The different ways in which the narrators worked through these tensions outline three different storylines corresponding to alternative decisions pertaining the management of the work-family interface: (i) *reframing opposing self-definitions as synergic: becoming a work-life balance advocate*, (ii) *withdrawing from the past self: becoming a family man*, and (iii) *withdrawing from the alternative self: reasserting the ideal worker*.

4.1 Storyline 1. Reframing opposing self-definitions as synergic: becoming a work-life balance advocate

The first story portrays the transformation of the good executive from a tireless workaholic to a work-life balance advocate. This storyline, told by most respondents (25 out of 32), begins with the executive experiencing the removal of those structures supporting the separation between work and family roles, including separate spaces, work schedules, school times for kids, and idle times in and around work. This makes it difficult for them to simultaneously meet expectations from both domains, triggering a contraposition between the self-representation of the good executive as an ideal worker and the actualized alternative counterfactual of the involved parent.

"So, Marc was stressed enough staying at home most of the time, trying to keep his 'business as usual' which was obviously very difficult as other 'residents' of the house were trying to get along with their lives (at first, kids in the background of the Zoom calls were the most innocent incident happened to our Executive Director)" (story #4, male respondent).

"[Story on Rebecca] They have seen that there are tensions in the house due to work, and in reverse, there are tensions in the home life because of the closeness that they are all on top of each other each day" (story #7, male respondent).

To deal with this contraposition, Marc and Rebecca start negotiate meeting rules and availability expectations with both family and colleagues, forcing the introduction of some family time in their daily schedules. They increasingly reveal family commitments to collaborators, and delegate more responsibilities to their staff.

"Of course, Marc's wife would be at the kids' back and call, but by purely being at home, he started to understand that his family wanted to spend more time with him. They quickly got into a new routine, where they would sit down at the breakfast table every morning and have breakfast together as a family" (story #25, female respondent).

These activities progressively reshape Marc and Rebecca's assumptions about work and family as conflicting domains, rejecting work as a masculine contest. Through their narratives, the executives reflect upon how supporting a good work-life balance over inflexible schedules can help people be more fulfilled in life and, thereby, more productive and motivated at work. They also consider valuable household responsibilities and activities revolving around care, highlighting how these develop skills that are also crucial in the work context.

"Although initially this reflection quickly disappeared from Rebecca's thoughts, as she was busy solving much more important problems, it gradually became almost a fixed thought. Maybe it was worth experimenting with some new ways of managing your collaborators? Perhaps there are also other places, situations, relationships that allow you to develop managerial skills outside the workplace?" (story #11, male respondent).

Narrators also reflect on the danger of framing work as a moral hazard for women. In one of the stories, the good mother's imperative to solely focus on childcare responsibilities left Marc's spouse unfulfilled in life, reflecting negatively also on Marc's satisfaction with life in general.

"But, on the other side, Marc uncovered the fact that his wonderful wife, who put her career on pause to take care of the family, was slowly losing interest in anything beyond the daily routine of kids, school meetings and cooking. That was a very alarming discovery because Marc knew that it was a sign of Mary losing interest in herself, her life, dreams, and aspirations" (story #4, male respondent).

In another story, Rebecca found inspiration in a colleague, Elaine, who became the living example of how real success requires women to avoid either/or choices and find ways to combine work commitment with parental duties to "have it all":

"Rebecca appreciates how supportive Elaine has been throughout the transition and for being a role model of 'professional working woman'. She understands that between an executive leader, a partner and a mom, there's a way to have it all" (story #26, female respondent).

One narrator challenges the assumption of work as a moral act through Marc, suggesting that executive identities have long been framed around work devotion to justify years spent overlooking their families to fulfill societal and organizational expectations.

"The ED [Executive Director] realized that by making himself available 24/7 to the business, he was cheating his family of his time and love. The ED took a step back and acknowledged that he could go better than just provide the money for the family" (story #21, female respondent).

In all these stories, this problematization of the cultural meanings underlying work devotion led the protagonists to rethink themselves as good executives, who are now conceived and depicted as professionals capable of balancing work and family life, promoting sustainable ways of working. These new representations were developed through several narrative elements, such as kids' aspirations, societal concerns for sustainability, and common ways of doing things, outlining new managerial paradigms.

"Marc also feels that a more balanced approach to work and life, with less commuting, less time outside of the family, less travel, less junk food, can contribute to a greener and more sustainable world with less traffic, less pollution, and less gentrification of cities, and that resonates with his kids' aspirations." (story #1, male respondent).

"Rebecca understood – "thanks" to covid – that a healthy work-life balance makes her happier. She will work on herself to become a more balanced person. She will learn how to border the impassable boundaries between work and family. She will learn for herself and her collaborators that if people are happier outside their company, they are also happier inside the company and work better, being more productive." (story #32, female respondent).

This first storyline draws a solution enacted by executives to cope with the tension triggered by the juncture between personal and professional domains. In a context where family and work are seen as incompatible and conflicting, especially for executives, the narrators reframe opposing self-definitions of being good executives and involved parents as synergic rather than contrasting. They do this by leveraging new representations of their characters—and themselves—as good executives.

4.2 Storyline 2. Withdrawing from the past self: becoming a family man

The second storyline depicts the pandemic as a serendipitous moment that led the good executives to reject their past self-definitions as such to fully embrace the alternative pathways drawn forward. This storyline was sketched by three respondents, two males and one female, and, interestingly, only revolved around the male character, Marc. The pattern begins with Marc finally experiencing high quality time with his family. This experience triggers regrets and a reconsideration of past choices, as Marc imagines how his life could have been different if he had not complied with the occupational schema.

"Marc, who is at his second marriage after a painful separation from his ex-wife, thought: what if, in my precedent marriage, I would have had this opportunity to stay more with my partner and my family? Would I really have divorced?" (story #10, male respondent).

While undoing the past and considering alternatives, the executive started revising its priorities rejecting the ideal of work as a moral act. He accepted the unsettling consideration that the sacrifice made to live up work devotion has been delusional.

"But in 2020, he realized how much he's missed on, distracted every day by his job. Many people delude themselves with thinking that a company is like a family, and their co-workers are people that they should care about as if they were brothers and sisters. "Bullshit" Marc realizes, "only a family is like a family" (story #3, male respondent).

In this story, the identity framed around work devotion is openly contested, and the underlying assumption of work as a moral act is rejected. However, this creates incompatibility between the representation of Marc as a good executive and his alternative self. To solve this, Marc rejects being defined by the role, changing his self-definition: from the good executive devoted to the job to an involved husband and father.

"He quits from the new job and for the first time in his life is unemployed and of course very much worried about it. but he invests some money going back to study and every day he feels better. He also starts engaging with local communities and using his skills for the benefit of other. Eventually he starts working again but part time and finds more fulfilment in giving." (story #2, female respondent).

As in the previous storyline, the pandemic enabled Marc to experience an alternative pathway. However, the actualization of the

alternative self generates an intense emotional state of regret that prompts Marc to fully withdraw from his past self-definitions. He embraces an alternative view on the self that mirrors that of the narrator: no longer the 24/7-available executive but a present husband and father.

4.3 Storyline 3. Withdrawing from the alternative self: reasserting the ideal worker

Finally, four respondents, one male and three females, told a different story, wherein the actualization of the alternative self-prompted Marc and Rebecca to reject the alternative counterfactuals of being involved parents. The main character experienced tension combining opposing self-representations of work and family devotion. Rebecca, for instance, felt the pressure to comply with the societal expectations around being both a good woman and a good executive. She internalized that, to be a good woman, she must invest time in domestic duties. The removal of the scaffolding between work and family has made it difficult for her to demarcate these two domains, creating the pressure to prioritize the former. Rebecca was thus unable to reconcile the competing expectations of being a caring mother and a good executive.

“Unfortunately, despite her job commitment, Rebecca has to combine home related duties with her regular job resulting in a very stressful period with which she is struggling. Although her husband is supportive and help her in daily chores, Rebecca feels that she’s not being a good mum/wife if she does not take care of crucial aspects of her home.. so she’s doubling up.” (story #7, male respondent).

Similarly, Marc must deal with availability expectations from family that make it difficult for him to devote himself to work.

“They started to throw tantrums for the silliest things and Marc could hear them scream from his “home office” aka his bedroom. They started to interrupt important meetings, requiring his attention. Marc had to learn how to play ball with the kids while at the same time running meetings with his team.” (story #17, female respondent).

Although our sample is too small to draw general conclusions, it may not be coincidental that this storyline predominantly appears among women. More than their male counterparts, female respondents drew on cultural assumptions to infer the incompatibility between the self-representations as good executives and involved parents. Their stories conclude with their main characters—who, by instruction, reflects the narrators’ personal experiences, attitudes, and beliefs—ultimately withdrawing from the alternative self.

“He started to realize he hated his job, but he felt stuck. He could not do anything about it. He had a family to provide for. To even entertain the idea of resigning and look for another job was crazy. Impossible. It would be irresponsible. You don’t quit a good, well paid, job in this economy. No way No how. Nope. Not possible.” (story #17, female respondent).

“Looking back, [Marc] considers the choice of completely devoting yourself to work as the only option to build an important career, and a part of him would like to go back to the office as soon as possible, to avoid losing the prestigious position he has at the company” (story #27, female respondent).

Once the pandemic is over, the main character goes back to the old routine. However, the problematization enacted by the narrators suggests an ongoing reflection in their minds that might influence their professional lives and be self-redefining.

5 Discussion

In this study, we examined whether and how executives in masculine contexts developed alternative self-definitions following the alteration of their work-life routine caused by the COVID-19 pandemic, highlighting the role that cultural norms play in this process. Drawing upon the stories told by 32 executives and centered around fictional characters, Marc and Rebecca, we discovered that the sudden shift in work-life habits caused by the pandemic has prompted the emergence of alternative selves, following three distinct patterns or storylines. Initially represented as ideal workers, Marc and Rebecca faced the disruption of the boundaries between work and family domains, which forced them to experience being involved parents, one of their self-definitions if they had made different life choices. The pandemic contributed to make an alternative reality exceptionally salient in the executives’ minds by temporarily actualizing it. This temporary actualization triggered a self-comparison between aspects that previously defined Marc and Rebecca as good executives (e.g., being workaholics) and their actualized, alternative counterfactuals (e.g., being involved parents). Since storytelling depends on the narrators’ ability to process knowledge in an interpretative way (Bruner, 1990), these stories provide an evaluative context for our respondents to reflect on questions around identity and cultural meanings of being either a man or a woman in an executive position. The answers to these questions develop as narrators work through the tensions between past self-definitions and counterfactuals. In the first, most recurrent storyline, Marc and Rebecca deal with the tension by redefining what it means to be a good executive, so that self-definitions and counterfactuals are no longer opposite but synergic. In the second storyline, Marc develops a new self-concept by withdrawing from past self-definitions, embracing the alternative self as an involved parent. In the third storyline, Marc and Rebecca struggle to reject the gendered assumptions around work and family devotion and ultimately decide to withdraw from the alternative self—although the fact that the alternative self has been narrated and problematized might indicate it is still self-redefining. These storylines convey three main contributions to research on work-family interface and research on the alternative self.

5.1 The pandemic served as a turning point for executives, eliciting the emergence and development of an alternative self

Existing research suggests that the recent COVID-19 pandemic was a significant turning point, prompting people to reinterpret and

renegotiate roles, responsibilities, and priorities across work and family domains (Choudhury et al., 2021). Yet, empirical evidence on this point is still limited. Our study found that the pandemic has effectively elicited alternative views about executives' self and cultural meanings. These alternative views have led executives to reconsider how they see and understand themselves, outlining counterfactuals that are self-redefining. These findings draw interesting insights on how we think of the impact of the pandemic on the management of the work-family interface and the circumstances that may lead to the rise of alternative selves.

The alternative self is usually described as confined to unactualized realities that are *"intensely imaginary since they are part of a parallel reality"* (Obodaru, 2012, p. 35). Yet, what makes these counterfactuals extremely salient in the context of our study is their temporary actualization. The pandemic made these alternative realities more salient in executives' minds and turned them into lived experiences, enabling executives to momentarily step outside the predefined path of the good executive aligned with work devotion. This consideration sheds new light on the conditions under which alternative selves arise not merely through retrospective reflection on past turning points (cf. Habermas and Bluck, 2000; Obodaru, 2012), but also through temporary shifts in the timeline of self-development.

Hence, we propose that turning points, as the recent pandemic, can be conceived as *nexus of past, current, and alternative selves*. This convergence interrupts the relatively stable trajectory of self-development, forcing a detour onto an alternative pathway that might become self-redefining (cf. Figure 1). As the alternative pathway becomes lived experience, executives experienced new tensions between self-definitions as "good executives" and their counterfactuals of "involved parents" that are still perceived as incompatible due to the persistence of prevailing cultural schemas. Dealing with these tensions requires executives to renegotiate who they are and what it means for them to be "good" in these competing roles. This renegotiation, triggered by the actualization of the alternative self, invites a broader reconsideration of the cultural meanings of work and how they shape behaviors and attitudes pertaining to the management of the work-family interface (Williams et al., 2016). Our findings also have implications for how we study alternative selves and turning points, broadening our conceptualization of the alternative self to look beyond purely imaginative realities. Future research should further explore the conditions, other than nexuses, that can trigger

self-redefining counterfactuals, possibly leading to the emergence and development of alternative selves.

5.2 Story completion as a methodology to study the alternative self and its significance for self-concept development

Researchers have highlighted the opportunities to study the alternative self by using narratives that prompt people to reflect on counterfactuals and progressively internalize them—indeed, we constitute our self-concept through the stories that we tell ourselves and others (Gergen, 2001; Habermas and Bluck, 2000; Obodaru, 2012). Yet, the stories revolving around the descriptions of real events might not capture unactualized realities (Ashforth, 2001; Ibarra and Barbulescu, 2010). Also, they might fall short in grasping those cultural meanings and discourses that enable participants to make sense of their ongoing struggles, desires, and concerns (Clarke et al., 2017). Our study reveals that story completion may offer an approach for retrieving these elements. Our stories revolved around fictional executives who experienced some tensions brought about by the actualization of alternative selves that could have corresponded to narrators' current self-definitions if they had made different life choices. Although revolving around fictional characters, these narratives were portrayed by actual executives working in masculine contexts, who have been forced to comply with the expectations aligned with the work devotion schema (Cannito and Scavarda, 2020; Chung, 2023; Chung et al., 2021; Chung and Van der Horst, 2020). In other words, these stories are likely to reflect the actual struggles, considerations, tensions, and concerns experienced by respondents, shaping the creation of an alternative self also for the narrators. Indeed, throughout their narratives, all the executives problematized the cultural meanings associated with being an executive with parental duties in a context in which work devotion is still the rule. Such a problematization discloses a layer of self-understanding that goes beyond actual experiences and entails an alternative self (cf. Obodaru, 2012) that can progressively get incorporated into executives' self-concepts through reflection and narration (cf. Rice and Pasupathi, 2010; Thorne, 2000).

Although future studies are needed to test whether these reflections have eventually led to the actual emergence of new self-concepts for executives, they highlighted dominant themes in

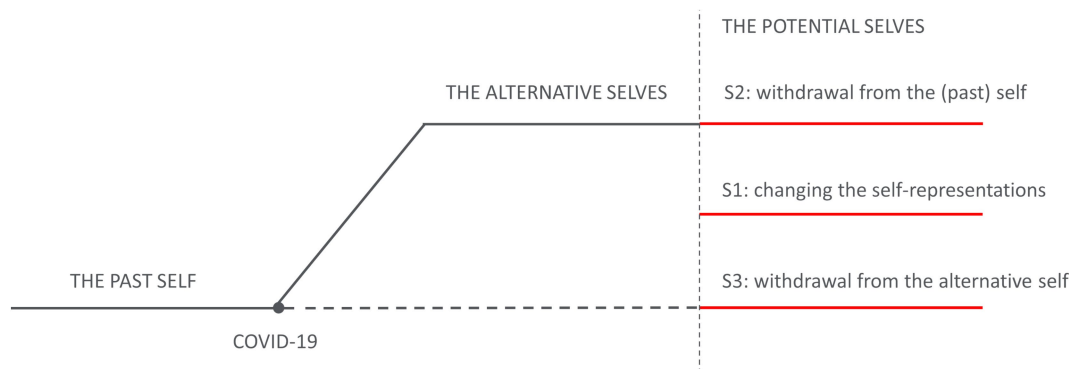


FIGURE 1
COVID-19 as a nexus of past, present and alternative selves.

executives' lives and common concerns among respondents, suggesting that they are integrating new experiences, values, and roles that differ from their previously held identities. Most executives in our study rejected traditional self-representations framed around work devotion and gendered roles, leading to a broader understanding of their identity. Therefore, we propose story completion as a methodology for studying the alternative self and its relevance for identity and self-concept development, allowing us to go beyond the limitations of the traditional narrative psychological approach to studying the self (cf. Ashforth, 2001; Ibarra and Barbulescu, 2010).

5.3 Rethinking the good executive, considering changes in the construction of occupational scripts

Finally, our findings suggest that the COVID-19 pandemic has triggered a renegotiation of personal preferences, cultural norms, and social identities, affecting how individuals allocate time, energy, and resources across work and family domains. Our stories, indeed, reveal a tendency among executives to reconsider practices and assumptions guided by cultural constructions of their professional responsibilities. This is especially evident, for instance, in the normalization of the use of flexible work policies even in normal conditions, as a tool for juggling between different domains, which arises especially from the first storyline of the executive as a work-life balance advocate. Yet, while the pandemic's disruption of work-family boundaries may have encouraged more flexible work practices, this alone has not been sufficient to dismantle the cultural foundations of work devotion, which continue to reinforce overwork and gendered role expectations, confirming previous studies (Cannito and Scavarda, 2020; Chung, 2023; de Laet, 2025). Our findings suggest that the work and family devotion schemas still hold significant influence over executives, as evidenced by the identified tensions.

Nonetheless, most respondents in our sample have found ways to make sense of their changing attitudes toward family involvement and their role as executives, revealing an ongoing adaptation process. In the second storyline, Marc finds fulfillment in what could be described as *intensive fatherhood*: a labor-intensive form of parenting where devotion to family overrides other types of commitment. Whereas the first storyline highlights how executives began to craft a new occupational script, where the good executive is no longer defined by blind work devotion, but by the ability to value and apply experiences and skills acquired in domestic life to the workplace (and vice versa). By incorporating a new role as wellbeing advocates into their self-concepts, these executives avoid making either/or choices between family and career, paving the way to a more gender-neutral understanding of work-life balance (cf. Chung et al., 2021).

While we interpret these developments as hopeful signs of an incipient cultural change, they also invite critical reflection. Indeed, these findings echo de Laet (2025)'s concept of "dual devotions," where both women and men remain highly engaged in childcare and household without sacrificing overwork, because they no longer perceive work and family devotion as competing, mutually exclusive schemas. Although our narratives emphasized balance over full commitment to a single domain, the persistence of work and family schemas suggests that this first storyline may create justifications for intensified expectations across both domains, leading to enhanced

exploitation in both, especially for women (Chung, 2023; de Laet, 2025).

Furthermore, the first storyline aligns with the "having it all" ideals that have been problematized, especially in the context of women studies (Seierstad and Kirton, 2015), as women strive to meet unrealistic demands for perfection (McRobbie, 2015). In the COVID-19 aftermath, these ideals seem to have gained heightened significance also for men in high-commitment careers, who increasingly see their involvement with parental duties as part of their personal success. Although our study does not provide evidence of an actual increase in the executives' work in the household, it highlights a desire for increased involvement with parental duties, especially for men. At the same time, the third storyline suggests that women are still expected to be the primary caregivers, aligning with recent studies (Padavic et al., 2019). The persistence of gendered cultural schemas implies that promoting executives' involvement with parental duties may further exacerbate tensions between ideals and reality, leading to enhanced frustration that may hinder the necessary cultural change. Therefore, it is critical that organizations recognize the underlying tensions and proactively manage them by supporting men's roles in households, for example, encouraging them to take parental leaves and promoting care and balance as values for effective management.

6 Conclusion

Story completion portrays fictional stories that are imbued with interpretations of characters' feelings, beliefs, and reconsideration of values. The stories collected and analyzed for this study illustrate how executives rethink themselves while experiencing alternative pathways, and how these thoughts are intertwined with cultural assumptions. However, whether these stories correspond to real changes in executives' lives at large remains unanswered. Future research should analyze whether these changes in the cultural construction of personal and professional responsibilities have resisted beyond the pandemic, adding a cross-cultural dimension as our sample was composed of executives working in Italy and United Kingdom, both considered as masculine work contexts wherein executives are expected to devote much of their energy to the work with extensive support at home (Dotti Sani, 2014). Further studies should also examine whether the first storyline will remain the most recurrent one, or the third one will become the most prevalent, drawing a way back to old habits and work devotion. Further research is also needed to identify personal, organizational, and societal interventions to sustain the positive changes that some executives experienced during the pandemic. As flexibility becomes a part of the common way of working across companies, what is perceived to be appropriate in an organizational setting might change. This opens the way to renegotiate roles and expectations, paving the way toward a new role model for the good executive focused on community, welfare, and family that should be supported by *ad hoc* organizational policies designed to support this cultural change.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, upon request.

Ethics statement

Ethical approval was not required because interview data were anonymized and informed consent was obtained at the time of original data collection. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

CM: Conceptualization, Formal analysis, Investigation, Methodology, Project administration, Writing – original draft, Writing – review & editing. MR: Conceptualization, Investigation, Methodology, Supervision, Validation, Writing – original draft, Writing – review & editing. LL: Conceptualization, Data curation, Investigation, Methodology, Writing – review & editing. RG: Conceptualization, Data curation, Writing – review & editing.

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Danmu subtitling as a self-regulative practice: a descriptive discourse analysis of Bilibili danmu subtitles from ethical perspectives

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Translation ethics is an important aspect of Translation Studies that has gained increasing attention in recent years. From an ethical perspective, this study investigates the onscreen commenting system: danmu subtitling, an emergent non-professional and collaborative translation practice popular in Asian communities. Adopting, modifying and expanding Andrew Chesterman's models of translation ethics, i.e., representation ethics, service ethics, communication ethics, norm-based ethics and ethics of professional commitment and proposing an ethics of digital technology, this study delves into how ethical principles explain the user-generated danmu subtitles. Descriptive discourse analysis is performed in this study observing an episode of *Tamara's World* (uploaded with no subtitles or translations), an English variety show, examining 296 translation-related instances among 1,490 danmu comments. Findings indicate that multiple ethical models elucidate danmu subtitling practices, which encounter distinct ethical conflicts. Consequently, adaptive regulation is proposed to resolve these conflicts.

KEYWORDS

danmu subtitling, translation ethics, ethical conflict, online collaborative translation, descriptive discourse analysis, Bilibili

1 Introduction

In the contemporary media landscape, danmu, an emergent commentary system featuring “user-made comments... scroll across the screen like an animated subtitle-track” (Johnson, 2013, p. 297), facilitates participatory viewing and mass writing. In terms of audiovisual communication, official and commercial channels may delay or overlook content that is time-sensitive, topic-specific, or relevant to minority groups. Therefore, grassroots forces utilize danmu subtitling to address the demand for media accessibility in specific contexts, such as assisting individuals who lack proficiency in a second language and facilitating intercultural communication.

In Translation Studies, scholarly attention to danmu subtitling is gaining ground. While semiotics has significantly contributed to existing research (Pérez-González, 2019; Yang, 2020, 2023), various aspects of danmu have been explored. These include audience reception studies through danmu analysis (Lu and Chen, 2024), empirical case studies of multimodal and interactive danmu subtitling (Wu and Fitzgerald, 2023), and the role of danmu as paratext (Yang, 2023). Nevertheless, despite recognition of its inherent ethical implications, a gap exists: few studies systematically examine danmu subtitling through the lens of translation ethics frameworks. Addressing this gap is essential, as danmu subtitling represents a pervasive and

influential form of collaborative translation in digital media, demanding rigorous ethical examination.

Translation ethics has attracted sustained scholarly attention since its inception over three decades ago (Berman, 1984). Accelerated globalization and technological innovation have intensified ethical challenges in translation practices. Existing scholarship explores this domain extensively, spanning foundational ethical frameworks, context-specific ethical issues, agentic and institutional ethical considerations, ethical reflection on education, and emergent ethical challenges precipitated by technological mediation (Bowker, 2020; Desjardins and Florentin, 2024; Kenny, 2011; Koskinen and Pokorn, 2021).

Scholarship interrogates ethical issues in specific contexts and platforms, with research focusing on ethics of fansubs (Díaz-Cintas and Muñoz Sánchez, 2006), ethics of crowdsourcing (Dolmaya, 2011), interpreting ethics in fragile environments (Gallai, 2019), ethical codes of community translation (Drugan, 2011), ethical cooperation in Wikipedia (Hu, 2024), and ethical insights from Yeeyan Gutenberg Project (Pan and Xiao, 2024). Nevertheless, despite the existence of fragmented ethical discussion (e.g., Díaz-Cintas, 2018), scholarly investigation of danmu subtitling through an ethical perspective remains underdeveloped. This gap is particularly salient given danmu subtitling's unique characteristics—(pseudo) real-time, collaborative, anonymous, and embedded within the viewing experience—which generate distinct ethical features and challenges not fully captured by existing frameworks.

Danmu subtitling, as a form of ethical behavior, introduces significant ethical considerations into the media landscape. Ethical decision-making plays a crucial role in translation, particularly in complex and challenging contexts (Drugan, 2011). In the context of danmu subtitling, these ethical considerations become even more pronounced, as viewers are no longer passive recipients of content. However, they are at the same time producers empowered by the danmu interface to actively engage with the video and interactions. This necessitates a heightened awareness of ethical considerations. For instance, the content of danmu should avoid defamation or harassment, and maintain a civil tone that does not disrupt the viewing experience for others. The anonymity provided by the platform and lack of strict societal oversight may empower some danmu subtitlers to act casually, leaving more of their decision influenced by individual ethical self-regulation in distinguishing between right and wrong.

Given this context, the present study makes a significant contribution by systematically applying, adapting, and extending Chesterman's (2001) models of translation ethics—representation, service, communication, norm-based, and professional commitment—to the novel phenomenon of danmu subtitling. Crucially, it also proposes and tests an “ethics of digital technology” to account for the affordances and constraints inherent in the danmu interface. This theoretical innovation allows us to rigorously investigate how ethical models manifest in and explain the emergent, collaborative translation process undertaken by danmu subtitlers.

By pioneering this ethical analysis, the study provides crucial theoretical and empirical insights that significantly enrich both Media Studies and Translation Studies. It advances our understanding of participatory media culture, collaborative translation ethics in digital spaces, and the complex interplay between technology, user agency, and ethical decision-making in emergent translation practices.

2 Danmu subtitling as an emerging mode of online collaborative translation

“Danmu” (“弹幕” in Chinese) is a video commenting system that originated in 2007 by Niconico, a Japanese video-sharing website. This system allows viewers to send their comments in real-time, which are then displayed as floating (primarily) or fixed subtitles over the video content. Since its inception, it has evolved and gained significant popularity in Asian communities. Although the system is no longer new, it has only in recent years become a subject of interest due to its unique features and the interactive viewing experiences it facilitates.

Various platforms and their technological affordances have facilitated diverse levels of viewer engagement with video content (Lange, 2007, p. 361). Among these, the danmu interface is particularly notable for promoting viewer participation in the construction and negotiation of video content, thereby enhancing engagement and interaction through its multimodal semiotic affordances (Yang, 2021).

By leveraging the affordances of the danmu interface, danmu comments—which represent the manifestation of this system—have given rise to a distinctive aspect of video consumption known as pseudo-synchronicity. This phenomenon, described as “a feeling of ‘live’ viewing via a sense of virtual time shared between users.” (Johnson, 2013, p. 297), creates an immersive experience that resembles synchronous communication despite being asynchronous.

Though research on danmu is growing to be prolific and interdisciplinary, many aspects of danmu have remained unknown. By defining danmu comments as a multifaceted form of user-generated content that enhances the viewing experience by providing translations, emotional reactions, critical analysis, informational insights, and social interaction (hereinafter referred to as danmu comments), and danmu subtitles as the danmu subtitlers' collaborative production of projecting translation-related danmu comments (hereinafter referred to as danmu subtitles), this study aims to contribute to the growing body of knowledge surrounding danmu culture and its potential to inform translation practices and theories and media studies.

As a derived activity of danmu, danmu subtitling is still an emerging field, and research on it is limited in scope and volume. Early but not detailed mention of the danmu subtitling can be found in Wu et al.'s (2018) comparison of danmu comments and traditional forum comments, in which the group of danmu subtitlers, who unofficially translate foreign languages into Chinese utilizing danmu, is identified as one of the major active users. Since then, the field has enhanced its scope overtime on its way to a fully-fledged research area.

Social semiotic perspective plays a pivotal role in guiding the exploration of meaning-making ensemble enabled by danmu subtitling. Pérez-González (2019) notices the emancipation of subtitling from media industries thanks to the advent of digitization. In his study, Pérez-González (2019) examines danmu as the interplay between semiotic technology (design) and social practices (rhetoric). He emphasizes the shift from the traditional “representational” role of danmu subtitles to an “interventionist” role, which reconfigures multimodal discourses (Pérez-González, 2019, p. 111).

Descriptive case studies and multimodal discourse analysis are two commonly used methods in danmu subtitling research. Yang's (2021, 2022) multimodal discourse analyses of danmu-enabled new grassroots translation practice further investigate this semiotic and

social practices' meaning-making process by fine-grained, data-led, and typical-themed case studies. Wu and Fitzgerald (2023) conducted a thorough investigation into user interaction while viewing danmu subtitles on top of officially untranslated videos, employing digital conversation and multimodal discourse analysis.

Recent advancements in the analysis of danmu subtitling have begun to explore its multifaceted nature through varied theoretical frameworks and interdisciplinary perspectives. For instance, Yiheng Zhao's semiotic theory, characterized by its focus on the dynamic and interpretative potential of signs, and his category of co-texts are imported to approach the danmu-mediated online video consumption (Yang, 2023). Chen (2023) introduces the concept of "danmu-assisted learning through back translation," viewing danmu subtitling as a tool serving specific purposes. Qiao's (2024) study delves into the intricate relationship between macro and micro contexts, particularly within the context of Chinese fans' engagement with danmu subtitled videos featuring Cardi B. Of particular interest in this study is the observation of danmu comments, which function as a bridge between the macro and micro contexts in cyberspace.

3 Danmu subtitling considered as an ethical behavior

Ethics, from its inception, can be defined as the systematic examination of moral principles and values (Koskinen and Pokorn, 2021, p. 2). In the realm of Translation Studies, ethics specifically refers to the branch that seeks to understand the ethical dimensions of translation practices, including what constitutes good and bad, and right and wrong translations. According to Chesterman (2018, p. 443), "translation ethics" (or "translator ethics") refers to the set of accepted principles according to which translation should follow and hence the norms governing what translations should be like.

According to Pym (2012, p. 134), the ethical responsibilities of translators can be framed within a broader context of cooperation. Pym (2000, p. 184) argues that translator ethics are more concerned with the interactions among translators, clients, editors, payment rates, immediate reception, distribution networks, and intercultural spaces—where professional and commercial elements intersect—than with distant authors and readers. In the case of danmu subtitling, these ethical considerations align closely with Pym's framework, as it involves a collaborative translation practice that is volunteer undertaken by non-professional danmu subtitlers.

Technological innovation and democratization have brought about new translation technologies and emergent forms of translation, leading to the emergence of new ethical concerns. These include concerns about the decline in the professional status of translators (Dolmaya, 2011); the exploitative aspects, despite the apparent mutual benefits, of online collaborative translation (Zwischenberger, 2022); the ethical challenges arising from team interactions (Hu, 2024); and ethical considerations stemming from risk management (Pan and Xiao, 2024).

Danmu subtitling, as facilitated by the danmu interface, raises significant ethical considerations that extend beyond technological aspects to include questions of authorship, copyright, and power dynamics. For instance, the absence of entry criteria and the continuous enrollment of danmu subtitlers cast doubt on authorship, and it erodes professional subtitling and poses a threat to

professional subtitlers. As the matters of resource ownership and power disparities associated with certain online collaborative translation practices (Hu, 2024), the copyright issues surrounding both the source materials and their translations remain a disputed topic. However, the imbalance of power relations is not as pronounced in danmu subtitling, given that danmu subtitlers primarily engage voluntarily and can terminate their work at any time.

This study approaches danmu subtitling from an ethical perspective, recognizing the crucial role of danmu subtitlers' ethical decision-making in danmu subtitling. Drugan (2011) has observed that ethical decision-making is particularly significant in complex and challenging contexts, where different priorities are revealed in professional and non-professional codes of practice. Additionally, Chesterman (2018, p. 443) highlights that axiological issues, including personal and professional ethics, significantly influence decision-making processes. These insights provide a foundation for examining danmu subtitling, where danmu subtitlers must navigate between different ethical values.

4 Research design

Descriptive discourse analysis is a qualitative research method that examines how language constructs meaning and mediates social realities. Brown and Yule (1988) establish that this method systematically identifies distinctive linguistic features within specific text or discourse. This study employs descriptive discourse analysis to examine the ethical dimensions of danmu subtitling, as it allows for an in-depth exploration of the textual and contextual elements of danmu subtitling.

4.1 Theoretical framework: Chesterman's models of translation ethics

Linking the concept of the norm to professional ethics and examining different models of translation ethics, Chesterman (2001) outlined four models founded on four concepts: truth (representation), loyalty (service), understanding (communication), and trust (norms), and put forth an additional model, ethics of professional commitment, a virtue supporting the striving for excellence. Considering the role of humans in the translation process is significantly influenced by digital technology in the modern age, this study proposed an ethics of digital technology.

The production of danmu subtitling, as user-generated content, involves complicated ethical decisions that a single translation ethics model may fail to capture its full. Also, danmu subtitling occurs on social media platforms, where the interaction between danmu subtitlers and other viewers is vibrant. This interaction can significantly impact the ethical decision-making of danmu subtitlers, making it necessary to consider different ethical models to explain their behavior.

Chesterman's models provide a comprehensive framework for understanding the ethical considerations involved in danmu subtitling. However, applying these models to danmu subtitling, a form of user-generated content, requires addressing several mismatches between the original models and the specific context of

danmu subtitling. The connotation and application of these models within danmu subtitling are demonstrated as follows:

4.1.1 Ethics of representation

The ethics of representation are rooted in faithfully translating without making any changes. It emphasizes the value of allowing the original meaning to be preserved without domesticating it.

The faithful translation in this case is unlike the translation of sacred texts or EU translation services, as elucidated by [Chesterman \(2001\)](#). In accordance with Chesterman's assertions (2001), an ethics of representation underscores the significance of fidelity and truth. Essentially, the translator is obliged to faithfully and genuinely represent the content of the source text, adhere to the intentions of the source author, and even embody the essence of the source culture, akin to a dependable mirror reflecting the original intent with precision.

Although fidelity is a pretheoretical notion and Translation Studies scholarship tends to favor other terms (equivalence, accuracy etc.), there is the enduring argument of adhering to 'loyalty' towards the author and maintaining 'faithfulness' to the intended meaning ([Munday, 2016](#), p. 53). Various translation methods reflect differing levels of fidelity. For instance, in [Newmark's \(1988\)](#) flattened V diagram, translation methods such as word-for-word translation, literal translation, faithful translation, and semantic translation all demonstrate an emphasis on the source language.

In the case of danmu subtitling, translation endeavors can be faithful renderings of the original video without domestication, employing translation methods such as word-for-word translation, literal translation, faithful translation, and semantic translation.

4.1.2 Ethics of service

The ethics of service view translation as a commercial service and prioritizes loyalty to the client and also to target readers and the original writer. In contrast, danmu subtitling is often performed by volunteers motivated by community engagement rather than commercial interests. To address the mismatch, the ethics of service can be reinterpreted to emphasize that danmu subtitling constitutes a voluntary service.

Conventional translation ethos frequently prioritizes neutrality and non-involvement ([Baker and Maier, 2014](#), p. 3), necessitating translators to adhere to their professional ethical standards. In contrast to contractual ethics, the ethics based on the concept of treating translation as a voluntary service prioritize loyalty not to the client, target reader, or original writer, but to personal considerations, such as the desire to contribute to a community, the pursuit of a creative hobby, or the fulfilment of personal goals.

For instance, the utilization of danmu subtitling can be interpreted as a discretionary service implicitly encouraged by video-sharing platforms, given its capacity to broaden the audience reach of videos and enhance economic profits, akin to the phenomenon of crowdsourcing translation observed on Facebook ([Zwischenberger and Alfer, 2022](#)). In this regard, the platforms are unable to enforce stringent standards or regulations and danmu subtitlers are primarily driven by a sense of "inner satisfaction" ([Dam and Zethsen, 2010](#), p. 204), which includes contributing towards a collective benefit. However, as observed by [Zwischenberger \(2022\)](#), online collaborative translation possesses an exploitative nature, despite its apparent benefits and danmu subtitling confronts similar ethical dilemmas.

4.1.3 Ethics of communication

The ethics of communication focus on effective communication with others. Translators who follow this approach prioritize their loyalty to intercultural communication rather than to the source text or target readers.

As the potential of social subtitling for individuals lacking language skills in the target second language (L2) ([Talaván Zanón and Ávila Cabrera, 2016](#)), the significant reflection of the communication ethics echoes the core features of danmu subtitling, i.e., facilitating communication across linguistic and cultural barriers.

For [Pym \(1997\)](#), intercultural communication aims to foster mutual benefits through collaboration, and the ethical aspiration of translation lies in enhancing such intercultural cooperation. Consequently, an ethical translator strives to translate in a manner that maximizes this collaborative effort. Additionally, [Pym \(1997\)](#) observes that an ethical translator may occasionally deem it more advantageous to refrain from translation altogether and instead recommend alternative modes of communication, such as acquiring proficiency in the other language ([Chesterman, 2001](#), p. 141).

These observations justify the diverse translation methods employed by danmu subtitlers, as they align with the ethical aspiration of enhancing intercultural cooperation. For instance, danmu subtitlers may employ adaptation to ensure the content is understood in the target culture, or supplementation to fill the cultural gap. Each method serves a specific purpose, such as maintaining cultural authenticity or ensuring clarity and comprehension, thereby supporting the broader goal of intercultural communication.

4.1.4 Norm-based ethics

Norms arise from cultural contexts, making it the primary lens through which translation expectation, production, and reception are evaluated. Norm-based ethics rely on accepted norms in a particular culture to determine what a good translation should look like. The norms define the characteristics of acceptable translation products, highlighting how they differ across various periods and cultures ([Chesterman, 2001](#)). It recognizes that translation is not merely a linguistic exercise, but a cultural exchange that requires sensitivity and respect for the norms of the target culture. In this regard, danmu subtitlers are expected to be cultural mediators, bridging the gap between source and target cultures.

While norms offer pragmatic frameworks for ethical decision-making, their formulation remains inextricably tied to power dynamics, consistent with the view that politics permeates all realms of life through "relations of conflict and power" ([Squires, 2004](#), p. 119). Translation norms—whether institutionally imposed (e.g., EU standardization), market-driven (e.g., anglophone publishing dominance), state-regulated (e.g., licensed translator systems), industry-mandated (e.g., professional associations), or emerging organically through social practice—reflect power structures that influenced what is considered ethical. For instance, when norms align with dominant power (e.g., colonial-era translations suppressing Indigenous voices), seemingly "ethical" conduct actually perpetuates epistemic violence ([Spivak, 1993](#)).

4.1.5 Ethics of professional commitment

The ethics of professional commitment emphasize the importance of practitioners being committed to the values of the translation

practice. This commitment is a virtue that supports the pursuit of excellence and being a good translator.

Chesterman's (1997: 172) deontic logic of translation ethics identifies values such as integrity, truth, clarity, understanding, and trust as guiding principles for ethical decision-making, while certain virtues influence the practitioner's decision-making process. Essential virtues for ethical decision-making include a genuine desire to act rightly, alongside creativity, cultural sensitivity, and a sense of social responsibility. This entails striving not only for technical competence as a 'good translator' but also for responsible engagement with the text, its audience, and broader societal implications. Consequently, commitment can be viewed as a unifying force that binds practitioners to the values inherent in the translation profession (Chesterman, 2001, pp. 146–147), demanding a constant negotiation between fidelity to these values, the exercise of personal creativity, and the demands of social responsibility, especially in evolving contexts. For instance, behaviors observed in online contexts, such as danmu subtitlers engaging in self-correction, often stem from a desire for accuracy and quality (reflecting professional commitment). However, the dynamic, interactive nature of platforms like danmu also creates space where translators might navigate tensions between strict fidelity, creative expression, cultural adaptation, and audience engagement, highlighting the need for the balance discussed above.

4.1.6 Ethics of digital technology

This framework addresses the integration of human expertise with technological tools in translation, such as examining the ethical implications of AI translation, machine translation (MT), and automatic subtitle generation. As is observed that with the development of digital technologies, there are ongoing ethical issues, such as whether human translators will be replaced by technology or collaborate with it, as well as concerns related to data safety and copyright. This framework critically examines how technologies challenge core translation ethics: e.g., whether MT undermines translators' creative labor, whether algorithmic bias risks accuracy declines, and how automation impacts accountability for quality and cultural sensitivity. Translators must therefore leverage technology while upholding ethical standards—scrutinizing AI outputs for bias/errors and asserting creative agency where automation falters.

Supported by the danmu interface's technological affordances, the danmu interface exemplifies these tensions: While its real-time interactivity fosters community engagement, the pressure for instantaneity may limit output quality, risking accuracy and constraining subtitler creativity. Furthermore, anonymity can encourage candid contributions but also reduce accountability—potentially enabling unvetted wrong translations or ethically ambiguous adaptations.

For example, a unique translation perspective is enabled by danmu subtitling, which can be described as an omniscient perspective. Unlike traditional translations, certain danmu subtitles may adopt a third-party perspective. Instead of directly translating the subjects' words, subtitlers use terms like "they" or "the characters" to represent the speakers. This approach creates a sense of detachment and allows viewers to perceive the dialogue from a more objective standpoint. Additionally, danmu comments appear dynamically, flashing in and out on the screen, which may influence subtitlers to opt for more concise translations (e.g., gist translation rather than communicative translation).

Ethical conflicts inherent in these models necessitate recognition and resolution. Chesterman's (2001) analysis identifies predominant models of translation ethics, each presenting distinct values and engendering significant conflicts. These conflicts arise from incompatible core values, differing scopes of application, and divergent philosophical foundations, revealing the limitations of each model.

As Moser (1988) demonstrated, ethical conflicts stem from incidents violating an individual's personal sense of right and wrong, where personal values serve as crucial determinants. Within danmu subtitling, diverse practitioners contribute heterogeneous value systems. Consequently, individual subtitlers' ethics may conflict with platform policies, video creators' intentions, or other danmu subtitlers' stances.

Such ethical conflicts can lead to adverse outcomes. Thorne's (2010) research correlates ethical conflict with employee stress, lack of commitment, absenteeism, and turnover intention. Applied to danmu communities, unresolved conflicts could similarly contribute to issues such as stress and disengagement among subtitlers. Such conflicts also carry psychological consequences: Kammeyer-Mueller et al. (2012) demonstrate that institutional pressures contradicting personal ethics cause distress and exhaustion. In danmu subtitling contexts, pressures to engage with controversial content, adhere to potentially ambiguous community guidelines or manage conflicting audience expectations via danmu could similarly trigger such psychological burdens for those involved. Brown et al. (2022) establish that while ethical conflicts disrupt team cohesion, they may stimulate moral cognition and refine ethical decision-making. This suggests that ethical conflicts within danmu subtitling could disrupt collaboration, yet they may also serve as catalysts for deeper ethical reflection and improve decision-making processes.

The unique affordances of the danmu interface—such as real-time overlay, anonymity (often), high visibility, and potential for rapid interaction—create specific conditions where these general mechanisms of ethical conflict are activated. Addressing ethical conflicts in danmu subtitling therefore necessitates formulating resolutions informed by understanding their underlying mechanisms. This study proposes that effective resolutions should transition from static to adaptive resolutions. Such self-regulation must accommodate the specific contextual needs of danmu subtitlers. For instance, when Communication Ethics takes precedence, danmu subtitling operates simultaneously as a cultural bridge and an information dissemination tool. Consequently, subtitlers bear responsibility not only for conveying content but also for evaluating its social implications, including potential misunderstandings or exacerbation of cultural conflicts.

4.2 Research questions

This study foregrounds the practice of danmu subtitling as ethical behavior, necessitating explication from an ethical perspective. The research question is set out as follows:

- How and to what extent a model designed for professional translation be used to identify and explain danmu subtitling, a non-professional translation? Specifically, how can Chesterman's translation ethics framework applied to the analysis of danmu

subtitling and aid in explaining the decision-making of danmu subtitlers?

- What ethical conflicts occur in danmu subtitling? What practical resolutions can help address them?

4.3 Video sample

The data set for this case study includes a video labelled with the keyword “生肉” [raw meat], which refers to untranslated foreign language videos on the Bilibili platform. Being the world’s most engaged video-sharing platform, Bilibili has registered 96.5 million daily active users in the second quarter of 2023 (Bilibili, 2023).

Given the popularity of entertainment genre videos on video-sharing platforms and their need for translation, a search was conducted on Bilibili on August 24, 2023, using the keyword “raw meat” to identify untranslated foreign language videos within the entertainment category and sorted by default comprehensive settings. Search results were refined by excluding short clips, and focusing on videos longer than 60 min.

The video series “有钱人的世界” (Tamara’s World), a reality series, was chosen for its high ranking on Bilibili, with the most views and a relatively higher number of danmu comments. It is expected that a more popular video with higher viewer engagement will offer deeper insights into the underlying reasons for the behavior of danmu subtitlers, who act as ethical agents. This expectation is based on the premise that increased popularity and engagement typically correlate with a higher volume of danmu comments and a more diverse range of interactions among viewers.

As of August 24, 2023, the video had accumulated over 294,000 views and received 3,084 danmu comments. Episode 1 was selected from the six episodes because it accounted for nearly half of the series’ total danmu comments (1,490 comments, or 48.31%).

Figure 1 illustrates the rapid increase in danmu comments for the episode 1 video since its release on January 07, 2018, with the growth rate declining over 20 days.

4.4 Operational procedures

1 Downloading materials and retrieving data.

The free PC software Jijidown was utilized to download the video and its corresponding danmu file from Bilibili. Subsequently, the danmu file was imported into an Excel spreadsheet for data annotation and analysis.

2 Classifying danmu comments.

Drawing from Zhang and Cassany’s (2020, p. 491) taxonomy, danmu comments can be categorized into three broad groups: video, meta-danmu, and viewer-related danmu comments, and can be further classified regarding its specific topics in given contexts.

Two trained annotators independently classified danmu types using the predefined criteria. To minimize cognitive biases, a structured reconciliation protocol was implemented: annotation → cross-examination → discussion → agreement. All discrepancies underwent iterative discussion: annotators cross-examined contested

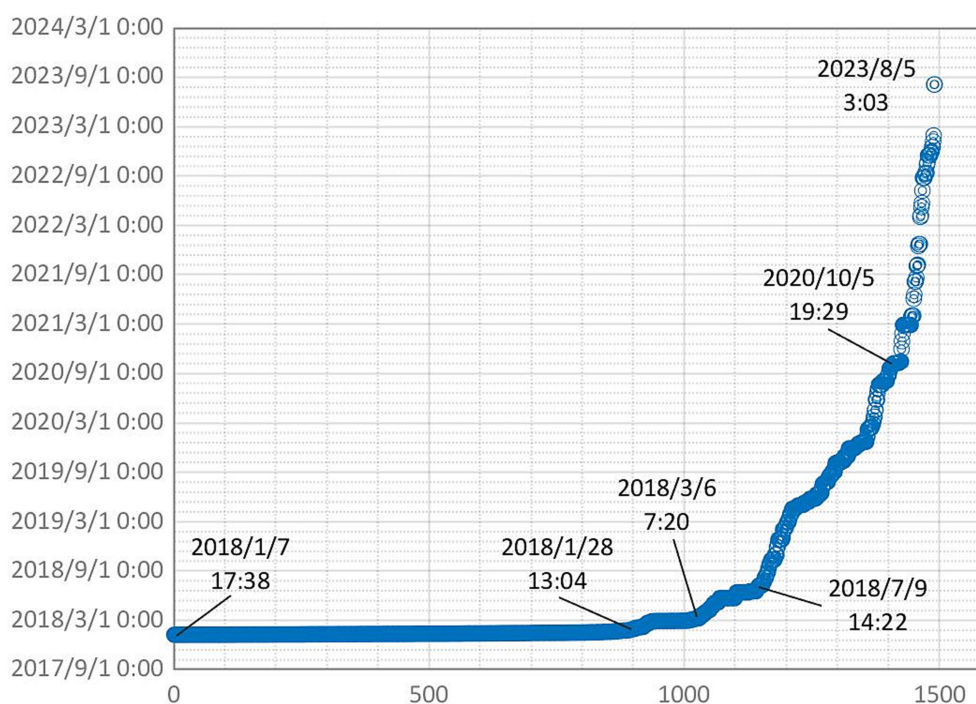


FIGURE 1
Time-based danmu comments distribution of *Tamara's World* season 1 episode 1.

cases and refined classifications through mutual debate until full agreement.

3 Applying, modifying, and extending Chesterman’s theoretical framework and analyzing.

Drawing upon Chesterman’s five models of translation ethics to the case study, the annotation criteria and examples are outlined below (Table 1).

It is noteworthy that a single danmu subtitle may reflect multiple translation ethics models, with priority given to the most prominent feature, and the same procedure of consensus-seeking employed. For instance, in Example 1, danmu subtitles 34 and 35 can be seen as illustrating norm-based translation ethics or ethics of communication. Both danmu comments are from the same user, who consistently uses English captions followed by Chinese translations across 18 danmu subtitles, resembling bilingual subtitles common in (Chinese) streaming media (Gouletti, 2023; Hsiao, 2014; Liao et al., 2020; Zhang, 2013). This consistent adherence to the bilingual format represents a normative ethical commitment: the subtitler prioritizes fulfilling an implicit duty to conform to established community (cultural) practices and expectations regarding accessibility and presentation, viewing this conformity itself as an ethical good. Despite this overarching norm, the specific Chinese translation in danmu subtitle 35 focuses on conveying the general meaning rather than a literal translation, as seen in the translation of “partying” as “嗨” [having fun], emphasizing the sense of having fun over the exact term “派对” [partying]. Thus, while operating within a norm-based ethical framework demanding bilingual presentation, the subtitler simultaneously exercises ethical judgment aligned with communication ethics, prioritizing functional

equivalence for the target audience. This example’s annotation prioritizes the most prominent feature, namely norm-based translation ethics, understood as an ethical obligation to follow prevailing conventions.

Example 1 Danmu subtitle 34 I’ve had a lifetime of partying
Danmu subtitle 35感觉已经嗨了一辈子了

5 Results and discussion

In the subsequent section, a comprehensive analysis will be conducted, encompassing a general overview, a detailed examination of various ethical models applied in the explanation of danmu subtitling, and a discussion of ethical conflict emergence and resolution.

5.1 General analysis

Tables 2, 3 present data on the composition of danmu comments and the identification and contribution of danmu subtitlers. Table 2 reveals that out of 1,490 danmu comments, 80.6% were general comments and 19.9% were danmu subtitles, with additional classifications provided. The identification and contribution of the top 10 danmu subtitlers are detailed in Table 3.

The lack of universally accepted codes of conduct for danmu subtitling necessitates a higher degree of self-regulation. Unlike professional translations, which are typically assigned or

TABLE 1 Annotation criteria and examples of translation ethics models.

Model of translation ethics	Definition in this study	Example
Ethics of representation	Faithful translation allows slight changes.	Original audio: I remember she looked beautiful Danmu subtitle 399: 我记得她很美 [I remember she was very beautiful]
Ethics of service	Translation as a voluntary service.	Danmu subtitle 28: 随便翻翻 大家随便看看 [Just a casual translation for everyone to take a look.]
Ethics of communication	Translation as an effective way of communicating with others.	Original audio: They say that the triangle is the strongest shape known to the mankind. So we are gonna to stick to three of us. Danmu 231: 我们三个组成了家，大家都说三角形是最稳定的结构 [The three of us form a family, and everyone says that triangles are the most stable structure.]
Norm-based ethics	Priority is given to accepted norms in a particular culture, such as identifying the speaker’s name.	Original audio: Sophia: Just use your muscles. Tamara: I’m trying to use my muscles. Danmu subtitle 904: 菲:你应该用到你的肌肉 ta:我努力用肌肉的力量了 [Fei: You should use your muscles. ta: I tried hard to use my muscle strength]
Ethics of professional commitment	Emphasize the importance of practitioners being committed to the values of the translation practice.	Danmu subtitle 730: 翻译错了，是sort of，不是软软的 [The translation is wrong, it’s sort of, not soft.]
Ethics of digital technology	Highlights the integration of human expertise with technological tools, such as translation of omniscient perspectives or use of gist translation to accommodate the temporal nature of danmu interfaces.	Danmu subtitle 649: 他们为了女儿建了一个泳池就为了她能时而去玩[They built a swimming pool for their daughter so she could play there from time to time.]

commissioned and subject to agreements, danmu subtitling is primarily driven by personal willingness. As Borodo (2020) observed, non-professional translation activities involve translators who engage in these activities for diverse reasons, including facilitating the circulation of information, enhancing access to entertainment, engaging in creative hobbies or linguistic exercises, contributing to specific organizations' goals, and effecting macro-scale social change through micro-scale activities.

Despite not translating the entire video, danmu subtitlers collaboratively produced several danmu subtitles. The data presented in Table 3 reveals that a total of 68 danmu subtitlers participated in the danmu subtitling efforts, collectively contributing 296 danmu subtitles. Notably, 2 danmu subtitlers stood out, having significantly contributed 75 and 30 danmu subtitles, respectively. Furthermore, 4 additional danmu subtitlers each submitted more than 10 danmu subtitles, resulting in an average of approximately 4 danmu subtitles per subtitler.

Moreover, general trust is demonstrated by the danmu comments that request and appreciate danmu subtitling. A common term frequent in danmu comments is “(wild) caption-kun” (31 out of 1,490). In contemporary online culture, this term is used for individuals who voluntarily translate original videos for viewers lacking language skills. It conveys a sense of respect, with “wild” contrasting professional organizations, “caption” denoting the danmu-enabled presentation similar to subtitles, and “kun” borrowed from the Japanese language indicating respect (Yang, 2023). Out of 1,490 danmu comments, 1,201 are general comments, including 39 requests for translation and 14 expressions of gratitude towards translators (see Table 2). For instance, danmu comment 46 inquires “有野生字幕君吗” (Any wild caption-kun?) and another danmu comment says “感谢字幕君” (Thanks to caption-kun).

The quality of work, identified as a key aspect in professional translation codes, is also affected by the principle of self-regulation in danmu subtitling. Given the involvement of multiple subtitlers, disparities in translation, terminology, and grammar may arise. These inconsistencies can undermine the overall quality of the subtitles, making them difficult for viewers to understand and potentially leading to mistrust. The case study shows that arbitrary sentence splitting and integration, punctuation usage, and other translation-related phenomena observed in danmu subtitles contribute to inconsistent quality. For example, multiple sentences are often combined into a single subtitle, resulting in a lack of synchronization with the corresponding video frame. However, danmu subtitling also allows, and even benefits from, subtitlers' varied translation styles, including the use of bilingual subtitles and humorous tones.

5.2 Fine-grained analysis

By the aforementioned annotation criteria, Table 4 presents the collected results. The data indicates that ethics of representation is the most prevalent model (149, 50.3%), followed by ethics of digital technology (60, 20.3%) and ethics of communication (51, 17.2%), and then norm-based ethics (27, 9.1%). While there are only a few instances of ethics of professional commitment (5, 1.7%), a solitary case of ethics of service (1, 0.3%) is observed.

TABLE 2 Composition of danmu comments.

Danmu comments' Category	Counts	Percentage
General comments	1,201	80.6%
- Requests for translation	- 39	2.6%
- English caption	- 22	1.5%
- Appreciation of translation	- 14	0.9%
- Other comments	- 1126	75.6%
-Danmu subtitles	296	19.9%
-- Interlingual translations	- 224	15.0%
-- Gist translations	- 67	5.5%
-- Translation revisions	- 4	0.3%
-- Translation criticism	- 1	0.1%
Totaled	1,490	100.0%

TABLE 3 Top 10 Danmu subtitlers' identification and subtitles counts.

	Danmu subtitlers' ID	Counts of danmu subtitles	Percentage
1	1b110846	75	26.0%
2	568b495f	30	10.4%
3	15c8b02e	17	5.9%
4	76debd77	14	4.8%
5	58494c7e	13	4.5%
6	2d10b3e9	10	3.5%
7	1ab601fd	7	2.4%
8	a8ba619	7	2.4%
9	2879eba2	6	2.1%
10	36fc72d	6	2.1%
...	...	...	...
68	...	1	0.3%
	Totaled	296	100.0%

TABLE 4 Results of models of translation ethics applied in the case study.

Model of translation ethics	Counts	Percentage
Ethics of representation	149	50.3%
Ethics of service	1	0.3%
Ethics of communication	51	17.2%
Norm-based ethics	27	9.1%
Ethics of professional commitment	5	1.7%
Ethics of digital technology	60	20.3%

5.2.1 Ethics of representation

The traditional focus of translation studies has long been centered on the more or less “faithful” interlingual reproduction of the source text. In this context, the ethics of representation (149, 50.3%) emerges as the most frequently referenced model. The data collected in this case study indicate that literal translations are the most direct embodiment of this representation model, covering elements such as

interjections, on-screen text, common English words, and the phonetic transcription of character names. However, this does not imply that all translations are executed with meticulous precision and without any alterations.

In the case study, one notable observation is the phenomenon of repeated translations (48 out of 149), where the same original sentence is translated multiple times and often displayed within the same video frame. For example, in [Example 2](#), the original sentence features Tamara Ecclestone, the prominent female lead of the selected documentary, expressing her feelings about her daughter. Here, three users contributed translations of the same sentence, despite differences in sentence structure and rhetorical techniques. This redundancy, a characteristic feature of danmu ([Yang, 2023](#)), can be attributed to the lack of task assignments typically found in professional translation contexts. It also highlights the self-organizing nature of danmu subtitling to some extent.

Example 2 Original audio: I'm happiest when she is doing what she loves to do.

Danmu subtitle 565: 我会很开心, 当她做她喜欢做的事 [I will be very happy, when she does what she loves to do].

Danmu subtitle 566: 当她做开心的事时我是最快乐的 [When she does happy things I am happiest].

Danmu subtitle 567: 她做她喜欢的事时我也很开心 [When she does what she loves I am also very happy]

5.2.2 Ethics of service

The ethics of service conceptualizes danmu subtitling as a voluntary service. In [Example 3](#), danmu subtitle 28 represents the sole instance of service ethics in the study. The primary contributor of danmu comments collectively submitted a total of 75 danmu subtitles, representing the highest quantity of danmu subtitles contributed by a single danmu subtitler in this case study. Notably, the danmu subtitle 28 marks the initial entry made by the said subtitler. Hence, danmu subtitle 28 can be viewed as a translator's introductory message that clearly articulates the translator's working principles with modesty.

Example 3

Danmu subtitle 28: 随便翻翻 大家随便看看 [Just a casual translation for everyone to take a look.]

The translator's notes function as paratextual elements through which the translator asserts their presence, thereby relinquishing the conventional role of invisibility to communicate directly with the reader ([Buendia, 2013](#)). In [Example 3](#), the danmu subtitler actively interacts with the audience by incorporating a "translator's note." This action renders the subtitler visible, similar to the role of a professional translator, guiding the audience through the dialogue.

However, it should be noted that the application of service ethics highlights a vulnerability in the method. Many elements of the model are only evident in paratexts or metatexts. Since the data primarily consists of subtitles, the study tends to classify them predominantly as representational.

5.2.3 Ethics of communication

The collected data reveal that the ethics of communication, with 51 occurrences (17.2%), is the third most frequently reflected model. Emphasizing effective communication with others, the ethics of communication in danmu subtitling employ translation methods such as explication, simplification, and changes in sentence order.

In [Example 4](#), the original audio features Tamara Ecclestone, the prominent female lead, accompanied by her spouse, Jay Rutland, as she expresses her feelings about her family, which consists of a married couple and a daughter. Three danmu subtitlers provided their communicative translations, retaining the core meanings of "family relations," "triangle," and "stable."

Example 4 Original audio: They say that the triangle is the strongest shape known to the mankind. So we are gonna to stick to three of us.

Danmu subtitle 231: 我们的家庭关系像三角形一样稳固 [Our family relationship is as stable as a triangle.]

Danmu subtitle 232: 我们三个组成了家, 大家都说三角形是最稳定的结构 [The three of us form a family, and everyone says that triangles are the most stable structure.]

Danmu subtitle 235: 不是说三角形是最稳定的吗? 我们三人组成了这个家庭 [Isn't it said that triangles are the most stable? The three of us formed this family.]

Mistranslations were also identified in the case study. For instance, in [Example 5](#), the original audio discussed children's misbehavior in a swimming pool, which caused significant disruptions during an advertisement photoshoot. However, danmu subtitle 1,297 misunderstood this and provided a mistranslation, suggesting that people can do anything in a swimming pool. Given the lack of precise entry criteria for danmu subtitling, it is reasonable to assume that individuals with limited language proficiency may volunteer for translation tasks. Substantial mistranslations can negatively impact viewership and may lead to the entire danmu subtitling being perceived as untrustworthy.

Example 5 Original audio: I'm sure that they'll want to be in the pool at the wrong time, and they'll wanna nap, eat, drink. They'll wanna do everything at the wrong time.

Danmu subtitle 1,297: 确信在泳池里面进行活动, 人们也可以休息, 吃, 喝, 做他们想做的任何事 [Be sure to engage in activities in the swimming pool, where people can rest, eat, drink, and do anything they want.]

5.2.4 Norm-based ethics

Currently, danmu subtitling lacks established and widely accepted codes of practice, resulting in its operation mainly under self-regulation. However, while certain platform-imposed limitations exist, such as the prohibition of using swear words, user-generated danmu etiquette assists danmu users in commenting. One such guideline suggests placing danmu comments at the bottom of the screen for translations if the video lacks translation, ensuring they do not cover the original subtitles ([Yang, 2023](#)).

In the case study, out of 296 danmu subtitles, 194 are set to pop up at the bottom, and 6 are at the top of the screen, comprising 67.6% of

all danmu subtitles. This substantial proportion of top and bottom modes represents danmu subtitlers' self-regulation. It is also important to note that these two modes are accessible only to users with a level 3 status or higher.

Bilingual subtitles, which concurrently display text in two distinct languages, initially found their footing in cinema productions within officially bilingual nations and international film festivals. However, they have recently regained significance as a tool to accommodate the expanding capabilities of streaming media (Gouletti, 2023). This trend is particularly evident in China's video-on-demand platforms and cinemas, as they aim to broaden their international reach and circulation (Díaz-Cintas and Remael, 2021, p. 19). Notably, young Chinese individuals are at the forefront of this movement, influenced by the growing popularity of bilingual subtitles among amateur subtitlers who voluntarily translate foreign language videos online (Hsiao, 2014; Zhang, 2013).

As demonstrated in Example 1 above, a danmu subtitler consistently generates English captions accompanied by their corresponding Chinese translations, ultimately contributing a total of 12 pairs of danmu subtitles in the form of bilingual subtitles. The consistency in maintaining the format of bilingual subtitles demonstrates the danmu subtitlers' intention to conform to the established norm, leveraging the unique affordances provided by danmu technology.

Speaker identification plays a pivotal role in clarifying the identity of both onscreen and offscreen speakers for clarity and the name of characters is frequently utilized to identify speakers across diverse modes and practices. In the context of film scripts, it is commonplace to precede the dialogue of a character with their name, followed by the transcribed spoken words. In closed captioning, speaker identification will be required only if necessary for comprehension (for instance, when an individual is not visible on screen but it is still evident who is speaking, speaker identification is not mandatory), with the format of the speaker's name and a space and a colon. Similarly, speaker identification is incorporated into the display of respeaking, as emphasized by Romero-Fresco (2018, p. 100).

Danmu subtitle 904 in Example 6 effectively incorporated the translation of dialogue alongside the names of the speakers, namely Tamara (the mother) and Sophia/Fifi (the daughter), serving as speaker identifications. It is presumed that danmu subtitlers adhere to the professional translation norm of speaker identification, prioritizing fulfilling implicit duties to align with established community practices and cultural expectations.

Example 6 Original audio:

Sophia: Just use your muscles.

Tamara: I'm trying to use my muscles.

Danmu subtitle 904:

菲:你应该用到你的肌肉 ta:我努力用肌肉的力量了.

[Fei: You should use your muscles. ta: I tried hard to use my muscle strength.]

5.2.5 Ethics of professional commitment

In the case study, a limited number of 5 danmu subtitles are identified as exemplifications of models of professional commitment. Out of these danmu subtitles, 4 pertain to translation revisions (see

Example 7), while one constitutes peer criticism (see Example 8). These interventions demonstrate how danmu subtitlers operationalize their fundamental ethical aspiration to be good translators – manifested through voluntary quality assurance – while simultaneously aligning this professional ethos with personal creativity and broader social responsibility.

Example 7 illustrates self-revision as ethical self-regulation. Revision can be understood as the process of reading a translation in order to spot problematic passages, and then making or recommending any corrections or improvements that are needed to meet some standard of quality (Mossop, 2014, p. 249). Here, the predicate “sure” is corrected from “相信” (believe) to “确信” (sure) resolving a pragmatic mismatch by prioritizing evidence-based certainty over subjective belief. Crucially, this adheres to Chesterman's ethics of professional commitment, wherein the translator voluntarily assumes accountability for terminological precision and catalyzes personal creativity as the translator innovatively negotiates pragmatic equivalence.

Example 8 demonstrates peer correction as communal commitment. Danmu subtitle 734 identifies a translation error made by danmu subtitle 732, specifically the misinterpretation of “sort of” as “soft.” Such interventions uphold collective accuracy despite contributors' informal roles, positioning peer critique as an ethical obligation under Chesterman's framework and it enables creative engagement. To operationalize this ethical commitment, platforms could implement peer-validation badges to incentivize community-vetted corrections.

Example 7 Original audio: I'm sure Fifi will have a very strong opinion on the kids that should stay and who she wants to play with.

Danmu subtitle 1,227: 我相信她会有自己很坚定的选择在让哪个孩子和她一起玩这件事上 [I believe that fifi will make her own firm choice about which children to let play with her.]

Danmu subtitle 1,228: 我确信她会有她自己很坚定的选择 [I am sure fifi will make her own firm choice].

Example 8 Original audio: He hates any sort of cake.

Danmu subtitle 732: 他就是讨厌一切软软的蛋糕 [He just hates all soft cakes.]

Danmu subtitle 734: 翻译错了, 是sort of, 不是软软的 [The translation is wrong, it's sort of, not soft.]

5.2.6 Ethics of digital technology

The ethics of digital technology constitutes the second most prevalent model in danmu subtitling, accounting for 60 instances or 20.3%. Within this category, gist translation is predominant, making up 81.7% (49 out of 60), with the goal of offering generalized interpretations that are adapted to specific contexts. This can be interpreted as an omniscient perspective, that is, a third-party viewpoint. Rather than directly translating the subjects' words, subtitlers opt for terms such as lexical bundles to denote a generalization. This method fosters a sense of detachment, enabling viewers to perceive the dialogue from a more objective position.

For instance, lexical bundles, which refer to frequently recurring sequences of words, serve as crucial structural components in both spoken and written forms of discourse (Biber and Barbieri, 2007). The collected data reveals a frequent use of specific lexical bundles including “总之就是” (This is, in a word), “这是” (this is about), “大概在聊” ((They are) approximately talking about), to summarize the presented information.

For instance, in the case of [Example 9](#), a gist translation is employed in danmu subtitle 1,075 to concisely convey the meaning of multiple consecutive dialogues through the use of the summative lexical bundle “这里是说” (This is talking about). This approach effectively summarizes the key points of the conversation, facilitating comprehension for the viewer. It is noteworthy that the information imparted by the danmu subtitler in this instance is highly concise, condensing and omitting substantial amounts of information. Potential explanations for this could be attributed to the self-regulatory nature of danmu subtitling, which does not impose stringent subtitling standards on danmu subtitlers, to the unique characteristic of danmu comments, i.e., their temporality, or to the Bilibili platform's expectation that danmu comments be simple and concise.

Example 9 Original audio:

Jay:... Tamara believes in breastfeeding. She believes quite passionately in it. I support her in anything that she wants to do. I think she's doing the right thing. It's the most natural thing in the world. It's not just about food and nutrition. It's also about comfort.

Tamara: I think that's really important for the relationship between mother and child. I guess it's just what was for me and Fifi, and I feel like that's just what you have to listen to as a mom and get on with it. ...

Danmu subtitle 1,075: 这里是说她母乳喂养 [This is talking about her breastfeeding.]

In providing a general interpretation of the given information, danmu subtitlers have the discretion to choose the narrative perspective. Varying applications of narrative perspectives can yield distinct narrative effects. For instance, in [Example 5](#), danmu subtitles 583 and 650 offer concise summaries of the female and male leads' words regarding converting their swimming pool into an entertainment room for their daughter. Notably, there is a transition from a first-person narrative (“We”) to a third-person narrative (“They”) in the cited [Example 10](#). This shift to a third-person narrative perspective may invoke a sense of omniscience, in contrast to the first-person narrative, which conveys a feeling of direct involvement (Morreall, 1994).

Example 10 Original audio: I've decided to turn the swimming pool at the house, which we hardly use at all, ... basically, it looks amazing, but it's kind of a waste of space to turn into something that Sophia will definitely use on a daily basis... How excited are you? Yeah, you ready for a surprise?...

Danmu subtitle 583: 我们把不常用的泳池房改造成了菲菲一定会喜欢的娱乐房(惊喜) [We transformed the rarely used pool room into an entertainment room that Feifei will definitely like (surprise)].

Danmu subtitle 650: 他们为了女儿建了一个泳池就为了她能时而去玩 [They built a swimming pool for their daughter just so she could play there sometimes.]

According to [Yin and Fun \(2017, p. 132\)](#), the practice of danmu commenting on Bilibili has fostered a sense of “self-expression, participation, and empowerment” among Chinese youths, thus facilitating their engagement in the public sphere through quotidian forms of online entertainment, consumption, and interaction. In the context of this case study, it is observed that danmu subtitlers utilized humorous and engaging remarks to facilitate communication. Notably, the collected data, which reflects the communication model outlined in this study, is abundant in emotional expressions, encompassing modal particles and personal comments.

Particles are an integral part of colloquial speech, particularly in informal contexts, and modal particles are usually employed to convey modality ([Chappell, 1991](#)). For example, [Example 11](#) uses the term “呦” (yo) to convey their intended emotions.

Example 11

Original audio: ... love at first sight.

Danmu subtitle 248: 呦，还一见钟情 [Yo, it was love at first sight]

In [Example 12](#), the dialogue originally occurred between the male lead of the documentary and his daughter, upon the father's return from his trip and reuniting with the mother and daughter during their vacation. When the father inquired if the daughter had missed him, danmu subtitle 1,454 translated the daughter's response of “No” and further appended interpretive comments in parentheses, reflecting the danmu subtitler's impression regarding the daughter's sentiment.

Example 12 Original audio: – Did you miss me? – No!

Danmu subtitle 1,454: 不!(好喜欢diss她爸爸 [No! (She really likes diss her father.)]

5.3 The emergence and resolution of ethical conflicts

When analyzed through the translation ethics framework, danmu subtitling encounters varied ethical conflicts. These conflicts manifest distinctly within the models:

5.3.1 Ethics of representation

Danmu subtitling inherently challenges representation ethics due to its participatory nature. The core principle of ethics of representation -- demanding faithfully rendering source content -- is challenged, as danmu comments are inherently subjective reactions. Real-time demands further compromise fidelity, prioritizing speed over faithful representation and preventing nuanced verification.

5.3.2 Ethics of service

Danmu subtitlers act for personal expression or community engagement, not professional mandates, creating ambiguity about service recipients (platforms, viewers, or creators). This lack of defined accountability frequently conflicts with creators' rights, especially when content is reinterpreted without consent. Besides, danmu creates an ethical imbalance in labor value: platforms profit

from user-generated content via engagement enhancement and data monetization, while volunteers receive only intrinsic rewards like community belonging or self-expression. This system economically benefits platforms without commensurate compensation for contributors, highlighting exploitative digital labor dynamics.

5.3.3 Ethics of communication

Within the communication ethics model, danmu translation functions dually as a cross-cultural conduit and a socio-informational vehicle, extending beyond mere linguistic transfer. This dual mandate necessitates that translators serve as ethical mediators who not only convey content but critically evaluate its potential societal ramifications. Specifically, they must assess risks of intercultural misunderstandings, gauge conflict escalation potential, and mitigate communicative harm through proactive semiotic choices—balancing fidelity against social consequences in volatile digital ecosystems. Besides, the sheer volume and visual density of scrolling comments can obscure the underlying video, hindering communication and creating significant “noise.”

5.3.4 Norm-based ethics

Norms governing practices are inherently culture-specific and diverge across communities and individual value systems. Traditional subtitling conventions—prioritizing accuracy, clarity, temporal synchronization, and spatial positioning—prove largely inapplicable to danmu subtitling due to its platform-contingent novelty. This emergent practice lacks established universal norms, as participatory dynamics prioritize divergent viewer expectations: some value comment density and wit for communal engagement, while others emphasize content comprehension. Such variability fundamentally contravenes the norm-based ethical principle of trust, which requires predictable behavioral consistency. Consequently, viewers cannot rely on danmu annotations for reliable comprehension assistance, unlike professional subtitles. Besides, norms emerge as contested sites where power dynamics actively dictate whose contributions gain legitimacy, inherently embedding ethical conflicts. For instance, in terms of platforms, there are norms—shaped by platform algorithms, dominant user demographics, and interface design—that privilege certain voices while marginalizing others, transforming ethical translation into a political act. This exclusion mirrors broader structures of cultural power, where assimilatory practices masquerade as “community standards.”

5.3.5 Ethics of professional commitment

This translation ethics requires decisions anchored in core values—integrity, clarity, mutual understanding, and trust—yet contemporary practices demand critical alignment of professional standards, personal creativity, and social responsibility. This tripartite negotiation proves particularly salient in crowdsourced contexts like danmu subtitling, where the absence of codified professional commitment fosters fragmented ethical priorities. Participants diverge sharply: some prioritize expediency/visibility through rapid contributions; others emphasize communal engagement via humor; a minority pursues accuracy aligned with traditional ethics; while affective expression or fandom solidarity drives others. This pluralism exemplifies the central tension in

digital translation: how practitioners might balance linguistic fidelity and professional accountability with creative-cultural passion within participatory ecosystems.

5.3.6 Ethics of digital technology

The ethics of digital translation technology demands a critical examination of how platform affordances amplify ethical risks while introducing novel technologies. For instance, in danmu subtitling, anonymity features reduce contributor accountability, potentially compromising quality, while technological innovations -- like third-person narration perspective -- disrupt established norms despite their creative utility.

Addressing ethical conflicts in danmu subtitling necessitates adaptive regulation. This approach rejects rigid adherence to singular ethical models, instead advocating for situational awareness and deliberate choice-making by subtitlers.

Here are some application examples across ethical models. When fidelity conflicts with subjective interpretation, adaptive regulation guides subtitlers to mentally assess the source material's vulnerability to distortion. Contributors internally interrogate service recipients: Who benefits from my comment? If cultural bridging is urgent (e.g., clarifying regional idioms), they serve viewers; if creator intent is sacred (e.g., artistic films), they self-censor reinterpretations. Danmu subtitlers assess communicative risk in real-time: Does a comment clarify cultural context (value-added) or obscure critical dialogue (noise)? When dominant practices clash with inclusivity (e.g., inside jokes excluding newcomers), adaptive regulation empowers ethical dissent—opting out or counter-commenting to uphold equitable participation. The absence of formal standards necessitates self-defined quality benchmarks. Contributors critically evaluate technological affordances, and this mindfulness turns features into conscious ethical instruments.

By centering participant agency, adaptive regulation transforms ethical conflicts from systemic constraints into deliberative practice spaces. It positions danmu subtitlers not as passive rule-followers but as reflective practitioners capable of ethical self-regulation amid fluid digital contexts.

6 Conclusion

Applying, modifying and extending Chesterman's major proposition of models of translation ethics in the examination of danmu subtitling, the present study aims to explain danmu subtitling from a new theoretical perspective. Descriptive discourse analysis is performed on a case study involving an episode of an untranslated English variety show, which received 1,490 danmu comments encompassing 296 translation-related interactions.

The findings reveal that danmu subtitling is by and large a self-regulative endeavor and different ethical models play a role in elucidating danmu subtitling. Specifically, Chesterman's framework of translation ethics can be effectively applied in danmu subtitling, revealing the significance of the five ethical models and the newly proposed model of digital technology.

Among these models, the ethics of representation, which emphasizes the preservation of truth through faithful representation, stands out as the most frequently observed, accounting for 50.3% (149 instances). Following are the newly proposed ethics of digital

technology (60, 20.3%) and ethics of communication (51, 17.2%), which emphasise technological affordances and facilitating understanding and communication, respectively. Occasional instances reveal the norm-based ethics, reflecting efforts towards adhering to cultural norms and practices, attributed to the ethical virtue of trust, comprising 9.1% (27 instances). Instances of translation revisions and translation criticism, indicative of the danmu subtitlers' commitment to excellence, are rare but illustrative of the ethics of commitment, accounting for 1.7% (5 instances). Finally, although there is only a solitary instance explicitly expressing voluntary service (ethics of service, 0.3%, 1 instance), the practice of danmu subtitling itself constitutes a form of service. Besides, this study further discusses diverse ethical conflicts arising in danmu subtitling and proposes adaptive regulation as a resolution mechanism.

This study advances scholarship by rigorously applying and extending translation ethics frameworks to danmu subtitling, thereby expanding theoretical horizons in both Media and Translation Studies. It offers novel, empirically grounded insights into the ethical dimensions of participatory audiovisual translation in the digital age, an area previously underexplored. As research on danmu subtitling gains momentum, this study establishes the ethical perspective as an essential and distinct analytical lens, providing a crucial fresh viewpoint for understanding the motivations, practices, and societal implications of this dynamic form of subtitling. The introduction and validation of the "ethics of digital technology" as an extension to Chesterman's framework represents a key theoretical advancement. This model, responsive to the technological mediation of danmu, holds significant potential not only to enrich research in translation ethics but also to inform ethical analyses of other technologically mediated collaborative translation practices emerging in the digital landscape.

While providing valuable foundational insights, the study's limitations stem from the use of a narrow data set. Future research should expand by encompassing diverse content genres, platforms, and user demographics. Furthermore, triangulating textual analysis with visual data, user engagement metrics, and qualitative feedback from viewers and translators will yield a more holistic and nuanced understanding of the complex ethical dynamics, inherent nature, influence, and reception of danmu subtitling. Such research will further solidify the significance of ethical frameworks for understanding digital translation phenomena.

Data availability statement

The original contributions presented in the study are included in the article/[Supplementary material](#), further inquiries can be directed to the corresponding author/s.

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The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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The author declares that no Gen AI was used in the creation of this manuscript.

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Supplementary material

The Supplementary material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2025.1577260/full#supplementary-material>

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Constructing diplomatic discourse: a corpus-driven analysis of the discursive strategies by the spokespersons of China's ministry of foreign affairs during a public health crisis

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Drawing on a corpus-driven discourse analysis approach, this paper examines the discursive strategies adopted by the spokespersons of China's Ministry of Foreign Affairs during regular press conferences regarding a public health crisis. The analysis reveals that (1) the spokespersons actively used communicative discursive strategies to articulate China's stance and international cooperation initiatives while also employing offensive discursive strategies to counter criticisms from Western countries and media regarding the virus and the pandemic; (2) Interestingly, a juxtapositional discursive strategy was observed, by which China, together with other countries, was represented as the positive majority, whereas the US and the UK's media BBC as the negative minority, reinforcing the rationality of China's policies. It is argued that the spokespersons' use of discursive strategies can be attributed to China's geopolitical dynamics with the West and the influence of traditional Chinese culture on China's diplomatic policies.

KEYWORDS

press conference, discursive strategy, spokesperson, diplomatic discourse, public health crisis

1 Introduction

There has been growing interest in examining the features of spokespersons' discourse in recent years (Marakhovskaiia and Partington, 2019; Mao and Zhao, 2020; Liu, 2022; Wu, 2023; Zhang and Tang, 2024; Zhang et al., 2025). For example, Wu (2021) analyzed the argumentative styles used in the discourse of the spokespersons of China's Ministry of Foreign Affairs (CMFA), revealing that a confrontational style was frequently adopted when addressing critics of China or those holding views considered unacceptable by the Chinese government. Parallel to this, Cai and Xu (2023) conducted an analysis of 126 texts from CMFA's regular press conferences focusing on the origin tracing of COVID-19. Their findings indicate that the spokespersons predominantly employed a "seeking similarity" discursive strategy, often by adeptly citing authoritative sources like scientists and the World Health Organization to persuade international audiences to align with China's position. Examining COVID-19-related tweets from the CMFA spokespersons,

Wu and Feng (2023) also found that offensive strategies were utilized to rebut US accusations.

However, previous research on CMFA spokespersons' discourse has mainly focused on the features of their discursive strategies, with limited attention to the factors shaping these characteristics, especially during COVID-19 and the period when they were labeled as “wolf warrior diplomats” in Western politics and media (Martin, 2021; Huang, 2022; Dai and Luqiu, 2022). Moreover, studies are also needed on how particular social reality is discursively represented internationally by the spokespersons in an era when China proactively strives for discursive power in the international arena.

Outbreaking in late 2019, COVID-19 quickly became a global health crisis, generating a multitude of discourses characterized by different voices (Breeze, 2021; Jaworsky and Qiaoan, 2021; Breeze and Gintsburg, 2023; Chan and Yu, 2023; Zhang, 2024; Heimo et al., 2025; Murry, 2025). Particularly, the discursive controversy surrounding COVID-19 between China and the West has led to extensive discussions and research. For example, Pietrzak-Franger et al. (2022) found that stigmatization strategies are skillfully used to blame China for COVID-19 in all the three Western newspapers (the UK, Germany, and Austria). They also argued that China was targeted as a scapegoat in narrating the pandemic mainly because of the West's anxieties over China's potential rise to world dominance. Phillips and Cassidy (2024) examined the ways in which COVID-19 was discursively constructed by the media from China and the UK and found that British media adopted a pessimistic and sensational tone by accenting the virus' unknown nature, whereas Chinese reports presented a more optimistic tone by highlighting local success. Though the data were retrieved from the Nexis database, the results rely on a qualitative analysis of only 12 news reports. While these studies are based on a limited amount of data, their results highlight the dialectical relationship between language use and social reality, demonstrating that discourse not only reflects but also shapes social reality.

Discourse on COVID-19 has been produced in other various contexts apart from news media, such as speeches by governmental leaders, think tank reports, and press conferences. Particularly in press conferences, spokespersons for a country's Ministry of Foreign Affairs use discursive strategies to articulate their nation's stance, shaping international perceptions. Cai and Xu (2023, p. 479) argue that the regular press conferences of CMFA are “an authoritative channel for the world to understand China's voice and a frontline for constructing China's discursive power in diplomacy”. Thus, examining the CMFA spokespersons' discourse provides valuable insights into the discursive strategies frequently employed by diplomatic spokespersons to construct national narratives and convey official stances.

This paper aims to examine the discursive strategies adopted by the CMFA spokespersons with a case study of their discourse during regular press conferences regarding COVID-19. Specifically, it addresses the following questions: (1) How did the spokespersons discursively represent “病毒” (virus) and “疫情” (pandemic), two typical lexical items related to COVID-19, in the regular press conferences of CMFA? (2) what discursive strategies were used by CMFA spokespersons in the discursive context of COVID-19? (3) What are the factors, institutional

or social, that underpin the spokespersons' choice of different discursive strategies?

2 Corpus-driven method and data collection

A corpus-driven method was adopted to achieve the stated objectives. This methodological approach follows a path where “observation leads to hypothesis leads to generalization leads to unification in theoretical statement” (Tognini-Bonelli, 2001, p. 85). It emphasizes an inductive analysis of linguistic patterns emerging directly from the corpus data/discourse, rather than relying on prior theoretical frameworks. It allows categories, collocations, and discourse patterns to be identified empirically through systematic observation of the corpus itself. This bottom-up method is particularly suited for exploring unfamiliar or evolving discursive practices—such as those used by government spokespersons during times of crisis—where new discursive strategies may emerge.

The corpus under investigation comprises transcripts of CMFA's regular press briefings from January 2020 to December 2021, the first 2 years of COVID-19. All corpus data are publicly available at <https://www.fmprc.gov.cn/eng/xw/fyrbt/>. Two considerations account for the selection of these data. Firstly, COVID-19 exerted a far-reaching impact, with global debates and discussions on the pandemic emerging as the focus of international attention since its outbreak. Secondly, amid unprecedented global changes, some studies have shown that the CMFA spokespersons grew increasingly aggressive in their discourse and were described as “wolf warrior diplomats” (Martin, 2021; Huang, 2022; Dai and Luqiu, 2022). It is thus worthwhile to examine the actual characteristics of this particular discourse by CMFA spokespersons within the diplomatic context of press conferences.

The corpus data excludes journalists' questions and retains only the spokespersons' responses, since the study focuses on their discourse. For data retrieval, all Chinese response data was segmented using SegmentAnt_jieba, an essential step because Chinese characters have no space in-between, making them incompatible with corpus processing tools like WordSmith, AntConc. After auto-segmentation, we also conducted a manual check to ensure accuracy. The final CMFA spokespersons' responses corpus consists of 782,593 Chinese words. For generating collocates, WordSmith (8.0) was selected for its capacity to compute collocational relationships through statistically comparing with the corpus under investigation and a reference corpus, using measures such as MI³. Torch2019, a balanced corpus containing one million Chinese words, was used as the reference corpus for these calculations.

3 Discursive representation of “病毒”(Virus) and “疫情”(Pandemic)

Using WordSmith (8.0), we extracted all concordance lines for the search items “病毒” and “疫情” respectively. As “discourse is also constructed through collocations” (Gu, 2019), we also generated collocate lists for both items within a five-word span (left

and right of the search items). The collocates of the two search items were then ranked respectively in descending order based on the MI³ scores, and their frequencies were marked. Based on the context of the concordance lines, all collocates for “病毒” and “疫情” were categorized according to their thematic properties.

3.1 Discursive representation of “病毒”(virus)

Of the 59 collocates generated for “病毒”, we manually removed four collocates related to question sequences and time (“第一个”[first], “第二个”[second], “下半年”[second half of the year], “近年来”[in recent years]), resulting in 55 remaining collocates. Thematically, these 55 collocates were classified into five categories as detailed in Table 1.

As Table 1 illustrates, the first category, “virus origin and research”, primarily focuses on scientific investigations into the origin of the novel coronavirus, particularly the debate over whether it emerged naturally or via laboratory leakage. This includes discussions on the roles of laboratories and research institutes, the participation of scientists, references to genomes and research findings, and debates on whether the virus originated from the city of Wuhan in Hubei Province. This category of collocates constitutes the highest proportion, accounting for 74.77%. This indicates the spokespersons’ primary focus on the issue of virus origin and the attempts by foreign politicians and media to smear China with labels such as “Chinese virus”. Besides, the spokespersons also emphasized the scientific nature of virus tracing, frequently referring to scientific research organizations

such as “institutes”, “Chinese Academy of Sciences”, “research academies”, “research community”, and mentioning “scientists” as well as specific researchers like “Anderson”.

The second category, “virus impact”, which addresses the global ramifications of the novel coronavirus, is also a focal point for the spokespersons, accounting for 10.14% of the total. By highlighting the virus’ sudden onset, severity, and rapid spread (e.g., “sudden emergence”, “unprecedented intensity”), the spokespersons emphasized its widespread impact on “the entire world” and “all humanity”, including social issues such as “racism”. Notable examples include statements like “Diplomats have immunity due to their posts, but the virus does not know that” (April 3rd, 2020).

As the third category shows, the collocates also reveal that the two primary agents engaged in virus combat are the Chinese government and some World Health Organization member states. This indicates that the spokespersons did not foreground other agents involved in the fight against the virus, because few were specifically mentioned apart from China. However, this could also indicate that virus-combating agents were not a priority in their discourse; instead, the emphasis was placed on such aspects as the attitudes and positionings of involved agents toward the virus.

Turning to the fourth category, the analysis reveals a positive representation of China’s anti-virus stance, with spokespersons emphasizing that “The Chinese government attaches high importance to COVID-19 vaccine R&D” (January 15th, 2021). In contrast, the fifth category indicates a negative representation of the US stance, where the spokespersons criticized that “the US politicization of COVID-19 origins tracing is repeating the history of the ‘Spanish Flu’” (August 17th, 2021).

TABLE 1 The collocates of “病毒” (virus) in the CMFA spokespersons’ responses.

Category	Collocates	Frequency and ratio
Virus origin and research	实验室(laboratory, $f = 97$); 研究所(research institute, $f = 97$); 专家组(expert group, $f = 16$); 科学家(scientist, $f = 16$); 基因组(genome, $f = 9$); 科学研究(scientific research, $f = 9$); 起源于(originated from, $f = 5$); 自然界(nature, $f = 4$); 湖北省(Hubei Province, $f = 6$); 武汉市(Wuhan City, $f = 6$); 吹风会(press briefing, $f = 3$); 搞清楚(clarify, $f = 2$); 科研工作(scientific research work, $f = 2$); 马里兰州(Maryland, $f = 2$); 普遍认为(It is widely believed that, there is no evidence that the new coronavirus originated from a laboratory, $f = 2$); 卫生部(Department of Health, $f = 2$); 事实证明(所谓中国散播病毒纯属无稽之谈) (facts prove that, it is a completely groundless claim that China spread the virus, $f = 2$); 有没有(产生新冠病毒) (Is there novel coronavirus originated?, $f = 3$); (详细列举了新冠病毒在美暴发的) 时间表(detailed schedule of, the COVID-19 outbreak in the US, $f = 2$); 发布会(press conference, $f = 3$); 研究成果(research results, $f = 2$); 传染病(infectious disease, $f = 2$); 安德森(Anderson, $f = 2$); 科学界(scientific community, $f = 2$); 负责人(person in charge, $f = 4$); 中国科学院(Chinese Academy of Sciences, $f = 3$); (不) 意味着(武汉就是新冠病毒的源头) (doesn’t, mean, Wuhan is the origin of the novel coronavirus, $f = 4$); 中科院(CAS, $f = 2$); 可能性(possibility, $f = 3$); (赤道几内亚新冠病毒应对与监测) 委员会(committee, for response and monitoring of COVID-19 in Equatorial Guinea, $f = 4$); 工作人员(staff, $f = 3$); 工作人员 (researcher, $f = 2$); 实际上(in fact, the virus originated in Le Roy, Kansas, USA, $f = 3$); 越来越(多关于病毒和疫情2019年下半年就已在世界多地多点出现的报道) (More and more reports about the virus and the pandemic have appeared around the world since the second half of 2019, $f = 4$); 研究所(research institute, $f = 2$); 事实上(In fact, there have been too many conspiracy theories regarding the origin of the virus directed at China, $f = 2$)	332; 74.77%
Virus impact	全人类(all humanity, $f = 12$); 受害者(victims, $f = 7$); 全世界(all over the world, $f = 7$); 种族主义(racism, $f = 4$); 外交官(diplomats, $f = 3$); 感染者(affected individuals, $f = 2$); 前所未见(unprecedented, $f = 2$); 突如其来(sudden, $f = 3$); 西班牙(spain, $f = 5$)	45; 10.14%
Anti-pandemic agents	中国政府(Chinese government, $f = 6$); (世界卫生组织) 成员国(member states, of the WHO, $f = 7$)	13; 2.93%
China’s attitudes	高度重视(highly valued, $f = 3$); 作出贡献(make contributions, $f = 2$); 进一步(研究); (further research, $f = 3$)	8; 1.80%
The US attitudes	政治化(politicization, $f = 34$); 处心积虑(calculatingly, $f = 3$); 意识形态(ideology, $f = 4$); 迫不及待(impatiently, $f = 2$); 为什么(不依赖科学家而要把情报部门作为主导力量) (Why relying on intelligence agencies rather than scientists as the leading force, $f = 3$)	46; 10.36%

Interestingly, the frequency of negative representations of the US stance far exceeds that of positive representations of China's stance (46 vs. 8).

The pattern identified above aligns with the discursive strategies observed in the spokespersons' tweets regarding COVID-19 (Wu and Feng, 2023), where offensive strategies are favored over defensive ones. For instance, one spokesperson stated, "We hope the US will reflect upon its behaviors, eliminate its political virus of ideological bias, and stop vilifying the CPC and Chinese media" (March 20, 2020), a clear manifestation of such offensive strategies.

3.2 Discursive representation of “疫情”(pandemic)

For “疫情”, a total of 190 collocates were generated, and we manually removed seven collocates related to question sequences and time (“第一个”[first], “第二个”[second], “一段时间”[a period of time], “上半年”[first half of the year], “下半年”[second half of the year], “一个月”[one month], “与此同时”[meanwhile]). In addition, the collocate “想方设法”(trying every possible means) was grouped into two categories in two different contexts. As a result, 184 collocates were included for analysis, which were classified into six categories thematically as presented in Table 2.

The first category “public health (crisis)” primarily centers on health, medical service, and scientific research related to COVID-19. Particularly, it emphasizes the pivotal role of scientists and medical personnel in pandemic prevention and control, while also mentioning the efficacy of traditional Chinese medicine in COVID-19 prevention. However, the proportion of this category is relatively low, accounting only for less than 10%.

The collocates in the second category “pandemic impact” indicate the profound influence of COVID-19 on the global economy. The sudden outbreak of COVID-19 has triggered a new wave of economic shocks and instability in supply and industrial chains, affecting adversely not only the small and medium-sized enterprises, but also the livelihoods of all people worldwide. For example, “[W]hen tens of thousands of American people are struggling against COVID-19, the two parties are attacking each other ferociously and putting their own political interests above people's life and health” (August 20th, 2021). Similar to the collocates in the “virus impact” category as discussed in Section 3.1, those in the “pandemic impact” category also highlight other social issues brought about by COVID-19, such as “racism” and “uncertainty” of the international situation, all of which pave a solid foundation for the formulation of discourse on global cooperation in pandemic prevention.

The collocates in the third category of “China's anti-pandemic efforts and attitudes” are mainly about China's efforts and stance toward pandemic prevention, accounting for the highest proportion of 28.79%. The collocates involve many agents in pandemic prevention from the President Xi Jinping to people of all ethnic groups nationwide, as well as various levels of Party committees and governments. This demonstrates that the entire population highly value pandemic prevention. In this context where combating the pandemic was described as a war that must be won, the Chinese people faced challenges without fear,

united as one to make concerted efforts to carry out the defensive battle and ultimately achieved a strategic victory. These collocates strongly praise China's efforts and attitude in pandemic prevention. This also indicates that regarding the collocates of “pandemic”, the spokespersons discursively tended to adopt communicative strategies, aiming to promote “their own concepts, practices, emotions to express China's attitude and position, and to uphold China's good image internationally” (Wu and Feng, 2023, p. 73).

The collocates in the fourth category “China's engagement in international anti-pandemic cooperation” highlight China's collaboration with other international entities in combating COVID-19, and China's attitude toward cooperative efforts in pandemic prevention. The use of these collocates potentially indicates that China was trying to show their dedicated efforts for global pandemic control through high-level cooperation with other countries and international organizations. China also provided substantial assistance and tangible support to developing countries, upholding fairness and justice. Furthermore, China also valued international mechanisms for cooperative pandemic control, supporting the comprehensive roles of institutions such as the United Nations and the World Health Organization and promoting South-South cooperation channels. For instance, statements, like “China will continue to do the right thing, provide assistance to others as its capacity permits, and work with the international community to secure the final victory against the pandemic” (April 22nd, 2020), showcase China's commitment to international cooperation in pandemic control.

The fifth category “regions and organizations supporting anti-pandemic cooperation” also reflect, to a certain degree, China's approach and attitude toward pandemic control. The purpose of classifying this category is to compare those countries/regions and organizations that support international cooperation and those that do not. When the frequencies are combined, the total frequency of China and other actively participating entities in pandemic control reaches 660, accounting for 52.93% of the total. This far exceeds the ratio of 6.09% for the US and the BBC, which are shown to disrupt international cooperation. The result further highlights that China's advocacy for international cooperation aligns with international common interests. Furthermore, apart from China as the main participant in international cooperation, there are as many as 27 countries/regions or organizations involved, including major developed Western countries. This is evidenced by statements such as “China and Canada have been cooperating and giving each other valuable support during the difficult fight against COVID-19” (September 18th, 2020). In contrast, there are only two entities that are specifically mentioned as disrupting pandemic control, i.e., the US and the BBC. The sharp disparity in numbers again reaffirms that China stands with the majority of the international community dedicated to striving for the good of all humans.

On the one hand, the collocational patterns identified regarding the fifth and the sixth categories demonstrate that China's proactive advocacy for international cooperation in pandemic control had been widely embraced by many countries/regions and organizations, who represent the mainstream of the international community. In contrast, the smears against China's pandemic response by the US and the UK, coupled with their own ineffective pandemic control measures, constituted a minority standpoint

TABLE 2 The collocates of “疫情” (pandemic) in the CMFA spokespersons’ responses.

Category	Collocates	Frequency and ratio
Public health (crisis)	公共卫生(public health, $f = 51$); 专家组(expert group, $f = 12$); 流行病(epidemic, $f = 11$); 医护人员(medical staff, $f = 7$); 中医药(traditional Chinese medicine, $f = 7$); 身体健康(physical health, $f = 6$); 发展趋势(development trends, $f = 5$); 死亡率(mortality rate, $f = 5$); 流行病学(epidemiology, $f = 3$); 传染病(infectious disease, $f = 3$); 实验室(laboratory, $f = 5$); 医疗卫生(medical hygiene, $f = 2$); 研究所(research institute, $f = 2$)	119; 9.54%
Pandemic impact	经济社会(economic and social, $f = 43$); 突如其来(sudden, $f = 27$); 全球性(global, $f = 14$); 新一轮(new round, $f = 12$); 供应链(supply chain, $f = 10$); 产业链(industrial chain, $f = 9$); 全人类(all humanity, $f = 8$); 台湾同胞(Taiwan compatriots, $f = 8$); 大变局(major change, $f = 4$); 深刻影响(profound impact, $f = 4$); (没有任何国家可以) 独善其身(no country can, stand alone, $f = 3$); (尽快) 恢复正常(resume normalcy, as soon as possible, $f = 3$); 种族歧视(racial discrimination, $f = 3$); 无论是(whether it's, $f = 4$); 武汉市(Wuhan city, $f = 5$); 受害者(victim, $f = 4$); 热点问题(hot issue, $f = 2$); 突发事件(emergency, $f = 2$); 突然袭击(sudden attack, $f = 2$); 遭遇战(encounter battle, $f = 2$); 留学生(international students, $f = 6$); 成千上万(美国 人感染/死亡)(thousands upon thousands, American infected/deceased, $f = 2$); 呈现出(叠加态势)(presenting, superimposed trend, $f = 2$); 世界各地(all over the world, $f = 2$); 种族主义(small and medium-sized enterprises, $f = 2$); 种族主义(racism, $f = 2$); 取决于(疫情进展)(depends on, pandemic progression, $f = 3$); 不确定性(uncertainty, $f = 3$); 越来越(more and more, global challenges/people losing life, $f = 3$)	194; 15.56%
China's anti-pandemic efforts and attitudes	中国政府(Chinese government, $f = 87$); 力所能及(to the best of one's ability, $f = 21$); 感同身受(empathize, $f = 18$); 团结一心(united as one, $f = 16$); 积极开展(actively carry out, $f = 15$); 众志成城(forge a common front, $f = 14$); 白皮书(white paper, $f = 12$); 高度重视(highly value, $f = 12$); 外交部(Ministry of Foreign Affairs, $f = 8$); 有把握(confident, $f = 8$); 不得已(have no choice but to, $f = 7$); 万众一心(all the people unite as one, $f = 6$); 全力以赴(spare no effort, $f = 9$); 短时间(short period of time, $f = 5$); 法律法规(laws and regulations, $f = 5$); 国务委员(state councilor, $f = 4$); 战略性(胜利)(strategic, victory, $f = 6$); 保卫战(defensive battle, $f = 4$); 人民战争(people's war, $f = 3$); 展现出(信心)(demonstrate, confidence, $f = 3$); 阶段性(成果)(phasal, results, $f = 4$); 想方设法(最大程度地减少疫情扩散蔓延(do everything possible, to minimize the spread and transmission of the pandemic to the greatest extent, $f = 2$); 不畏艰险(fear no difficulties, $f = 2$); 指挥部(headquarters, $f = 4$); 党和政府(party and government, $f = 2$); 公开信(open letter, $f = 2$); 宏观经济(macroeconomy, $f = 2$); 宏观政策(macro policy, $f = 2$); 结合实际(in accordance with the actual situation, $f = 2$); 巨大贡献(great contribution, $f = 2$); 临时性(temporary nature, $f = 2$); 领导小组(leadership group, $f = 2$); 满意度(satisfaction level, $f = 2$); (绝 不...) 前功尽弃(never, abandon previous achievements, $f = 2$); 一系列(防疫措施等)(a series of, pandemic prevention measures, $f = 8$); 清清楚楚(plainly, $f = 2$); (发布)前一天(疫情信息)(release, pandemic information of, the day before, $f = 3$); 出入境(entry and exit, $f = 3$); 行之有效(effective, $f = 2$); 冬奥会(winter Olympics, $f = 3$); 北京市北京市(Beijing city, $f = 3$); 各族人民(people of all ethnic groups, $f = 2$); 负责人(person in charge, $f = 4$); 强有力(powerful, $f = 2$); 中国共产党(Chinese Communist Party, $f = 4$); 得益于(benefit from, $f = 2$); 大规模(人道主义)(large-scale, humanitarian, $f = 3$); 发布会(press conference, $f = 2$); 习近平(Xi Jinping, $f = 6$); 研讨会(seminar, $f = 2$); 主管部门(competent authority, $f = 2$); 工作者(worker, $f = 2$); 国务院(State Council, $f = 3$); (不) 意味着(就是疫情起源的地方)(doesn't, mean, the place of origin of the pandemic, $f = 2$); 奥运会(Olympic Games, $f = 2$); (领导小组) 办公室(leadership group, office, $f = 2$)	359; 28.79%
China's engagement in international anti-pandemic cooperation	同舟共济(we are all in the same boat, $f = 40$); 致力于(dedicated to, $f = 7$); 相互支持(mutual support, $f = 26$); 关键时刻(critical moment, $f = 18$); 关键时刻(the whole world, $f = 18$); 全世界(top priority, $f = 9$); 当务之急(work together, $f = 9$); 齐心协力(make contributions, $f = 9$); 作出贡献(beneficial to, $f = 18$); 充分肯定(fully affirm, $f = 8$); 联合声明(joint statement, $f = 6$); 发挥作用(play a role, $f = 5$); 来之不易(hard-won, $f = 6$); 第二次(会议)(second, meeting, $f = 4$); 人道主义(humanitarian, $f = 4$); 团结一致(united as one, $f = 4$); 友好合作(friendly cooperation, $f = 5$); 大力支持(strongly support, $f = 3$); 积极支持(actively support, $f = 3$); 重大胜利(significant victory, $f = 3$); (各方) 进一步(all parties, further, $f = 28$); 共同体(community, $f = 10$); 联席会议(joint meeting, $f = 3$); 有助于(conducive to, $f = 9$); 绝大多数(vast majority, $f = 6$); 至关重要(vitality important, $f = 5$); 不断加强(continuously strengthen, $f = 2$); 公平正义(fairness and justice, $f = 2$); 积极意义(positive significance, $f = 2$); 通电话(make a phone call, $f = 2$); 新台阶(new level, $f = 2$); 面对面(face-to-face, $f = 3$); 有识之士(knowledgeable person, $f = 2$); 实实在在(提供给发展中国家的帮助)(substantially, providing assistance to developing countries, $f = 3$); 一如既往(支持其他国家抗疫)(as always, supporting other countries in pandemic prevention, $f = 2$); (世卫组织作用) 不可或缺(the role of the WHO, is indispensable, $f = 2$); 综合性(联大; 决议)(comprehensive, un/resolution, $f = 3$); 南南合作(south-south cooperation, $f = 2$); 高水平(合作)(high-level, cooperation, $f = 2$); 尽可能(控制疫情等)(as far as possible, control pandemic, $f = 2$); 什么样(what kind, $f = 2$); 针对性(targeted, $f = 2$)	301; 24.14%
Regions and organizations supporting anti-pandemic cooperation	台湾地区(Taiwan region, $f = 23$); 发展中国家(developing countries, $f = 23$); 联合国(United Nations, $f = 18$); 太平洋(岛国)(Pacific, island nations, $f = 12$); 阿拉伯(Arab, $f = 10$); 柬埔寨(Cambodia, $f = 9$); 委内瑞拉(Venezuela, $f = 8$); 菲律宾(Philippines, $f = 7$); 阿富汗(Afghanistan, $f = 5$); 孟加拉国(Bangladesh, $f = 5$); (乌兹别克斯坦, 意大利等) 卫生部(health ministries, such as Uzbekistan, Italy, $f = 5$); (世界卫生组织等) 成员国(member states of, the WHO, $f = 8$); 意大利(Italy, $f = 13$); 海峡两岸(the two sides across the Straits, $f = 4$); 安理会(Security Council, $f = 3$); 尼泊尔(Nepal, $f = 3$); (东盟、中日韩等)领导人(leaders, from ASEAN, China, Japan, South Korea, etc., $f = 11$); 加拿大(Canada, $f = 7$); 安哥拉(Angola, $f = 2$); (世界卫生组织) 执委会(the Executive Board, of WHO, $f = 3$); (东盟、世界卫生组织等)秘书处(the Secretariats, of the Arab League/the WHO, $f = 3$); (世界卫生组织等) 委员会(the Committees of the WHO, $f = 5$); 东南亚(Southeast Asia, $f = 2$); 塞尔维亚(Serbia, $f = 2$); 伊斯兰(Islam, $f = 3$); 新加坡(Singapore, $f = 2$); 俄罗斯(Russia, $f = 2$)	198; 15.88%

(Continued)

TABLE 2 (Continued)

Category	Collocates	Frequency and ratio
Regions and organizations disturbing anti-pandemic cooperation and their attitudes	(我要敦促美方, 立即停止对疫情) 政治化(I urge the US to immediately stop politicizing the pandemic, $f = 29$); 美国政府(the US government, $f = 5$); BBC(BBC, $f = 4$); (美国无端质疑中国在疫情防控问题上的) 透明度(The US ungrounded questioning of China's transparency in pandemic prevention and control, $f = 3$); (美国行为) 不利于(国际社会齐心协力抗击疫情) The US acted detrimentally to international solidarity in fighting the pandemic, $f = 4$); (我们奉劝美方.....) 想方设法(地最大程度地维护人民生命安全) (We urge the US to try their best to safeguard the safety of people's lives, $f = 1$); (美国)长时间(蓄意淡化疫情) (the US for a long time deliberately downplay the pandemic, $f = 2$); 事实证明(Facts prove, $f = 2$); (美国) 预料到(一个月后国内的疫情会扩散蔓延) (The US anticipated 1 month later the domestic pandemic will spread, $f = 2$); (美国.....与当前国际抗疫合作) 背道而驰(The US is contrary to current international cooperation in pandemic control, $f = 2$); 凌驾于(superior to, $f = 2$); (美国“积极攻击中国”以应对疫情) 备忘录(The memorandum of the US “actively attacking China” to deal with the pandemic, $f = 2$); 为什么(美国三缄其口其与疫情相关的流感等) (Why the US remains silent on its flu and other pandemic-related issues, $f = 7$); 事实上(in fact, $f = 4$); 实际上(in reality, $f = 3$); 如果说(美方在疫情初期受到误导或者没有得到充足的信息) (If the US was misled or did not receive sufficient information in the early stages of the pandemic, $f = 2$); (BBC) 纪录片(混淆画面指责中国) (BBC documentary mixing images to blame China, $f = 2$)	76; 6.09%

globally. On the other hand, the total frequency of collocates representing the 27 entities participating in cooperative efforts is 198, accounting for 15.88% of the total. In contrast, the total frequency of collocates representing the US and the BBC is 76, taking up only 6.09%. If the BBC's frequency of 6 is excluded, the frequency of negative representations attributed to the US reaches as many as 70 times. This indicates that the spokespersons adopted a variety of offensive discursive strategies, rather than the previously adopted passive approach of prioritizing harmony, to counter the US' attempts to discredit China and to criticize the US's own ineffective anti-pandemic response.

To summarize, the CMFA spokespersons used communicative discursive strategies to articulate China's stance and international cooperation initiatives while also employing offensive discursive strategies to counter criticisms from some Western countries and media regarding COVID-19. They also interestingly adopted a juxtapositional discursive strategy by which China, together with other countries, was represented as the positive majority, whereas the US and the UK's media BBC as the negative minority, reinforcing the rationality of China's policies.

As Marakhovskaiia and Partington (2019) argue, spokespersons' discourse is a genre regularly employing forced lexical priming (Duguid, 2009) that refers to the deliberate and frequent repetition of certain lexical forms to “flood” the discourse with strategically framed messages. Such forced priming of collocational patterns involving “virus” and “pandemic” by the CMFA spokespersons was strategically employed and intended to ensure that both the media in press conference contexts and wider audiences internalize China's official stances.

4 Discussion

Discourse, as a form of social practice, is intrinsically tied to power and ideology. “In every society the production of discourse is at once controlled, selected, organized and redistributed by a certain number of procedures ... to gain mastery over its chance events” (Foucault, 1981, p. 52).

To further explore how power and ideology manifest through discourse, van Dijk (1998, p. 6) emphasizes discourse's

critical role in shaping ideological structures and argues that examining the regular patterns within discursive practices is essential to understanding how ideologies emerge, evolve, and persist. Specifically, van Dijk's (1998, p. 267) Ideological Square model provides a robust analytical framework by outlining a discursive structure of positive self-presentation and negative other-presentation. Importantly, the Ideological Square model is characterized by two core features: firstly, it emphasizes the group-based nature of ideology; secondly, ideology is inherently self-serving (van Dijk, 1998, p. 68–69).

It is noteworthy that as a key element of China's diplomatic practices, spokespersons' discourse is ideologically charged and strategically constructed. The repeated discursive choices—such as the collocational patterns of “virus” and “pandemic”—reveal underlying ideological positions influenced by China's geopolitical relations with the West and by its diplomatic philosophy rooted in distinct cultural and historical contexts.

4.1 Geopolitical relations and diplomatic ideology in the spokespersons' discourse

In its diplomatic discourse, China highlights its guiding principles in developing relations with other countries—principles rooted in peace, development, cooperation, and mutual benefit. Particularly to the US, the Chinese officials, from Chinese President to the CMFA spokespersons, consistently highlight the importance of the China-US relations to the stability and prosperity to the world and seek for cooperations rather than competitions. This commitment is most evident in its promotion of the diplomatic concept of building “a community with a shared future for mankind” (Hu, 2012; Xi, 2015; Nathan and Zhang, 2022).

However, China and the US have in recent years experienced geopolitical tensions and clashes of interest, particularly in the context where the US politicians started trade wars, imposed restrictions on Chinese enterprises, and portrayed China as both a threat and a competitor in their public rhetoric. For example, the Trump administration (2017–2021) reinforced this stance by officially designating China as a “strategic competitor”

in documents such as The National Security Strategy Report, The National Defense Strategy Report, and The Nuclear Posture Review, emphasizing that the competition between the two countries is strategic, long-term, and all-encompassing. Such geopolitical relation tension between the US-led Western countries and China was reflected in the CMFA spokespersons' discourse in the context of the global COVID-19 pandemic.

During the pandemic, the US-led Western countries continuously demonized China, propagated the "Chinese virus" narrative, questioned China's pandemic measures, and accused China of using its assistance to other nations for political gain. In response, the CMFA spokespersons drew on communicative discursive strategies to highlight the scientific basis of the novel coronavirus's origin, showcasing China's collective efforts and determination in combating the pandemic. They also emphasized China's promotion of international collaboration in pandemic prevention, reinforcing the diplomatic principle of "a community with a shared future for mankind".

Interestingly, they simultaneously utilized a juxtapositional discursive strategy of presenting China, together with some other countries, as the positive majority (frequency accounting for 52.93%) while portraying the US and the UK's media BBC as the negative minority (frequency accounting for only 6.09%) to further justify the rationality of China's policies. This aligns with Danziger and Schreiber's (2021) argument that, similar to individual interaction, a country's international communication involves projecting its values and norms through discourse to win support in the global community. This result also provides partial evidence for van Dijk's Ideological Square model, while also expanding the conventional boundaries of "Self" and "Others", positioning the "Self" among the positive majority and the "Others" among the negative minority.

Meanwhile, China also advocates for a new model of international relations founded on mutual respect, fairness and justice. Regarding the unjust allegations without respect, China has tried responses with a spirit of struggle. This is manifested in Chinese President Xi Jinping's speech at the opening ceremony of a training class for officials at the Party School of the CPC Central Committee September 1, 2021, which states,

"It is unrealistic to always want peaceful days and avoid struggle. We must abandon illusions, be brave in struggle, stand firm on principle, and never yield an inch with unprecedented determination and resolve when defending the sovereignty, security, and development interests of our country."

This explains that the spokespersons actively participated in a tit-for-tat struggle on the diplomatic frontline by adopting offensive discourse strategies in response to the smears and accusations against China by the US-led Western countries regarding the virus and the pandemic. Motivated by this ideological stance, they resolutely rebutted unfounded allegations and criticized the ineffective and irresponsible handling of the pandemic by the Western countries. This is reflected in Poh and Li (2017) finding that both the academic and political fields have increasingly acknowledged China's steady strengthening of its voice on matters concerning its diplomatic and security interests in recent years.

4.2 Traditional Chinese culture and contemporary China's diplomacy

In the context of the CMFA spokespersons' responses, the diverse representations of other countries' images also find their roots in traditional Chinese culture, particularly Confucianism, which has long shaped China's political, social, and ethical values and provided a foundational framework for China's contemporary diplomatic discourse (Xing, 2015; Lajčiak, 2017). As a classic in Confucianism, *Analects of Confucius*—Xian Wen contains a philosophical concept that influences the construction of interpersonal and, by extension, international relationships. The concept can be perceived in the dialogue between Confucius and his disciples:

Someone asked, "What about repaying evil with kindness?" Confucius said, "How then will you repay kindness? Repay evil with justice, and repay kindness with kindness".

China's diplomatic orientation in dealing with international relations is deeply rooted in this traditional philosophy. As an illustration, when he was invited to give a speech in Berlin on 28th March, 2014, the Chinese President Xi Jinping remarked that, "[W]e do not provoke trouble, but we are not afraid of it. We will firmly defend China's legitimate rights and interests", which embodies well the idea that "repaying evil with justice and repaying kindness with kindness".

As an alternative to Western approaches, China advocates resolving conflicts through dialogue, pursues mutually beneficial solutions via peaceful means, and promotes the establishment of a new type of international relations. However, China remains unwavering in defending its national interests and will spare no efforts to counter any attempts to smear or suppress it in its diplomatic practices. During the COVID-19 pandemic, CMFA spokespersons drew on various discursive strategies in regular press conferences to address misunderstandings and counter negative representations of China driven by Western countries' zero-sum mentality. By contrast, toward friendly nations like Russia, the spokespersons actively fostered positive representations in their diplomatic discourse.

5 Conclusion

By a corpus-driven analysis of the collocational characteristics of the terms "病毒" and "疫情" in the CMFA spokespersons' responses during the regular press conferences, this paper tried to identify the discursive strategies by the spokespersons. It is found that the spokespersons employed communicative discursive strategies to highlight the scientific nature of virus origin-tracing and promote international cooperation against COVID-19 as a global challenge and at the same time they adopted offensive discursive strategies to refute smears and accusations from the US-led Western countries by criticizing their ineffective policies against COVID-19 and their hegemonic intervention in the internal affairs of other countries. It is argued that the collocational characteristics of "病毒" and "疫情" are closely tied to ideological factors underpinning China's diplomacy, which are a result of

the joint influence of China's geopolitical dynamics with the West and the impact of traditional Chinese culture on its diplomatic practices.

This study contributes to the expanding body of research on corpus-driven analyses of diplomatic discourse, particularly in the Chinese context and the identification of the juxtapositional discursive strategy in this study also helps extend the current Ideology Square model as a framework for discourse analysis. However, further research is needed to broaden the scope of investigation. For instance, a comparative analysis of the collocational patterns of COVID-19-related terms in the diplomatic discourse of China with that of the US or with Western media discourse could provide more valuable insights. It would also be interesting to further examine the discursive strategies in the diplomatic discourse of China and the US from a diachronic perspective.

Data availability statement

Publicly available datasets were analyzed in this study. This data can be found at: <https://github.com/lt0806/Data.git>.

Author contributions

TL: Methodology, Data curation, Writing – original draft, Formal analysis, Resources. FP: Writing – review & editing, Software, Conceptualization, Validation.

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Discursive construction of the 'scholar' identity: a critical genre analysis of chinese and english academic biographies

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Scholar biographies, though often overlooked, serve as a significant genre for the discursive construction of academic identity. This study adopts a Critical Genre Analysis (CGA) framework to examine how professional identities are constructed in Chinese and English scholar profiles within the field of linguistics. Combining textual analysis with interview data, the research identifies shared rhetorical structures and recurring identity types, alongside notable cross-cultural differences shaped by institutional, and socio-cultural factors. The interviews further reveal how scholars strategically present themselves in response to contextual expectations. By integrating textual and contextual perspectives, the study deepens our understanding of how academic identities are constructed and culturally mediated, offering implications for academic communication and cross-cultural discourse research.

KEYWORDS

scholar biography, CGA, discourse practices, identity construction, comparative study

1 Introduction

Identity has been widely conceptualized in contemporary scholarship as a dynamic, fluid, and contextually situated construct (Benwell and Stokoe, 2006). It is not an innate or fixed attribute, but rather an ongoing process of construction and reconstruction, shaped by multiple intersecting factors. Among these, prior educational experiences, as well as the operation of discourse, agency, and individual life narratives (Mili and Towers, 2022), play a particularly salient role. Situated at the nexus of the individual and the social, identity encapsulates the dialectical interplay between personal agency and the normative structures of society. Anchored in the theoretical framework of social constructivism, identity is not conceived as a stable core self but as a reflexively produced and discursively mediated phenomenon. It is constituted and communicated through a range of semiotic resources, including linguistic choices, discursive practices, stylistic performances, affective stances, and embodied behaviors (Burkitt, 2008). In this regard, identity is both a performative act and a socio-cultural artifact, continuously negotiated within specific communicative contexts and institutional settings.

A particularly salient genre through which academic identity is explicitly performed and negotiated is the scholar biography—a concise self-representational narrative that outlines an individual's academic trajectory, professional accomplishments, and intellectual positioning (Haiying, 2020). Commonly featured on academic websites, conference programs, editorial notes, and lecture introductions, the scholar biography operates as both a medium of self-presentation and a site where broader institutional,

disciplinary, and market forces converge. It reflects not only how individuals choose to articulate their academic selves, but also how these articulations are shaped, constrained, and legitimized by prevailing socio-institutional norms and expectations.

Despite its strategic function within the academic field, the scholar biography has received limited scholarly attention and is often relegated to a peripheral position in academic discourse. This marginalization may be attributed to the genre's typically formulaic and condensed nature, which tends to constrain opportunities for extended narrative or nuanced self-positioning (Tse, 2012). Nonetheless, in an era characterized by the increasing emphasis on personal branding, digital visibility, and academic performativity, the scholar biography warrants closer critical scrutiny. It serves as a discursive site through which broader dynamics of identity construction, institutional power, and knowledge legitimization are rendered visible and contested.

2 Literature review

Discourse, as a central mediating resource in social interaction, plays a constitutive role in identity construction. It is not merely a conduit for information transmission, but a socially and semiotically rich medium through which individuals construct subject positions, negotiate relational dynamics, and perform multiple—and often intersecting—social roles (Cidlinska et al., 2023). Recent scholarship has emphasized that discourse operates as a dynamic arena for identity enactment, enabling individuals to mobilize linguistic and interactional resources to align with or resist prevailing norms (Dai and Hardy, 2024). In academic settings, such discursive negotiations often occur within highly regulated and genre-specific communicative spaces, where the performativity of identity is closely tied to the strategic deployment of disciplinary and institutional discourse (Guan and Xu, 2024).

The interplay between genre, discourse, and identity offers a productive analytical lens for understanding how self-representation is structured and constrained by context. As scholars have noted, genre serves as both a structuring convention and a site of rhetorical agency (Hyland, 2011; Yunling, 2023). It provides the communicative expectations within which discourse operates, while simultaneously enabling individuals to exercise choices in identity positioning. In this view, identity is not simply reflected through genre, but actively co-constructed through the situated deployment of discursive resources within genre-specific contexts.

Identity construction, then, may be understood as a process of recognition, positioning, and affiliation (Greek and Jonsmoen, 2021), moving from reflexive self-awareness to strategic social alignment. The process is inherently contextual, shaped by variables such as time, space, institutional norms, and personal biography. For example, Yingzhe (2021) demonstrates how academic presenters engage in metapragmatic discourse to perform identity awareness and manage audience reception during conference presentations. This aligns with Guan and Xu's (2024) findings on how scholars craft self-representations in alignment with disciplinary expectations, illustrating a shared concern with the performative and strategic nature of academic identity within institutionalized genres.

Complementary insights are offered by Xinren and Mengxin (2016), who examine how academic conference moderators adapt their discursive strategies to different participant roles and interactional settings. Their study underscores the pragmatic versatility with which individuals shift between identities depending on audience and institutional positioning—a point that resonates with Hyland (2011) observation that academic self-presentation is shaped not only by professional hierarchy and gender, but also by the constraints and affordances of specific written genres, such as personal webpages.

The significance of genre in identity performance is further illuminated in Tse (2012) case study of autobiographical discourse. Analyzing Ray Kroc's memoir, Zhang identifies how narrative stance, pronoun usage, and evidentiality function as rhetorical strategies for asserting personal identity. While situated outside formal academic genres, the study offers transferable insights into how linguistic choices within genre frameworks contribute to identity projection—echoing the broader claim that identity is not expressed in isolation but always mediated by discursive and generic form. Hyland (2011) builds directly on this discourse-genre-identity nexus through his analysis of 100 academic personal webpages, showing how identity is constructed through patterned rhetorical moves shaped by gender, academic status, and institutional positioning, and therefore he proposed that academic identity involves the careful balancing of personal voice and disciplinary alignment—a process that unfolds within genre-based expectations. This insight establishes a critical dialogue with Yunling (2023) on rhetorical agency, and with Dai and Hardy (2024) on the multiplicity of voices in identity performance, collectively reinforcing the central role of genre as both an enabler and a delimiter of discursive identity construction.

Taken together, these studies demonstrate that identity is a socially situated, discursively mediated, and genre-conditioned construct. It emerges not solely from individual intention, but from the intersection of personal expression, institutional structures, and the rhetorical conventions of genre. Despite increasing scholarly attention to identity in academic discourse, the scholar biography—a condensed yet consequential genre—has received limited critical scrutiny. As a hybrid genre occupying the intersection of personal narrative and professional display, the scholar biography offers a unique site for examining how institutional norms, disciplinary ideologies, and cultural expectations converge in identity construction. Moreover, while existing studies have largely focused on monolingual or monocultural settings, comparative research across cultural and institutional contexts remains scarce. Addressing this gap could significantly enrich our understanding of how genre mediates the discursive construction of academic identities in a globalized knowledge economy.

3 Research design

3.1 Research questions

By comparing the personal bios of Chinese and English scholars in the domain of contrastive linguistics, this article aims to address the following research questions:

- (1) What rhetorical moves primarily constitute the bios of Chinese and English scholars, and what are their similarities and differences?
- (2) What types of identities are constructed in the bios of Chinese and English scholars, and how are these identities established?
- (3) What factors contribute to the differences in identity construction between the bios of Chinese and English scholars?

3.2 Research theories

Among various theoretical models of genre analysis, critical genre analysis (CGA) extends the focus of traditional genre analysis from texts to their closely related contexts (Figure 1) and emphasizes multi-perspective and multidimensional analysis. This approach offers a contextually grounded analytical framework for examining discourse practices within specific communities (Ge and Wang, 2019). As perceived by Bhatia (2008), genre, a structural tool, plays a crucial role in discourse analysis, but its function should not be reduced to a fixed format. Instead, it should be viewed as a dynamic means of constructing and interpreting discourse within specific contexts. To fully understand the functions and meanings of professional discourse, it is essential to take into account both the formal features of language and the contextual environment where it is used (Jianguo and Congying, 2018).

In the present study, scholars' personal bios were categorized as an introductory genre of self-narrative (Hyland, 2018). First, the rhetorical move structures and identity types in the bios of Chinese and English scholars were identified by collecting, coding and statistically analyzing the corpus. Second, the lexical features in these bios were examined from the perspectives of professional expertise and discourse strategies, and their relationship with identity construction was explored. Finally, scholars' professional practices within social spaces and the influence of socio-cultural contexts were deeply investigated through interviews and the analysis of relevant literature.

3.3 Data collection

The academic biographical genre is shaped by a constellation of factors, including disciplinary conventions (Polizzi et al., 2021), situational contexts (Marques et al., 2024), and authorship positionality (Rose and McKinley, 2022). Among the diverse modalities through which academic identities are discursively constructed, personal homepages hosted by scholars' affiliated institutions constitute a salient site for the public articulation of professional selves. This study, situated within the domain of linguistics, draws upon two authoritative evaluative frameworks to identify representative subjects: the 2022 *Global Scientific Influence Rankings* published by Stanford University (Ioannidis, 2022) and the *Ranking of the Most Influential Chinese Scholars in Philosophy and Social Sciences* (Chang'an University Chinese Humanities Social Sciences Evaluation Research Center, 2020).

The *Global Scientific Influence Rankings*, grounded in bibliometric data from the Scopus database, adopt a composite scoring mechanism based on six key indicators: (1) total citation count, (2) Hirsch H-index, (3) Schreiber Hm-index (adjusted for co-authorship), (4) citations of single-authored publications, (5) citations of single- or first-authored publications, and (6) citations of single-, first-, or last-authored publications. In parallel, the Chinese ranking, compiled from databases such as CNKI and SuperStar Discovery, utilizes CNKI's disciplinary taxonomy to generate subfield-specific lists, including one dedicated to linguistics.

For the purposes of corpus construction, the personal homepages of the top 50 linguistics scholars from each ranking were systematically retrieved and analyzed. Data collection concluded in March 2023 (see Table 1, which presents the number of characters for Chinese and words for English). Inclusion criteria were as follows: (1) all subjects must be identified with the field of linguistics as per the respective rankings; (2) only extended, cohesive textual narratives were selected, while résumé-like formats or bullet-point entries were excluded—if the latter were encountered, the next ranked scholar was included as a replacement; (3) English-language bios were limited to scholars affiliated with institutions outside mainland China, irrespective of their native language, which falls beyond the scope of this inquiry; (4) attention was restricted to biographical texts published on institutional platforms, with the aim of examining how localized academic cultures mediate biographical self-presentation across comparable disciplinary spaces.

Based on the initial corpus analysis, the researcher further conducted semi-structured interviews to deepen the qualitative inquiry. Informed by the preliminary textual findings and aligned with the research objectives, a purposive sampling strategy was adopted to select interview participants. Specifically, a sampling frame was constructed by identifying a pool of scholars whose demographic attributes (i.e., nationality and gender) corresponded with the contextual variables of interest in this study. From each nationality-gender combination, one individual was selected using a simple random sampling procedure, resulting in a preliminary list of ten potential participants. These 10 scholars were formally contacted via email, in which the researcher clearly communicated the purpose of the study, the semi-structured nature and estimated duration of the interview, measures for confidentiality and anonymization, researcher contact details, and the voluntary nature of participation. Upon receiving affirmative responses and explicit informed consent, a total of five scholars agreed to participate in the interviews. Individual, in-depth semi-structured interviews were subsequently conducted with each of the five consenting participants. All interviews were scheduled at times and on platforms (including virtual meetings) convenient for the participants, with informed consent reconfirmed immediately prior to the sessions. Where permitted, audio recordings were made.

The process of data collection and analysis was iterative: transcription and coding were initiated promptly after each interview. The principle of "thematic saturation" was employed to determine the endpoint of data collection. After the fourth interview, no novel themes, patterns, or perspectives relevant to the research questions emerged, and sufficient depth and variation

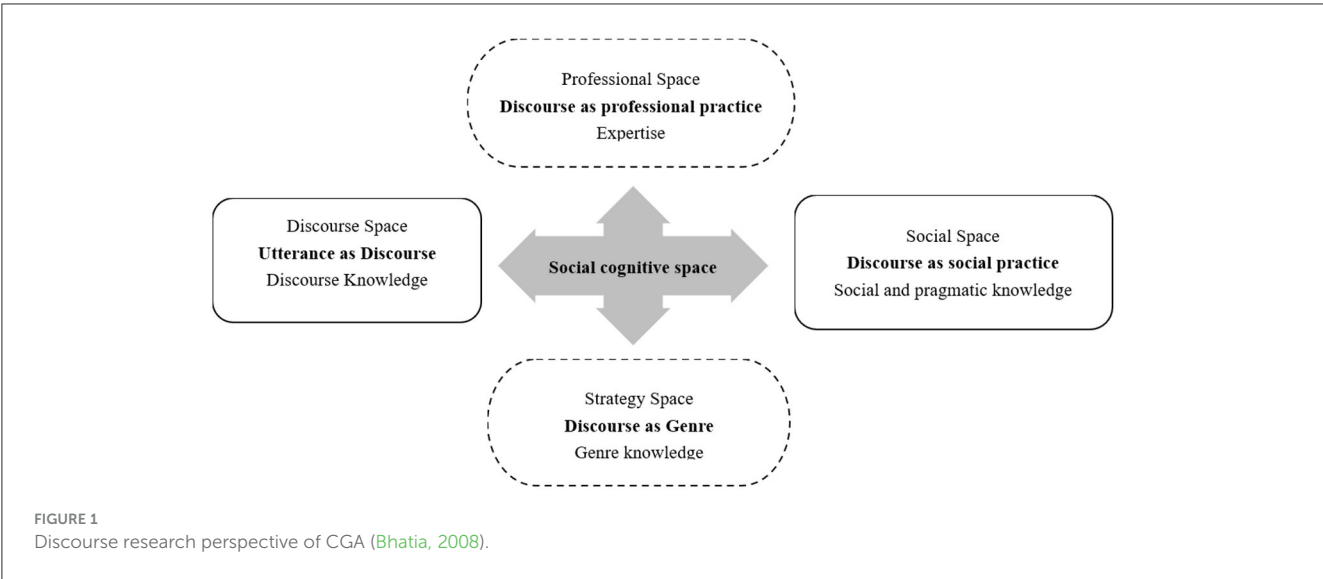


TABLE 1 List of corpus data used in the research.

Category	Chinese			English			Total
	Male	Female	Total	Male	Female	Total	
Number	33	17	50	27	23	50	100
Characters/Words	19,204	6,243	25,447	5,625	5,717	11,342	36,789

had been achieved in the interpretation of the existing data. Nevertheless, in adherence to prior commitments and to ensure the stability of saturation, the fifth interview was carried out as planned. Analysis of the fifth dataset confirmed the saturation point, as no substantially new or divergent insights were generated. In total, the interview data comprised 28,512 tokens of Chinese text and 18,104 words of English text. The interviews were designed to elicit participants’ reflections on the rhetorical and contextual considerations involved in composing their personal bios. These insights offered valuable supplementary perspectives and enabled triangulation with the corpus-based findings. Details regarding the interview participants and procedures are summarized in Table 2.

3.4 Data analysis

In this study, textual analysis was employed as a qualitative method. The coding framework for identifying rhetorical moves in the biographies was developed collaboratively by the author and a student with relevant academic training. Both the author and the student engaged in a detailed, iterative process to familiarize themselves with the coding principles, which were then applied to the selected biographies. The initial coding was followed by regular discussions to refine and validate the categories. To ensure inter-coder reliability, the initial coding was statistically tested using Cohen’s Kappa. The calculated Kappa value was 0.85, indicating substantial agreement between the two coders. In

cases of discrepancies, further discussion and clarification were carried out to achieve consensus. Any remaining disagreements were resolved through consultation with a third-party expert in discourse analysis.

The analysis focused on the identification and classification of rhetorical moves in the biographies. Each rhetorical move was described and interpreted to highlight genre-specific features related to identity construction and self-presentation. The AntConc tool was utilized to support the analysis by quantitatively identifying high-frequency terms, referential expressions, and transitivity patterns across the dataset. These linguistic features were compared across both Chinese and English biographies to examine the discourse practices in different sociocultural contexts.

To supplement the textual analysis, semi-structured interviews were conducted with scholars from both Chinese and English-speaking academic environments. The selection of interviewees was conducted in a scientifically rigorous and methodologically sound manner. Scholars were carefully chosen based on their academic backgrounds, expertise in relevant fields, and their experience with academic identity construction. A purposive sampling strategy was employed to ensure that participants could provide rich, relevant insights into the social factors influencing academic identity in scholar biographies. Additionally, the selection process was balanced to include scholars from diverse disciplines and academic stages, providing a broad range of perspectives. The interviews aimed to explore the social factors influencing the construction of academic identity in scholar biographies. These interviews were recorded, transcribed, and analyzed qualitatively to

TABLE 2 Information of respondents.

Respondent	Language	Gender	Employment	Research area	Time
A	Chinese	Male	Chinese University	Pragmatics and discourse analysis	32 min
B	Chinese	Male	Chinese University	Sociolinguistics and applied linguistics	26 min
C	Chinese	Female	Chinese University	Teacher education and language policy	38 min
D	English	Male	British University	Academic discourse analysis	30 min
E	English	Female	American University	Sociolinguistics	25 min
F	English	Female	British University	Educational linguistics	29 min

TABLE 3 Percentage of each move in the biography of Chinese and English scholars.

Move	Chinese		English	
	Plot	Percentage	Plot	Percentage
Occupation	96	22.92%	70	25.46%
Research	46	10.98%	67	24.34%
Education	51	12.18%	25	9.10%
Publication	90	21.48%	42	15.28%
Achievement	58	13.84%	28	10.19%
Service	48	11.46%	22	8.00%
Personal profile	30	7.16%	21	7.64%
Total	419	100%	275	100%

provide further insight into the discourse practices identified in the text analysis.

4 Results and discussion

4.1 Move structures in the introduction of Chinese and English scholars

As shown in Table 3, academic bios across both Chinese and English contexts generally follow a shared rhetorical structure, encompassing seven major moves: professional positions, research areas, educational background, publications, personal achievements, community service, and personal information. A chi-square test of independence revealed a statistically significant difference in the overall distribution of these rhetorical moves between the two corpora, $\chi^2(6, N = 694) = 27.33, p < 0.001$, indicating language-specific tendencies in rhetorical construction.

Further item-wise analyses using two-proportion z-tests identified significant differences in the frequency of specific moves. Notably, the “Research” move appeared significantly more frequently in English-language bios ($z = -4.67, p < 0.001$), whereas the “Publication” move was more prevalent in Chinese-language bios ($z = 2.04, p = 0.042$). No statistically significant differences were observed for the other moves (all $p > 0.05$), including “Occupation,” which remained the most frequently occurring component across both corpora.

These findings suggest that while the macro-structural organization of academic bios remains largely consistent across linguistic contexts, scholars from different cultural backgrounds exhibit distinct rhetorical preferences in how they foreground their academic identity. Chinese scholars tend to emphasize professional titles, publication records, and academic achievements, reflecting a product-oriented representation of scholarly capital. In contrast, English-speaking scholars are more likely to highlight research areas, aligning with a discourse that foregrounds thematic expertise and intellectual positioning. For example:

(1) ... examines the historical and contemporary manifestation of raciolinguistic ideologies framing the language practices of racialized communities as inherently deficient and in need of remediation. He does this by undertaking raciolinguistic genealogies that situate the emergence of these raciolinguistic ideologies within European colonialism and traces the durability of these colonial logics across time and into the present. He has adopted this genealogical approach to reveal the ways that these colonial logics have historically informed and continue to inform United States (US) language education policies and practices as well as the ideological assumptions that have historically shaped and continue to shape the field of educational linguistics ... (2303E112)

(2)主要学术研究领域为语言学理论、现代汉语、心理语言学和语言规划.....(2303C003)

... Main academic research areas are linguistic theory, modern Chinese, psycholinguistics, and language planning ... (literal translation from 2303C003)

The two cases above illustrate that both Chinese and English scholars incorporate their research areas into their personal bios. In the bios of English scholars, however, this rhetorical move occupies a more significant portion. It often includes detailed accounts of their past research experiences and how these experiences have shaped their current research interests. This approach provides readers with a better understanding of their academic trajectories and research motivations while embodying the knowledge and skills they have accumulated in their specific fields.

Thus, it can be concluded that the types of rhetorical moves in the bios of Chinese and English scholars demonstrate a high degree of similarity, with minimal structural differences. This observation is in line with the framework of Hyland (2018). Nonetheless, socio-cultural contexts play a critical role in shaping the bios of scholars and influence the sequence of rhetorical moves and the level of detail provided in their content.

4.2 Discourse practices of identity construction in the biography of Chinese and English scholars

4.2.1 Individual identity

Language acts as both a means and an institution of social construction, and functions as a fundamental tool for individuals to establish social identities (Ronghui, 2017). Naming strategies as a major form of identity recognition achieve this through referential or nominative expressions (Yongmei and Yanbin, 2013). Unsurprisingly, the bios of Chinese and English scholars in the collected corpus typically begin with scholars' names serving as a clear marker of their identity. Additionally, in English bios, as illustrated in Example (3), an adverbial clause introduced by *after* incorporates scholars' names into the text while describing their life and educational experiences. This approach enhances the coherence and readability of the text, while also making it easier for readers to understand the identity and characteristics of scholars:

(3) ... After studying German language and literature at the University of Paris-Sorbonne in the 1950s, Professor Kramsch emigrated to the US ... (2303E203)

In Example (4), the teaching experience is directly described from a first-person perspective. An individual identity that is both a teacher and a learner is constructed, which brings the author closer to readers.

(4) ... I first taught English as a foreign language in Malta in 1988, then graduated from the University of Malta in 1990 and began teaching English in a state secondary school also in Malta ... (2303E209)

Among the top 20 most frequent words, both Chinese and English academic profiles predominantly use nominalizations or verbal noun constructions, which help rationalize the organization of discourse and increase the coherence of structural layout in terms of prosody (Zhenhua and Chunxu, 2016). However, personal pronouns such as “she,” “he,” “I,” “her,” and “his” frequently appear in addition to these common features in English academic profiles, while self-referential language is notably absent in Chinese profiles. This observation is aligned with the findings of Na and Zhongqing (2013) in their study on personal pronouns in Chinese and English academic articles.

Apart from their referential function, personal pronouns also carry the nuanced functions of power, position, and politeness (Liu, 2024). They can convey an author's attitude toward the audience and thus contribute to analyzing the specific relationship between the author and readers. In English academic profiles, the use of first- (e.g., “I”) and third-person pronouns (e.g., “he” and “she”) expresses the presence and engagement of authors, fosters a closer connection with readers and encourages more active participation in text interpretation (Hyland, 2011). In contrast, Chinese academic profiles generally employ constructions without subjects, obscure the presence of writers, and underscore the informational content of discourse. By omitting personal pronouns, the focus is shifted to content, which thus highlights the authority of discourse and its subjects.

4.2.2 Institutional identity

Burkitt (2008) argued that individuals tend to be categorized into specific groups when narrating their experiences, and the characteristics or traits associated with that identity are projected. In the context of contemporary higher education, marketization has become a trend in the development of universities (Fairclough, 1993). As a result, scholars commonly mention their current affiliation in personal profiles whether in Chinese or English, which is conducive to establishing their professional institutional identity and highlighting their affiliations and organizational contexts. For instance, Cases (5) and (6) explicitly state the affiliated institutions, academic titles and positions of individuals:

(5)北京外国语大学教授、博士生导师，中国外语与教育研究中心专职研究员；北京外国语大学许国璋语言高等研究院院长；国家教材委员会外语学科专家委员会主任；中国英汉语比较研究会副会长；亚洲英语教学研究会副会长.....(2303C212)

... professor and doctoral supervisor at Beijing Foreign Studies University and full-time researcher at the China Foreign Language and Education Research Center; Dean of the Xu Guozhang Language Institute of Beijing Foreign Studies University; Director of the Foreign Language Subject Expert Committee of the National Textbook Committee; Vice President of the Chinese Association for Comparative Studies of English and Chinese; Vice President of the Asian English Teaching Research Association ... (literal translation from 2303C212).

(6) ... Paul Nation is an emeritus professor in Applied Linguistics at the School of Linguistics and Applied Language Studies (LALS) at Victoria University of Wellington, New Zealand ... (2303E108)

According to the theory of transitivity proposed by Halliday and Matthiessen, 2013, relational processes can be specifically classified into two types: “attributive” and “identifying”. In the process of introducing themselves, scholars usually establish connections between themselves and their peers and link these associations to broader socio-cultural contexts (Benwell and Stokoe, 2006). By employing “attributive relations,” scholars can express their membership in a particular community or their affiliation with an organization or discipline. Meanwhile, “identifying relations” are utilized to describe the relationship between scholars and a specific academic community, and depict the identity of scholars and their connection to the academic community in their fields. This is beneficial to reinforcing the institutional identity of scholars within a particular domain.

4.2.3 Professional identity

As a rule, scholars use certain linguistic markers in their profiles to directly or indirectly demonstrate their professional identity (Guorong, 2019). These linguistic markers may contain information about scholars' research fields, research focus, achievements, academic titles, academic affiliations and membership in academic organizations. Moreover, the discourse of such profiles typically employs formal academic language and discourse styles, which are also considered as a way to exhibit their professional identity. For example, in the excerpt from Example

(7), the research direction of scholars is directly introduced, which highlights the authors' extensive expertise and experience across multiple fields. Information such as participation in research projects, the approval of grants, and the publication of monographs and academic papers directly validate scholars' achievements in their areas of focus. More than that, the honors and titles scholars have received indirectly affirm the societal recognition of their professional contributions.

(7)主要从事认知语言学、语义学、语用学、语言与文化等方面的教学与研究工作。先后主持国家自然科学基金项目、世界自然基金会项目、湖南省社会科学基金项目、湖南省教育厅科研项目、湖南省社科联重点项目等。出版《英语常用词语辨析》、《英语词汇通》、《性别语言文化与语用研究》、《当代湖湘语言学者与外国语言学》等著作5部，合著3部，在国内重要学术刊物上发表论文50余篇.....(2303C215)

... mainly engaged in teaching and research in cognitive linguistics, semantics, pragmatics, language and culture, etc. He has successively presided over the projects of the National Social Science Foundation, the World Wildlife Fund and the Hunan Provincial Social Science Foundation, the scientific research projects of the Hunan Provincial Department of Education, the key projects of the Hunan Provincial Federation of Social Science, etc. He has also published five books including *Analysis of Commonly Used English Words*, *English Vocabulary*, *Research on Gender Language Culture and Pragmatics*, *Contemporary Hunan Linguistic Scholars and Foreign Linguistics*, and co-authored three books. These books are listed in important domestic academic journals. Not only that, he has published more than 50 papers ... (literal translation from 2303C215)

Material processes refer to the actions or activities involved in doing something. In academic profiles, material processes are used to describe the academic achievements of scholars and play a significant role in highlighting their "scholar identity." By introducing the activities scholars have undertaken in the field, such as research projects, published papers and educational responsibilities, scholars can demonstrate their academic accomplishments and professional competence. This provides readers with a basis for evaluating the professional identity of scholars.

4.2.4 Social identity

Social identity refers to the identity assumed by an individual and recognized by others within a social context. Individuals entering a social situation normally possess multiple social identities, which together form a composite of various roles (Xinren, 2018). In the discourse of academic profiles, some scholars also introduce their social identities apart from presenting information related to personal, institutional and professional identities. Below are Examples (8) and (9):

(8)曾任国家语言文字工作委员会副主任、教育部语言文字信息管理司司长、教育部语言文字应用研究所所长、《语言文字应用》杂志主编、中国社会科

学院研究生院语言文字应用系主任、华中师范大学副校长.....(2303C121)

... has served as deputy director of the National Language and Writing Committee, director of the Language and Writing Information Management Department of the Ministry of Education (MOE), the Language and Writing Application Research Institute of the MOE, and the Language and Writing Application Department of the Graduate School of the Chinese Academy of Social Sciences, editor-in-chief of the *Language and Writing Application* magazine, and vice president of Central China Normal University... (literal translation from 2303C121)

(9) ... He is the editor of the *Bloomsbury Discourse Series* and *Routledge Innovations and Challenges in Applied Linguistics*, founding co-editor of the *Journal of English for Academic Purposes* and co-editor of *Applied Linguistics* ... (2303E018)

Both the above-mentioned examples highlight the work identity of scholars outside of their research fields, and showcase the different roles and responsibilities they assume within society. This illustrates how the multiple social roles of an individual are interwoven and how they affect both their professional and social lives. This also confirms that identity is fluid, characterized by diversity and complexity, and likely to shift with changes in personal experiences, career development and social contexts.

Thus, the analysis and discussion above clearly show that academic profiles, a genre of discourse within a specific context, may be brief but contain rich information. Individuals employ discourse strategies in particular contexts and for specific needs to realize distinct communicative functions (Yuxin, 2016; Xinren, 2018). By selecting appropriate words, structures and expressions, scholars can shape their academic identity, and emphasize their expertise, research fields, achievements and social roles. This represents a strategy through which individuals adjust their identity expression according to their needs.

4.3 Socio-cultural factors of identity construction in the biography of Chinese and English scholars

4.3.1 "A fixed template into which content can simply be inserted"

Different genres in different fields and occasions have an impact on the writing of scholar profiles. One interviewee said frankly during an interview:

“说实在的个人简介我还真没有那么细心去写，在大家的心中，应该就是一个模板式的内容写一下自己的相关信息。”(20240113C1)

“... To be honest, I didn't write my profile carefully. In everyone's mind, it should be a template to write down relevant information about myself ...” (literal translation from 20240113C1)

It is evident that, in this institutionalized environment, self-introduction has turned into procedural discourse, where scholars can present themselves in a structured and professional manner. In this genre, how scholars can introduce themselves and the content needing to be included have already established implicit norms.

Another interviewee also mentioned that the identity presented in a self-introduction is a specific performative act and involves choices of language, expression and presentation. In academic or other professional contexts, authors can design their self-introductions in light of their intentions and the audience's expectations, to achieve a particular self-presentation effect:

"... Identity is a performance and therefore can be changed. It's a performance reinforced over time. Hence, it becomes a habit. It is a disposition to behave in a certain way and make particular language choices. For this reason, we will continue to use language in that way if we are using language in a certain way and getting good feedback that we are being accepted as the kind of person we want to be seen as. This encourages certain identities." (20240109E1)

Academic profiles are a specialized genre within a specific field. They mirror certain consensus and norms within the academic community during the content-filling process, while also providing scholars with an effective means to convey personal information. The academic community has a relatively consistent understanding of the basic information that should be included in personal profiles, such as name, academic background and research focus. This consensus helps ensure that readers can quickly grasp the essential information of scholars without needing to search for key details. Furthermore, academic profiles as a professional genre typically require scholars to present their academic background, research achievements and scholarly contributions comprehensively within a limited space. The use of a template approach enables scholars to organize and present this information more effectively, which makes it easier for others to understand and evaluate.

Although the process of filling out an academic profile may seem mechanical, the individual differences and uniqueness embedded within it should not be neglected. Even when following a standardized template, each scholar still possesses unique academic experiences, research interests and educational background. In the process of filling in the template, scholars must skillfully highlight their personality and distinctive features to showcase their unique value within the structured format. Likewise, one interviewee pointed out:

".....因为影响学者简介撰写的因素变量有很多，很多时候可能会把它当作一个模板套路直接使用，但是在使用的背后也会涉及到潜意识里想呈现的‘自我’的那一面....." (20240109C1)

"... Because a number of factors and variables affect the writing of academic profiles, it is often used as a template. Behind the use of it, however, the side of the "self" that you want to present subconsciously is also involved ..." (literal translation from 20240109C1)

As a "procedural" genre, academic profiles are therefore not only a tool for conveying information but also an opportunity for scholars to present themselves on the academic stage. In the process of organizing and composing information, it is vital to skillfully balance norms and individuality, which ensures that academic profiles adhere to consensus principles while highlighting personal characteristics. This makes academic profiles an indispensable element of scholarly communication.

4.3.2 "Very interesting power culture behind it"

As a social symbol, language has a quite obvious hierarchy. The order and length of the content presented have profound social implications, especially in the practice of fixed professional genres. This was mentioned by one interviewee during the interview:

".....简介作为一种模板，他往往是有套路的。但是每个人在沿用这种模板的时候，可能不同的人选择凸显的内容就不一样，有的会把自己的求学经历放在特别凸显的位置，而有的人直接写的是自己的工作单位，背后所蕴含的权势文化是需要认真考虑的....." (20231019A1)

... As a template, the introduction often follows a routine. However, different people may choose to highlight different things when using this template. Some people will put their education experience in a particularly prominent position, while others will directly write about their work units. The power culture behind it needs to be carefully considered ... (literally translated from 20231019A1)

Discourse functions foreground or background certain identities through the specific ways of structuring texts, while the sequence in which content is presented reflects the weighting and prioritization of information (Haiying, 2020). In acknowledging the template of the profile genre, interviewees further pointed out that the sequence where content is presented embodies a power dynamic worth attention. In fixed professional genre practices, the presentation order of content is usually not random but influenced by specific norms and traditions, and reflects the power structures and socio-cultural contexts within the academic community. Through the arrangement of content sequence, certain information may be emphasized, whereas other information is marginalized, with this power dynamic evident in the process of determining which information is considered more important and valued.

Another interviewee also noted, "We have to write in a way that shows positioning." Scholars typically compose their personal profiles in a manner that showcases their identity and status. Explicit expressions may highlight their academic achievements, research focuses, teaching experience and other aspects to emphasize their positions within the academic community. Implicit expressions, on the other hand, maybe conveyed through language styles, word choices and modes of expression, communicate the professionalism and confidence of scholars, and thereby construct their status within the academic community.

... Okay, it isn't just doing something or using language in identity but doing something with other people. It depends on who we are talking to, who we are writing for and what

they expect to find in that text. I write research articles because I want to reach an audience of academics and teachers. I don't write poems or rap songs as I'm not writing for those audiences. Thus, we have to write in a way that shows positioning ... (20240109E5)

The process of identity construction in this context is dynamic and involves individuals' adjustment of behavior and beliefs in different cultural environments. In writing, individuals may choose to emphasize content that aligns with specific values. Hence, they can adapt to the expectations of different cultures, disciplinary fields and professional communities for better integrating into and gaining recognition within the academic community and establishing connections with readers. This also manifests the interactive relationship between scholars' institutional identity within the academic world and societal values as well as their positioning and self-recognition within this social system. The ability to understand and respond to the expectations within different socio-cultural contexts facilitates the participation of scholars in international academic exchanges, expands collaborative relationships and helps them gain recognition in a diverse academic environment.

4.3.3 "Too competitive academic environment"

Peer competition has a profound impact on academic profiles, and requires scholars to pay more attention to their competitiveness and brand image in the academic market and demonstrate their personal value through multiple communication channels. This makes academic profiles not only a form of academic communication but also one of the key factors for success in the academic market:

... I imagine that the bios of Chinese scholars are longer and more complex because they may try harder to present themselves more academically and attempt to distinguish themselves from thousands of Chinese professors due to greater competition ... (20240120E1)

As the interviewee mentioned, personal profiles have become a key tool for scholars to demonstrate their unique value and distinguish themselves from others in a fiercely competitive environment with the marketization of academic research and education. Scholars shall highlight their academic achievements, research contributions and professional expertise through personal profiles to stand out in the academic market:

... I think we are generally trying to represent ourselves as someone to be accepted by a group ... Therefore, by looking at language, we are writing to be part of the group to gain the acceptance and prestige of that group and the advantages that give us ... (20240120E3)

The influence of marketization is not limited to the individual level but also exerts a far-reaching on the identity construction within the same community group. When pursuing the construction of their individual identities, scholars must also

take their positions and relational networks within the academic community into consideration. The construction of identity is no longer merely an individual matter but involves the collaboration and interaction of the entire academic community. When showcasing their personal brands, scholars must also maintain alignment with the values and shared goals of the community to preserve cohesion and cooperation within the community. Therefore, scholars are not only constructors of their individual and institutional identities but also shapers of their professional and social identities in a marketized academic environment. They must find a balance between individual differences and community identity to better adapt to and shape the evolving academic ecosystem.

5 Conclusions

This study conducted a comparative analysis of Chinese and English academic profiles in the field of linguistics, employing Critical Genre Analysis (CGA) within the theoretical framework of social constructivism of identity. By examining the discourse functions embedded in these scholar biographies, the research revealed how identity is strategically constructed and negotiated through linguistic choices, structural patterns, and rhetorical strategies. It highlighted the nuanced ways in which scholars from different cultural backgrounds navigate institutional expectations, disciplinary norms, and personal identity expression, thereby shedding light on the dynamic interplay between discourse and identity construction.

The findings demonstrate that academic profiles are far more than static self-introductions; they function as purposeful, socially situated texts that reflect broader socio-cultural, professional, and ideological forces. Through the identification of common step structures and identity types, as well as the analysis of interview data, this study uncovered the contextual factors shaping scholars' self-presentation practices. These insights enrich the current understanding of how professional identities are discursively constructed across cultural contexts, and they underscore the role of genre in mediating personal voice, disciplinary alignment, and institutional legitimacy.

Nonetheless, this study has its limitations. To control for external variables and ensure consistency, the data were drawn solely from self-introduction texts on academic webpages within a single discipline—linguistics. While this focused scope allows for depth of analysis, it also limits the generalizability of the findings. Future research could broaden the investigation by exploring how the same scholars present their identities across multiple platforms (e.g., social media, conference bios, grant applications), or by comparing identity construction practices between novice and senior scholars, as well as across different disciplines and institutional types. In particular, cross-contextual and longitudinal studies may further illuminate how academic identities evolve over time and are shaped by shifting professional demands and socio-cultural dynamics.

In conclusion, this study contributes to the growing body of literature on academic discourse and identity by foregrounding the scholarly biography as a valuable site for exploring identity performance. It calls for increased scholarly attention to

this often-overlooked genre and encourages further inquiry into the discursive, cultural, and institutional dimensions of academic self-representation.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

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“We find that...” changing patterns of epistemic positioning in research writing

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Introduction: Epistemic positioning refers to the writer’s commitment to the truth of a proposition and assessment of its potential impact on readers. Despite its importance, little attention has been paid to how writers make epistemic judgments across disciplines over time.

Methods: Drawing on Hyland and Zou’s taxonomies of hedges and boosters, we analyzed 240 research articles from education, history, mechanical engineering, and physics, covering three periods (1960, 1990, and 2020).

Results: Our findings show that epistemic positioning has significantly decreased across all four disciplines over time, with writers increasingly preferring less use of epistemic markers in pursuit of an objective, data-based, and scientific style.

Discussion: These results suggest a disciplinary shift in research writing practices and have important implications for raising students’ and novice academic writers’ awareness of evolving knowledge discourses shaped by changing societies.

KEYWORDS

epistemic positioning, hedges and boosters, diachronic change, disciplinary variation, research writing history

1 Introduction

Successful academic writing partly lies in the writer’s ability to balance conviction by investing their statements with the confidence or uncertainty of knowledge, to make their work convincing, and to gain the acceptance of their colleagues and readers (Hyland, 2000). We referred to the expressions of doubt or certainty of knowledge as epistemic positioning based on Hyland and Guinda (2012), which is marked by hedges and boosters. These devices are important communicative strategies for the writer to strengthen or weaken the force of their statement. They help the writer to convey both his epistemic and affective meanings; that is to say, they carry not only the writer’s degree of confidence in the truth of the information he provides but also an attitude to the readers (Hyland, 2004). Writers need to consider that their claims are at risk of being negated by the readers. Therefore, writers must carefully craft their statements to achieve effective persuasion.

An increasing number of studies have explored how epistemic positioning is conveyed, focusing on variations across languages and cultures (Hu and Cao, 2011; Mur-Dueñas, 2021), between student and professional writing (Aull et al., 2017; Qiu et al., 2024), across genres and disciplines (Bondi, 2005), among languages and disciplines (Deng and He, 2023; Hu and Cao, 2015), and across disciplines over time (Deng et al., 2021; Hyland and Jiang, 2016, 2018). However, little attention has been paid to the extent to which writers make epistemic judgments that vary across disciplines over time. In this study, we aimed to explore this issue using Hyland and Zou (2021) taxonomies of hedges and boosters. Based on a corpus of

1.3 million words taken from 240 research articles from four disciplines at three distinct periods, we seek to address the following questions:

- (1) What are the forms and frequency of epistemic positioning in research writing?
- (2) What are the functions of epistemic positioning in shaping academic persuasion?
- (3) To what extent do the forms and functions of epistemic positioning vary across disciplines and time?

2 Literature review

2.1 Definition of epistemic positioning

Epistemic positioning, also called evidentiality (Chafe and Nichols, 1986) or epistemic stance (Biber et al., 1999), refers to the writer's commitment to the reliability of the propositions *he* or *she* provides and the assessment of their potential impact on the readers (Hyland, 2005b). It is commonly expressed through hedges and boosters, which are the focus of interactional metadiscourse in academic writing.

Hedges are linguistic features that make things fuzzy (Lakoff, 1973), realized through words such as *might*, *perhaps*, *maybe*, *seem*, and *indicate*, and phrases such as *in my view*, *on the whole*, *in most cases*, and *to some extent*. The use of hedges signals the writer's unwillingness to make an explicit and full commitment to the truth of the propositions *he* or *she* presented (Hyland, 1998b). They are crucial in the rhetorical construction of knowledge, as they allow writers to open a discursive space, express their opinions with caution, and mark their claims as provisional, involving readers as participants in their ratification, while showing respect for colleagues' views (Hyland and Jiang, 2019). Hedges represent a writer's explicit intrusion into a text to convey their personal stance (Hyland and Jiang, 2016).

Conversely, boosters are devices such as *obviously*, *clearly*, and *prove*, which allow the author to express an idea with conviction and confidence, signaling a strong statement about a state of affairs (Hyland, 1998a). Boosters function to assist authors in emphasizing certainty and suppressing alternative voices while constructing rapport by marking involvement, solidarity, and engagement with readers (Hyland, 2005a). They are also an important strategy that enables authors to emphasize the significance, uniqueness, or originality of a claim in research writing (Hyland, 2005a; Hyland and Zou, 2021).

Following Hyland and Zou (2021), who draw on Hinkel (2005) and Salager-Meyer (1994), this study classifies hedges and boosters into three types each to capture fine-grained rhetorical variation. Hedges are divided into downtoners, rounders, and plausibility hedges.

- Downtoners are typically adjectives or adverbial phrases that reduce the intensity of a claim (e.g., *quite*, *probably*, *on the whole*).
- Rounders express numerical approximation or imprecision (e.g., *about*, *around*, *approximately*).
- Plausibility hedges mainly include modals and lexical verbs that suggest a statement is based on plausible reasoning rather than evidence (e.g., *could*, *might*, and *indicate*).

Conversely, boosters are classified into intensity boosters, extremity boosters, and certainty boosters.

- Intensity boosters amplify the writer's emotional strength of a statement (e.g., *extremely difficult*, *particularly important*).
- Extremity boosters underline the upper edge of a continuum (e.g., *most*, *best*, *largest*).
- Certainty boosters signal the author's epistemic conviction (e.g., *show*, *find*, *definite*).

This categorization is adopted because it highlights subtle differences in epistemic positioning across time and disciplines. It provides a more detailed analytical framework than broader two-category models and directly aligns with the study's research questions. This approach has also been applied by Xie et al. (2024), further supporting its validity and usefulness for examining diachronic patterns in academic discourse. Overall, epistemic positioning is crucial to the rhetorical and interactive character of research writing (Hyland, 1998a). It reflects a writer's investment in their statements, either by conveying confidence in their factual reliability or by withholding full commitment to indicate that a claim is based on reasoning rather than established facts (Hyland and Jiang, 2016).

2.2 Epistemic positioning in research writing

Increasing research into epistemic positioning has been conducted in different languages and genres, most commonly in an academic register. Research on epistemic positioning has predominantly focused on comparing texts across different languages (typically English and another language; Hu and Cao, 2011; Mu et al., 2015; Mur-Dueñas, 2011, 2021) and examining differences between writers at varying proficiency levels (commonly student and expert writers; Qiu and Ma, 2019; Wang and Jiang, 2018). Studies in the first category have shown that successful academic writing in English tends to incorporate more hedges than texts in other languages, reflecting the influence of distinct linguistic and cultural norms. For example, Mur-Dueñas (2021) compared the use of hedges in English and Spanish research articles on business management and found that English texts featured a significantly higher frequency of hedges. In contrast, studies in the second category have observed that student writers often incorporate more epistemic positioning features, reflecting their tentativeness in making claims and a tendency to overgeneralize. This tendency may stem from a limited understanding of the pragmatic implications of their language choices. However, Abdollahzadeh (2019) analyzed the use of hedges in discussion sections in applied linguistics written in English by Iranian and English graduate students and professional writers, finding that student writers generally employed fewer hedges. Similarly, Dontcheva-Navratilova (2024) observed that master's theses by Czech students contained fewer hedging expressions but slightly more boosting language than L1 expert writers. These variations in findings could be attributed to differences in the sections or types of texts analyzed and may also be closely linked to the writers' linguistic backgrounds.

In addition, cross-disciplinary epistemic positioning studies from a synchronic view have been particularly productive and have demonstrated variations in the ways writers employ epistemic positioning not only in research articles (Lafuente Millán, 2008) but also in undergraduate essays (Li and Wharton, 2012), textbooks

(Hyland, 1999), book reviews (Tse and Hyland, 2009), academic presentations (Hyland and Zou, 2021; Qiu and Jiang, 2021), and online live talks (Yuan et al., 2024).

For example, Hyland (2005b) analyzed stance markers in research articles from eight disciplines and found that hedges and boosters were more prevalent in the soft fields than in the hard fields, reflecting the underlying epistemological divergence between soft and hard fields. Similarly, Peacock (2006) investigated the use of boosters in research articles across six disciplines and found the highest frequency in linguistics, with the lowest frequency in environmental science. This finding reveals a divergent type and a narrower range of boosters in the two sciences compared to the other four soft disciplines. Moreover, Hu and Cao (2015) conducted a cross-paradigmatic and cross-disciplinary analysis of hedges and boosters in the post-method sections of research articles from applied linguistics, education, and psychology, three social science disciplines. They revealed significant differences in the use of hedges and boosters across both research paradigms and disciplines, suggesting that epistemic positioning is shaped by both methodological and disciplinary conventions. These studies show a marked variation in academic persuasion and have identified the rhetorical and social distinctiveness of disciplines (Hyland and Jiang, 2018). Although previous research has extensively examined disciplinary variation in the use of epistemic positioning, much less attention has been paid to how these features shift over time. Therefore, a longitudinal and cross-disciplinary study is essential to gain a deeper understanding of the dynamic patterns of epistemic positioning in academic writing.

Finally, research into epistemic positioning use from a diachronic perspective is a recent endeavor, yet it has yielded some noteworthy findings. Existing studies mainly focus on the changing patterns of metadiscourse resources across different disciplines (Deng et al., 2021; Hyland and Jiang, 2016, 2018) or within a single field (Gillaerts and Van de Velde, 2010; Poole et al., 2019; Xie et al., 2024). Cross-disciplinary studies commonly investigated both interactional and interactive metadiscourse resources, typically comparing patterns between soft and hard science fields. For example, Hyland and Jiang (2016, 2018) showed a corpus of research articles from applied linguistics, sociology, biology, and electrical engineering published between 1965 and 2015. This study identified a uniform decline in both hedges and boosters across soft disciplines but a general rise in hard disciplines, except for a slight decrease in boosters in biology. Similarly, Deng et al. (2021) explored the changing patterns of interactive metadiscourse and interactional metadiscourse in doctoral dissertation writing across humanities and social sciences and sciences and engineering at three time intervals (1966, 1986, and 2016), finding a substantial reduction in hedges and boosters in humanities, but a general rise in hedges and no significant decline in boosters within science disciplines. Single-discipline studies, meanwhile, offer more focused insights into epistemic positioning. Gillaerts and Van de Velde (2010) observed a consistent decline in boosters in abstract sections of applied linguistics research articles, whereas hedges increased in recent years. Xie et al. (2024) investigated the use of hedges and boosters in the discussion sections of Chinese MA theses and published research articles in applied linguistics over the past 30 years. Their findings revealed an overall downward trend over the past 30 years among both novice and expert writers, despite some fluctuations in the data. In contrast, Poole et al. (2019) examined biochemical research articles from 1972 to 2017 and found a decline in the use of hedges but an increase in the use of boosters. These

divergent results may be attributed to two key factors: variations in the selected sections of the texts and disciplinary conventions under investigation. For example, abstract sections not only provide a summary of the accompanying article but also serve as an advertisement to promote it and are more likely to use boosters to enhance persuasive force (as shown in Gillaerts and Van de Velde, 2010). In contrast, the research article discussion sections primarily serve to interpret research findings and acknowledge uncertainty, often containing more hedging language, as observed by Xie et al. (2024). Disciplinary conventions also play a crucial role in shaping epistemic positioning over time. In soft disciplines such as applied linguistics, the observed overall decline of both hedges and boosters may indicate that authors move toward a more cautious and neutral expression over time. By contrast, previous diachronic studies examining various hard science fields have reported divergent patterns, with some disciplines showing increasing or decreasing use of boosters or hedges. These inconsistencies suggest that even within the hard sciences, disciplinary norms and evolving research practices influence diachronic changes in epistemic stance. Therefore, disciplinary context not only influences the stance writers prefer at a given period but also shapes how that stance shifts across decades.

Despite these contributions, existing diachronic studies on epistemic positioning still have clear limitations. First, most comparative studies include soft disciplines only through applied linguistics, while the hard disciplines selected vary widely, making the patterns less generalizable. Second, only Poole et al. (2019) and Xie et al. (2024) conducted fine-grained analysis of hedges and boosters, but both were confined to a single discipline, limiting the scope of their findings. To address these gaps, the present study undertakes a detailed diachronic analysis of epistemic positioning features across four representative disciplines, namely the soft-applied field of education, the soft-pure field of history, the hard-applied field of mechanical engineering, and the hard-pure field of physics. It examines research articles published in 1960, 1990, and 2020 to trace the evolution of hedges and boosters within and across disciplines.

3 Corpus and methods

We created three corpora, each consisting of 240 research articles from each of five journals, spanning four disciplines, at three distinct periods over the past 60 years: 1960, 1990, and 2020. According to Becher and Trowler (2001), we selected education, history, mechanical engineering, and physics as representatives of the soft applied, soft pure, hard applied, and hard pure domains, respectively. Four research articles were randomly selected from each of five journals for every discipline and period. These journals achieved top rankings in their respective fields based on the 2019 5-year impact factor, as reported in the Journal Citation Reports (Clarivate Analytics, formerly Thomson Reuters). The chosen journals are listed in Appendix A. Additionally, single and co-authored articles were equal except in history, where single authorship predominates. Only the main text of each selected article was retained, with abstract, tables, figures, complex equations, block quotations, references, and footnotes excluded. Each article was assigned a label in the format of “Corpus number - Discipline - Article number - Abbreviation of Journal - Article number.” For instance, “01E04-JTE02” refers to the 4th article in the 1960 corpus in education and the second article in the Journal

of Teacher Education. However, for ease of reading, examples in the following text are referred to only by discipline and year. The corpus comprises a total of 240 journal articles, spanning approximately 1.3 million words, as depicted in Table 1. Our data indicate a marked increase in article length across all fields over the 60-year period, which is consistent with previous observations of growing article length in academic writing (Chen and Hu, 2020; Hyland and Jiang, 2016, 2017, 2018).

Drawing on Hyland (2005a) framework and following the taxonomies of hedges and boosters proposed by Hyland and Zou (2021), we created a draft list of over 200 epistemic features (Appendix B) for investigation by reviewing relevant literature on hedges and boosters (Gillaerts and Van de Velde, 2010; Hyland, 2005a, 2005b; Mur-Dueñas, 2011) for reference. Then, we used the concordance software (Anthony, 2020) to search the items in the self-compiled corpora, as shown in Figure 1. Afterwards, we manually checked each retrieved concordance line to ensure that these items function as epistemic positioning in their contexts, excluding those extraneous examples from the frequencies of hedges or boosters.

For instance, in example (1), the verb *show* means *display* in a literal sense, while in example (2), *show* conveys the author's epistemic certainty and full commitment to their findings. Thus, only (2) was coded as a certainty booster. Likewise, in example (3), *could* indicates a lack of ability or capacity to perform the prediction or report results, whereas in (4) it expresses tentative possibility or probabilistic reasoning, signaling the writers' withdrawal of full commitment. In this case, *could* in (3) was excluded and (4) counted as a plausibility hedge. Similarly, in (5), the verb "*suggest*" signals that the conclusion is inferred from evidence and thus functions as a plausibility hedge, whereas in (6), it simply means "*put forward*" and is not an epistemic positioning device. Therefore, "*suggest*" in example (6) was excluded from the frequency calculation.

- (1) They were asked to write equations, *show* all work, and complete all math problems to the best of their ability. (Edu, 1990)
- (2) The results also *show* that as the channel height increases, the pressure drop decreases sharply. (Mech Eng, 1990)
- (3) However, DPM *could* not predict/report nanoparticle clustering. (Mech Eng, 2020)
- (4) The research outcomes *could* also be a result of the amount of time spent on video production. (Edu, 2020)
- (5) Our results *suggest* that students are more situationally engaged when they are doing certain scientific practices. (Edu, 2020)
- (6) Thus, residents *suggest* that NETR's version of student teaching does not allow them much space to form relationships with students. (Edu, 2020)

TABLE 1 Corpus characteristics.

Discipline	1960	1990	2020	Overall
Education	53,405	83,785	161,691	298,881
History	132,719	195,589	185,708	514,016
Mechanical Engineering	78,476	76,589	124,568	279,633
Physics	63,757	72,498	74,384	210,639
Total	328,357	428,461	546,351	1,303,169

To ensure the results were valid and reliable, both authors independently coded the data. Inter-coder agreement reached 95% (Kappa = 0.95, calculated via SPSS 20.0), indicating a high level of consistency between the two raters. Discrepancies were resolved through discussion until consensus was reached. For comparability across disciplines and periods, all frequencies were normalized per 10,000 words, following the standard practice in previous studies (Hyland and Jiang, 2016, 2017, 2018; Xie et al., 2024). Finally, a log-likelihood test was used to assess statistical significance, with $p < 0.05$ as the significance threshold for identifying meaningful differences.

Based on the aforementioned framework and procedures, this study examines the nuanced diachronic changes of epistemic positioning across the four disciplines over the past 60 years.

4 Results and discussion

4.1 Changes in epistemic positioning: overall results

Overall, we found 147.7 cases of epistemic positioning per 10,000 words of text in the 2020 corpus. Figure 2 shows that epistemic positioning has dropped markedly by 32.5% (log likelihood = 579.17, $p < 0.001$) since 1960.

Thus, epistemic positioning features have declined considerably in research writing over the past 60 years. While investigating the corpus, it was found that there was a relatively substantial decrease in the use of hedges (log likelihood = 458.51, $p < 0.001$) compared to the reduction of boosters (log likelihood = 144.06, $p < 0.001$) between 1960 and 2020. Table 2 illustrates changes in the use of epistemic positioning markers in academic writing across disciplines over time, showing a decrease in the use of both hedges and boosters.

Overall, epistemic positioning features have steadily declined across all four disciplines over the 60-year period. However, the timing of major reductions differs across disciplinary domains. In the soft disciplines, particularly education and history, the decline was more pronounced between 1990 and 2020, with decreases of 28.2% (log likelihood = 95.99, $p < 0.001$) and 24.9% (log likelihood = 129.18, $p < 0.001$), respectively. In contrast, the hard disciplines, mechanical engineering and physics, experienced more significant reductions between 1960 and 1990, by 20.4% (log likelihood = 40.47, $p < 0.001$) and 22.3% (log likelihood = 39.83, $p < 0.001$), with no significant reduction between 1990 and 2020 (by 5% log likelihood = 2.22, $p < 0.2$; 4.2%, log likelihood = 1.07, $p < 0.4$, respectively). These patterns suggest a temporal shift in preferences for epistemic stances. Writers in the soft fields have exhibited a movement toward making a statement with reduced epistemic marking in the past 30 years, reflecting an increasing orientation toward a scientific approach traditionally associated with the hard disciplines (Hyland and Jiang, 2016). By contrast, the rhetorical shift in the hard sciences occurred earlier, between the 1960s and 1990s, and has since remained relatively stable. Such divergence highlights the influence of disciplinary writing norms not only on how epistemic markers are deployed, but also on when these shifts manifest over time.

On the one hand, it seems that the decline in hedges is evenly distributed across all fields over the period, by 38.8% (log likelihood = 113.34, $p < 0.001$) in education, by 36.5% (log

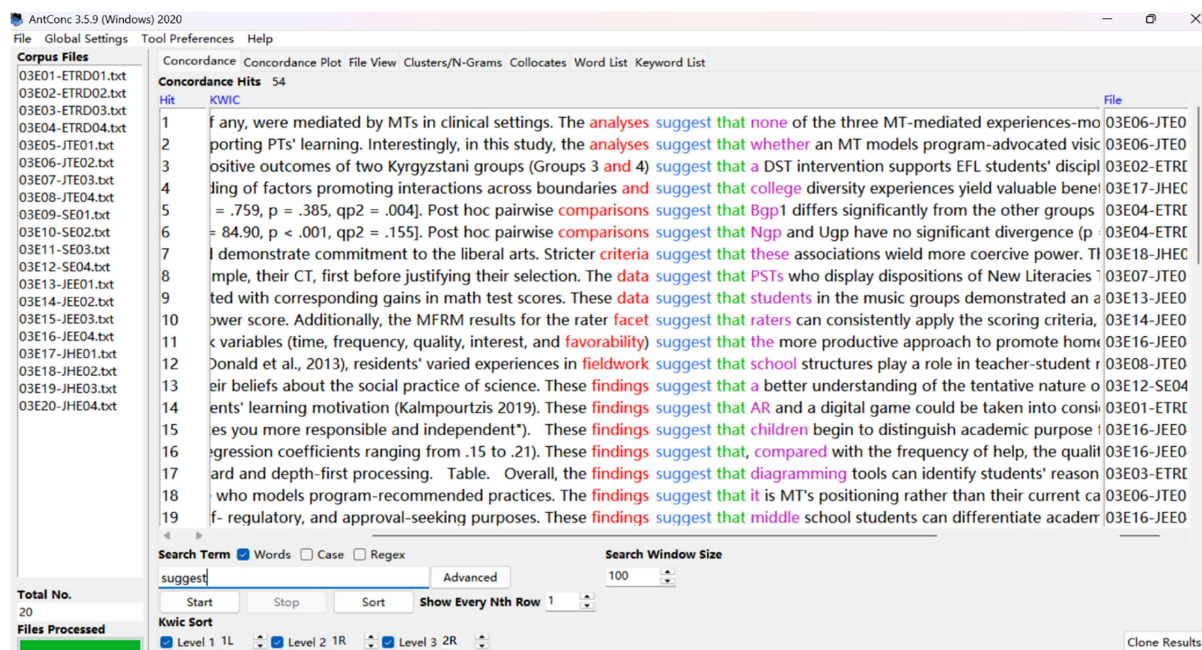


FIGURE 1
Sample of concordance lines from education in 2020.

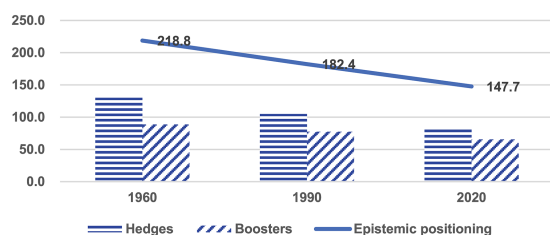


FIGURE 2
Change of epistemic positioning over time (per 10,000 words).

likelihood = 170.33, $p < 0.001$) in history, by 38.3% (log likelihood = 113.99, $p < 0.001$) in mechanical engineering, and by 40.2% (log likelihood = 83.14, $p < 0.001$) in physics. However, upon closer examination of the corpus, we found that the major reductions occurred at different periods across disciplines. In the soft fields, education and history saw their most substantial declines between 1990 and 2020, by 29.7% (log likelihood = 73.09, $p < 0.001$) and 26.2% (log likelihood = 86.02, $p < 0.001$), respectively. In contrast, the hard fields experienced their sharpest drops much earlier, between 1960 and 1990, with decreases of 33.2% (log likelihood = 65.72, $p < 0.001$) in mechanical engineering and 33.5% (log likelihood = 54.39, $p < 0.001$) in physics. These were followed by minor and non-significant declines of 7.7% (log likelihood = 2.47, $p < 0.2$) and 10.1% (log likelihood = 3.08, $p < 0.08$), respectively, thereafter. This demonstrates that writers across all fields have increasingly tended to downplay their statements over the past 60 years. More specifically, the soft fields, especially over the past 30 years, have shifted toward increasing scientism, which usually dominates in the hard sciences (Glynos and Howarth, 2007; Hyland and Jiang, 2018).

On the other hand, the use of boosters has also decreased across all four fields over the past 60 years, although the decline in the two hard disciplines is not statistically significant. In the soft fields, boosters followed a pattern broadly similar to that of hedges, showing a steady decline and a pronounced drop in the past three decades. Specifically, the number of boosters decreased by 25.1% in education (log likelihood = 23.68, $p < 0.001$) and by 23.1% in history (log likelihood = 43.79, $p < 0.001$) between 1990 and 2020. In contrast, boosters in the hard sciences showed only slight and statistically non-significant decreases, with reductions of 6.6% in mechanical engineering (log likelihood = 2.13, $p < 0.2$) and 6.5% in physics (log likelihood = 1.35, $p < 0.3$). These trends suggest that soft disciplines have gradually adopted more “author-evacuated” prose, aligning with the stylistic conventions of hard-science writing (Hyland and Jiang, 2016). These disciplinary differences can be understood in light of epistemological orientations and rhetorical practice. Hard disciplines are characterized by cumulative, empirically verifiable knowledge and a higher degree of internal consensus (Becher and Trowler, 2001). Such environments encourage the use of boosters to project factual reliability and reinforce the authority of findings, with hedges serving as secondary qualifiers. This is reflected in Table 2, where boosters consistently outnumbered hedges in mechanical engineering and physics since 1990. In contrast, soft disciplines rely more heavily on interpretive reasoning and the reader's negotiation, which historically required more explicit stance markers to involve audiences and justify claims (Hyland, 2005a). In recent decades, however, the growing internationalization of academic publishing and the influence of hard-science conventions appear to have prompted soft-discipline authors to moderate their stance and reduce overt expression of certainty, resulting in the observed decline in boosters.

Now, we know how epistemic positioning changes across disciplines over time. However, it is unclear whether the types of

TABLE 2 Changes in epistemic positioning by disciplines (per 10,000 words).

Types	Education			History			Mech Engineering			Physics		
	1960	1990	2020	1960	1990	2020	1960	1990	2020	1960	1990	2020
Hedges	143.8	125.2	88.1	132.6	114.2	84.3	126.7	84.6	78.1	117.9	78.5	70.6
Boosters	68.7	58.6	43.9	89.7	76.2	58.6	99.4	95.4	92.9	89.9	82.9	84.0
Total	212.5	183.8	132.0	222.3	190.4	142.9	226.1	180.1	171.0	207.8	161.4	154.6

hedges and boosters have undergone the same changing patterns or what forms have changed significantly across disciplines. In what follows, we aim to address the questions mentioned above.

4.2 Changes in hedges

Hedges concern the authors' decision to withhold full commitment to a proposition, allowing authors to negotiate with readers in a discursive space. Based on the types of hedges, we can see more explicit variations across disciplines and time. Table 3 presents plausibility hedges, which are by far the most frequent hedging items in all four fields, and rounders, which have the least frequency of hedging devices across all four disciplines and periods. It is surprising that although all three types of hedges have consistently decreased substantially across the board, their respective proportions have remained almost the same over the years, with downtoners, rounders, and plausibility hedges accounting for 34.3, 6.7, and 59% in 1960, and 33.4, 7.5, and 59.1% in 2020.

Downtoners are generally adverbs, adjectives, and some phrasal forms used to reduce or soften a statement's intensity and help writers increase their credibility while making a claim. They are used to either add precision to a new statement that is unproven (e.g., 1) or protect writers against inaccuracy (e.g., 2; Hyland and Zou, 2021).

- (7) A *quite* different example may be found in colonial North America, where the original European settlers (His, 1990)
- (8) *In most cases* the K(H) dependences were plotted at constant temperature. (Phy, 1990)

Downtoners have decreased uniformly in the four disciplines across the years. However, when looking more closely at the corpus, we find downtoners in the soft fields have shown a bigger fall, especially in the recent 30 years, with a drop of 32.9% (log likelihood = 32.04, $p < 0.001$) in education and of 31.6% (log likelihood = 47.71, $p < 0.001$) in history, while there are quite different changing patterns in the hard sciences. Downtoners in mechanical engineering have declined substantially between 1960 and 1990, by 21% (log likelihood = 7.65, $p < 0.01$), but there has been no significant reduction between 1990 and 2020, by 10.9% (log likelihood = 1.91, $p < 0.2$). However, physics has shown a nearly even distribution of drop by 29.6% (log likelihood = 13.83, $p < 0.001$) between 1960 and 1990 and by 23.9% (log likelihood = 6.61, $p < 0.02$) between 1990 and 2020. This indicates that writers in the soft fields have been increasingly using fewer downtoners to avoid the uncertainty of statements, especially between 1990 and 2020, while writers in the hard disciplines have gradually displayed a movement toward employing fewer downtoners between 1960 and 1990.

Interestingly, *possible* has remained the most frequently used downtoners across the four disciplines over these 60 years. However, their combined proportion accounted for 6.58 cases per 10,000 words in the 1960 corpus and 3.04 cases in the 2020 corpus, representing a 53.8% reduction. Moreover, the combined frequencies of the top 20 downtoners in 1960 and 2020 have also declined by 37.9% by 2020. This demonstrates that writers in all fields have moved toward expressing less uncertainty and probability in their research writing to increase the chances of publication, as publishers prefer more certain and explicit research. It could be observed that, *probably*, indicating less certainty regarding the truth of the proposition (Holmes, 1982). The top three items in both education and history in the 1960 corpus were often replaced, representing the frequency of a behavior, in both the 1990 and 2020 corpora. In addition, *probably* in both education and history, they had disappeared from the top 15 by 2020. This seems to signal that the soft disciplines have gradually shifted away from speculations of the propositions (e.g., 3) to descriptions of the information (e.g., 4) under discussion, suggesting a trend toward empirical commitments to claims.

- (9) The education instructor *probably* views all his students with an eye to their potentialities for teaching. (Edu, 1960)
- (10) These acts have *often* confounded legal scholars because, for much of the nineteenth and twentieth centuries (His, 2020)

Rounders express approximation are usually associated with quantitative data, and signal that the writer provides the figures with as much accuracy as possible (Rowland, 1995). Rounders imply the degree of precision and convey to the readers a sense that the information might be accurate, as the authors seek precision in expression and do not use exaggeratedly exact markers (Hyland, 1998b), helping make the statements more accessible and persuasive to readers (Hyland and Zou, 2021). Rounders, therefore, are generally more dominant in the measurement-based hard sciences than in the discursive soft fields, as shown in Table 3.

Rounders have also decreased in the four disciplines, but have not been evenly distributed over the past 60 years. Table 3 shows that the number of rounders has decreased by 52% per 10,000 words (log likelihood = 14.89, $p < 0.001$) in history and by 45.4% (log likelihood = 13.55, $p < 0.001$) in physics over the years. In addition, both education and mechanical engineering have declined slightly, although not significantly, with drops of 17.4% (log likelihood = 0.56, $p < 0.5$) and of 14.6% (log likelihood = 1.48, $p < 0.3$), respectively. This indicates that all fields have shown a trend toward employing fewer rounders. However, education and mechanical engineering have seen a slight decline in the use of rounders in the past 60 years. It might be assumed that writers in all disciplines seem to anticipate readers'

TABLE 3 Changes in hedges by disciplines (per 10,000 words).

Types	Education			History			Mech Engineering			Physics		
	1960	1990	2020	1960	1990	2020	1960	1990	2020	1960	1990	2020
Downtoners	54.1	43.4	29.1	45.1	42.0	28.7	40.1	31.7	28.3	39.4	27.7	21.1
Rounders	4.1	3.8	3.4	5.0	3.0	2.4	13.3	11.4	11.3	12.5	5.8	6.9
Plausibility	85.6	77.9	55.5	82.4	69.2	53.1	73.3	41.5	38.5	66.0	45.0	42.6
Total	143.8	125.2	88.1	132.6	114.2	84.3	126.7	84.6	78.1	117.9	78.5	70.6

preference for more explicit and accurate indicators in their research writing and have gradually moved toward using fewer rounders.

The most common form in each period, except in physics in 2020, remained *about* the same; however, its total frequencies decreased from 6.03 cases per 10,000 words in 1960 and 2.01 cases in 2020, falling by 66.6% over the period, and represented 72.5% of all-rounders in 1960 and only 37.7% in 2020. The other forms of rounders, such as *approximately* and *around*, have become more common in both 1990 and 2020, with their combined frequencies per 10,000 words increasing by 41.9% between 1960 and 1990 and 23.9% between 1990 and 2020. On the other hand, the total frequencies of rounders have fallen by 35.5% (log likelihood = 27.19, $p < 0.001$) per 10,000 words over these 60 years. This suggests that writers not only declined to use round numbers but also shifted away from the forms, expressing ideas with a lack of precision through a much wider array of devices, such as “*approximately*” and “*around*,” as the period elapsed.

Surprisingly, the meaning of “*around*,” with some approach to exactness and generally used in casual conversation, as the function of rounders, never appeared in physics in 1960. However, it ranked second in 1990 and at the top in 2020. Nevertheless, “*about*,” indicating reasonably close to exactness, a more common form, the top one in rounders in physics in both 1960 and 1990, has dropped to the last place in 2020. It might be reasonable to assume that physics has undergone the biggest shift in the use of rounders across the four fields, especially in the last 30 years, since the top two rounders in the other three disciplines have remained the same in the past 60 years. On the other hand, *approximately*, suggesting a more careful calculation and a more formal item, the other three disciplines have displayed a steady increase, especially in the soft fields, with a rise of 185.9% in history and by 32.1% in education (normed to per 10,000 words) by 2020. In addition, “*about*,” the most frequently used form, has declined dramatically across all fields over these 60 years. This suggests that authors in all disciplines are inclined to express their ideas as accurately as possible. This trend aligns with a broader trend toward greater precision within a high-tech context.

- (11) The second remarkable change occurs at *about* – 40 °C. (Phy, 1960)
- (12) The 12QMSDW stabilized *around* (n_e , U) = (1.75, 5) are regarded as the superposition of the 2-4QMSDW and the remaining 4QMSDW. (Phy, 2020)
- (13) Each sheep yielded *approximately* four kilograms of meat and half a kilogram of wool per year, scarcely enough. (His, 2020)

Plausibility hedges indicate that a claim is based on some doubt rather than complete certainty (Rowland, 1995). They function to soften the intensity of assertions and engage readers to participate in the conversation. Plausibility also decreased uniformly across all four

disciplines over the past 60 years, though the timing and extent of the decline varied between soft and hard fields. In the soft disciplines, the most significant drop occurred between 1990 and 2020, with a drop of 28.7% (log likelihood = 42.45, $p < 0.001$) in education and 23.2% (log likelihood = 40.32, $p < 0.001$) per 10,000 words in history. In contrast, the hard sciences experienced sharper declines earlier, between 1960 and 1990, with mechanical engineering declining by 43.3% (log likelihood = 68.9, $p < 0.001$) and physics by 31.9% (log likelihood = 27.4, $p < 0.001$) per 10,000 words. These findings reveal a discipline-specific temporal trend: authors in the soft sciences have only recently begun to adopt a more assertive or objectivist rhetorical stance, while writers in the hard sciences underwent this shift several decades earlier. This divergence indicates that disciplinary writing conventions not only influence the degree of epistemic caution but also the historical paths along which these conventions evolve.

The most frequently used plausibility hedges in both education and history remained *may*, *would*, *could*, and *might* by 2020. They represented 63% of all plausibility hedges in education and 77.4% in history in 1960, and 61.6 and 70.3%, respectively, in 2020. However, their combined frequencies have declined by 36.6% per 10,000 words in education and by 41.4% in history over the period. On the one hand, *may* and *would* remain the top 2 forms for both hard sciences throughout the period, but their total frequencies have sharply declined, dropping by 56.7% in mechanical engineering and 57% per 10,000 words in physics. *Suggest*, *assume*, and *indicate* were the only forms across the four fields to show a slight increasing trend among the most plausible hedges. This trend of decline in modal verbs and increase in lexical verbs across is totally consistent with previous studies (Hyland and Jiang, 2016; Poole et al., 2019; Xie et al., 2024). This suggests that writers across the disciplines not only experience a decline in the use of plausibility hedges but also a shift away from some forms. On the other hand, this indicates authors prefer to use plausibility hedges to make more speculative interpretations (e.g., 8), utilizing the uncertainty of human assessment rather than of the reliability of rational deduction or the vagaries of observed data (e.g., 9; Hyland and Jiang, 2018).

- (14) More comprehensive programs, perhaps begun at an earlier age, *may* be necessary to sustain significant long-term attitude changes of this type. (Edu, 1990)
- (15) The results in Fig. 24 *suggest* an increase in the extent of R_{qu} with Reynolds number, particularly close to the wall. (Mech Eng, 2020)

4.3 Changes in boosters

Contrary to hedges, boosters express the writers’ certainty in what they say, signaling that the writers close down possible alternatives.

Based on the types of boosters, we aimed to investigate how the use of boosters has changed across the disciplines over the past 60 years.

As shown in Table 4, the use of boosters has declined significantly in the soft disciplines, and there has been no significant drop in the hard fields. However, the types of boosters exhibit a highly divergent pattern across the fields and over the years. Certainty boosters have shown a declining trend across the board, although not significantly in physics, while they still dominate all disciplines across all periods. Intensity boosters showed a notable drop in education (-27.9% , log likelihood = 4.99, $p < 0.05$), but displayed an uneven upward trend in the other three fields. Extremity boosters decreased by 37.3% in education and 22.2% in history but showed a slight increase in mechanical engineering and physics, although the increase was not significant. These patterns indicate discipline-specific preferences and diachronic variations in how writers amplify epistemic stance in academic writing.

Intensity boosters enable authors to intensify their emotional strength while making a statement. They do not involve epistemic commitment but add affective color to the statements, functioning roughly like attitude markers, although doing so by raising the voice rather than conveying an attitude (Hyland and Zou, 2021). As shown in Examples 10 and 11, writers seek to convey their strong stances by using *extremely* and *highly*, thereby expressing a high degree of certainty, involving the readers in their statements, and making them accept what is said as a given (Athanasiadou, 2007).

- (16) A consoling faith that the Lord would provide for all those he sent was *extremely* common among pre-limiters. (His, 1990)
- (17) The comparisons show that the present approach produces *highly* accurate results of displacement components at the critical locations in the beam. (Mech Eng, 2020)

Unexpectedly, intensity boosters fell by 27.9% (log likelihood = 4.99, $p < 0.05$) per 10,000 words only in education while rising 43.8% (log likelihood = -5.08 , $p < 0.05$) in mechanical engineering, with a slight growth of 21.4% (log likelihood = -3.15 , $p < 0.08$) in history and almost no change ($+0.3\%$) in physics over the past 60 years. This pattern suggests that discipline-specific rhetorical adjustments occur over time. Education, as a soft-applied discipline rooted in interpretive inquiry and policy discussion, has increasingly shifted toward neutral, depersonalized prose, likely influenced by the global dominance of hard-science publishing practices (Hyland and Jiang, 2016). Mechanical engineering, by contrast, is a hard-applied field, where research outcomes often compete for industrial recognition and funding. In such a competitive, application-oriented environment, amplifying claims through intensity boosters highlights

novelty, technical superiority, and practical relevance, explaining the marked upward trend. History, as a typical soft and pure discipline, exhibits only a modest growth in intensity boosters, perhaps reflecting an attempt to increase argumentative weight and highlight the significance of interpretive contributions in a globalized scholarly market. Physics, as a paradigmatic hard and pure discipline, continues to adhere to rigid empirical reporting norms, leaving little room for fluctuation in intensity boosters and thus showing rhetorical stability over time (Becher and Trowler, 2001). Overall, these discipline-specific trajectories suggest that diachronic shifts in stance-taking are uneven and arise from the interplay of disciplinary knowledge practices, evolving publication norms, and broader socio-academic pressures, rather than from a uniform trend across all fields.

Significantly, it remained the most frequently used intensity booster in education throughout, although its frequency per 10,000 words has dropped the most of all intensity boosters by 66.1% by 2020, accounting for 7.1 cases in 1960 but 2.4 cases per 10,000 words in 2020. *Especially* and *particularly* remain the top two choices in history, and their combined frequencies have increased by 64.7% per 10,000 words, occupying 4.4 cases in 1960 and 7.3 cases per 10,000 words in 2020. It might be assumed that the most preferred forms of intensity boosters in the soft fields have not changed significantly over the past 60 years, and their differences in preferred use of intensity boosters represent variations in discipline culture. On the other hand, *significantly* refers to something in a sufficiently great way as to be worthy of attention (e.g., 12), while *especially* and *particularly* are used to emphasize something to a higher degree than usual or average (e.g., 13 and, e.g., 14). All these three forms seek to impress, influence, and persuade readers to accept a claim.

- (18) Although Tables IV to VII do not show the results, group 5 scored *significantly* higher than any group below it, group 4 scored *significantly* higher than any group below it, (Edu, 1960)
- (19) This, of course, made the enforcement of discipline *especially* hard. (His, 1990)
- (20) Victims of atrocities who seek asylum are *particularly* vulnerable to having their information used against them. (His, 2020)

Contrary to the soft knowledge fields, the most common intensity boosters in both of the hard sciences have shifted greatly. *Particularly*, ranking first in mechanical engineering in 1960, its share decreased by 29.6% per 10,000 words by 2020, dropping from 32% of all intensity boosters in 1960 to 15.7% in 2020. However, both “*especially*” and “*significantly*” increased by 194% by 2020 and have become engineers’ most preferred choices. Similarly, *especially*, the top 1 intensity booster

TABLE 4 Changes in boosters by disciplines (per 10,000 words).

Types	Education			History			Mech Engineering			Physics		
	1960	1990	2020	1960	1990	2020	1960	1990	2020	1960	1990	2020
Intensity	13.3	12.9	9.6	9.8	10.9	11.9	6.8	16.2	9.7	6.4	5.2	6.5
extremity	12.9	12.8	8.1	12.7	16.6	9.9	9.3	11.2	12.2	7.1	9.4	9.4
certainty	42.5	32.9	26.2	67.2	48.7	36.9	83.3	68.0	71.0	76.4	68.3	68.2
Total	68.7	58.6	43.9	89.7	76.2	58.6	99.4	95.4	92.9	89.9	82.9	84.0

in physics in 1960 declined by 71.4% by 2020, from 22% of all intensity boosters in 1960 to only 6.3% in 2020. While *significantly* increased by 285.7% by 2020, it has become the most popular among physicists, accounting for 9.8% of all intensity boosters in 1960 and 37.5% in 2020. This suggests that the hard sciences have not only shown a trend toward using more intensity boosters but also shifted toward the most commonly used forms to overtly engage and persuade the readers.

- (21) Differences in chip formation associated with different fluids become *particularly* evident when the specimen is polished metallographically before cutting rather than after. (Mech Eng, 1960)
- (22) For slow electrons, δk_y^{el} is *significantly* larger than the Kapitza-Dirac diffraction orders of $2k_0$ and can therefore be easily retrieved. (Phy, 2020)

Extremity boosters are used to identify the high end of a continuum and assist authors in involving readers and removing any doubt about the statements (Hyland and Zou, 2021). They are an important strategy for impressing and influencing readers' understanding in academic writing. They function to heighten the force of statements, as shown in the following examples:

- (23) Thus, it makes sense that one of *the greatest* insults for a man of honor was to have his nose pulled or tweaked. (His, 1990)
- (24) Raman spectra also support this finding with *the highest* TiB₂ and CrN peak intensities measured for coating-C. (Mech Eng, 2020)

Extremity boosters have shown a declining trend in both of the soft fields but a modest growth, albeit not significant, in the hard sciences. Extremity boosters have fallen by 37.3% (log likelihood = 9.31, $p < 0.01$) in education and by 22.2% (log likelihood = 5.46, $p < 0.05$) in history. However, they have risen slightly by 31.2% (log likelihood = 3.74, $p < 0.06$) in mechanical engineering and by 33.3% (log likelihood = -2.31, $p < 0.2$) in physics over the past 60 years. This suggests that the soft knowledge fields have shown a trend toward avoiding intrusion into the text to seek an objective and scientific approach, while the hard sciences move in the opposite direction, toward involving and persuading readers overtly.

Most and *best* were the most preferred extremity boosters in education and history across all the periods, although their combined frequencies have reduced by 32% in education and by 17.5% per 10,000 words in history. Both these items are used to express an extreme or high degree of quality. They enable authors to convey a strong stance on a topic under discussion and impress and facilitate readers' understanding. Additionally, we found that historians use a much wider array of forms than writers in the other disciplines. Those forms, such as *earliest*, *latest*, *oldest*, and *youngest*, are highly discipline-specific and consistently far more common in history, whereas they are rarely found in the other three fields.

- (25) Quality of delivery has been shown to impact the effect of EBPs on desired outcomes and is arguably *the most* important, yet also *the most* difficult aspect of fidelity to achieve. (Edu, 2020)
- (26) Among the extant narratives on the 1,683 raid, the testimony of Fray Juan de Avila offers *the best* example of the need to

reconsider the positionality of Veracruz's residents. (His, 2020)

- (27) Thus, the evidence of the chief topic of the Gest, which is *the earliest* surviving version of the legend (His, 1960)

Most was also the most frequently used in both mechanical engineering and physics, although it has declined slightly in physics (-14.3%) and remained almost unchanged in mechanical engineering (-1% per 10,000 words). *Nearest* and *highest* never appeared in physics in 1960 and occurred only on a few occasions in 1990; however, both these items have ranked in the second and third place, respectively, by 2020. This suggests that the most common forms in physics have undergone the greatest shift across the disciplines over the past 60 years. On the other hand, the *lowest* and *highest* in mechanical engineering have increased significantly by 482.7 and 530% (per 10,000 words), respectively, by 2020. *Nearest*, *highest*, and *lowest* are far more common in the hard disciplines than in those of the soft knowledge fields. These forms usually collocate with some numerical materials in the hard disciplines. The notable increase in these forms within the hard sciences suggests that scientists are increasingly marking extremity boosters related to numerical data. This practice reinforces their confidence in their judgments and helps to preclude alternative interpretations effectively (Hyland, 2012).

- (28) *The highest* recorded T_c of element superconductors is 29 K in calcium (Ca), which was found at a pressure exceeding 200 GPa. (Phy, 2020)
- (29) The L05 plot shows that they reached *the lowest* level, with a maximum of approximately 2.5°, indicating that the workpiece became the most rounded at this stage. (Mech Eng, 2020)

Finally, certainty boosters allow authors to emphasize their epistemic conviction in statements (Koutsantoni, 2004). By conveying a clear and strong stance toward the certainty or truth of a proposition, writers can demonstrate involvement and solidarity with their readers, stress shared knowledge within scientific communities, and engage directly with their readers (Hyland, 2004). Table 4 depicts that certainty boosters dominate the frequencies in both the soft and hard disciplines throughout the period, although their overall frequency has shown a declining trend over time. Notably, certainty boosters are more prominent in the hard sciences, likely because these fields rely on data and experiments, leading writers to express greater confidence in their findings or results.

Certainty boosters have fallen uniformly in all four disciplines over the past 60 years, although the decrease in physics is not significant. More specifically, certainty boosters have declined by 38.4% per 10,000 words (log likelihood = 32.6, $p < 0.001$) in education, by 45.1% (log likelihood = 141.08, $p < 0.001$) in history, by 14.8% (log likelihood = 9.62, $p < 0.01$) in mechanical engineering, and by 10.8% (log likelihood = 3.22, $p < 0.08$) in physics. This means writers have displayed a preference for fewer marking certainty boosters across all the disciplines and time, especially in the soft knowledge fields.

Must, the primary model of inferential certainty, has reduced uniformly in the four fields, except for a minor increase in education. However, the overall proportion of lexical verbs (e.g., *found*, *shown*, *demonstrate*, and *prove*) among all certainty boosters has consistently increased across all four disciplines in our corpus, representing 38.3% per 10,000 words of all certainty boosters in education, 16.7% in

history, 59.7% in mechanical engineering and 51.3% in physics in 1960 and 61.6, 20, 78.1, and 59.6%, respectively, in 2020. This change indicates an important shift that authors in all fields seek to express their claims, from inferential certainty to more objective, data-supported assurances (Hyland and Jiang, 2016, 2018). This finding is entirely consistent with the previous studies, such as Hyland and Jiang (2018), Poole et al. (2019), and Xie et al. (2024).

- (30) Experiments suggested that there *must* be a tremendous amount of cross-connecting of heat exchangers in the body. (Mech Eng, 1960)
- (31) Research in teacher observation has *shown* that teacher performance can vary depending on the time of year and based on the students in class. (Edu, 2020)

On the other hand, *the fact that* and *in fact* were used to reinforce an assertion and ranked in the top five frequently used certainty boosters in 1960 in education. However, these two forms had disappeared from the top 20 and were replaced by lexical verbs, such as “*shown*” and *demonstrated*, by 2020. *Indeed*, used to emphasize a fact, it remained the most popular device in history throughout, while its frequency had reduced by 28.5% by 2020. In addition, *indeed* is not commonly used in the other three disciplines, representing a more discipline-specific item. Finally, the forms *shown*, *found*, *shows*, and *show* were the most preferred forms by the engineers and physicists throughout. This appears to indicate that authors in both the soft and hard disciplines have shifted toward making fewer explicit assertions but more objective and data-supported commitments. This style has traditionally dominated the hard sciences. These choices are consistent with a more significant trend toward increasing scientism in a more competitive publication marketplace.

- (32) This somewhat surprising finding may be due to *the fact that* the total distribution for subjects on the Taylor Anxiety Scale clustered rather heavily about the median. (Edu, 1960)
- (33) *Indeed*, if anything, as we have seen, such grievances are apt to be associated with the absence of risings altogether. (His, 1990)
- (34) We *found* that the 2QH consists of the two types of vortices and antivortices. (Phy, 2020)

5 Conclusion

In this study, we have explored changes in the use of epistemic positioning in four representative disciplines over the past 60 years. Drawing on Hyland and Zou (2021) categories of hedges and boosters, and based on a 1.3 million-word corpus of research articles across four disciplines over 60 years, we addressed three core questions.

First, with respect to the forms and frequency of epistemic positioning, we observed an overall decline in the use of epistemic positioning markers, including hedges and boosters, across all four disciplines over the past 60 years. This trend is especially pronounced in soft knowledge fields over the last three decades, while in the hard sciences, the decrease occurred mainly between 1960 and 1990. Hedges and their types have displayed a similar trend to the changes in epistemic positioning. Boosters have also steadily decreased across all four fields, although the decline in the hard sciences is not significant. However, the

types of boosters have displayed a divergent changing pattern, especially in the hard fields. All types of boosters have significantly decreased in the soft knowledge fields, except for intensity boosters, which have shown a slight increase over time. In the hard sciences, while certainty boosters have declined, both intensity boosters and extremity boosters have increased over time. Our data suggest that writers have gradually shifted from modal verbs (e.g., *may*, *must*) to lexical verbs (e.g., *suggest*, *show*, *demonstrate*) over the period. This pattern aligns with Poole et al. (2019), Xie et al. (2024), and Hyland and Jiang (2016), who all reported a shift from modal to lexical stance markers in their respective corpora, reflecting a broader move toward explicit, evidence-based persuasion in academic writing.

Second, regarding the rhetorical functions of epistemic positioning, the results indicate that hedges and boosters serve as critical tools for projecting confidence or caution, aligning with disciplinary expectations, and persuading readers. The observed reduction in epistemic markers, particularly in the soft fields, may reflect an ongoing tendency toward objectivity and “scientization” in academic writing (Hyland and Jiang, 2021). This aligns with Biber and Gray (2016) observation that stance features in scientific academic writing increasingly favor implicit stance over explicit grammatical marking. Meanwhile, the modest increase of extremity boosters and intensity boosters in the hard sciences appears to signal authors’ efforts to impress and engage readers more overtly.

Finally, in addressing the variation of epistemic positioning across disciplines and time, our data point to a gradual convergence in rhetorical practices between soft and hard disciplines. In soft disciplines, both hedges and boosters have steadily declined, indicating a shift toward more assertive and empirically oriented expression. In the hard sciences, writers maintain an overall cautious stance but increasingly rely on lexicalized strategies, with intensity and extremity boosters showing a rising trend. These patterns partly support Hyland and Jiang (2016), who observed a marked decline of hedges and boosters in soft disciplines and a general rise in hard sciences except for biology. Our hard-science results, however, show a slight overall decline in boosters, likely due to the inclusion of physics, a paradigmatic hard-pure field where reporting is highly standardized and leaves limited room for overt emphasis. Moreover, our findings partly align with Poole et al. (2019), who found a diachronic decline in hedges but an overall increase in boosters in biochemistry. The divergence from their study likely reflects differences in disciplinary focus and corpus scope: they examined biochemistry alone, where competition for novelty and impact may encourage persistent booster use, whereas our inclusion of both a hard-applied field (mechanical engineering) and a hard-pure field (physics) reveals more nuanced diachronic trajectories. Similarly, our soft-discipline results are consistent with Xie et al. (2024), who reported a sustained decline of both hedges and boosters in applied linguistics discussion sections. Our full-text analysis of education and history shows a similar downward trajectory for hedges over the decades. Together, these results suggest that soft disciplines have experienced a general decline in epistemic marking and that across all fields, academic writing has gradually moved toward a higher level of scientization (Degaetano-Ortlieb and Teich, 2019; Seoane and Hundt, 2017), with hedges declining and epistemic stance becoming increasingly explicit, evidence-driven, and lexically realized. The disciplinary boundary between the soft and hard disciplines appears to have become progressively more blurred over time.

We acknowledge the limitations of our study. On the one hand, only four disciplines were selected as the representatives of changing patterns of disciplinary research writing. Therefore, we should exercise caution when generalizing the results to all disciplines. In the future, similar studies conducted in a broader range of disciplines could help validate our findings and assess their generalizability. Conversely, expert interviews could be incorporated into future research to help substantiate our tentative claims regarding the relationship between social and discursive changes.

We believe, however, that our study has pedagogical implications for instruction in English for academic purposes (EAP) and research publications. First, EAP instructors should raise students' awareness of discipline-specific rhetorical norms. Based on our findings, students in soft disciplines should focus on reducing unnecessary hedging and practicing evidence-based, assertive writing, while science students should be encouraged to use boosters strategically to strengthen their claims without overstating certainty. Second, EAP curricula can incorporate corpus-informed tasks that compare epistemic stance markers across disciplines and periods. These activities can help students understand how rhetorical conventions evolve in relation to disciplinary norms and broader sociocultural shifts, while also cultivating students' critical thinking in research writing. Finally, our study may help novice academics understand the changing patterns of epistemic positioning features in their scientific communities and highlight the importance of aligning their writing with evolving disciplinary epistemologies and social practices.

Data availability statement

The original contributions presented in the study are included in the article/[Supplementary material](#), further inquiries can be directed to the corresponding author.

Author contributions

YY: Conceptualization, Methodology, Data curation, Formal analysis, Writing – original draft, Writing – review & editing. XG: Data curation, Writing – review & editing.

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Supplementary material

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A cross-lingual analysis of attitudinal meaning in publicity discourses of Anglo-American and Chinese universities: a psychological insight from the appraisal system

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Introduction: University publicity discourse is pivotal to global communication, embodying institutional values and cultural identities. While linguistic research on its embedded attitudinal meaning abounds, cross-lingual (English-Chinese) comparative exploration—especially systematic analysis of attitudinal resources in such discourses—remains limited, forming the core focus of this study.

Methods: Drawing on the Appraisal System (a robust framework in Systemic Functional Linguistics), this research conducted a comparative analysis of English and Chinese university publicity discourse samples. It extracted and categorized attitudinal resources (Affect, Judgment, Appreciation) and compared their distribution and expressive differences via qualitative and quantitative methods.

Results: Significant cross-lingual disparities emerged: English discourse used richer emotional expressions (Affect/Appreciation) to enhance affinity, while Chinese discourse prioritized objectivity and authority with restrained emotions. No notable differences were found in Judgment resources. English discourse emphasized moral constraints, whereas Chinese discourse focused more on legal constraints.

Discussion: This study uncovers distinct attitudinal meaning patterns across cultural-linguistic contexts, filling cross-lingual research gaps and refining the Appraisal System. Beyond linguistic theory, it offers practical guidance for universities to optimize cross-cultural publicity and boost global communication effectiveness.

KEYWORDS

attitudinal meaning, publicity discourse, appraisal system, affect, judgement, appreciation, cross-cultural communication

1 Introduction

In the context of the continuous advancement of higher education within the Chinese educational landscape, the construction of the “Double First-Class” initiative—encompassing the cultivation of world-class universities and first-class disciplines—is being propelled forward with substantial momentum (Zhang et al., 2023). To materialize this strategic objective, institutions of higher learning are unremittingly dedicated to the renewal of educational ideologies, the recruitment of preeminent faculty members, the reinforcement of collaborative endeavors with other academic and non-academic entities, and the facilitation of the fruition of scientific and technological research undertakings (Guo, 2020). These

accomplishments can be efficaciously promulgated both domestically and on the international stage through the medium of publicity discourses.

The British translation theorist Newmark (1988) was the first to put forward the concept of publicity discourse. When studying discourse translation, from a functional perspective, he classified discourses into three categories, namely: informative discourse, expressive discourse, and vocative discourse. Publicity discourse is classified as vocative discourse. Publicity discourse is of great significance to study because it serves as an important means of publicity and a window for communication. There are various types of publicity discourse, which are applied in corresponding fields, such as society, urban development, economy, culture, and education, etc. (Newmark, 1988). Due to the multi-type characteristics of publicity discourse, multi-dimensional studies related to social, political, economic, cultural, and educational issues are carried out (Danie and Amodeo, 2014; Serensen, 2015; Kogen, 2015; Brito et al., 2017; Beals, 2017; Wang and Zhang, 2019; Ding, 2022; Le and Ngai, 2022; Li and Tang, 2022).

In terms of social, political and educational issues, studies on publicity discourse have explored its dynamic interaction with real-world changes from multiple angles. Danie and Amodeo (2014), through analyzing rural publicity advertisements in the magazine *Global Rural* from 1980 to 2010, pointed out that changes in advertising publicity discourses reflect the diversification of rural identity and social changes. Similarly, (Kogen, 2015) evaluated the role of celebrity effect in publicizing global humanitarian crises using critical discourse analysis, highlighting how such discourse shapes public perceptions during critical events. Brito et al. (2017), on the other hand, shifted focus to educational institutions, exploring the discursive functions of English on the official websites of private foreign language colleges and finding that despite their corporate nature, these institutions tend to use educational and teaching-oriented publicity.

While social-oriented studies emphasize the reflection of publicity discourse in tangible social shifts, research on publicity discourse and culture delves deeper into its role in cross-cultural communication and ideological transmission. Serensen (2015), integrating Habermas' thoughts on *Bildung*, explored the functions of university publicity discourse from the perspectives of international publicity, discourse, and politics, revealing its connection with educational philosophy and social ethics. Based on Nida's cultural classification, Ding (2022) analyzed the cultural translation methods for Korean-Chinese publicity discourse and the strategies for introducing Chinese cultural elements into Korean, providing practical insights for cross-linguistic cultural communication. Li and Tang (2022) further studied urban publicity discourse, emphasizing that translation needs to adapt to the habits of the target language, overcome cultural differences, and analyzed the issue of cultural vacancies, thus enriching the understanding of urban image construction in intercultural contexts. Beyond social and cultural dimensions, Beals (2017) expanded the research horizon by exploring the intersection of publicity discourse and art. Against the background of Dadaism, he found that its advertising discourse can participate in debates between art and advertising, providing a new perspective for publicity research that bridges aesthetic expression and communication purposes.

Collectively, these studies have analyzed the multifaceted connections and mutual infiltration between publicity discourse and

the macro world, highlighting its diverse roles in the fields of society, education, culture and so on. While differing in research objects and methodologies, they collectively underscore the complexity of publicity discourse as a practice in the context of society, education, culture, etc. However, the scholars from different fields have diverse understandings of publicity discourse, resulting in rather fragmented research on it. The common feature of all types of publicity discourse is external communication, and the emotions, judgments, and values expressed in the discourse play a crucial role in successful communication. However, these aspects are less explored in existing studies.

All these aspects are reflected in the attitudinal meaning of the publicity discourse (Martin and Rose, 2003). The attitudinal meaning can be realized by Attitudinal System, which is a core part of Appraisal System developed by J. R. Martin, a functional linguist. As far as the analytical modes of attitudinal meaning are concerned, "the study of attitudinal meaning in discourse analysis can be roughly categorized into two groups according to how the attitudinal meaning is analyzed" (Song, 2015, pp. 383–405). One is structural analysis, which considers attitudinal meaning as an integral component. The attitudinal meaning should be generated through interaction with other components. The other is stratified analysis, which analyzes attitudinal meaning in two steps. In the first step, the attitudinal meaning is identified and categorized at the lexical level. In the second step, the discourse is analyzed based on the attitudinal lexis. For the current research purpose, we conduct a stratified analysis based on the Appraisal System. Through the analysis, this study not only reveals the unique patterns through which attitudinal meaning is realized across diverse cultural and linguistic landscapes but also enhances the Appraisal System framework via domain-specific case analyses. By narrowing the divide between theoretical constructs and cross-lingual practical applications, it enriches the theoretical arsenal of Systemic Functional Linguistics and presents innovative angles for cross-cultural discourse research. Beyond its contributions to linguistic theory, the findings offer tangible guidance for fostering effective cross-cultural communication in university publicity contexts.

2 Literature review

2.1 Attitudinal meaning and appraisal system

In the early 1990s, Martin began to study the Appraisal System (also known as Appraisal Theory). The Appraisal System is an update and development of the interpersonal meaning in Systemic Functional Linguistics, providing a powerful theoretical foundation for the study of the interpersonal meaning of discourses. "Appraisal is a system of interpersonal meaning" (Martin and Rose, 2003, pp. 26). Meanwhile, "Appraisal is related to the evaluation of values. Attitude is constructed within the text, which involves the intensity of emotions, the way values are distributed, and compatibility with the readers" (Martin and Rose, 2003, pp. 25). In brief, "the Appraisal System is a complete set of resources for expressing attitudes through language" (Wang and Ma, 2007, pp. 20). Although the Appraisal System has only been in existence for about 30 years, it has attracted great interest from the academic community, and they have conducted various studies based on it. Among them, Wang (2001) first introduced the Appraisal

System into China, while Li (2001, 2004) was the first to apply the Appraisal System to discourse practice.

The Appraisal System consists of three major systems: Attitude, Engagement, and Graduation. In the Appraisal System, a system is a resource, and each subsystem is a kind of resource for analyzing the interpersonal meaning of discourses (Martin and White, 2005). Among them, the Attitudinal System is the core system of the Appraisal System. “Attitude refers to the judgments and appreciations made of human behaviors, texts/processes, and phenomena after being influenced psychologically” (Wang and Ma, 2007, pp. 20), which includes three subsystems: Affect, Judgment, and Appreciation.

From a psychological perspective, the Affect System represents the emotional responses to behaviors and phenomena; it can be further divided into three types: Quality, Process, and Comment (Martin and White, 2005). The Judgment System, from an ethical perspective, conducts moral evaluations of the behaviors of language users (Martin and White, 2005). “As a resource for explaining language phenomena, the judgment system is used to explain the moral judgments made by language users on a certain behavior according to ethics/morals (rules and regulation)” (Wang, 2001). It is divided into two parts: Social Sanction and Social Esteem. The Appreciation System is the evaluation of objects and products from an aesthetic perspective (Martin and White, 2005). According to Wang (2001), appreciation system, as a resource to explain linguistic phenomena, is used to explain language users’ appreciation of the aesthetic character of texts/processes and phenomena. It includes three parts: Reaction, Composition and Valuation. The schematic representation of Attitudinal System is illustrated in Figure 1.

However, according to the different types of discourses to be analyzed, the objects of “Judgment” and “Appreciation” are different. The object of Judgment is not necessarily a person, and the object of Appreciation is not necessarily a thing (Martin, 1992). For example, in the publicity discourses of universities analyzed in this study, the university itself, as a participant who initiates actions, can be the object of Judgment. Similarly, the students cultivated by the university and the faculty members recruited can be regarded as the

“products” of the university and analyzed as the objects of Appreciation.

2.2 The studies on attitudinal meaning

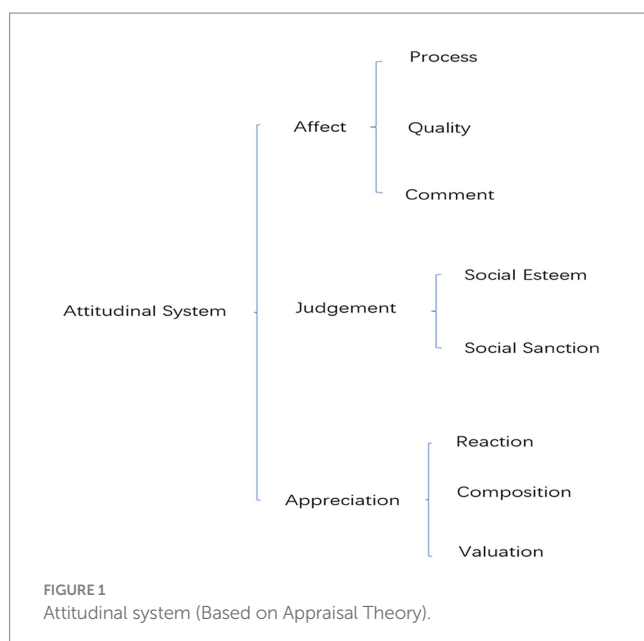
Since the birth of the Appraisal System, the study of attitudinal meaning in various types of discourses has always been a subject of great concern. Numerous scholars have explored it from different perspectives and using a variety of methods, gradually constructing a rich and diverse research landscape.

In recent years, scholars have started to focus on the analysis of attitudinal meaning in specific discourse types. For instance, Song (2015) selected 15 English short stories to construct a small-scale corpus, delving deeply into the lexical realization of attitudinal meaning and its coding process in discourse analysis. Through meticulous research, Song proposed the distinction between the typical realization and the combinational realization of attitudinal meaning, and further elaborated on the differences between independent and correlational realization, as well as projected and projecting realization. This has opened up a new path for subsequent exploration of attitudinal meaning at the lexical level, enabling researchers to have a clearer understanding of the micro-level manifestation forms of attitudinal meaning in discourses.

As the research has advanced, the scope has been continuously expanded to the macro-level interpretation of literary works. Leng (2017), based on the Attitudinal System of the Appraisal Theory, turned his attention to the classic novel *Gone with the Wind*. By means of a combination of qualitative and quantitative analysis methods, Leng thoroughly explored the distribution and proportion of attitudinal resources in the novel’s text. This research not only helps in deeply understanding the attitudes conveyed by the author in the work but also lays a solid foundation for the subsequent comparative analysis of attitudinal meaning in translation studies.

At the same time, news discourse, as an important carrier of information dissemination, has also become a key area for studying attitudinal meaning. Li (2024b) conducted an in-depth analysis of the news reports in *China Daily* regarding the discharge of nuclear-contaminated water from Fukushima. It was found that the use of affect resources was the most frequent, followed by judgment resources and appreciation resources in sequence, and the overall ecological tendency was mainly destructive. This research result helps readers to see through the surface of news texts and gain insights into the hidden ideology and ecological thoughts behind them, enhancing the public’s ability to deeply interpret news discourse. In the same year (2024), Li also explored the news discourse about the COVID-19 pandemic in *China Daily*. Using quantitative and qualitative research methods, it was revealed that judgment resources appeared most frequently, while affect and appreciation resources accounted for a relatively small proportion. In terms of the overall attitudinal polarity, positive attitudes outweighed negative attitudes. This series of studies on news discourse has shown us the diverse manifestation forms of attitudinal meaning in news reports on different topics and the possible communication intentions behind them.

In the aspects of new media and the development of young people’s consciousness, Guslyakova et al. (2020) carried out relevant research. They focused on analyzing the phenomenon of psychological attitudes and their impacts on the development of young people’s



consciousness and worldviews. By means of methods such as correlation, clustering, and factor analysis, the research revealed various positive correlations between young people's interaction with new media discourse and their attitudes toward different events, people, and news, providing empirical evidence for understanding the mechanisms of attitude formation and transformation among young people in the new media era. Meanwhile, [Telesiene and Hadler \(2023\)](#), by using systematic literature review and quantitative content analysis, deeply explored the historical stages, theoretical diversity, and empirical evidence of the academic discourse on environmental attitudes and behaviors, sorting out the development context of this academic field and providing a macroscopic historical perspective and theoretical framework reference for subsequent related research. Besides, there are also other scholars conducted related studies on news or media discourses from various perspectives ([Buure et al., 2024](#); [Zeng and Zhu, 2024](#); [Wu et al., 2025](#)).

In some special fields, such as courtroom discourse and product introduction discourse, scholars have also conducted in-depth explorations. [Shi \(2018\)](#) analyzed the attitudinal expressions in the audio transcripts of eight court trials and believed that judgment was the most main way for courtroom participants to express attitudes, while the frequencies of using appreciation and affect were relatively low. Moreover, significant differences in attitudinal expressions among all parties in different types of court trials were found. This research helps us understand the attitude construction and power game in courtroom discourse. [Deng \(2023\)](#) conducted a comparative analysis of the English online introductions of men's and women's cosmetics and found that when facing female customers, the author tended to use more objective expressions and made more use of appreciation resources to describe product features; while the introductions of men's cosmetics adopted more diverse ways to directly attract potential customers. This reveals the presentation strategies of attitudinal meaning in product introduction discourse for different audiences.

From a comprehensive view of these studies, scholars have used diverse research methods to deeply explore the manifestation, distribution, and influence of attitudinal meaning in different discourse types, providing us with rich perspectives for understanding the relationship between language and attitudinal expression. However, there are still some deficiencies in the existing research. Most of the studies are limited to a single language environment, and there are relatively few comprehensive cross-lingual comparative studies. Under different language and cultural backgrounds, cultural and social factors profoundly shape attitudinal expressions, and there may be significant differences in the expression and understanding of attitudinal meaning. For example, in the current development of higher education, the differences in value orientations and thinking patterns between Chinese and English cultures will be reflected in the application of attitudinal resources in the publicity discourses of Chinese and foreign universities. The lack of such comprehensive research restricts our comprehensive understanding of the universality and particularity of attitudinal meaning.

In view of this, this study takes the publicity discourses selected from the official websites of Chinese and Anglo-American universities as the corpus and uses the Attitudinal System of the Appraisal Theory as the theoretical framework to conduct a comparative study of Chinese and English publicity discourses, revealing the differences and similarities in the application of attitudinal resources in Chinese and English publicity discourses, facilitating cross-cultural

communication and improving the communication effect. Thus, it aims to solve the following problem: How do the attitudinal meaning in the publicity discourses of Chinese universities differ from that in the publicity discourses of Anglo-American universities?

3 Methodology

3.1 Corpus

University profiles act as quintessential publicity discourses for universities, effectively mirroring their roles in external promotion. In this study, the profiles of 40 Chinese "Double First-Class" universities (universities with world-class universities and disciplines) and 40 British and American universities ranked among the top 500 in the QS World University Rankings (2022 edition) have been meticulously selected from their official websites. These selected profiles are then used to construct Chinese and English corpora for the purpose of comparative analysis. All the universities chosen in this study are renowned educational institutions, covering a wide range of academic fields such as liberal arts, science, engineering, and comprehensive disciplines. This diversity ensures that the university profiles are highly representative of similar institutions within their respective educational landscapes. Specifically, the Chinese corpus is composed of 2,976 sentences and contains a total of 84,832 Chinese characters. On the other hand, the English corpus consists of 1,232 sentences and has 18,828 words. This quantitative information about the corpora provides a solid foundation for the subsequent in-depth analysis of the attitudinal resources and other linguistic features within the university profiles.

3.2 Comparability

According to Halliday's "register theory" ([Halliday and Hasan, 1985](#)), language exhibits various forms, known as functional varieties of language, which arise due to changes in situational context. Register encompasses three dimensions: field, tenor, and mode. Field pertains to the communicative theme of discourse. Tenor refers to the social relations and communicative purposes between interacting parties. Mode denotes the channels or media employed in language communication, such as written language or colloquial style. In terms of field, both English and Chinese discourses serve as university profiles, providing an overview of the institution and facilitating external communication. Concerning tenor, they both aim to establish effective communication between university officials and readers in order to achieve their communicative goals. From the mode perspective, both employ written forms with dialogic implications. They share the same genre, subject matter, communicative intention, and corresponding linguistic structure. Consequently, the selected English and Chinese discourses are comparable. Furthermore, in terms of content structure, English and Chinese discourses comprise topics such as university property, development history, faculty, facilities, scientific research achievements, awards, and more. Henceforth, the content structure exhibits similarities. Regarding quantity, Chinese discourses tend to be extensive and detailed while English discourses adopt a concise approach with a more general language style. However, to mitigate the issue of length disparity

between English and Chinese discourses during data analysis, ANOVA and frequency analysis techniques are employed, consequently ensuring comparability of the selected corpus from a quantitative perspective. Building upon this foundation, further processing of the data is conducted in the subsequent section.

3.3 Data analysis

Firstly, this study established a standardized annotation framework for attitudinal resources to ensure the objectivity and reliability of data extraction. Specifically, we derive the definitions and samples of attitudinal resources from classical literature (Wang, 2001; Martin and Rose, 2003; Martin and White, 2005; Wang and Ma, 2007) (see Table 1). Based on these definitions and samples, we proceed to identify and quantify the attitudinal resources present in the corpus. Two trained annotators (both with a master's degree in applied linguistics and prior experience in discourse analysis using the Appraisal System) independently participated in the corpus annotation. The annotation process was divided into two phases:

Pilot annotation: a subset of the corpus (10% of the total, i.e., 4 Chinese university profiles and 4 Anglo-American university profiles) was selected for pilot annotation. After annotation, the two annotators compared results, discussed discrepancies (e.g., whether “renowned”

in English should be categorized as “valuation” or “reaction”), and revised the annotation manual to resolve ambiguous criteria—ensuring consistent understanding of core concepts.

Formal annotation: the remaining 90% of the corpus was annotated independently by the two annotators. After completing formal annotation, inter-annotator agreement was calculated using Krippendorff's alpha (a widely used indicator for multi-annotator reliability), yielding a coefficient of 0.87. This value exceeds the generally accepted threshold of 0.80 in linguistic research, confirming that the annotation results were sufficiently reliable and minimizing subjective bias in identifying attitudinal features.

Subsequently, an ANOVA (Analysis of Variance) analysis is carried out by means of Excel 2019 to explore the disparities in attitudinal resources between English and Chinese publicity discourses. Employing ANOVA in Excel enables a scientific assessment of the significance of differences between the two sets of data, with *p*-value serving as an indicator for determining both the presence and magnitude of such differences (Park et al., 2009; Rasch and Verdooren, 2020). Previous studies have utilized ANOVA to examine significant disparities within diverse research domains (Park et al., 2009; Kim, 2022). This analysis centers on the *F* value, the *F* critical (*F* crit) value, the *p*-value and η^2 value for different variables within both discourses. In detail, the *F* value is calculated as the ratio of the mean square (MS) between groups to the mean square within

TABLE 1 Definitions and samples of attitudinal resources.

Attitudinal Resources	Affect	Meaning	From the perspective of psychology, affect represents the emotional response to behaviors and phenomena. It can be divided into three aspects: process, quality, and comment. Process affect refers to the evaluation of the psychological process of the person evaluated; quality affect refers to the evaluation of the behavior and attributes of the person evaluated; comment affect refers to the overall emotional evaluation to reflect the emotional experience.
		Sample	Nouns, verbs, adjectives, and adverbs, such as: happy, ecstatic, proudly, love, hate, proud; 快乐的 (happy), 满意的 (satisfied), 幸运地 (luckily), 感激 (appreciate), etc.
		Example	He is a happy boy. We were ecstatic. 我们的老师是一个快乐的人 (Our teacher is a happy person). 她是很满意的 (she is very satisfied). (quality affect) I love her and also hate her. 我很感激她 (I appreciate him a lot). (process affect) Proudly, the newly established company introduced to the world its first coin counting machine. 非常幸运, 我一次性通过了考试 (Luckily, I passed the exam on my first try). (comment affect)
	Judgement	Meaning	Judgment is divided into two parts: social esteem and social sanction and it carries out evaluation on the behavior of language users from the perspective of ethics. Social esteem is used to evaluate whether a person is talented, perseverant, honest and so on. Social sanction is used to evaluate whether a person's behavior is justified, whether it conforms to the rules and regulations, whether it is true and reliable, etc.
		Sample	Nouns, verbs, adjectives, adverbs, such as: equivalency, praise, guilty, innocent, respectable; 有罪的 (guilty), 有才的 (talented), 诚实的 (honest), 赞扬 (praise), etc.
		Example	respectable members of their communities; 她是一个有才的人 (She is a talented woman). (social esteem) He is innocent. 他是有罪的 (He is guilty). (social sanction)
	Appreciation	Meaning	Appreciation is the evaluation of objects and products from the perspective of aesthetics, including reaction, composition and valuation. Reaction refers to people's reaction to the product, such as: whether the person is enthusiastic, whether the product is famous; composition refers to whether the internal structure of the product is balanced, whether it has characteristics, whether it is harmonious; valuation refers to whether the product has practicability, whether it has value, etc.
		Sample	Nouns, verbs, adjectives, adverbs, such as: valuable, well - built, enormously, strong, great response; 匀称的 (well-proportioned), 坚固的 (sturdy), 著名的 (famous), etc.
		Example	The founders provided the most valuable and well-built machines. 她买了一栋匀称且坚固的房子 (She bought a well-proportioned and sturdy house). (valuation, composition) “Positive and negative ion collider” developed by our university produced great response. 鲁迅写了很多部著名的小说 (Luxun wrote lots of famous novels). (Reaction)

groups. A higher value of this ratio implies more substantial differences existing between the groups. The F crit value stands for the critical F value at a pre-specified significance level. Meanwhile, the p -value reflects the likelihood associated with the observed F value. η^2 is the effect size, referring to partial eta squared and $\eta^2 = SS_{\text{net}} / SS_{\text{total}}$ (sum of squares between groups) / SS_{total} (total sum of squares). To assess the statistical significance, we rely on the following criteria for evaluating these values: When the F value surpasses the F crit value, it serves as an indication of a significant difference. If the p -value is less than 0.01, the difference is regarded as extremely significant; when the p -value ranges between 0.01 and 0.05, the difference is considered significant; and in the case where the F value is lower than the F crit value or the p -value exceeds 0.05, it suggests that there is no significant difference. η^2 value exceeds or equals 0.06, standing for medium to large effect; η^2 value exceeds or equals 0.01, standing for measurable effect; η^2 value is less than 0.01, standing for negligible effect.

When a particular resource demonstrates either an extremely significant or a significant difference between English and Chinese discourses, we proceed with a more in-depth analysis of its usage frequency. This step aims to determine in which of the two discourses the resource is more commonly used. Based on the outcomes of these analytical processes, we elaborate and discuss the similarities and differences that exist between English and Chinese discourses.

This comparative research combining quantitative and qualitative methods enables a more thorough understanding of the characteristics and functions of attitudinal resources in English and Chinese publicity discourses, facilitating a more insightful exploration of the linguistic and communicative differences between the two languages in the context of university publicity.

4 Results and discussion

In this section, we first conduct an overall analysis, and then affect, judgement and appreciation resources are analyzed in detail, respectively.

4.1 Overall analysis of attitudinal resources

According to the Appraisal System, the object of judgment pertains to the person (the subject of behavior), while that of appreciation is the thing (the product). Nevertheless, considering the characteristics of university publicity discourse, the university itself, which is the subject of behavior within this discourse, is treated as the object of judgment. Its achievements, outstanding students, and technological products are regarded as the objects of appreciation. Moreover, the emotion conveyed in the discourse is considered as the object of affect. The overall frequency of attitudinal resources is presented in Table 2.

The subsequent content conducts a differential analysis of attitudinal resources in the publicity discourses of Anglo-American and Chinese universities from the perspectives of affect, judgment, and appreciation (The columns in the table show the comparative data between English and Chinese attitudinal resources, which are the key data indicators of this paper, and the same below). This analysis aims to discern the extent of variation in the utilization of attitudinal resources.

The findings presented in Column 1 of Table 3 regarding affect resources reveal that there is an extremely significant difference between English and Chinese discourses. This is evidenced by the fact that the F value is 12.1165, while the F critical value is 4.091279, with F being greater than F crit, the p -value standing at 0.001247, which is less than 0.01, and η^2 value is 0.1221, which is greater than 0.06. Additionally, Table 2 illustrates the frequencies of affect resources in English and Chinese discourses, which are 9.3 and 1.7%, respectively. Evidently, the frequency of affect resources in English discourse is higher than that in Chinese discourse. Consequently, English discourse places a greater emphasis on emotional expression compared to Chinese discourse. It endeavors to engage readers by employing an approachable, enthusiastic, and positive language style. In contrast, Chinese discourse places a greater premium on objectivity and authority, thereby leaving readers with an impression of formality and professionalism.

Moreover, the outcomes of Column 2 in Table 3 for judgment resources indicate that the difference between English and Chinese discourses is negligible. Specifically, the F value is 4.022692, the F critical value is 4.091279, with F being less than F crit, the p -value is 0.055152, which exceeds 0.05, and η^2 value is 0.0079, which is less than 0.01. Therefore, both English and Chinese publicity discourses accord significant importance to the behavior of the agent (the school) and its pivotal role in the development of the institution.

Furthermore, the results of Column 3 in Table 3 for appreciation resources demonstrate that there is an extremely significant difference between English and Chinese discourses. The F value is 14.38437, the F critical value is 4.091279, with F being greater than F crit, the p -value is 0.000506, which is less than 0.01, and η^2 value is 0.1734, which is greater than 0.06. Meanwhile, as shown in Table 2, the frequencies of appreciation resources in English and Chinese discourses are 34.8 and 46.4%, respectively. The frequency of appreciation resources in Chinese discourse is higher than that in English discourse. From these results, it can be inferred that Chinese discourse allocates more textual space to promoting the university's talent cultivation capabilities, scientific research prowess, and academic accomplishments. The English and Chinese publicity discourses exhibit distinct characteristics in the utilization of the aforementioned three types of resources, and these aspects will be analyzed in greater detail in the subsequent sections.

TABLE 2 Quantity and frequency of attitudinal resources.

Discourse types	Attitudinal resources	Affect resources	Judgement resources	Appreciation resources
English discourse	472	44 (9.3%)	264 (66.7%)	164 (34.8%)
Chinese discourse	701	12 (1.7%)	364 (51.9%)	325 (46.4%)

The values are rounded to one decimal place.

TABLE 3 Difference analysis of attitudinal resources.

Source	SS	df	MS	<i>F</i>	<i>p</i> -value	<i>F</i> crit	η^2
Row	50.8	39	1.302564	1.23301	0.258083	1.704465	
Column 1	12.8	1	12.8	12.1165	0.001247	4.091279	0.1221
Deviation	41.2	39	1.05641				
Amount	104.8	79					
Row	1098.2	39	28.15897	1.22158	0.267482	1.704465	
Column 2	16.9	1	125	4.022692	0.055152	4.091279	0.0079
Deviation	1007.1	39	23.05128				
Amount	2122.2	79					
Row	665.4875	39	17.06378	0.757538	0.805148	1.704465	
Column 3	324.0125	1	324.0125	14.38437	0.000506	4.091279	0.1734
Deviation	878.4875	39	22.52532				
Amount	1867.988	79					

TABLE 4 Quantity and frequency of affect resources.

Discourse types	Affect resources	Process affect	Quality affect	Comment affect
English discourse	44 (100%)	28 (63.6%)	12 (27.3%)	4 (9.1%)
Chinese discourse	12 (100%)	12 (100%)	0 (0%)	0 (0%)

TABLE 5 Difference analysis of affect resources.

Source	SS	df	MS	<i>F</i>	<i>p</i> -value	<i>F</i> crit	η^2
Amount	29	39	0.74359	1.124031	0.358433	1.704465	
Amount	3.2	1	3.2	4.837209	0.033847	4.091279	0.0551
Amount	25.8	39	0.661538				
Amount	58	79					
Amount	9.2	39	0.235897	1	0.5	1.704465	
Amount	1.8	1	1.8	7.630435	0.008709	4.091279	0.0891
Amount	9.2	39	0.235897				
Amount	20.2	79					
Amount	1.8	39	0.046154	1	0.5	1.704465	
Amount	0.2	1	0.2	4.333333	0.043984	4.091279	0.0526
Amount	1.8	39	0.046154				
Amount	3.8	79					

4.2 Affect resources

Martin and Rose (2003) have defined the resources utilized for expressing emotions within a discourse as affect resources. Affect encompasses both positive and negative emotions. Positive affect elicits a sense of pleasure and contentment, whereas negative affect instills feelings of pessimism and despondency. Considering the unique characteristics of publicity discourse, both English and Chinese discourses are found to convey only positive emotions. Affect resources can be categorized into three aspects: process, quality, and comment. Table 4 presents the quantity and frequency distributions of these affect resources, which are as follows:

To ascertain whether there exists a disparity in the utilization of affect resources between English and Chinese discourses, a

differential analysis has been conducted from three dimensions: process, quality, and comment. The findings of this analysis are presented in Table 5.

The results presented in Table 5 (Column 1) concerning process affect reveal that there is a significant difference between English and Chinese discourses. Specifically, the *F* value stands at 4.837209, the *F* critical value is 4.091279, with *F* exceeding *F* crit, the *p*-value is 0.033847, which is less than 0.05, and η^2 value is 0.0551, which is less than 0.06. As per Table 4, in terms of frequency, the frequency of process affect in English and Chinese discourses is 63.6 and 100%, respectively. This indicates that the frequency of process affect in Chinese discourse is higher than that in English discourse, and all the affect resources in Chinese discourse are of the process affect type.

Furthermore, the outcomes in Table 5 (Column 2) for quality affect demonstrate that the difference between English and Chinese discourses is extremely significant. The F value is 7.630435, the F critical value is 4.091279, with F being greater than F crit, the p -value is 0.008709, which is less than 0.01, and η^2 value is 0.0891, which is greater than 0.06. Regarding frequency, as illustrated in Table 4, the frequency of quality affect in English and Chinese discourses is 27.3 and 0%, respectively. This clearly shows that the frequency of quality affect in English discourse is higher than that in Chinese discourse, and there is an absence of quality affect in Chinese discourse.

Subsequently, the results in Table 5 (Column 3) for comment affect indicate that there is a significant difference between English and Chinese discourses. The F value is 4.333333, the F critical value is 4.091279, with F being greater than F crit, the p -value is 0.043984, which is less than 0.05, and η^2 value is 0.0526, which is greater than 0.01. Additionally, as shown in Table 4, the frequency of comment affect in English discourse is 9.1%, while it is 0% in Chinese discourse, signifying the lack of comment affect in Chinese discourse.

Based on the above data analysis, it is evident that English discourse places greater emphasis on affect resources compared to Chinese discourse. From the perspective of emotional expression characteristics, English university publicity discourses center on building “simulated interpersonal interaction” with readers through “situational emotional projection”: they often use three types of affect resources—process affect, quality affect and comment affect; the combined use of these resources breaks the one-way information dissemination model of publicity discourses, simulates a face-to-face conversational feel, incorporates readers into the university’s “emotional community,” bridges the institutional-individual gap, and aligns with the personalized, humanized communication needs of core audiences like international students. In contrast, Chinese university publicity discourses have the core goal of “conveying credibility through authority construction,” resulting in “high restraint and functional simplification” in affect resource use—100% of their affect resources are process affect with an extremely low overall proportion, a choice consistent with their official discourse attribute; in expression strategies, their emotional transmission focuses on institutional stance rather than individual feelings (e.g., “to satisfy the Party and the country” ties university development goals to national strategic needs to highlight value and reliability), replacing emotional resonance with authoritative endorsement; targeting audiences like domestic examinees who care more about the university’s compliance, strength, and social contributions, these discourses adopt an objective, formal tone, prove strength by listing hard indicators such as national-level talent numbers and discipline coverage (e.g., elaborating on “high-level teachers with national outstanding contributions”), strengthen authority, help readers perceive the university as meeting national standards with solid strength, meet audience expectations for official information rigor and credibility, and ultimately shape a formal, objective, and reliable institutional image. The relevant extracts are as follows:

- (1) 在建设世界一流大学的进程中, XX大学将努力做到在关心国家命运与国家战略上有所作为, 让党和国家满意。[In the process of building a world-class university, XX University will strive to make a difference in caring for the destiny of the country and serving the national strategy, so as to satisfy the Party and the country] (process affect)

- (2) The University of XX – an inspiring place of learning and scholarship that transforms lives through: (quality affect)
- (3) We are proud of our award-winning campuses, both at home and abroad, and continually invest in the University’s grounds, buildings and facilities. (process affect)
- (4) In spring 2008, an exciting new chapter of XX history was launched as the Board of Trustees enthusiastically endorsed plans for a university-wide planning process..... (Comment affect)

In extract (1), the subject of perception (the sensor) is “党和国家 [the Party and the country],” and the object of perception (phenomenon) is the behavior of “XX大学,” and the affect expressed is “满意 [satisfy].” This sentence expresses the psychological process affect, which belongs to process affect. In extract (2), the adjective “Inspiring” is used to express the quality of “place,” that is, the University of XX is a place where people feel inspired. Extract (3) belongs to the process affect, where “we” is the subject of perception and “campus” is the phenomenon. Extract (4) is comment affect. The behavior of “the Board of Trustees endorsed plans for a university-wide planning process.....” is commented.

Although English discourse tends to place greater emphasis on emotional rendering, affect resources are utilized less frequently in both English and Chinese publicity discourses. Quirk et al. (1985) argue that “discourse is semantically and pragmatically consistent with its actual context in the real world,” and Brown and Yule (2000) suggest that “discourse serves as a written record of communicative behavior.” Consequently, it is evident that the communicative intention and context significantly influence the nature of discourse. University publicity discourse, as an official form of university propaganda, is to provide society with a clearer and more accurate understanding of the university, thereby enhancing its engagement with the broader community (New Mark 1988). In the context of the objectivity requirement, the frequency of the utilization of affect resources inevitably declines. This holds true for both English and Chinese external publicity discourses. As Li and Jiang (2017) pointed out in their research on academic discourses, “The frequency of affect resource utilization in both Chinese and English is relatively low, and there are no significant disparities in terms of their distribution and realization methods.” What’s more, Zhao (2024) explored objective means such as lexis and grammar that realize attitudinal meanings in academic discourse from a cross-linguistic perspective, investigated the delicate differences between these two means, and provided insights for research and teaching in languages for specific purposes (LSP), thereby indirectly reflecting the objectivity of academic discourse.

However, in contrast to the research findings of academic discourses (Li and Jiang, 2017; Zhao, 2024) within the realm of university publicity discourses, English discourses exhibit a more pronounced emphasis on emotional expression compared to their Chinese counterparts. As is evident from the research findings presented above, English discourses demonstrate a higher frequency of emotional resource utilization, accompanied by a rich array of realization means. Conversely, Chinese discourses manifest a relatively lower frequency of emotional resource use, with a more limited and singular set of realization methods. In this respect, there is a notable convergence with the business discourses investigated

TABLE 6 Difference analysis of judgement resources.

Source	SS	df	MS	F	p-value	F crit	η^2
Row	680.8	39	17.45641	1.235123	0.256374	1.704465	
Column 1	57.8	1	57.8	4.089623	0.050044	4.091279	0.0448
Deviation	551.2	39	14.13333				
Amount	1289.8	79					
Row	141.2	39	3.620513	1.06006	0.428205	1.704465	
Column 2	12.8	1	12.8	3.747748	0.060151	4.091279	0.0445
Deviation	133.2	39	3.415385				
Amount	287.2	79					

TABLE 7 Quantity and frequency of judgement resources.

Discourse types	Judgement resources	Social esteem	Social sanction
English Discourse	264 (100%)	224 (84.8%)	40 (15.2%)
Chinese Discourse	364 (100%)	292 (80.2%)	72 (19.8%)

by Xu and Xia (2013). Additionally, both English and Chinese discourses in these two types (university external publicity and business) possess a lower degree of objectivity when compared to academic discourses. This phenomenon is inherently determined by the unique nature of the discourses themselves and their specific communicative intentions.

4.3 Judgement resources

Martin and Rose (2003) contend that the resources employed for assessing personalities are referred to as judgment resources. Judgment can be categorized into two dimensions: social esteem and social sanction. Both social esteem and social sanction are further sub-divided into positive and negative aspects. In this context, positive qualities or behaviors are worthy of praise, while negative ones are subject to moral condemnation and legal criticism. Given the inherent characteristics of publicity discourse, both English and Chinese discourses predominantly feature positive comments. The following is a detailed analysis:

To determine whether there exists a disparity in the utilization of judgment resources, a differential analysis has been conducted from the two perspectives of social esteem and social sanction. The findings of this analysis are presented in Table 6.

The results presented in Table 6 (Column 1) regarding social esteem indicate that the difference between English and Chinese resources is negligible. This is evidenced by the fact that the *F* value is 4.089623, the *F* critical value is 4.091279, with *F* being less than *F* crit, the *p*-value is 0.050044, which is greater than 0.05, and η^2 value is 0.0448, which is less than 0.06. Similarly, the findings in Table 6 (Column 2) for social sanction reveal that the difference between English and Chinese resources is also insignificant. The *F* value stands at 3.747748, the *F* critical value is 4.091279, with *F* being less than *F* crit, the *p*-value is 0.060151, which exceeds 0.05, and η^2 value is 0.0445, which is less than 0.06.

From the data analysis, the difference is insignificant in the use of judgement resources in English and Chinese publicity discourses, indicating that both attach importance to the evaluation and judgment

of school agents. The frequency of social esteem is higher than that of social sanction (as depicted in Table 7) in both English and Chinese discourses. Nevertheless, there is a difference in the emphasis placed on social sanction. Specifically, the Chinese discourse places a greater emphasis on compliance with national policies and laws, whereas the English discourse focuses more on the constraints imposed by moral rules. According to the Tripartite Theory of Morality (Shweder et al., 1997), the differences exist in the ethical foundations of the legal-moral relationship between China and the West. Chinese culture centers on the “community dimension,” emphasizing social harmony and collective responsibility, which leads to a high degree of integration between law and morality at the level of “obligations.” For instance, the Civil Code transforms moral duties (such as supporting parents and honesty) into mandatory norms, forming a constraint model of “legalization of morality.” Western culture places greater emphasis on the “autonomy dimension,” emphasizing individual freedom of choice and equality of rights. Moral values (such as pluralistic inclusion and equality) often precede law and drive legal reforms. This “difference in legal-moral constraints between China and the West” is reflected in the publicity discourse of university, where English discourse tends to emphasize moral constraints while Chinese discourse prioritizes legal constraints. The relevant extracts are presented as follows:

- (5) XX大学为民族的振兴和解放、国家的建设和发展、社会的文明和进步做出了不可替代的贡献。[XX University has made irreplaceable contributions to the rejuvenation and liberation of the nation, the construction and development of the country, and the civilization and progress of society] (social esteem)
- (6) 学校始终坚持马克思主义指导思想, 坚决贯彻党的教育方针, 模范执行党委领导下的校长负责制。[The university has always adhered to the Marxism guiding ideology, resolutely carried out the Party’s educational policy, and set an example of carrying out the president responsibility system under the leadership of the Party Committee] (social sanction)
- (7) The title of University Professor was created in 1935 to honor individuals whose groundbreaking work crosses the boundaries

TABLE 8 Difference analysis of appreciation resources.

Source	SS	df	MS	F	p-value	F crit	η^2
Row	41.55	39	1.065385	1.300469	0.207834	1.704465	
Column 1	4.05	1	4.05	4.943662	0.03205	4.091279	0.0522
Deviation	31.95	39	0.819231				
Amount	77.55	79					
Row	60	39	1.538462	1.013514	0.483391	1.704465	
Column 2	64.8	1	64.8	42.68919	9.42E-08	4.091279	0.3521
Deviation	59.2	39	1.517949				
Amount	184	79					
Row	502.3875	39	12.88173	0.784383	0.774143	1.704465	
Column 3	63.0125	1	63.0125	3.836902	0.057314	4.091279	0.0522
Deviation	640.4875	39	16.42276				
Amount	1205.888	79					

9.42E-08 stands for “9.42 times 10 to the negative 8th power”.

of multiple disciplines, allowing them to pursue research at any of XX’s Schools (social esteem).

(8) *Being committed to excellence, enterprise and social responsibility (social sanction).*

In extract (5), the contribution of “XX大学 [XX university]” is unique and outstanding. The achievements made by “XX大学” are very impressive and pleasant, belonging to the category of social esteem. In extract (6), what the university adheres to and implements is the Party’s educational policy, and the university is run under the guidance of Marxism, which belongs to the scope of legal provisions. If the university violates the law, it will be subject to legal sanctions. Therefore, the extract belongs to the scope of social sanction. In extract (7), doing groundbreaking work can endow you an honor to take a professorship, which is pleasant and belongs to social esteem. In extract (8), the university’s commitment to virtue, career and responsibility belongs to the category of morality and is a type of social sanction.

Moreover, in the publicity discourses of universities, the frequency of using judgment resources is higher than that of affective resources. This finding is highly consistent with the research results of scholars such as Shi (2018) and Li (2024b). Beyond the realm of publicity discourse, the utilization frequency of judgment resources consistently surpasses that of affect resources within legal, news, commercial, academic, and other discursive domains that uphold objectivity as a paramount principle (Wu and Yang, 2013; Xu and Xia, 2013; Wang and Tian, 2017; Shi, 2018; Monteiro and Ribeiro, 2020; Wang and Zhang, 2022; Arbieu et al., 2023; Xuan, 2023; Li, 2024a, 2024b; White, 2024). This phenomenon is, in fact, a fundamental and widespread trait inherent to discourses that emphasize objectivity, demonstrating its salience across diverse communicative contexts and textual genres.

4.4 Appreciation resources

“Appreciation, as defined by Martin and Rose (2003), refers to a set of resources utilized for evaluating the value of objects.” It can be categorized into three dimensions: reaction, composition and

valuation. The subsequent content presents the quantity and frequency distributions of appreciation resources:

The following is an analysis of the differences in appreciation resources between English and Chinese discourses, conducted from the perspectives of reaction, composition, and valuation, with the aim of determining whether there are disparities in the utilization of these appreciation resources. The findings of this analysis are presented in Table 8.

As indicated by Table 8 (Column 1), the results demonstrate a significant difference between English and Chinese discourses in terms of reaction appreciation. The *F* value is 4.943662, the *F* critical value is 4.091279, with *F* exceeding *F* crit, the *p*-value is 0.03205, which is less than 0.05, and η^2 value is 0.0522, which is greater than 0.01. The frequency of reaction appreciation is higher in the Chinese discourse compared to the English discourse, standing at 9.8 and 8.5%, respectively, (refer to Table 9).

The outcome of Table 8 (Column 2) further elucidates that there is an extremely significant difference between English and Chinese discourses with respect to composition appreciation. The *F* value is 42.68919, the *F* critical value is 4.091279, with *F* being greater than *F* crit, the *p*-value is 9.42E-08, which is less than 0.01, and η^2 value is 0.3521, which is greater than 0.06. The frequency of composition appreciation in the Chinese discourse is higher than that in the English discourse, specifically 23.4 and 2.4%, respectively.

Finally, the results presented in Table 8 (Column 3) reveal that there is an insignificant difference between English and Chinese discourses in relation to valuation appreciation. The *F* value is 3.836902, the *F* critical value is 4.091279, with *F* being less than *F* crit, the *p*-value is 0.057314, which is greater than 0.05, and η^2 value is 0.0522, which is less than 0.06.

Based on the above analysis, differences exist in reaction appreciation and composition appreciation, and the difference in composition appreciation is particularly pronounced. Conversely, there is no difference in valuation appreciation. Regarding the frequency of appreciation resources, in the English discourse, the frequency of valuation appreciation is the highest, that of composition appreciation is the lowest, and reaction appreciation falls in between. In the Chinese discourse, the most frequently occurring resource is valuation

TABLE 9 Quantity and frequency of appreciation resources.

Discourse types	Appreciation resources	Reaction appreciation	Composition appreciation	Valuation appreciation
English discourse	164	14 (8.5%)	4 (2.4%)	14 (89.1%)
Chinese discourse	325	32 (9.8%)	76 (23.4%)	217 (66.8%)

appreciation, the least frequent is reaction appreciation, and composition appreciation is in the middle. The relevant extracts are as follows:

- (9) 到2020年建成国内一流、国际知名的高水平研究型大学。[By 2020, a nationally first-class and internationally renowned high-level research university will be built.] (reaction).
- (10) 学科点覆盖了除军事学以外的12个学科门类,形成了综合性学科布局 [Academic field covers 12 disciplines except military science, forming a comprehensive discipline layout.] (composition).
- (11) 学校拥有国家级突出贡献的中青年专家、享受政府特殊津贴专家、新世纪百千万人才工程国家级人选、国家“四个一批”人才、国家“万人计划”哲学社会科学领军人才、“长江学者”青年项目、“长江学者”讲座教授等高水平师资。[The university has high-level teachers such as young and middle-aged experts with outstanding contributions at the national level, experts enjoying special government allowances, national candidates for “the New Century Ten Million Talents Project,” national “Four One Batch” talents, national “Ten Thousand People Plan” leading talents in philosophy and social sciences, “Changjiang Scholars” youth Project, and “Changjiang Scholars” chair professors.] (valuation).
- (12) *With deep roots in scholarship and teaching, these internationally renowned collections are fundamental to the development and continuation of many disciplines* (reaction).
- (13) *Offering an outstanding, broad-based, international education to talented students* (composition).
- (14) *These unparalleled institutions rank alongside some of the greatest museums in the world* (valuation).

In extract (9), “国内一流、国际知名[a nationally first-class and internationally renowned high-level...]” refers to the public acceptance of a university, which is the recognition and reaction of domestic and foreign people, so it belongs to reaction. In extract (10), the “综合性学科布局[a comprehensive discipline layout]” reflects that the discipline layout is comprehensive and emphasizes that the discipline structure is not single, which belongs to composition; The “高水平[high-level]” in extract (11) reflects the level and value of teachers and is classified as valuation; “Renowned” in extract (12) is used to describe the public acceptance of “collections,” which, like extract (9), belongs to reaction. In extract (13), “broad-based” is used to describe the basis of education provided by university, belonging to composition. In extract (14), “greatest” is used to describe the grade and scale of “museums,” which belongs to valuation.

Appreciation resources are also the frequently used resources in English and Chinese publicity discourse, while Chinese discourse is significantly higher than English discourse. The Chinese discourse lays more emphasis on noun phrases, which are used to introduce the teaching staff, scientific research facilities and achievements of the university, and are listed one by one, which is more detailed, while the

English discourse is introduced in general and the language is concise and to the point. This is also the reason for the longer length of Chinese discourse and the shorter length of English discourse. This breaks the common thought that English discourse is long and detailed, while Chinese discourse is concise and to the point. Similarly, in terms of the length of English and Chinese discourses, university publicity discourse has the same characteristics as academic and business texts. Li and Jiang (2017), when comparing English and Chinese academic discourses, pointed out that “most Chinese prologues have longer length and more detailed content; The English prologue text is short in length and is briefly summarized”; At the same time, Xu and Xia (2013) also made the same discovery when comparing English and Chinese business texts.

5 Conclusion

This paper carried out ANOVA and frequency analysis of attitudinal resources in English and Chinese university publicity discourses from the three aspects of affect, judgment and appreciation, and drew the following conclusion.

Significant cross-lingual disparities emerge in the deployment of affect and appreciation resources, while judgment resources exhibit notable cross-linguistic consistency. Both English and Chinese discourses infrequently utilize affect resources; however, English discourse prominently foregrounds emotional expressions, fostering a sense of intimacy and engagement, which aligns with Western cultural values emphasizing individual emotion and interpersonal connection. In contrast, Chinese discourse prioritizes objectivity and authority, reflecting the cultural ethos of restraint and hierarchical order. Regarding judgment resources, both languages rely on them more heavily than on affect resources. English discourse predominantly appeals to moral constraints, rooted in the cultural tradition of emphasizing personal virtues and social ethics. Conversely, Chinese discourse tends to emphasize legal norms, embodying the societal focus on rule-based order. Appreciation resources are frequently employed in both linguistic contexts, yet Chinese discourse exhibits a significantly higher utilization rate, consistent with the Chinese cultural preference for rhetorical embellishment and praise. By applying the Appraisal System to cross-lingual analysis of university publicity discourses, this research has illuminated the mediating role of cultural factors in the construction of attitudinal meaning. These findings not only validate the effectiveness of the Appraisal System in cross-cultural discourse analysis but also refine its theoretical framework, expanding its application scope in cross-lingual research. This enriches the understanding of the intricate interplay among language, culture, and society, contributing novel insights to Systemic Functional Linguistics.

However, this research has certain limitations. University publicity discourse can exist either as pure text or as multimodal content integrated with images and videos. The present study focuses

solely on the linguistic aspects, analyzing only the textual forms of these discourses. However, multimodal discourse analysis is equally crucial. It serves as a valuable supplement to textual analysis, offering a more intuitive way to convey the discourse content. Incorporating multimodal discourse analysis into future research on university publicity discourse will open up several exciting avenues. Firstly, future studies could focus on developing comprehensive multimodal corpora that systematically collect and catalog a wide range of publicity materials from different universities. These corpora could be annotated with detailed information about the various semiotic modes present, enabling researchers to conduct in-depth comparative analyses. For instance, a cross-cultural comparison could explore how universities in different countries use multimodal elements to communicate their unique selling points, revealing cultural differences in communication styles and values. Secondly, researchers could employ advanced computational tools and techniques to analyze multimodal data more efficiently. Machine learning algorithms, for example, could be trained to automatically detect and classify visual and audio elements in promotional videos, while eye-tracking technology could provide insights into how audiences interact with multimodal content, highlighting which elements attract the most attention and how attention is distributed over time. Thirdly, future research could investigate the impact of multimodal publicity on different target audiences. By conducting user studies and surveys, researchers could explore how prospective students, alumni, and the general public respond to various multimodal strategies. This would help universities tailor their publicity efforts more effectively, ensuring that their messages resonate with different stakeholders.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

LZ: Project administration, Methodology, Validation, Formal analysis, Visualization, Data curation, Supervision, Conceptualization,

Software, Writing – original draft, Resources, Investigation, Writing – review & editing.

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Seeds for democracy: understanding European values in educational dialogues

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An analytical framework for observing ethical learning in schoolchildren during social interaction has been recently developed. It comprises two tools for appraising ethical thinking and behaviour: dialogue on ethics (DoE) and ethics of dialogue (EoD). Studying the effectiveness of a project aimed at promoting ethical learning of socially-oriented values—empathy, inclusion, and tolerance—within the context of dialogic education, has appeared as providing a complex picture: the relation between children's DoE and their EoD was positive where the topic posed for discussion presented a dilemma. In contrast, it was negative when the discussion was conceptual, and the teacher was dominant. In the present paper, we describe a case study to illustrate and explain these results. The DoE/EoD analytical framework was adopted to observe when and why ethical thinking and conduct could be coordinated. The case study shows that ethical learning in its epistemological and behavioural dimensions can be promoted or inhibited in contexts of dialogic education, depending on design principles.

KEYWORDS

dialogic education, ethical learning, classroom talk, democratic education, educational dialogue analysis

Did you say 'values'? Whose?

In today's world, full of political and technological upheavals, it is impossible to avoid the problem of good versus bad conducts or judgments as people from different communities encounter each other on social media. Thus, for example, Facebook employs a strike system: a list of penalties imposed on users who violate its community standards. Modern democratic countries comprise people of different beliefs, cultures, and ideologies with common rights, as well as places where they can meet: schools, universities, associations, and, recently, social networks. According to the law, people sharing a community have duties; but these duties cannot be mechanical instructions to be followed in order to live together. With the demise of religious beliefs, people nevertheless feel the urge to share something on a global level. Many psychologists in moral development hold a relative position: the fact that morality heavily depends on cultures and conventions. Some psychologists who have distinguished between the moral and the conventional create space for sharing. The distinction at issue is between (a) acts that are judged to be wrong only because of a contingent convention or because they go against the dictates of some relevant authority, and (b) those that are judged to be wrong quite independently of these things, characterized by a certain seriousness, and justified by appeal to the notions of harm, rights, or justice. Elliot Turiel emphasized this distinction, and drew attention to the danger, if overlooked, of lumping together moral rules with non-moral "conventions that further the coordination of social interactions within social systems" (Turiel, 2002, pp. 109–111). Specifically, according to Turiel's theory of domains of social development, moral judgments (based on concepts of welfare, justice, and rights) differ from understandings

of the conventions and customs of societies, as well as from arenas of personal jurisdiction. He has applied the theoretical approach to the study of the relations of morality and culture. Turiel's theory provides a framework in which morality is beyond cultures. Can declarations such as *Les Droits de l'Homme* (The Rights of Man), emanating from the French Revolution, and, more recently, the United Nations' "values and behaviours" Framework (United Nations, 1999) — inclusion, integrity, humility, humanity — credibly claim universality that is globally accepted? Where is the standpoint outside all standpoints from which such claims can be justified?

Although Turiel's theory of personal development is contested, mainstream research is based on the legacy of the temporally remote Aristotelian philosophy. Aristotle was interested in the good and the bad, not through values to be shared in our reasoning and actions, but as "virtues": traits of people that practice actions defined as contributing to the common good. According to Aristotle's teacher, Plato (*The Republic*), the list of these actions is provided by the philosopher-king. As a philosopher, Aristotle saw in the virtues cultivated by iterated actions entities to be reflected on; but the good for him originated primarily from actions. Developmental psychologists have adopted a somewhat Aristotelian view of moral conduct and judgment as general traits and disposition partly cultivated by action (Killen and Smetana, 2014), which lead individuals to develop a moral identity. Grit (enthusiasm and perseverance towards goal achievement), for example, has been associated with moral competence. How can such a direction, based on such an individualistic model of moral development, be related to values and morality widely shared by society?

Modern democracies invite democratic participation as well as public justification. These are general actions taken in the public sphere that help sustain strong democracies. Therefore, handling the particular versus universal values in a Trumpian world, in which each group has its own 'truth' and values, by opting for particularism as a reaction against so-called universalism of values, is dangerous for the maintenance of democracies, not only as structures that help people function together, but as systems in which togetherness is lived out. Instead of facilitating democratic processes, social media weaken democracies as they lead their users to mistrust policies, public institutions, and the world of politics. Social media enables the creation of echo-chambers: places where groups of like-minded people meet and polarize their views in relation to other groups.

In this paper, we will describe a case study to exemplify that democratic practices can provide opportunities to foster a new kind of morality, which combines thinking and action. We capitalize on the fact that important agencies in the world are interested in providing shared values, not inculcating them into young citizens. As claimed by many philosophers, deliberations and especially dialogues are ways to strengthen democracy (e.g., Dewey, 1916; Arendt, 1998/1958). The case study we will describe is taken from a large study that involved children from several countries across Europe, who dialogize about values. The values were not imposed but suggested through sources that allude to them. The students in the case study participated in a program in which a dialogic pedagogy was implemented. This pedagogy aimed to invite interactions that fit the values fostered in the program. This is a middle-term program, and as such, it invites the iteration of interactions through dialogues about those values. The case study describes the intertwining of actions and thinking about values. To some extent, the story is utopic: its setting (the resources,

the dialogic rules that govern deliberations, etc.) delineates the limits of a democratic game. But the game in our case was long, involved many countries, and was supported by a substantial budget from the European Union. Our utopic case study thus describes a serious game.

An EU project: dialogue and argumentation for cultural literacy learning in schools (DIALLS)

A major goal of the European Union is to achieve cohesion between the member states, in both societal terms (rules, standards, laws) and economic terms (free circulation of goods and people, budgetary rules, etc.). For a long time now, education has been viewed as a long-term panacea for this: educating future citizens to become Europeans, with shared values. But what are or should be those "European values"?

For anyone who follows the news, this would seem to be an insurmountable problem. There are conflicts in values, enshrined in laws, within EU countries and across them. Of course, there is, for a large number of countries, a shared history, with respect to the Roman Empire and the adoption of Christianity as a state religion. But, today, appeal to the history of religions simply fails 'to cut it'. As we argue above, many European societies grow more and more secular; and if people do adhere to religions, they are now multiple, in increasingly multicultural societies.

So, what are European values? This definition is necessary for the design and implementation of education for young Europeans. Despite the multiple voices that can be heard, the European Union provides normative answers, to be found in its Charter of Fundamental Rights.¹ These rights include values such as human dignity, freedom, equality and human rights (a circular definition?). More specifically, the European Commission states that "The EU values are common to the EU countries in a society in which inclusion, tolerance, justice, solidarity and non-discrimination prevail. These values are an integral part of our European way of life."² These are the rules, whether people and states agree or not.

The EU funds research projects in every area of science and technology, including education. At the beginning of the second decade of the twenty-first century, we participated in a three-year-long project funded by the EU called "DIALLS"³, an acronym which stands for "Dialogue and Argumentation for Cultural Literacy Learning in Schools." The project took up the normative definition of European values — how could it do otherwise? — having the basic aim of teaching children to be *tolerant*, *empathetic*, and *inclusive* through talking together. It could be argued that other values should have been taught (such as "social justice"), but these were the ones on which the project focused.

Teaching these values by simply presenting students with their definitions and a few case studies would not have been appropriate to the inherently dialogical or debatable nature of values, their essence,

1 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:12012P/TXT>

2 <https://ec.europa.eu/component-library/eu/about/eu-values/>

3 Information can be found on the project website, at: <https://dialls2020.eu/>. A book has been published on the core research of the project, freely available on the Internet (see Maine and Vrikki, 2021a, 2021b).

and their role in guiding actions and judgments. Therefore, as we said, the chosen pedagogical approach was that students would learn by *talking together*. This approach draws on the now considerable research literature on cooperative/collaborative learning (e.g., Mercer and Littleton, 2007) and, more specifically, on an approach called “dialogic education” (Alexander, 2005; Michaels et al., 2008; Wegerif et al., 2019), the general idea of which is that the teacher should strive to maintain an open ‘space of dialogue’ in the classroom, within which the children will be encouraged to voice the diversity of their views on a question, and co-construct a common understanding with respect to answers to this question. But how can this be achieved when any European project on education involves dialogue across different cultures and languages?

DIALLS adopted an original approach, which was to base children’s dialogues on “wordless texts”: picture books and videos comprising narrative sequences of images alone. The texts were specifically chosen given their propensities to stimulate discussion on the chosen EU values. For example, the picture book “Vacio” (Empty), authored/illustrated by Catarina Sobral (2014), explores the themes of loneliness, isolation, and the need for love and compassion, through the tale of an “empty” man who finds love and becomes (ful)filled. The target European value for the children’s discussions around this picture book was that of empathy. Another example is the short (wordless) video “Papa’s boy” (see <https://dialls2020.eu/cllp-papas-boy-ks2/>), featuring a boy mouse who wears a skirt in order to engage in his passion, ballet dancing, while the Papa mouse, who is interested in boxing, wants his son to follow in his footsteps. The boy mouse saves his father from a cat by dancing in front of it, leading the father to accept his son. Clearly (at least from the point of view of the researchers), here the value of tolerance is at stake.

To some extent, the wordless texts implicitly conveyed ethical lessons to be learned that designers wanted to promote—for example, in “Papa’s boy,” the idea that parents should tolerate their children’s tendencies, when they are not widely accepted by the society. However, students did not necessarily reach such conclusions, in spite of the intended design. This freedom resembles the freedom given to students provided with texts for discussion in the program P4C (Philosophy for Children) that led to impressive interpretations, even when these interpretations were not anticipated by their designers (Lipman, 2003).

A very scrupulous pedagogical design was produced, that specified the alternation of individual wordless reading, small-group and whole-class discussions, with or without teacher guidance (specific teacher “prompts” were specified). This design was meant to be applied in an identical manner in each of the countries that participated in the project: Cyprus, Finland, France, Germany, Lithuania, Portugal, Spain, the United Kingdom (coordinator), and Israel, on which we partly focus below. EU projects allow and encourage (self-funded) participation from a restricted list of non-EU countries, e.g., Norway, Switzerland, and Israel. The Israeli team at the Hebrew University of Jerusalem was responsible for developing an online platform dedicated to the project’s needs, as well as for providing a set of schools in which the DIALLS pedagogical approach was implemented.

The Israeli case study begins with the negotiations that took place towards the implementation of the sessions in 12 schools. The leaders of the Israeli team (and among them one of the Ministry of Education superintendents for Language Arts) presented the program to

principals and teachers. While the latter were impressed by the quality of the resources (the wordless texts), and by the scrupulous design of the successive sessions in three grade levels (the Cultural Learning Literacy Programme (CLLP) described above), they had several serious reservations. The first one was essential. We presented the DIALLS program as promoting European values. The principals and teachers were surprised to hear that empathy, tolerance, and inclusion are presented as European values. They explained that such values are important in their daily teaching, and in general in the Israeli society. We explained to them that the term “European values” points at the intention of all European countries to instill these values in the educational system, and that we are invited to join this common effort. The principals and teachers were not convinced by this explanation, arguing that these values belong to the Jewish heritage no less than to the European one. They viewed empathy, tolerance, and inclusion as values that belong to a Judeo-Christian heritage. The Israeli team decided to share with the DIALLS project directors this reservation. The primary definition of European values was thus changed in the official site of the DIALLS project into the following:

[The project] focuses on certain values seen as universal—or at least, European—values (tolerance, empathy, inclusion). ... Perceiving certain values as universal might present a problem as values, in many cases, are culture-bound (i.e. justice, rights). We would like to maintain that in speaking of universality, we do not mean universality of the nature of the values. We see the core values of DIALLS as universal; nonetheless, we do not expect their expression/interpretation to be identical within different cultures. The participating countries (UK, Germany, Lithuania, Spain, Portugal, Cyprus and Israel) are not geographically far apart, and could be defined as ‘western’, yet they are quite dissimilar from each other culture-wise.

This formulation did not refer to religion. The Israeli team shared this decision, and endorsed the formulation, which did not impose on one culture values that allegedly belong to another.

The second reservation concerned the design of the sessions—the CLLP program. The detailed instructions given to teachers in each of the sessions seemed to the Israeli principals and teachers inspiring but constraining. The teachers asked whether the instructions were mandatory or merely suggested. This situation led the Israeli team to take an internal decision to give the teachers some freedom in the implementation of the CLLP program.

The third reservation concerned the use of a new platform in order to mediate dialogues. Teachers felt that animating discussions around wordless texts according to a dialogic pedagogy was highly demanding, and that the use of dedicated technologies to mediate these dialogues constituted an additional burden. We proposed to invite the teachers to a workshop at the Hebrew University, in which some instructors of the Center for Dialogic Education would model the use of the dedicated platform in animating educational dialogues with their students. We consequently invited the students and the teachers to a two-day-long workshop at the Computer Center of the Hebrew University (see Baker et al., 2023). We now unfold the story of what transpired in different classrooms in several schools across Israel, in face-to-face and online discussions involving the adapted DIALLS project pedagogical approach.

This is the context of our case study. It involves groups of children commenting on the wordless book *Papa's Boy*. In research on moral/ethical development/learning, methodological approaches that trace interactions are often missing. True, general methodologies tracing the emergence of learning processes in dialogic contexts have been elaborated, such as the scheme for educational dialogue analysis (SEDA; Hennessy et al., 2016), whose micro-level codes—open questions, extended contributions, reasoning with evidence, etc.—help to trace guided reasoning in classroom talk. Other methods were used for focusing on the study of the learning of concepts in unguided group interaction through moves of deliberative argumentation (e.g., Asterhan and Schwarz, 2009). However, although Dialogic Education is rooted in philosophical ideas that favour the social, the epistemological, and the ethical, research on learning in Dialogic Education focuses on the social and the epistemological only, and has so far excluded the ethical. We present a methodology that traces learning of ethical thinking and conduct in discussions among children that was adapted in the case study.

Methodology tracing the learning of ethical thinking and conduct in discussions among children

Asterhan and Schwarz (2009) developed a new methodology inspired by Interaction Analysis (Bakeman and Gottman, 1997). This methodology has two dimensions: Dialogue on Ethics (DoE) and Ethics of Dialogue (EoD). The DoE dimension bears on the processes

by which student-participants co-construct understandings, in relation to the three values under focus: tolerance, inclusion, and empathy. This dimension is defined in relation to research on the way in which students engage with literary texts in educational situations, focusing on the ethical aspects of the texts (Rouviere, 2018). Baker et al. (2023) have suggested that the processes by which students engage with these texts when co-constructing the “moral of the story” can be described in terms of interpretation, judgment, and conceptualization. The EoD dimension bears on the ethical conduct of students in their deliberations. We restricted the EoD dimension of analysis to the consideration of the same three values: tolerance, inclusion, and empathy, but with respect to the interpersonal relations between students, in their *hic et nunc* dialogue on them.

The DoE and EoD dimensions enable us to simultaneously measure ethical thinking and behaviour using the same methodology (i.e., that of Interaction Analysis) while concentrating on the same values in both ethical dimensions. This methodological innovation thus facilitates the investigation of the object of the study: how ethical thinking and conduct can coordinate.

Brandel et al. (2024) transcribed and translated into English a part of a multilingual database (Rapanta et al., 2021). Readers interested in inter-coder reliability may consult the paper. Figure 1 sketches the methodology according to the aspects found in the discussions.

Table 1 provides a code summary of dimensions, aspects, and indicators comprising the coding scheme.

The DoE and EoD dimensions enable us to simultaneously analyse ethical thinking and behaviour using the same methodology (i.e., that of Interaction Analysis) and concentrating on the same

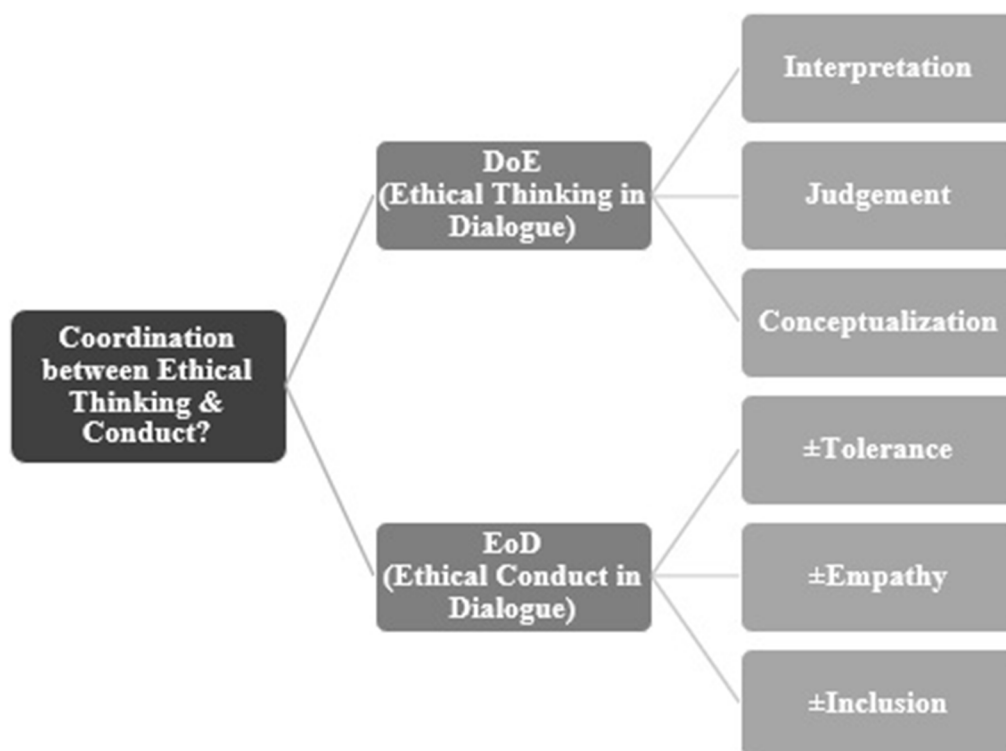


FIGURE 1

The different aspects comprising the two main dimensions indicating ethical learning—DoE and EoD.

TABLE 1 Summary of dimensions, aspects, and indicators comprising the coding scheme.

Dimension	Aspect	Indicator	Example
DoE	Interpretation	Attributing beliefs, desires, and intentions to characters and reconstructing causality between events	<i>"In the beginning of the movie, the dad of the, boy-mouse, he did not want him to dance. In the second part of the movie, there was a cat who came to eat up his dad, and then eh the mouse saved him and then he thought it was really good that the mouse would dance."</i>
	Judgement	Personal positioning based on ethical considerations	<i>"I think you have got, like, a whole world ahead of you. You cannot just do girly stuff."</i>
	Conceptualization	Explicit discussion of ethical concepts	Respect: - <i>"To respect the different. What does it mean 'to respect'?"</i> - <i>"To- to treat him as we treat a person who is no different from us."</i>
		Implicit discussion of ethical concepts	Individualism, tolerance: <i>"Each one wrote what they really thought and really, this says that everyone is, like, everyone is different from one another."</i>
EoD	Tolerance	+ : Acceptance of others' diverging ideas	<i>"I think that I differ in opinion from S1, because [...]"</i>
		- : Rejection of others' diverging ideas	<i>"I'm not supposed to write an example, leave me alone!"</i>
	Empathy	+ : Regulating negative group emotions or showing positive support	<i>"If some kids are embarrassed, or do not wanna show their home, or live in a home they do not really like, then [...] they do not have to do it [draw their home]."</i>
		- : Creating negative group emotions and verbally attacking others	<i>"Do I care?"</i>
	Inclusion	+ : Including others' contributions, building on others' ideas, or allowing others' to intervene	- <i>"Sometimes it's useful to listen to others and do what they tell you."</i> - <i>"But eh I want to add to what S7 said [...] sometimes I also do not want to do that and sometimes I can also trust myself"</i>
		- : excluding others' contributions, ignoring others' ideas, or blocking others' participation	- <i>"Yes and the dad, and also the dad-"</i> - <i>"So, wait! And then at the end [...]"</i>

DoE = dialogue on ethics; EoD = ethics of dialogue; + = positive facet; - = negative facet; S = student.

values in both ethical dimensions. This methodological innovation thus facilitates the investigation of the object of our study: the ways in which ethical thinking and conduct can coordinate.

Brandel et al. (2024) relied on session 3 in the program to show that the more students discussed ethical issues (higher DoE rates), the more ethically they behaved (higher +EoD rates and lower -EoD rates). In session 8, the more students discussed ethical issues (higher DoE rates), the fewer manifestations of ethical behaviour they made (lower +EoD rates). These findings pertain to ethical learning, showing that in certain conditions ethical thinking and conduct correlate, and suggesting that the program based on dialogic pedagogy promoted coordination between ethical thinking and conduct.

The reverse trend observed in session 8 can be attributed to the heavier moderation of the teacher in this session, as indicated by the fact that teacher turns constituted a significantly-larger volume of class dialogue in session 8, compared to session 3, and by the negative correlation between teacher involvement and students' manifestations of +EoD, unearthed only in session 8. An additional factor that could have contributed to the negative correlation between DoE and +EoD in session 8 concerns the topic posed for discussion. While session 3 revolved around an ethical dilemma presented as a question juxtaposing two stances — following social stereotypes versus staying true to oneself —, session 8 concerned the conceptualisation of home/belonging. The former seems likelier to provide opportunities for more natural interaction than the latter, as was indeed the case.

The correlations (both positive and negative) found between ethical thinking and conduct in the two sessions contrast with the lack

of correlation previously reported between moral reasoning and action (Blasi, 1983; Talwar, 2011). These findings confirm some insights derived from a case study conducted on one of the discussions, in which Baker et al. (2023) showed how students are led to discuss and understand ethical implications of a particular narrative, and how this relates to the quality of their collaboration. Brandel et al. (2024) based their interpretation of the findings on inferential statistics, conducting the analysis at the class level, without directly analyzing the deployment of dialogues and their precise characteristics, or recognizing the specific students that manifested DoE, EoD, or both. Such analyses are the focus of the present case study.

The case study

The story we will tell comprises three episodes from teacher-mediated discussions (either in whole-class or small-group discussions) held in two sessions. The episodes revolve around wordless videos (*Papa's Boy* and *Baboon on the Moon*).

First episode: students talk well about ethics and behave ethically in a teacher-led whole-class discussion

The first episode centers on the wordless video "Papa's Boy." Seventh-grade students discuss the acceptance and tolerance of the behaviour and identity of the boy mouse character in the video.

“Papa’s Boy” was explicitly intended by its designers to raise issues relating to tolerance of different ways in which gender roles may be played out. As the name suggests, it involves a boy mouse who nevertheless wants to be a ballet dancer, wearing a girls’ ballet tutu dress. His behaviour contrasts markedly with the aspirations of his father, a boxer, who wants his son to follow in his footsteps. In the story, the father mouse is attacked by a cat, and the boy mouse saves him by ballet dancing around the cat, thereby gaining his father’s acceptance, or even approval. As we shall see, the story stimulates the students to ask several questions with moral implications, such as whether it is acceptable for boys to engage in “girly” activities, and *vice-versa*; or the question as to whether children are obliged to live up to their parents’ expectations.

We will see that the discussion on those values coincides with more inclusive and tolerant behaviour on the part of the students towards a fellow student (S1) holding a different opinion than her classmates. The utterances marked in bold stress the parts in the excerpts that serve the purpose of the episode—students talking well about ethics while behaving ethically as they do so:

80	S8F	I think thaaaat... that what you say is wrong because [...] any boy can do whatever a girl can do and [...] any girl can play whatever a boy does, and any girl can play football and any boy can play, uh, dunno with dolls or such things. Because it’s about what everyone loves, whatever they love they’ll do and persist with it. Like in the, in class, we have it in class we always play ball. Girls and boys as well, and you can see it just in front of your eyes.	EoD: +Tolerance DoE: Conceptualization (pluralism, tolerance)
81	S1F	Yes I know but, I did not mean that. I meant, he can play whatever he feels like but, like, he ca-, he can do whatever he feels like but, like-	EoD: +Tolerance DoE: Judgment
82	S28M	I actually differ from you in opinion S1 because, for example, for example there are boys who actually like, actually the boys in class there’s like always with a ball like if they forget what was last time, dodgeball or football, so there are some that the boys say football and the girls say dodgeball. So there are also boys. For instance like S9. Like S9 he sometimes also says dodgeball. And also for instance in my summer camp, cannot remember for example a year or two years ago for instance there was a girl who really loved playing football there really {unclear}	EoD: +Tolerance DoE: Conceptualization (pluralism, tolerance)
83	S9M	But I do not really care-	
84	TF	S9, S9, he gave S9 as an example, S9, he wants to say something. Speak.	EoD: +Inclusion
85	S9M	It does not really matter if we play football or dodgeball. As long as we play. Something,	EoD: +Tolerance

86	S29M	Right {background noise}	
87	S30M	Wait {background noise}	
89	S32M	[I wanna say something to S1] like what S8 said that really any girl can play anything that a boy can and a boy can play anything that a girl can. And also there’s for example I, I, I wanna say it but there are colours that I really-really, but really love, that are girly colours like pink, violet.	EoD: +Tolerance; +Inclusion DoE: Conceptualization (pluralism, tolerance)
90	S1F	Yes, but that’s not what I meant.	EoD: +Tolerance
91	S8F	S1 I want to say something to your opinion. You said he should not, that the dad should not uhhh tell him everything and I say that you are right about that, because the dad should not all the time for example uh, I saw in the video that his entire room was uh with boxing (mispronounces) stuff. And I think he does not like boxing much, I think he li-	EoD: +Inclusion DoE: Interpretation
92	S33M	Boxing (corrects pronunciation)	
93	S8F	I think he likes ballet dancing, and-	
94	TF	You know, I did not notice that	
95	S33M	That what?	
96	TF	That in the video his entire room {different voices speaking}	
97	S34F	There were gloves	
99	S8F	And also he came and when he danced he he [he]	
100	S35F	[He bumped into a hand glove]	
101	S8F	[He bumped into it so] he tossed it	
104	TF	Very interesting. Look. I want a second to ask you a question. S1, with your permission, ok? S1 thought differently. Ok? She thought that boys should not DEAL with girly stuff. In your opinion, in the conversation here, in the short discussion we had. I am looking at the language objective. Did you respect her [argument]?	EoD: +Empathy; +Inclusion
105	Ss	[Yes.]	
106	TF	Even if you disagreed with it?	
107	Ss	Yes!	
108	TF	Who wants to explain it to me? How was this respect expressed in the conversation, S2?	
109	S2M	Uhhh... It was expressed becauuuuse, all she said was the son the son decides what he wants to deal with. And, the dad-	EoD: +Inclusion DoE: Interpretation

The above excerpt illustrates the presence of a large concentration of +EoD manifestations in a discussion revolving

around DoE. The students illustrate +EoD and no –EoD whatsoever, as they express much +*tolerance* (utterances 80, 81, 82, 85, 89, 90), as well as some +*inclusion* (utterances 89, 91, 109) towards S1. Their ethical behaviour (EoD) towards S1 is evident in the manner in which they conduct their discussion, expressing their disagreement with her in a respectful way and bringing evidence from the video and from their daily lives in order to support their opinion. None of the other students belittles S1 or disrespectfully dismisses her opinion, though it is quite evident that none of the others agrees with her. They are being tolerant and inclusive to a minority among them.

Moreover, the students' ethical thinking (DoE) can be observed in their interpretation of the characters' desires in the video, in their judgment towards those characters, and in their conceptualization of values emanating from the video. The students illustrate DoE by conceptualizing 'pluralism' and 'tolerance' (utterances 80, 82, 89), expressing judgment (utterance 81), and interpreting the characters' mental state (utterances 91, 109).

Utterances 80, 82, and 89 show that the illustration of *tolerance* in the students' EoD (in practice) often co-occurs with their conceptualization of tolerance and pluralism (in theory).

The protocol shows that the teacher creates an atmosphere where +EoD is prominent. In utterance 104, she is not only empathetic ("Very interesting") and inclusive ("I want a second to ask you a question. S1, with your permission, ok?"). She also translates DoE into EoD ("Did you respect her [argument]?"), thus modeling for the students how to combine the two and give rise to a respectful discussion. This combination of critique/challenge with openness and respect makes for a potentially productive learning interaction. In the present protocol, students were perhaps not friends, but they are made friends by the norms the teacher instills. And the translation of dialogue on ethics to ethics of dialogues explains the concurrent manifestations of DoE and +EoD on the part of the students.

Second episode: students talk well about ethics without behaving ethically in their dialogue

The second episode also occurs in a whole-class discussion orchestrated by a teacher. The video in question is "Baboon on the Moon," showing a baboon who lives manifestly alone on the moon and whose job is to light up the moon at night. When the baboon stares at his home on planet Earth, tears well up in his eyes and he plays a mournful trumpet solo. Although the video is speechless, it clearly conveys the longing of the baboon to his home on earth.

From the pedagogical designers' point of view, the video stimulates discussion between the students on two main topics or issues. Firstly, there is the question of empathy for the manifestly very sad baboon, who misses his home. Secondly, what is the meaning of 'home'?

The following discussion occurred in session 8. After watching the video, the teacher invites seventh-grade students to engage in a discussion revolving around the question 'What is home to me?'. The video vicariously deals with the question of 'house' versus 'home'. As with the first episode, the utterances that illustrate the fact that the

students talk well about ethics (although they do not behave ethically) are stressed in bold.

2	S19F	Home to me is a special place. And fun.	DoE: Conceptualization (belonging)
3	TF	Excellent. Yes S13.	EoD: +Empathy
4	S13M	Emmm home to me is something protecting me from bad things, and also I'm safer there.	DoE: Conceptualization (belonging)
5	TF	Lovely.	EoD: +Empathy
6	S20F	Home to me is a place that has {privacy}.	DoE: Conceptualization (belonging)
7	TF	Wonderful.	EoD: +Empathy
8	S21M	My home keeps me safe from everything.	DoE: Conceptualization (belonging)
9	TF	Lovely.	EoD: +Empathy
10	S22F	Home to me is the place that keeps me safe from everything, and where I feel fun and I'm well there.	DoE: Conceptualization (belonging)
11	TF	Excellent.	EoD: +Empathy
12	S23F	My home is where I love to play, sleep, eat, and be with my family and friends.	DoE: Conceptualization (belonging)
13	TF	Lovely.	EoD: +Empathy
14	S24F	Home to me is my safe place, it's where I feel most comfortable and it's where I'm safe.	DoE: Conceptualization (belonging)
15	TF	Thank you.	
16	S25M	My home is the calmest place for me and sometimes it's like a field [probably sport-related metaphor].	DoE: Conceptualization (belonging)
17	S26M	My home is the place where I am loved, where I have fun.	DoE: Conceptualization (belonging)
18	S27M	My home is the place that I that, where I do sports.	DoE: Conceptualization (belonging)
19	S28M	My home is a warm, loving place.	DoE: Conceptualization (belonging)
20	S29F	My home is the place where all my family and friends are.	DoE: Conceptualization (belonging)
21	S30F	My home is a place where I live lik... and live.	DoE: Conceptualization (belonging)
22	S31F	Home to me is a place where I should feel loved, and also of course a place that is with the family.	DoE: Conceptualization (belonging)
23	S32M	My home is a good, fun, and protective place.	DoE: Conceptualization (belonging)
24	S33F	My home is a place that for me I can do the things that I love.	DoE: Conceptualization (belonging)

25	TF	Lovely [whispers].	EoD: +Empathy
26	S34M	Home to me is my place. [...]	DoE: Conceptualization (belonging)
27	S35F	Home to me is the place where I'm allowed to do things that in other homes I'm not allowed to do. The place where it's nice and calm after a turbulent day.	DoE: Conceptualization (belonging)
28	S36M	I feel free at my home.	DoE: Conceptualization (belonging)
29	TF	Wonderful.	EoD: +Empathy
30	S37M	My home to me is a safe place.	DoE: Conceptualization (belonging)
31	S38F	My home to me is a special and fun place.	DoE: Conceptualization (belonging)
32	S39F	My home is a fun place.	DoE: Conceptualization (belonging)
33	S40M	My home to me is a home where I am loved and protected.	DoE: Conceptualization (belonging)
34	S41M	Home to me, it protects me from all the bad things.	DoE: Conceptualization (belonging)
35	S42M	My home is the place where I am happy, and fun... where it's fun for me and where I am calm.	DoE: Conceptualization (belonging)
36	TF	You are all so lovely.	EoD: +Empathy

In the above episode we witness a very interesting disassociation between DoE and EoD on the part of the students, as they only illustrate DoE, expressed solely by *conceptualizing* 'belonging' according to the instruction they received. This *conceptualization* of 'belonging' is manifest in 25 utterances (appearing in bold in the table).

The absence of EoD manifestations on the part of the students demonstrates the lack of inter-student interaction: Each speaker gives a short response and does not relate to others' responses. Although it is technically a whole-class discussion, in fact there is no true interaction between the speakers: The teacher goes from one student to the other, asking for their statement (all statements are quite similar), giving positive reinforcement to most students without going into the content of their statements at all, and moving on to the next student. This consecutive alternation between EoD on the part of the teacher and DoE on the part of the students—witnessed in different classes following the same lesson plan—is uncharacteristic of a natural discussion. The students' participation, thus, proceeds without any form of active listening to other students.

In this protocol, the teacher indeed creates an atmosphere where students can feel comfortable to express their opinions, but she does not induce them to integrate these opinions into a fruitful discussion. As mentioned before, the task was designed to navigate the discussion towards a conceptual distinction between 'house' and 'home'. This focus on conceptualisation resulted with the absence of dialogue. It appears that most of the teachers implemented the lesson plan of session 8 through a centralised discussion, and this explains the finding that in this session *the less students discussed ethical concepts, the more ethical their behaviour was*. In session 8, discussing ethical

concepts meant interacting with the teacher, while the students' ethical behaviour towards their peers was rendered irrelevant.

A posteriori, one might have expected this kind of interaction in which the teacher is at the centre. However, this paper adheres to the analysis of the deployment of educational dialogues, and in itself, the present example illustrated the fact that when the teacher is at the center, EoD is low.

The two episodes show that the relation between children's DoE and their EoD was positive where the topic posed for discussion presented a dilemma and students' interaction proceeded under moderate teacher guidance. In contrast, it was negative when the discussion was conceptual, and the teacher was dominant. Therefore, ethical learning, in its epistemological and behavioural dimensions, can be boosted or inhibited in context of dialogic educations, depending on design principles.

Third episode: students comply with the ethical behaviour of the teacher in their dialogue

The third episode depicts a setting in which a teacher guides a small group of students (two boys and two girls) that discuss the video they watched earlier. As we will see, this episode shows manifestations of +EoD on the part of both teacher and students.

377	S6F	Eh... like I also had a club that's- when I was really little and tried going to eh, a dance club [and like, {unclear} that wasn't fun, and everything was very bad feelings for me, but then I found out that it's really fun and now I still do it]	EOD: +Inclusion
378	S1M	[No-one ca- connects the- was proud. The family was proud. No-one connects it]	
379	TF	Mmm	
380	TF	Mmm amazing. So you are saying that it's also worthwhile to try [things]	EOD: +Inclusion +Empathy
381	S2M	[Yes]	
382	TF	That other people tell you to, and also you are saying that sometimes you should not listen [to others], if- if it feels- if we feel that it's not good for us. Right? That's what you are saying.	EOD: +Inclusion
383	S2M	[Yeaaaah...]	
384	S1M	Yes. If for example you are told you'll be n... for example if you are in a tomb for five mi- eh, years, eh 5 min, you'll still be alive and you you at the end eh	EOD: +Inclusion
385	S2M	You'll die cause there's no air in there	EOD: +Inclusion
386	S1M	Right	
387	TF	Mmm, it could be really bad listening [to others] that way (laughs + children laugh)	EOD: +Inclusion +Empathy
388	S1M	[Yes]	
389	S6F	No, sometimes you [should listen] and sometimes you should not	EOD: +Inclusion +Tolerance
390	S2M	[I'm doing two mice]	

391	TF	When should we listen to others?	EOD: +Inclusion
392	S1M	[When-]	
393	S6F	[If] they are saying for example, like let us just say, for example, mm- goes em eh-	
394	S2M	If you have a competition and they are rooting for you so listen to them	
395	TF	Ok	
396	S1M	[No, do not listen to them, cause it's distracting]	EOD: +Inclusion +Tolerance
397	S6F	[Eh no. Like t- if eh, if]- if just say there's a war or something like that and they want to defend you or help you, so you do need to listen because he's trying to help you and if you do not listen you'll get hurt and you will not have fun	EOD: +Inclusion +Tolerance
398	S1M	That happens {unclear} when you should not listen, it's like you say- in this drawing you are doing draw me, me as a king. For example.	EOD: +Inclusion
399	TF	Mm-hmm	
400	S1M	You should not listen.	
401	S2M	You as what?	
402	S1M	Me as [a king for example. You should not listen]	
403	S6F	[No but you can also {unclear}]	
404	S9F	Or you also do emm... that one someone has, eh, a beef with a friend, like ostracize him and he's telling people [to join in]. You do not always have to listen to him.	EOD: +Inclusion
406	TF	Not always? [Sometimes you should listen] to things like that?	EOD: +Inclusion
407	S1M	[Do you want me to draw you a mouse here?]	
408	S2M	[No. I'm drawing the big one now, soon the small one]	
409	S6F	[No. Always eh, not listen]	
410	TF	In these cases it's always best not to listen? Mmm.	EOD: +Inclusion
411	S1M	[Who's that? The ballerina?]	
412	S6F	[But in cases of eh, warning then yes {unclear}]	EOD: +Inclusion
413	S2M	[What?]	
414	S1M	[Is that the big one?]	
415	S2M	[Yes. You remember he's wearing this with eh squares?]	
416	TF	[Of warning. Of something dangerous?]	EOD: +Inclusion
417	S6F	Yes em eh, for example eh...	
418	S9F	Do not get into the sea	EOD: +Inclusion
419	S6F	Yes. Because there's some	EOD: +Inclusion
420	S1M	[Disease]	EOD: +Inclusion
421	S9F	[Lots of waves and...]	
422	S6F	Lots of waves that can carry you away and there's a current	EOD: +Inclusion

423	TF	And how do you know, or decide when you should listen to others and when you should listen to yourselves?	EOD: +Inclusion
424	S2M	Listening to ourselves?	
425	TF	According to what?	EOD: +Inclusion
426	S6F	According to what they say. If for example they say em eh, eh, it's forbidden- please do not get into the sea, there are very very strong waves then- then you think- because then you can think for a second- ok, fine eh, ok. So I'll stay out but if for example eh, they say like this: there's eh, there's eh, just saying, eh,	EOD: +Inclusion
427	S1M	[I'm] writing here listen to the heart	

In the above excerpt both students and teacher manifest many utterances coded as +EoD, mainly *+inclusion*. The distribution between teacher's + EoD and students' + EoD is quite balanced. The teacher expresses 11 manifestations of +EoD in 9 different utterances, all of which demonstrate *+inclusion* and 2 of which demonstrate *+empathy* as well. The students express 17 manifestations of +EoD in 14 utterances, all of which demonstrate *+inclusion* and 3 of which also demonstrate *+tolerance*.

This episode illustrates the finding that *the more ethically the moderator behaved, the more ethical was her students' behaviour*. A detailed analysis of the protocol shows an interesting mechanism in the relation between the behaviours of the teacher and the students. First, the students did not imitate the teacher. Rather, the discussion changed direction from the behaviour of the characters in the wordless video into the behaviour of the students in different real-life situations requiring ethical thinking. The teacher engages the students into translating a discussion about DoE into a discussion about ethical behaviour in general, thus exceeding the scope of EoD (e.g., "So you are saying that it's also worthwhile to try [things]... That other people tell you to, and also you are saying that sometimes you should not listen [to others], if- if it feels- if we feel that it's not good for us. Right? That's what you are saying," in utterances 380 and 382). The video helps in the development of EoD. Secondly, the distribution of EoD categories is not the same for the teacher and for the students. The teacher is empathetic and inclusive, while the students are inclusive and tolerant.

Discussion

How should we conclude this case study: what is the moral of *our* story? In the society of our times, we do not like morals of stories. However, nothing in our story was crystal clear and predetermined. Let us begin with the resources—the wordless picture books and videos. Did the creators of these resources have a crystal-clear message to convey? Not necessarily. In the DIALLS project, perhaps some of the designers, those who led the Cultural Learning Literacy Programme (CLLP), had definite lessons in mind. In their defense, we should say that they brought the wonderful collection of wordless texts to classes in all participating countries. Their design was extremely detailed and while this was appreciated by many teachers,

the Israeli teachers resisted this meticulousness. The latter preferred a looser design in which they had some freedom in their way to trigger discussions around those texts. As [Baker et al. \(2023\)](#) argue, the issues the students discussed were not necessarily the issues the designers thought about. But is it not the nature of wordless texts? Mendelssohn's *Songs without Words*, or Verlaine's *Romances sans paroles* are artistic creations that convey the ambiguous, that aim for the fuzzy. Verlaine's poems appear at the dawn of *impressionism* and invite the readers to figure out moods and feelings beyond words. And like Mendelssohn's *Songs without words*, and Verlaine's *Romances sans paroles*, the wordless texts used in our case study were beautiful. The aesthetic leaves its impression on readers/observers and does not leave them indifferent. This is one of the morals of our story: the fact that the interactions among children, or between the children and their teacher, were mostly fruitful. The dialogic context contributed to the expressive moments that developed.

In the three episodes of our story, the ideas were on their high point. As for the coordination between ethical thinking and conduct, it depended on the task, as well as on the teacher. In the second episode, there was a gap between speaking about ethics and behaving ethically, between understanding what is right to do and actually doing it. For the teacher, the problem is whether to hold on to their control, or leave space for the students to discuss and behave ethically towards each other. The dilemma format in the first episode helped students behave ethically, while the didactic format seen in the second episode worked to the detriment of their ethical behaviour. Most interestingly, the teacher's ethical behaviour in the third episode led the students to interact ethically, although they did not imitate her behaviour. The complexity of the relation between ethical thinking and behaviour is then the second moral of our story, and it stresses the difficult role of the teacher in coordinating them.

As aforementioned, in session 3, the more students discussed ethical issues [higher Dialogue on Ethics (DoE) rates], the more ethically they behaved [higher +Ethics of Dialogue (+EoD) rates and lower -Ethics of Dialogue (-EoD) rates]. In session 8, the more students discussed ethical issues (higher DoE rates), the fewer manifestations of ethical behaviour they made (lower +EoD rates). These findings show that in certain conditions ethical thinking and conduct correlate, and suggest that dialogic pedagogy promoted coordination between ethical thinking and conduct.

The reverse trend observed in session 8 can be attributed to the heavier moderation of the teacher, as indicated by the fact that teacher turns constituted a significantly-larger volume of class dialogue in session 8, compared to session 3, and by the negative relationship between teacher involvement and students' manifestations of +EoD, unearthed only in session 8. An additional factor that could have contributed to a negative relationship between DoE and +EoD in session 8 concerns the topic posed for discussion. While session 3 revolved around an ethical dilemma presented as a question, juxtaposing two stances (following social stereotypes *versus* staying true to oneself), session 8 concerned the conceptualisation of home/belonging. The former seems likelier to provide opportunities for more natural interaction than the latter, as was indeed the case.

Thus, the non-dilemmic topic posed for discussion in session 8 and its presentation, alongside the heavier involvement of the teacher, appear to have rendered inter-student interaction less

natural, consequently decreasing instantiations of (+)EoD. The unnatural interaction, in turn, seems to necessitate heavier teacher involvement, which renders inter-student interaction even less natural. The nature of the interaction thus appears to hinge upon the topic posed for discussion, its presentation, and the extent of the teacher's involvement in the discussion. This stresses the importance of true inter-student interaction when designing learning environments meant to induce students' ethical thinking and behaviour.

The bonds (both positive and negative) found between ethical thinking and conduct in the two sessions contrast with the lack of correlation found between moral reasoning and action ([Blasi, 1983](#); [Talwar, 2011](#)). Educational dialogues thus provide a suitable context for coordinating ethical thinking and action. Finally, as far as ethical behaviour is concerned, teacher involvement should be limited for natural interaction to arise and for ethical learning to occur. The present case study nevertheless points at the potential of Dialogic Education in favouring a positive relation between students' ethical thinking and behaviour, which is a new venue contrasting with the aforementioned lack of research on relations between them. The case study shows how values such as tolerance, inclusion and empathy can stem from interactions between students in the ideational as well as the behavioural realm. As such, it exemplifies the role of dialogic education in planting the seeds for democracy.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by Committee of Ethics in research at the Hebrew University. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

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The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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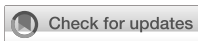
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The effects of interactive reading on young children's narrative abilities: a meta-analytic study

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Background: The development of narrative abilities during early childhood forms the foundation for more complex language expression and comprehension later in life. This study employs a meta-analytic approach to systematically evaluate and infer the effects of interactive reading on young children's narrative abilities.

Methods: Inclusion criteria for eligible studies were established. Electronic databases, including CNKI, Web of Science, ScienceDirect, SpringerLink, Taylor & Francis, Wiley, and ERIC, were systematically searched for experimental or quasi-experimental studies investigating the effects of interactive reading on young children's narrative abilities. A moderator analysis was subsequently conducted to explore potential factors influencing the effectiveness of interactive reading interventions.

Results: A total of 25 studies ($k = 123$ independent effect sizes; $N = 2,886$ participants) were included. Random-effects modeling revealed significant heterogeneity ($I^2 = 76.07\%$, $p < 0.001$). Key findings: (1) Interactive reading exerted a medium aggregate effect on narrative ability development [$g = 0.425$, 95% CI (0.333, 0.518), $p < 0.001$], per Cohen's benchmarks. (2) The effect on children's narrative development was significantly moderated by the duration of the interactive reading intervention. (3) Incorporating peer sharing during interactive reading significantly enhanced the development of children's narrative abilities.

Conclusion: Interactive reading has a positive intervention effect on children's narrative abilities, and this effect is influenced by multiple moderating variables. This meta-analysis provides quantitative evidence supporting the role of interactive reading in promoting the development of children's narrative abilities. Future meta-analyses could simultaneously include both preschool and school-age children to compare and analyze the intervention effects across different age groups.

Systematic review registration: doi: [10.37766/inplasy2025.10.0086](https://doi.org/10.37766/inplasy2025.10.0086), INPLASY2025100086.

KEYWORDS

interactive reading, narrative abilities, meta-analysis, early childhood education, language education

1 Introduction

1.1 Narrative ability represents a crucial aspect of children's language development

Narrative, or storytelling, is a form of language expression that occurs outside of an immediate context (Bruner, 1987), guided by an individual's internal cognitive schema, the individual verbally recounts past events (Bouizegarene et al., 2024). It includes narrative structure, thematic relevance, narrative tone, dialogue, time marking, expressiveness, vocabulary level, and sentence structure (Farah et al., 2019). Children's language learning is characterized by comprehension preceding expression. Narrative ability serves as a bridge between content comprehension and language expression. The development of narrative ability enables children to perceive objective realities more clearly, comprehend language content in greater depth, and internalize it effectively (Liu et al., 2011). This allows children to integrate fragmented experiences into coherent narratives, express their emotions and opinions, and enhance their cognitive abilities (Cremin et al., 2013). Children's narration skills typically develop gradually beginning at the age of three (Filiatrault-Veilleux et al., 2016), the preschool stage represents a critical period for the development of narrative ability. Relevant studies have demonstrated that early narrative intervention facilitates children's transition from oral to written language, playing a crucial role in the development of linguistic intelligence (Kateeb, 2018; Spencer and Petersen, 2020).

1.2 Research on the development of narrative ability in young children

Children's narrative ability continues to develop with age, increasingly reflecting their personal opinions (Hibbin, 2016), enhanced fictional ability (Vretudaki and Tafa, 2022), and the use of more complex expressive elements (Frizelle et al., 2018; Otwinowska et al., 2020) are influenced by factors such as family economic status (Sabourin-Guardo et al., 2024), cultural environment (Kan et al., 2020), and parenting style (Ganotice et al., 2017). Existing scholars from the personal event narratives and fictional narratives (McCabe et al., 2008; Westby and Culatta, 2016; Lai, 2020; Mills et al., 2021) studies children's narrative ability from two aspects: the former is children's description of real events in the past life, while the latter focuses on children's re-creation based on pictures or videos. Some scholars have also examined narrative ability from the perspective of narrative structure at both the macro and micro levels (Lindgren, 2023; Otwinowska et al., 2020; Lipner et al., 2024; Sheng et al., 2020). Structure is the most prominent feature of storytelling. When young children tell stories, they must engage a range of narrative skills, including the ability to produce complex sentences, use morphological grammar and vocabulary (i.e., microstructures), as well as the ability to organize grammatical components and construct coherent narratives (i.e., macrostructures) (Otwinowska et al., 2020). The microstructure of narrative ability typically emphasizes lexical diversity, syntactic complexity, and pragmatic appropriateness, whereas the macrostructure focuses on the overall logical coherence of the story. Children's narratives are typically examined at both macro and micro levels; however, research is not limited to their story expression and sentence structure (Spencer and Petersen, 2020). In fact, children's storytelling also reflects the development of various core skills, including

neural mechanism (Romeo et al., 2018), cognitive skills (Kim S. J., 2016; Kim Y. S. G., 2016) and even social ability (Brinton and Fujiki, 2017). At present, the international narrative assessment criteria show a diversified development trend, and the following results are derived from different dimensions: The Edmonton Narrative Norms Initiative, Monitoring Indicators of Scholarly Language (Gillam et al., 2017), Narrative evaluation Protocol (Justice et al., 2010) and Colorful Spectrum Language Evaluation System (Kryiakowski, 2015). A substantial body of empirical research indicates that early interventions targeting children's narrative abilities positively influence their listening comprehension, receptive vocabulary, and writing skills (Spencer and Petersen, 2020), but also serves as a significant predictor of their academic achievement in both primary and junior high school (Xuan, 2007; Yang et al., 2020). Therefore, many countries have regarded the development of narrative ability as a key focus in the study of children's overall skill development.

1.3 Research on interactive reading narratives

Interactive reading is the act of sharing or reading books with children in a relaxed and pleasant atmosphere (Noble et al., 2019). Reading is a process in which children engage with others, with the interactors stimulating children's thinking and reflection through questions, discussions, and role-playing (Doyle and Bramwell, 2006). Unlike traditional one-way reading, interactive reading emphasizes the development of positive interactive relationships throughout the reading process (Dixon-Krauss et al., 2010; Balog et al., 2024). Children freely share their interpretations of the text with adults or peers, review the material in various forms according to their preferences, and engage in active, equitable communication with the other participants, using language to construct their cognitive frameworks (Li, 2020).

According to cognitive load theory, individuals must process and transform unfamiliar information during reading tasks. Exposure to rich and diverse linguistic input in dialogues enables children to acquire and imitate complex sentence structures and vocabulary, thereby enhancing their expressive language abilities. Consequently, interactive reading serves to construct scaffolding for comprehension and facilitates language production in children (Dillon and Newman, 2023; Wall et al., 2022). Research has demonstrated that interactive reading promotes the development of various early language skills in young children, including phonological awareness, vocabulary acquisition, and narrative competence. As a result, early reading interactions are widely recognized as crucial for fostering children's narrative development (Li, 2020; Vretudaki, 2022). However, due to limitations in research scale and longitudinal tracking, studies on interactive reading face significant challenges, including insufficient empirical evidence and limited generalizability.

1.4 Ongoing debates persist regarding the effects of interactive reading on the development of children's narrative abilities

Since the emergence of research on children's narrative abilities, interactive reading has commonly been employed as an intervention to support narrative development. Scholars have highlighted its

significant role in enhancing children's narrative recall, production, and structural organization. The question-and-answer format of interactive reading is particularly effective in helping preschoolers navigate the "leapfrog period" of narrative development (Lai et al., 2010). Although interactive reading demonstrates considerable potential in enhancing young children's narrative skills, researchers continue to face several controversies and challenges. First, the effectiveness of interactive reading as an intervention remains debated. Some scholars argue that interaction with adults during reading may, in certain cases, increase young children's cognitive load, thereby hindering comprehension and narrative development (Jimenez and Saylor, 2017; Read et al., 2023), this may result in ineffective interventions. On the other hand, other studies suggest that sustained dialogue and extended interaction with others are positively associated with improvements in children's narrative abilities (Xu, 2017; Yang et al., 2024).

Second, individual differences among young children in narrative development present challenges for making horizontal comparisons across interactive reading experiments. Considering variations in cognitive abilities, language expression, and cultural backgrounds, the effects of interactive reading interventions on children's narrative skills are often complex and multifaceted (Barone et al., 2019; Rochanavibhata and Marian, 2021). Therefore, it is necessary to integrate a large number of different types of experimental evidence to support the research of interactive reading on children's narrative ability.

Finally, empirical evidence regarding the long-term effects of interactive reading on children's narrative abilities remains limited (Barone et al., 2019). Due to limitations in research scale, current intervention studies on interactive reading often lack longitudinal tracking. Even in long-term studies, some aspects of young children's narrative skills show minimal or non-significant improvement over time (Dias-Broens and van Steensel, 2023).

1.5 Age, object of interaction, and moderating variables of intervention duration

Relevant studies have pointed out that children's narrative development presents phased characteristics, and age is a key factor in the development of their narrative ability (Yang et al., 2020). For some younger children, the narrative task of requiring them to generate a complete story without any oral input is particularly difficult, which makes researchers doubt whether the narrative generation task for young children effectively triggers certain types of complex grammar (Frizelle et al., 2018). Some scholars also point out that the key to ensuring the quality of interactive reading is to wait appropriately for the development of children's language ability (Khan et al., 2016). Therefore, the selection of children at which age to intervene has become a key problem in today's narrative intervention.

The interactive relationship has a significant impact on the quality of interactive reading. In recent years, scholars have been exploring the positive influence of parents, teachers and peers on the intervention of children's narrative ability (Sang, 2018; Lingwood et al., 2020), but a comparison of corresponding effects is lacking. In view of this, this study chooses interactive objects as the moderating

variable for discussion and divides them into peers, teachers, parents and researchers.

Intervention duration is also an important variable that affects the narrative development of young children, and the contrast between long-term effect and short-term effect is a contradictory problem in current interactive reading intervention. Some scholars have explored the impact of interactive reading on children's narrative development through long-term intervention (Silva and Cain, 2024), and some scholars obtained immediate results through short-term intervention (Yang and Zheng, 2020; Riad et al., 2024). In view of this, intervention duration was selected as the moderating variable for discussion in this study, and intervention duration was divided into less than 8 weeks, 9–16 weeks, and more than 17 weeks.

1.6 Purpose of this study

Experimental studies related to this topic are screened out, disputes existing in existing literature are discussed, and the regulating effects of children's age, interactive objects and intervention duration are further analyzed. Therefore, according to existing research contents, this study mainly discusses the following questions:

- 1) Evaluate the overall effect of interactive reading on the intervention effect of children's narrative ability, whether interactive reading can promote the development of children's narrative ability, and if so, what is the extent of its influence.
- 2) Age adjustment: Whether there are differences in the development of narrative ability of children of different ages in interactive reading, and if so, which age group can improve their mental health more.
- 3) Adjustment of interactive objects: whether different interactive reading objects have differentiated effects on the development of children's narrative ability, and if so, which interactive objects have the greatest impact.
- 4) Adjustment of intervention duration: whether there are differences in the intervention effects of interactive reading on children's narrative ability under different intervention duration.

2 Methods

2.1 Information sources and search strategy

Systematic review and meta-analysis were carried out in accordance with the PRISMA guidelines. Chinese literature was retrieved from CNKI, while English literature was sourced from the Web of Science, Science Direct, SpringerLink, Taylor & Francis, Wiley, and the ERIC electronic databases. At the same time, the method of literature backtracking was used for literature supplementary search. Three sets of keywords were used to search: (1) ["Young children" OR "preschoolers" OR "infants" OR "toddlers" OR "Child" OR "children"]; (2) ["shared book reading (SBR)" OR "shared reading" OR "interactive reading" OR "dialogic reading" OR "conversational reading"]; (3) ["narrative ability" OR "Oral Narrative" OR "Storytelling" OR "Narrative Skills" OR "Oral

Narrative” OR “Narrative Skills”]. The two coders searched a total of 2,326 relevant studies in the database, deleted 218 duplicate data, and left 2,108 references. After reading the literature in strict accordance with the inclusion criteria, 2079 literatures were excluded, leaving 29 qualified reports. Among the 29 studies, after careful reading again, one study with the same data published by the same author was excluded, one study whose subjects were not between the ages of 3–6 years old was excluded, and two studies with unclear data and incomplete mean and standard deviation were excluded. Finally, the remaining 25 studies were included in the analysis (see Figure 1).

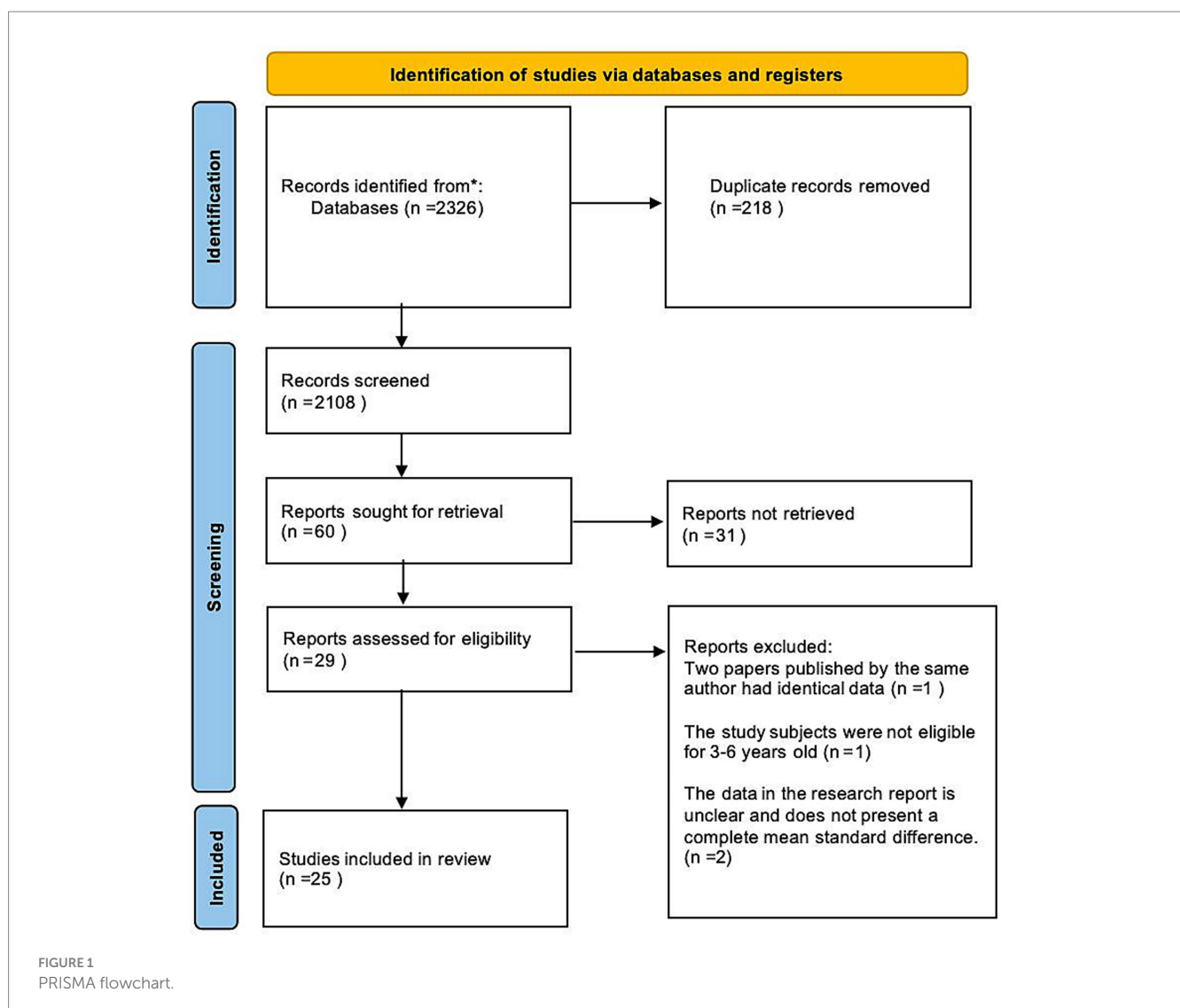
2.2 Inclusion criteria

The criteria for literature inclusion in this meta-analysis were:

- 1) The literature was an experimental or quasi-experimental study, randomly assigned to the experimental group and the control group to receive the intervention.
- 2) Complete indicators such as mean and standard difference of the experimental group and the control group were clearly reported, and the data were complete so as to calculate the effect size.
- 3) The study subjects were children aged 3–6 years without any cognitive, language or physical disabilities.
- 4) The topic was the impact of interactive reading on narrative ability.
- 5) If there is data duplication in two papers published by the same author, select data from only one paper.

2.3 Data coding

Two authors extracted the following information from the included literature: (1) author, year of publication, and country; (2) subjects of study; (3) sample size (experimental group/control group); (4) Intervention details of experimental group and control group (interaction subjects, intervention duration); and (5) data for effect size calculation.



2.4 Statistical analysis

In this study, Stata17.0 software was used for meta-analysis, Hedges' g was used as the effect size, forest map, heterogeneity test, publication bias and other functions in the meta-analysis menu were used for analysis, and random effects model was selected. This study was composed of 25 interactive reading experiments with 123 effect sizes to explore the effects of interactive reading on children's narrative ability at different ages, different intervention duration and different interactive objects.

2.5 Publication bias test

Publication bias refers to the fact that the results of “statistically significant” positive studies in existing studies are more likely to be published than those of “statistically significant” negative studies, resulting in a bias in the results of meta-analysis. The funnel plot method and Egger method were used in this study to test for publication bias. In the detection of funnel plot method, if there is no publication bias, the scatter points of funnel plot will be symmetrically distributed around the true value and tend to be concentrated in a narrow range. From the funnel plot of this study, as shown in Figure 2, the scatter-point distribution of the effect values of independent studies included in the study had no obvious asymmetry, and most of them were in the middle region of the funnel plot and relatively evenly distributed on both sides of the median line, indicating that the possibility of publication bias was small. At the same time, the Egger linear regression test results show that the t value is 1.76 and the p -value is 0.0803 ($p > 0.05$), indicating that there is no publication bias in this study and the meta-analysis results are relatively stable and reliable.

2.6 Test of heterogeneity

When using the meta-analysis method to analyze the sample literature, attention should be paid to the heterogeneity of the findings and publication bias. Since various studies included in the same systematic review in the meta-analysis may have random sampling

error and variation between study groups, resulting in heterogeneity of the effect size between studies, the heterogeneity test method must be adopted for evaluation. The Q -test combined with the I^2 statistic is the best scheme to test heterogeneity. Generally speaking, $I^2 = 25, 50, 75\%$ is used to divide heterogeneity into three levels: low, medium and high. In this study, the Q test combined with the I^2 statistic was used to test the heterogeneity of the sample literature data. The Q value of the test result was 399.50 ($p < 0.001$), and the I^2 value was 76.07% (greater than 75%), indicating that the study had high heterogeneity, and two effect models could be selected to eliminate the influence of heterogeneity. Random effect model and fixed effect model. A random effects model can be selected if heterogeneity is high, and a fixed effects model can be selected if heterogeneity is low. Therefore, according to the test results, this study will adopt the random effects model for analysis, and then evaluate the effect of interactive reading on children's narrative ability (see Figure 3).

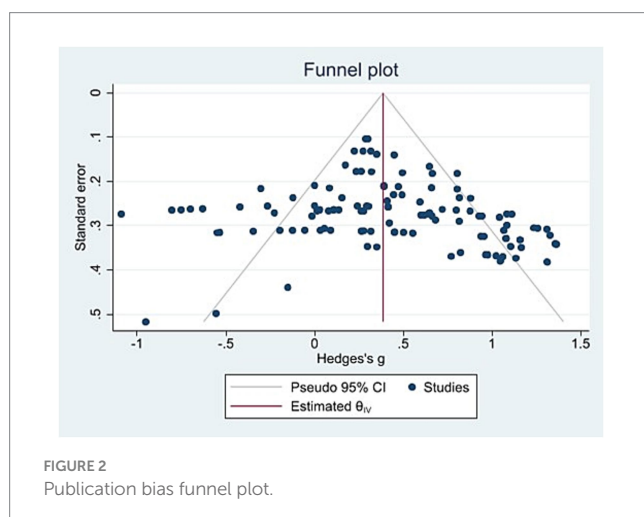
3 Results

3.1 Bias assessment

The Cochrane risk of bias assessment tool in Revman software was used to evaluate the quality of the literature included in the meta-analysis, mainly from six areas, including selection bias, measurement bias, follow-up bias, reporting bias, implementation bias and other bias. For each indicator, high risk of bias, low risk of bias and uncertainty of bias were used to evaluate, as shown in Figure 4. If all the literatures are low-risk in the evaluation process, the quality grade of the literatures is grade A, and the possibility of bias is the least. If the risk is unknown in the process of literature evaluation, the quality grade of the paper is B, and there is a medium possibility of bias. In the evaluation process, as long as one item is high risk, the quality of the paper is level C, with a high possibility of bias (Liao et al., 2023). According to the results of bias risk assessment, there were 7 articles with grade A quality, 15 articles with grade B quality, and 3 articles with grade C quality. Among them, 10 literatures were not rigorous enough in randomization, could not specify the way of randomization, or simply grouped children according to the order of participation; In 10 papers, there were loopholes in allocation and hiding. The literature lacked descriptions of whether the groups were hidden or not, or there was the possibility that children, trainers and researchers could know the grouping situation. In 9 literatures, it was not possible to determine whether blind or incomplete blind method was implemented. In 3 literatures, there was the possibility of incomplete outcome data in the scale scoring of children; and 7 articles were uncertain about the existence of incomplete outcome data. Overall, the overall level of literature quality was good.

3.2 Overall impact effect test

Cohen's effect size benchmarks classify values under 0.2 as negligible, those between 0.2–0.5 as moderate, and exceeding 0.5 as substantial. Table 1 reveals an effect magnitude of 0.425, positioned within the moderate interval (0.2–0.5). This evidences that interactive reading contributes moderately yet positively to the holistic progression of children's narrative capabilities.



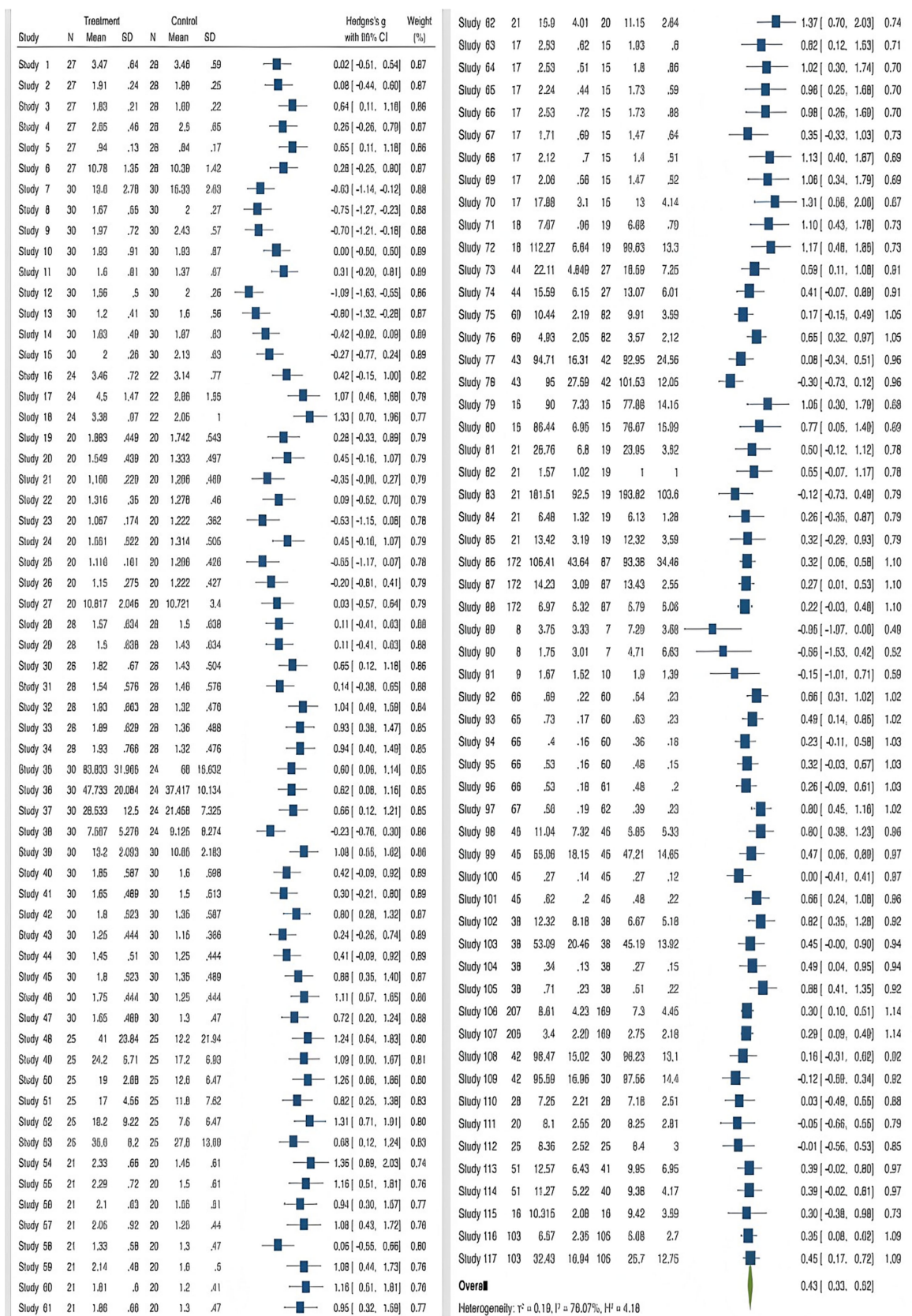


FIGURE 3
Forest diagram.

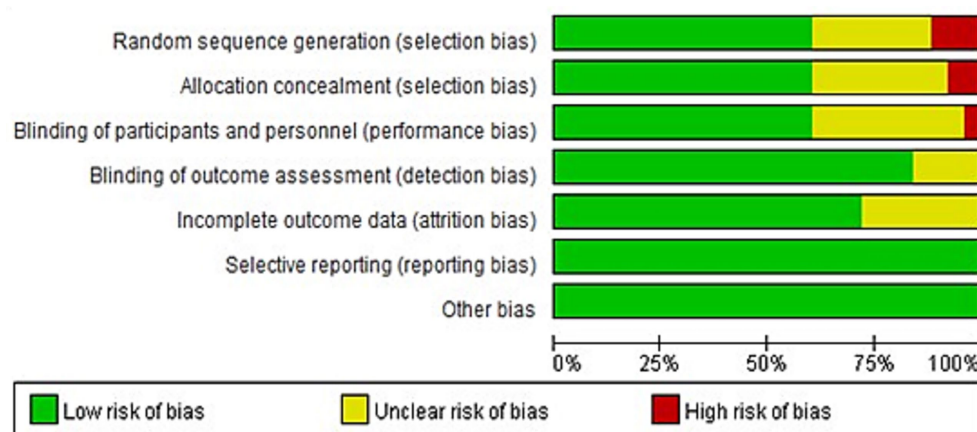


FIGURE 4
Publication bias quality assessment.

3.3 Test of moderating effects

3.3.1 Age

Building upon the established moderate effect of interactive reading on narrative development, this investigation extends to examine age-specific manifestations across three ontogenetic stages (3–4 years, 4–5 years, 5–6 years). As delineated in Table 2, significant enhancements in narrative competence emerge universally (aggregate $g > 0$, $p < 0.01$), confirming developmental pervasiveness. Crucially, the 4–5 years cohort exhibits maximal effect magnitude ($g = 0.635$, $p < 0.001$), signifying a critical ontogenetic window for intervention efficacy.

3.3.2 Interactive objects

Table 3 demonstrates significant facilitative effects of all four pedagogical agents on children's narrative competence ($g > 0$, $p < 0.01$). Effect magnitude stratification reveals peer interaction as the most potent predictor [$g = 0.675$, 95% CI (0.519, 0.830)], exceeding Cohen's large-effect threshold (0.5–1.0). Subsequent predictors include parental engagement ($g = 0.597$) and researcher facilitation ($g = 0.459$), with teacher-guided interaction demonstrating modest efficacy ($g = 0.164$). This hierarchy suggests that peer-mediated linguistic scaffolding—characterized by reciprocal discourse patterns, observational learning mechanisms, and low-affect communication contexts—optimally catalyzes narrative development. While parental, researcher, and pedagogical inputs remain valuable, their differential efficacy necessitates strategically diversified interventions prioritizing peer dyads and family participation.

3.3.3 Duration of intervention

To investigate temporal dynamics, this study examined duration-dependent effects of interactive reading interventions. Table 4 reveals a monotonic dose–response relationship: effect magnitudes escalate with intervention length, peaking at ≥ 17 weeks [$g = 0.644$, 95% CI (0.485, 0.803)], followed by 9–16 weeks [$g = 0.484$, 95% CI (0.369, 0.599)], and ≤ 8 weeks [$g = 0.267$, 95% CI (0.120, 0.413)]. Critically: (1) All durations exceed Cohen's small-effect threshold ($g > 0.20$), confirming

universal efficacy. (2) ≥ 17 -week interventions reach large-effect magnitude ($g > 0.50$). (3) Significant between-group gradients exist ($\Delta g_{\text{max-min}} = 0.377$, $p < 0.001$). These findings establish temporal accumulation as a key efficacy modulator, where extended implementation generates cascading gains in narrative competence through sustained linguistic scaffolding.

4 Discussion

4.1 The overall effect of interactive reading on children's narrative ability

Statistical analysis of 25 relevant documents shows that interactive reading has a moderate positive effect on the development of children's narrative ability (see Table 5). This research result is confirmed by several previous studies (Reese et al., 2010; Xu, 2017), to a certain extent, affirms the positive role of interactive reading as an intervention.

There is a strong link between interactive reading and children's narrative ability, and many researchers have explained the mechanisms of its influence from different disciplinary perspectives. Neuroscience research has shown that children show remarkable plasticity in language learning. The plasticity of the brain to language is a statistics-based process (Kuhl, 2011) in which young children build up a stable knowledge of the sounds to which they are exposed by counting them. The process of interactive reading is children's synesthesia of multiple sensory experiences to support language processing, and they synchronize the activities within and between the brain (Thiede, 2019). During this process, the language regions of the child's brain (such as Broca and Wernicke) become more active and stimulate speech production and comprehension in the child. Social interactionism believes that interactive reading provides children with language materials (Dowdall et al., 2020), wherein the dialogue and discussion between parents or teachers and children not only increase the diversity of stimulus input, but also help children sort out reading information and construct understanding framework through questioning, feedback and

TABLE 1 The overall effect of interactive reading on children’s narrative ability.

Effect model	<i>n</i>	<i>g</i>	95% CI		Heterogeneity test			
			Lower limit	Upper limit	<i>I</i> ² (%)	<i>Q</i>	df	<i>p</i>
Random effects model	117	0.425	0.333	0.518	76.07	399.50	116	0.000

TABLE 2 Test of the moderating effect of interactive reading on narrative ability of children at different ages.

Age	<i>n</i>	<i>g</i>	95% CI		<i>p</i>	Heterogeneity test	
			Lower limit	Upper limit		<i>Q</i>	<i>I</i> ² (%)
3–4 years	8	0.303	0.127	0.478	0.001	11.96	40.38
4–5 years	50	0.635	0.504	0.766	0.000	141.86	67.06
5–6 years	59	0.274	0.143	0.406	0.000	212.70	76.90

TABLE 3 Test of the moderating effect of interactive objects on children’s narrative ability under interactive reading.

Object of interaction	<i>n</i>	<i>g</i>	95% CI		<i>p</i>	Heterogeneity test	
			Lower limit	Upper limit		<i>Q</i>	<i>I</i> ² (%)
Companion	26	0.675	0.519	0.830	0.000	54.10	53.85
Teachers	44	0.164	0.012	0.316	0.034	163.83	79.59
Parents	28	0.597	0.386	0.808	0.000	91.48	73.97
Researcher	19	0.459	0.335	0.584	0.000	28.47	33.04

TABLE 4 Test of the moderating effect of intervention duration on children’s narrative ability under interactive reading.

Duration of intervention	<i>n</i>	<i>g</i>	95% CI		<i>p</i>	Heterogeneity test	
			Lower limit	Upper limit		<i>Q</i>	<i>I</i> ² (%)
17 weeks and older	30	0.644	0.485	0.803	0.000	76.42	65.71
8 weeks and under	58	0.267	0.120	0.413	0.000	239.31	77.06
9–16 weeks	29	0.484	0.369	0.599	0.000	53.64	50.95

repetition. Effectively trigger the narrative and expression of young children. The development of children’s narrative skills follows a progressive pattern. With the dynamic evolution of children’s age growth and cognitive development, their ability to understand and retell stories shows a significant improvement trend. Therefore, developmental psychologists believe that questioning and predictive activities in interactive reading can effectively promote children’s metacognitive ability (van Kraayenoord, 2010), the understanding and control of their own cognitive processes. Studies have confirmed that interactive reading, as an intervention method, can effectively promote the improvement of children’s narrative ability. Specifically, with the cyclic deepening of cognitive activities such as situational reasoning and role empathy in conversational reading between adult guides and children, young children gradually achieve the cognitive leap from story understanding to retelling. This development trajectory not only reflects the dynamic balance of the “assimilation-adaptation” mechanism in Piaget’s cognitive development theory, but also echoes the core viewpoint of Vygotsky’s socio-cultural theory on the internalization of advanced psychological functions.

4.2 Analysis of moderating variables between interactive reading and children’s narrative ability

4.2.1 The moderating effect of children’s age is significant

The results of this study show that there are significant differences in the influence of interactive reading on the development of narrative ability of children at different ages. Compared with 3–4 years old and 5–6 years old, in 4–5 years old, interactive reading has a significant effect on the development of narrative ability of children, and the greatest impact ($g = 0.635$, $p < 0.01$). This research result is consistent with the research results (Wu, 2014), interactive sharing reading intervention significantly improves the reading interest and narrative ability of 4–6 year old children. The same results were obtained in the study of Huang (2020), who found that after interactive picture book sharing reading activities, children aged 4–5 have a rich vocabulary and their vocabulary utilization level has been greatly improved, which indicates that picture book reading activities, as one of the interactive reading methods, can significantly improve

TABLE 5 Studies included in the meta-analysis.

Author (year)	Study	N (experimental group/control group)	Age	Interactive object	Duration of intervention	Intervention type
Yang and Zheng (2020)	1	27/28	4–5 years	Teachers	8 weeks and under	Group experiments in schools
Zhang (2017)	2	30/30	5–6 years	Teachers	8 weeks and under	Group experiments in schools
Xu (2017)	3	24/22	4–5 years	Researcher	8 weeks and under	Group experiments in schools
Song (2011)	4	20/20	5–6 years	Teachers	8 weeks and under	Conduct one-to-one experiments in schools
Huang (2020)	5	28/28	4–5 years	Companion	9–16 weeks	Group experiments in schools
Sang (2018)	6	30/24	5–6 years	Companion	9–16 weeks	Conduct one-to-one experiments in schools
Wang and Xie (2022)	7	30/30	4–5 years	Companion	9–16 weeks	Group experiments in schools
Li C. (2014) and Li J. (2014)	8	25/25	4–5 years	Companion	8 weeks and under	Group experiments in schools
Wu and Wu (2017)	9	21/20	4–5 years	Parents	17 weeks and older	Conduct one-to-one experiments in schools
Şimşek and Işıkoğlu Erdoğan (2021)	10	18/19	4–5 years	Teachers	8 weeks and under	Group experiments in schools
Teepe et al. (2017)	11	44/27	3–4 years	Parents	8 weeks and under	Conduct one-to-one experiments in schools
Silva and Cain (2024)	12	69/82	5–6 years	Researcher	17 weeks and older	Group experiments in schools
Lingwood et al. (2020)	13	43/42	3–4 years	Parents	8 weeks and under	Group experiments in libraries
Nevo and Vaknin-Nusbaum (2018)	14	15/15	5–6 years	Teachers	9–16 weeks	Group experiments in schools
Lever and Sénéchal (2011)	15	21/19	5–6 years	Researcher	8 weeks and under	Group experiments in schools
Thomas et al. (2019)	16	172/87	5–6 years	Teachers	9–16 weeks	Group experiments in schools
Reese et al. (2010)	17	8/7	4–5 years	Parents	17 weeks and older	Conduct one-on-one experiments in families
Grolig et al. (2020)	18	66/60	5–6 years	Researcher	17 weeks and older	Group experiments in schools
Riad et al. (2024)	19	45/45	5–6 years	Teachers	8 weeks and under	Group experiments in schools
Grover et al. (2020)	20	207/169	4–5 years	Teachers	9–16 weeks	Group experiments in schools
Requa et al. (2022)	21	42/30	4–5 years	Parents	8 weeks and under	Conduct one-on-one experiments in families
van der Wilt et al. (2019)	22	28/28	5–6 years	Teachers	8 weeks and under	Group experiments in schools
Lake and Evangelou (2019)	23	51/41	3–4 years	Researcher	9–16 weeks	Group experiments in schools
Farah et al. (2019)	24	16/16	4–5 years	Researcher	8 weeks and under	Group experiments in schools
Burgoyne et al. (2018)	25	103/105	3–4 years	Parents	17 weeks and older	Conduct one-on-one experiments in families

the narrative ability of children aged 4–5. The above results can be explained in the following aspects:

First, [Senechal et al. \(2008\)](#) showed that interactive reading can promote children’s expressive vocabulary, morphology and syntax comprehension. The study of [Huang \(2020\)](#) found that the key stage of children’s language development, especially the 4–5 years old period, is regarded as the active period of rapid growth of vocabulary. However, vocabulary is the material of narration for children. Children with

higher vocabulary level are more likely to use “building materials” to express their ideas with more words and confidence to express boldly, so they are more likely to carry out longer narration with richer content ([Li C., 2014; Li J., 2014](#)). [Morgan and Meier \(2008\)](#) proposed that at this critical stage, interactive reading builds a dynamic language environment through two-way dialogue between adults and young children, and has become an effective way to improve children’s narrative ability. During this process, adults use diverse vocabulary and

abstract expressions. Through interactive communication and listening to feedback, they not only enhance children's understanding and memory of vocabulary but also significantly increase their vocabulary. With the improvement of language skills, young children gradually construct narrative frameworks that are more complex in structure and more rigorous in logic, making the story content more rich and three-dimensional, and the expression of emotions more delicate and profound. In their research, German and Simon (1991) analyzed children's word-finding skills in discourse and found that although children with word-finding disorder had no difference with normal children in language productivity, they showed more word-finding features in their narration. This indicates that the improvement of vocabulary ability can reduce the stuttering phenomenon in narration, making the narrative more smooth and the expression of emotions more delicate. Therefore, interactive reading, through its unique interactive mode, significantly promotes the rapid growth of vocabulary and the improvement of application ability of children aged 4–5, providing a solid language foundation and rich expression resources for the leap of children's narrative ability.

Second, according to Piaget's cognitive development theory, children aged 4 to 5 are at the end of the preoperational stage, and their cognitive development and social and emotional needs show a double leap: at this stage, children's social needs surge, they start to build complex social skills, and they exhibit a strong desire for self-expression and interpersonal understanding. Interactive reading provides an excellent carrier for social learning during this critical period by creating in-depth dialogue scenarios between adults and children, and promotes the systematic development of children's social interaction abilities in language interaction. For example, through story telling, young children can practice and learn how to communicate and collaborate with others in simulated social situations (Koivula et al., 2020; Kohm et al., 2016). In addition, interactive reading provides a platform for young children to express their thoughts and feelings through storytelling methods that can effectively support young children's social-emotional reasoning, to meet their needs for social interaction and emotional development (Koivula et al., 2020). Specifically, on the one hand, social interaction provides a rich language and emotional communication environment for young children, which is crucial for the development of narrative skills. In social interaction, children learn how to organize language, express emotion and construct story framework through imitation, interaction and cooperation (Hebert-Myers et al., 2006). On the other hand, the satisfaction of emotional needs contributes to the development of children's emotional regulation ability, which is an integral part of narrative skills. Good emotional regulation enables young children to better understand and express complex emotional states, which is essential for emotional depth and richness in narrative (Brinton and Fujiki, 2017). For example, through storytelling activities, young children learn not only how to express their own emotions, but also how to understand those of others, and this ability is an important foundation for the development of narrative skills (Betawi, 2014).

Third, the brains of 4 to 5 year olds are undergoing rapid development and reorganization, especially in brain regions associated with language processing. According to functional magnetic resonance imaging (fMRI) and other neuroimaging studies, developmental changes occur in the support networks of brain regions during the development of language skills in children from infancy to adulthood (Vannest et al., 2009). In particular, the brain's ability to process language is developing rapidly during 4–6 years of age.

Ríos-López et al. (2020) in their study recorded the development of neural oscillatory activity in response to language in children aged 4–5 years using functional magnetic resonance imaging (fMRI). This study found that from 4–6 years of age, children's brains begin to process verbal information more efficiently, especially in processing slower-temporal components of speech, such as syllabic and prosodic information, and that delta and theta band activity in the right hemisphere is indirectly correlated with intelligibility of speech. This finding is also supported by Weiss et al. (2018) study, which examined brain processing of speech in children aged 5–6 years by functional magnetic resonance imaging (fMRI) and found that the brains of these children have shown specialization in both speech and semantic processing. This suggests that at 4–5 years of age, children's brain language regions have begun to develop rapidly and specialize. Neural network maturation in language areas is shown by enhanced functional connectivity in children aged 4–5 years, while functional connectivity in infancy and early childhood is prospectively associated with language and basic literacy skills at 6.5 years of age (Yu et al., 2022). This suggests that the neural network connections formed in the early stage may lay a neural foundation for the subsequent development of language processing capabilities. Interactive reading may support the development of narrative comprehension by promoting effective connections between brain regions. Schmithorst et al. (2007) found that feedback networks in the brain involve efficient connections from Broca's area and the medial side of the upper frontal lobe to the posterior part of the bilateral superior temporal gyrus when performing narrative processing tasks, and that this connectivity strengthens with age. This suggests that through interactive reading, connections between key areas of the brain responsible for language and narrative processing can be promoted, thereby supporting the development of narrative comprehension in children. Paranawithana et al. (2023) used functional near infrared spectroscopy (fNIRS) in their study to find that normal hearing infants had significantly enhanced functional connections between primary language areas during their first year of life. This enhanced functional connectivity helps improve the efficiency and complexity of language processing, which in turn supports more complex language tasks such as narrative.

4.2.2 Interactive object analysis in interactivity

Through a systematic review of 24 literatures, the research results show that there are significant differences in the effect of different interactive objects on promoting the development of children's narrative ability. In interactive reading, teachers, peers, parents and researchers have different effects on children's narrative ability. Among them, the influence of peers was the most significant ($g = 0.675$, $p < 0.01$). Then came parents ($g = 0.597$, $p < 0.01$), then researchers ($g = 0.459$, $p < 0.01$), and finally teachers ($g = 0.164$, $p < 0.01$). A large number of research evidences show that peer influence is more obvious in interactive reading's impact on children's narrative ability. Among them, Sang (2018) found in her study that peer sharing reading has a more significant impact on all dimensions of children's narrative ability than independent reading. The results of this study indicate that peer sharing reading activities can be used as an effective method and means to cultivate the development of children's narrative ability in kindergartens. Bokus (1992) found that compared with narration alone, children can introduce new reference content and operate on the partner's text, such as confirmation and supplement, when they narrate with their partner. This suggests that peer interaction can enrich

narrative content and structure and promote the development of narrative skills. Wei (2004) found that stories written in groups have advantages in terms of length, richness of detail, use of characters, and the use of higher levels of connectives and character representations compared to stories written individually. This suggests the potential advantages of peer cooperation in promoting young children's narrative ability. The above results can be explained in the following aspects:

First, peer interaction is not limited to language communication, but also includes the understanding and expansion of the story content (Kim S. J., 2016; Kim Y. S. G., 2016). Research points out that peer relationships and interaction play an important role in bilingual children's response to picture books, and these interactions affect their literary response. This suggests that peer involvement can enrich young children's narrative experience and enable them to understand and construct stories from different perspectives.

Second, the naturalness and authenticity of social interaction. The social advantage of peer interaction is reflected in its natural characteristics of the interaction field: Children at the end of the preoperational stage can achieve stress-free self-expression in peer communication. This de-authoritative communication mode is more in line with the critical period needs of the development of their social interaction skills. This free expression helps young children to better develop narrative skills because they can explore and expand their storytelling without adult intervention (Laird et al., 1994).

Third, diversified modes of communication. Peer interaction creates diversified interactive scenarios covering dimensions such as dialogue and consultation, viewpoint confrontation, and role immersion. These diverse modes of communication can help children learn how to organize language, construct plots, and express emotions, which are important components of narrative skills (Laird et al., 1994).

Fourthly, role switching and perspective switching in peer interactions help young children better understand and apply different narrative strategies. Bokus (1992) showed that in peer cooperation, children not only create stories together, but also complement and confirm each other's narratives. This interactive process helps them learn how to view problems from different perspectives and use more complex connective words and role performance in narrative. This multi-perspective narrative training is essential for the development of children's narrative skills.

Fifth, Peer interaction builds a unique social support system, providing immediate feedback and emotional support for the narrative process. This immediate feedback mechanism prompts young children to continuously optimize narrative expression during interaction, significantly enhancing narrative quality and content depth (Wang and Cassell, 2003). In contrast, teachers and parents, while also able to provide support and feedback, are often more fixed and authoritative in their roles and may not be as natural and varied as feedback in peer interactions.

Furthermore, when interpreting the universality of the conclusions of this study, it is necessary to take into account the specific context in which they are based. The vast majority of the empirical studies included in this review were conducted in school Settings. This distribution feature provides particularly solid evidence to support our finding that peer interaction in interactive reading can effectively drive the development of narrative ability in young children in educational contexts. However, this also means that the direct evidence that this study can provide regarding the role of peer interaction in the family (usually dominated by parents), libraries or

other informal educational Settings is relatively limited. Due to the insufficient number of studies in these contexts, we were unable to conduct effective subgroup analyses to examine the moderating effects of the "context" factor. Therefore, the core conclusion of this study is first and most directly applicable to school education practice. We call for future research to be extended to more diverse social and cultural contexts to verify the robustness of current findings and to deeply reveal the possible contextual specificity of interactive reading mechanisms. This will help provide more targeted theoretical guidance for peer interaction reading intervention in different scenarios.

4.2.3 Duration of intervention

Studies show that the duration of interactive reading is significantly positively correlated with the development of children's narrative ability. With the extension of the intervention time, the amount and complexity of language input that children are exposed to gradually increase. This progressive stimulation can not only strengthen the language foundation, but also promote their understanding and application of complex narrative structures. This finding is consistent with the findings of Mol et al. (2008), which showed that even short-term interactive reading interventions can have a positive impact on young children's language and narrative skills. Peterson et al. (1999) also mentioned in their study that long-term interactive reading, such as 1 year of intervention, can significantly improve children's vocabulary and narrative skills. The above results can be explained in the following aspects.

First, in the early 1980s, Krashen (1981) proposed the language Input Hypothesis as the core theoretical framework in his language monitoring model, advocating that language acquisition requires understanding understandable inputs slightly higher than the existing level (the $i + 1$ model). This theory emphasizes that effective input needs to meet two conditions: one is sufficient language exposure, and the other is that the input content needs to be understandable and contain an $i + 1$ gradient structure.

According to Krashen's language monitoring model and its core input hypothesis, the positive correlation between the duration of interactive reading intervention and the improvement of children's narrative ability can be reasonably explained. This theory emphasizes that learners need to achieve language acquisition by being exposed to " $i + 1$ " comprehensible inputs that are slightly higher than the existing level. In continuous intervention, young children are repeatedly exposed to texts that integrate known language (i) with new language elements ($+1$). This progressive input not only consolidates basic abilities but also stimulates their interest in exploring new vocabulary, grammar and expressions. Especially for the development of narrative ability, the " $i + 1$ " input is crucial because it involves the integration of language forms with plot events and emotional evaluations, as well as the ability to tell stories appropriately according to task requirements. With the increase of intervention duration, the narratives spontaneously generated by young children in natural conversations show significant improvements in terms of length, complexity and diversity (Umiker-Sebeok, 1979). Studies show that extending the duration of interactive reading intervention can significantly promote the development of narrative ability in young children, which is highly consistent with the core mechanism of Krashen's language input hypothesis. According to the " $i + 1$ " theory, continuous intervention provides a progressive language input environment for young children: by extending the exposure time, children constantly obtain compound

texts containing known language (*i*) and new language elements (*+1*). This moderately challenging input not only consolidates the existing language foundation but also continuously stimulates the desire to explore new vocabulary and grammatical structures. In the intervention practice, the dual guarantee mechanism of input quantity and quality has been effectively operated: With the extension of the intervention period, the amount of children's language exposure increases exponentially, and by designing strategies such as narrative dialogues involving mothers, open-ended questions, and extensible feedback, it is ensured that the input always maintains an "*i + 1*" gradient (Sénéchal, 1997). Studies show that continuously strengthening language exposure and supplementing it with systematic narrative guidance can significantly enhance children's dual abilities in language expression and narrative construction.

Second, educational theory points out that the cognitive development of young children is often based on the dual foundation of repeated practice and systematic training. Long periods of interactive reading also help establish a child's narrative framework and structure. As stated by Sénéchal (1997), through repeated reading and questioning, young children are able to better understand and remember new vocabulary, which is very helpful for building complex narrative structures. During the continuous process of parent-child reading together, children gradually deepen their cognitive construction of the plot thread, character relationships and narrative logic through repeated exposure to texts on the same theme or various types of story carriers.

This can be argued for in pedagogy's "progressive learning theory," which is a training process that allows for continuous learning from input streams and growth over time, while retaining previously acquired knowledge (Karn et al., 2021). This tells us that learning should constantly contact relevant contents to consolidate achievements. Vretudaki et al. (2023) found in their study that through repeated reading and questioning, young children are able to better understand story structure and make more in-depth comments based on it. Schetz et al. (2000) also found in their study that interactive book reading and story retelling methods in small groups had positive effects on story comprehension and narrative skill development compared to large groups. Horst et al. (2011) found that 3-year-olds who read the same storybook three times in a week showed that children in the repeat reading group performed very accurately on both immediate recall and long-term memory tasks, whereas children who listened to different stories performed accurately only on immediate recall during the last two sessions. This means that repeated reading can help young children remember new vocabulary better and help them form complex narrative structures.

Third, interactive reading stimulates brain development through continuous language interaction, with a focus on promoting the functional improvement of the Broca area (responsible for language generation) and the Wernicke area (responsible for language comprehension). These two brain regions are connected through neural pathways such as the arcuate bundle/superior longitudinal bundle, and there are significant differences in the maturity of their connections between the children and adult groups. And the efficient connection of these two regions is essential for language processing (Schmithorst et al., 2007). Scheinost et al. (2022) in his study showed that functional connectivity between Broca's area and Wernicke's area develops with age, which supports developmental changes in the brain in language processing. Schmithorst and Holland (2006) also confirmed in their study that effective connections between Broca's area and Wernicke's area increase with age, and Romeo et al. (2018) also found

that children who had more conversation rounds with adults had stronger activation in Broca's area. This enhanced connection contributes to improved narrative comprehension and expression (Schmithorst and Holland, 2006).

5 Limitations and future directions

However, this article still has limitations. First, inconsistencies across the included studies regarding national contexts, children's environmental backgrounds, and narrative ability assessment tools may have contributed to variations in the results. Second, this study did not examine the moderating effects of factors such as individual differences among children and parental co-reading styles on the relationship between interactive shared reading and children's narrative development.

Future research could address the following directions. First, future studies could include infants and toddlers aged 0–3 years to conduct comparative analyses of how interactive reading impacts children at different developmental stages. Second, research could further investigate the effect sizes of interactive shared reading on other developmental domains, such as executive function and emotional development.

6 Conclusion

This study employed a meta-analytic approach to evaluate the effectiveness of interactive reading interventions on the development of narrative skills in young children, as well as to examine the moderating effects of three key variables. The findings are summarized as follows: Interactive reading had a moderate and positive effect on children's narrative skills ($g = 0.425$), and the intervention outcomes were significantly influenced by several moderator variables. The duration of the intervention significantly moderated the effect. Interventions lasting more than 17 weeks yielded the most substantial benefits for children's narrative development. The type of participant involved in the intervention also had a significant moderating effect. Peer participation in interactive reading was found to have a more pronounced impact on children's narrative skills compared to participation by researchers, teachers, or parents. Interactive reading was particularly effective for children aged 4–5 years, with this age group showing the greatest gains in narrative ability.

Through this research, parents and teachers can select the most appropriate interactive content based on children's ages. By setting reasonable intervention cycles and actively guiding different objects such as peers and parents to participate, they can maximize the improvement of children's narrative expression and comprehension abilities. This particularly has direct guiding value for early language intervention, children's reading and writing assistance, and family reading guidance, promoting the development of children's language literacy.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

LX: Writing – original draft, Writing – review & editing, Conceptualization, Funding acquisition. YT: Data curation, Formal analysis, Writing – original draft. QL: Data curation, Methodology, Validation, Writing – original draft. HC: Software, Validation, Writing – original draft. JZ: Software, Validation, Writing – original draft. JS: Validation, Writing – review & editing.

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Conflict of interest

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Correction note

This article has been corrected with minor changes. These changes do not impact the scientific content of the article.

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Do frequency and frequency-related measures signal turn completion? An exploratory corpus study

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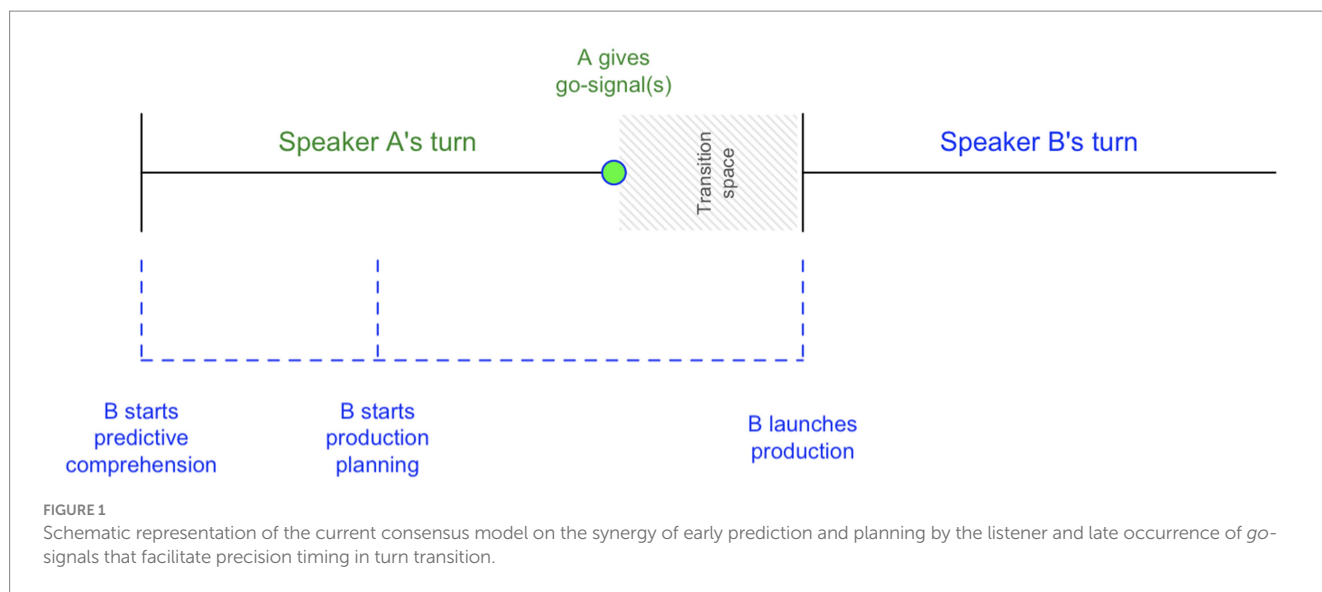
Speakers in conversation have access to word frequency information stored in the mental lexicon. This article examines whether word frequencies play a role as a turn-completion cue in conversation. Based on the Freiburg Multimodal Interaction Corpus (FreMIC), frequencies and frequency-related measures are compared in turn-constructional units (TCUs) from two types of action/turns that are systematically complementary with regard to turn transition: question TCUs, which exert pressure for the next speaker to take over, and storytelling TCUs, which largely resist transition. Based on these systematic tendencies, the focus is on question TCUs that result in speaker change and story TCUs that result in speaker continuation, thereby tying *turn-transition* inevitably to *social action*. We address two research questions: RQ #1 - *Do word frequencies in the TCUs follow an S-shaped pattern?* and RQ #2 - *Which frequency-related measures predict that a TCU will be followed by a turn transition or continuation?* To address RQ #1, a mixed effects model showed the same S-shape found in prior research in large corpora. To address RQ #2, a mixed-effects model was computed, with turn transition (TT) as a binary outcome variable. The model suggested that turn finality in question TCUs co-occurs with a more pronounced drop in word frequency toward the TCU end than in story TCUs. A follow-up analysis revealed a more asymmetrical (right-leaning) distribution of nouns in turn-final question TCUs. Information extracted from word frequencies may hence serve listeners in conversation as cues to anticipate turn completion in questions as opposed to turn continuation in stories.

KEYWORDS

word frequencies, turn-constructional unit, questions, storytelling, turn-transition

1 Introduction

Speakers in conversation across the world manage to produce a response to a prior turn with a small gap of around 200 ms (Stivers et al., 2009, p. 10588; Heldner and Edlund, 2010, p. 564). How is this precision-timing achieved? It is commonly assumed that listeners dual-task, predicting the unfolding action (speech act) and its time course while pre-planning their own response (Levinson and Torreira, 2015). The pre-planned response is launched as soon as the speaker gives the ultimate “go-signal” (Barthel et al., 2017; Holler and Levinson, 2019;



Levinson and Torreira, 2015; Magyari et al., 2014; Gísladóttir et al., 2018; Bögels and Torreira, 2015). The model is schematically depicted in Figure 1.¹

Previous research on resources that listeners exploit in order to determine when a turn has, or is about to, come to a close has suggested a large number of such resources in all modalities. These resources do not only comprise “one-off” cues issued by the speaker upon turn completion, for example, a trail-off conjunctive or turn-final lengthening, but also include indexes derived from the turn as a whole that allow *long-distance projection*, such as lexico-syntactic predictability or *rallentando* (Levinson and Torreira, 2015, p. 13; Rühlemann and Gries, 2020; cf. also Sacks et al., 1974; Clayman, 2013; Magyari et al., 2014).²

In this study, we examine word frequency and related measures as another verbal resource to project and predict turn-completion. Frequency effects can be observed at almost any level of inquiry into language processing (Ellis, 2002). Our concern with frequency in this article is motivated by prior research suggesting an S-shaped distribution of word frequencies in conversational turns-at-talk (Yu et al., 2016; Klafka and Yurovsky, 2021; Rühlemann, 2020a, 2020b; Rühlemann and Barthel, 2024): frequencies start very high in turn-first position, then drop and level out until the last position in the turn, until they drop again steeply.

The S-shape pattern emerges very clearly and with little variation in the large conversational subcorpus of the British National Corpus (cf. Hoffmann et al., 2008) and is strong enough to also appear in the

much smaller Freiburg Multimodal Interaction Corpus (FreMIC) (Rühlemann and Barthel, 2024).

Conversationalists are sensitive to word frequencies (Hasher and Chromiak, 1977; Hasher and Zacks, 1984). This transpires, for example, from the word frequency effect, that is, the fact that rare words are more slowly processed than common words (Oldfield and Wingfield, 1965; Jescheniak and Levelt, 1994; Indefrey and Levelt, 2004; Levelt et al., 1999; Johns et al., 2012). Given this sensitivity, the S-shaped distribution of word frequencies in turn would suggest the possibility that the drop in frequency in turn-last position represents a go-signal, that is, a one-off cue occurring upon turn completion, similar to an address term (Sacks et al., 1974), or the return of the speaker's gaze (e.g., Auer, 2018, 2021a, 2021b). However, given that frequencies decrease not just on the last word but overall within turns we wish to allow for the possibility that frequency serves as a resource for *advance-projecting turn completion* very much like syntax: just as syntax provides a structural envelope allowing the listener to predict the structural contour of the turn-in-progress, so frequency may provide a statistical envelope for the listener to predict the time course of the turn.

We thus hypothesize that the dynamic changes in frequency, including but not restricted to the drop in frequency on the turn-final word and the changes in frequency-related measures, do not go unnoticed by the listener and can be used by the listener as resources to (advance-)project (imminent) turn completion. As we have no access to recipients' internal processes, to test the hypothesis, we investigate word frequencies and related measures in turns and their potential correlation with the actual occurrence or non-occurrence of turn transition observed in the sequence.

Specifically, we address two research questions: RQ #1 - *Do word frequencies in the TCUs follow an S-shaped pattern?* and RQ #2 - *Which frequency-related measures predict that a TCU will be followed by turn transition or continuation?*

Crucially, RQ #2 is examined by comparing questions and stories. These kinds of turns/actions differ fundamentally: questions are short, they consist mostly of a single turn-constructive unit, and they exert maximal pressure on the listener to respond (Stivers and Rossano, 2010, p. 29). Stories, by contrast, are extended turns, consisting of

¹ The schematic representation only depicts turn-final go-signals; it does not depict advance-projecting turn completion cues, whose onset may be much earlier in the turn.

² Long-distance projection appears to play a smaller role in estimating turn endings than one-off final cues. Corps et al. (2018) found that while content predictability enables listeners to prepare a response early, it does not guide them in deciding when to begin articulating it. Likewise, Bögels and Torreira (2015) demonstrated that prosodic features in the final word—but not in earlier ones—shaped turn-end judgments, indicating that final cues carry more weight than long-range anticipation.

multiple TCUs, during most of which turn transition is avoided—typically until the climax, where assessments by the recipient are normatively relevant (Stivers, 2008). In (information-seeking) questions, the pressure is maximal: the provision of the sought information is normatively relevant; non-provision of the information may get negatively sanctioned (Stivers, 2013, p. 204). In Stivers (2010), for example, 93% of all questions were indeed followed by a turn transition. Storytellings provide a very stark contrast: they can be “very long stretches of talk being properly understood as being organized under the scope of a single sequence” (Schegloff, 2007, p. 215). They require the suspension of ordinary turn-taking (e.g., Jefferson, 1978) and entail a structural asymmetry, with the storyteller building up a succession of turn-constructional units (TCUs), and the listener filling the places between the units with recipient feedback in the form of vocal continuers (e.g. ‘mm’, ‘uh’, and ‘yeah’) (Goodwin, 1984) and/or visual continuers, such as nods (Stivers, 2008) and blinks (Hömke et al., 2017). Obviously, question turns can also be built out of multiple TCUs, and storytellings also come to a point where more action than issuing a continuer is expected from the interlocutor (namely at the story’s climax; cf. Stivers, 2008) and where, then, turn transition does occur. In addressing RQ #2, we therefore focus entirely on question TCUs that result in turn transfer and on story TCUs that do not lead to turn transition.

This methodological decision has important implications. The decision effectively means that turn transition is perfectly correlated with the type of action. Therefore, the present analysis does not claim to separate frequency-related features of transition *per se* from those associated with the social action of asking a question versus telling a story. Instead, what the study aims to identify are candidate frequency-related features that *co-occur* with transition-likely actions (questions) versus transition-resistant actions (stories). So, while we are using predictive modeling, prediction is used as a means to *discriminate* frequency-related features associated with turn-final question TCUs and, respectively, turn-medial story TCUs.

2 Data

2.1 The Freiburg multimodal interaction corpus

The data underlying the analyses in this article are part of the Freiburg Multimodal Interaction Corpus (FreMIC). Although small, FreMIC holds information of a breadth and level of detail not commonly seen in linguistic corpora (for a full description, see Rühlemann and Ptak, 2023).

FreMIC comprises ~30 h of video-recordings in 38 files transcribed and annotated in detail and featuring large streams of automatically generated multimodal data (e.g., eye gaze and pupil size). FreMIC’s total word count is 375,637. All conversations were annotated and transcribed in ELAN (Wittenburg et al., 2006). Two types of transcriptions were used: orthographic and conversation-analytic (e.g., Jefferson, 2004); the latter renders verbal content and interactionally relevant details of sequencing (e.g., overlap and latching), temporal aspects (pauses and acceleration/deceleration), phonological aspects (e.g., intensity, pitch, stretching, truncation and voice quality), and laughter. The underlying unit of analysis for

transcription was the interpausal unit (IPU); that is, whenever a speaker stopped speaking for longer than 180 ms a new annotation was begun, a threshold that reflects the human 120 to 200 ms threshold for the detection of acoustic silence (Heldner, 2011; Walker and Trimboli, 1982; cf. also Levinson and Torreira, 2015 and Roberts et al., 2015, who also work with IPUs).

2.2 Participants

Forty-one individual participants were recruited to contribute to one or more of the 38 recorded conversations (total run time 30 h). Recordings lasted between 30 and 98 min (mean = 46.75 min, SD = 13.80).

The participants were explicitly told they were free to talk about anything that came to their minds. They were mainly students at Albert-Ludwigs-University Freiburg, as well as their friends and relatives [17 men, 21 women, 3 diverse/NA; mean age = 26 years (SD = 5.7 years)]. Most participants’ first language was English ($n = 38$, out of 41). All participants had normal or corrected-to-normal vision and hearing. Participants gave their informed consent about the use of the recorded data, stating their individual choices as to which of their data can be used and for what specific purposes. They received a compensation of €15 per hour for their participation.

2.3 The c7 tag set

All orthographic transcripts in FreMIC were part-of-speech tagged using the CLAWS web tagger (Garside and Smith, 1997) and its c7 tag set.³ The c7 tag set is a fine-grained tag set providing a total of 138 PoS categories (cf. Supplementary Material 1). The major advantage of such a fine-grained set is that it helps distinguish distinct morpho-syntactic functions of one and the same word form. For example, the word form *that* in English can take on a number of functions in context, for example, as a demonstrative as in *when was that?*, where in c7 it is tagged *that_DD1*, a relativizer as in *the day that follows Christmas (that_CST)*, a complex subordinating conjunction as in *now that you talk it’s fine (that_CS22)*, and an adverb as in *it’s not that far (that_RG)*.⁴ The accuracy rate for the c7 tagset is 96–97% (Rayson, personal email communication; cf. also Leech et al., 1994; Garside and Smith, 1997).

2.4 The data subsets

2.4.1 Data selection

Question turns can be used to do a wide range of things, such as initiating repair, confirming, and assessing (e.g., Stivers, 2010). This study focuses on information-seeking questions.⁵

³ <http://ucrel-api.lancaster.ac.uk/claws/free.html>

⁴ Another advantage is that the underlying grammatical words in contracted forms are recognized and tagged separately; e.g., *gonna* is tagged *gon_VVGK na_TO*.

⁵ Identifying such QA sequences is anything but trivial. Questions may remain unanswered, involve a *wh*-pronoun but do not seek information but affirmation

Four syntactic types were targeted: *wh*-questions, polar questions, declarative questions, and multi-clausal *or*-questions, such as *is it!multiple singers for the band or is she like the main one °then°* =.

The stories for this analysis were selected from the data used for a prior analysis (Rühlemann and Trujillo, 2024) based on the condition that they be ‘big-package’ stories involving canonical story structure with (optional) story abstract, background, complicating events, and climax (Labov and Waletzky, 1967; Labov, 1972; cf. also Goodwin, 1984).

Both the questions and the storytellings selected were elaborately pre-processed in a joint effort by multiple researchers (Rühlemann et al., n.d.). The pre-processing is detailed in the following.

2.5 Data pre-processing

Turns can be single-unit turns or multi-unit turns (cf. Robinson et al., 2022). Storytellings are virtually always such extended turns stretching over multiple turn-constructual units (TCUs), and question turns can harbor a complex structure too. The questions and storytellings that form our data were therefore manually segmented into TCUs and whatever other units were found.

TCUs were operationalized as “coherent and self-contained utterance[s], recognizable in context as ‘possibly complete’” (Clayman, 2013, p. 151) so that another speaker could legitimately step in. “Completeness” was investigated in terms of syntax, prosody, and/or pragmatics (Clayman, 2013). While syntax served as the main guide for identifying TCU boundaries, prosody could override it in certain cases—specifically when (i) an extension, though grammatically complete, was bound to the prior unit through intonation, and (ii) the break between the core TCU and its extension was made audible by a shift in pitch or contour. The TCU segmentation in questions and stories is detailed in the following.

2.5.1 TCU segmentation

2.5.1.1 TCU segmentation in questions

Question *turns* can be single-TCU turns or multi-unit turns exhibiting a more complex structure due not only to the occurrence of more than one question-TCU but also to the speaker’s use of other, non-TCU or non-question material. As is generally the case (cf. Robinson et al., 2022), most questions in the data were single-TCU turns; question turns with two or more question-TCUs were less frequent. Consider extract (1), where the distinct turn components are separated by |:

```
(1) [F04, Sequ 35]
01 B:      [but] =°but° w- if you say it's
           a Dachgeschoss top floor is it like
02          (0.493) slanted? | pol
03          and can you actually [walk?] | pol
```

In multi-unit question turns, speakers often also use TCUs that do not perform the action of asking a question but that do other things (labeled *non-Q*), as in extract (2):

```
(2) [F01, Sequ 1]
01 A:      >like I do n't
           understand< | nonQ
02          sorry | nonQ
03          like how old's your mom; | wh
```

The first TCU *> like I do n't understand<* as well as the following TCU *sorry* are clearly not questions; only the third TCU *like how old's your mom;* serves to request information.

Question-TCUs are sometimes extended by a turn increment; to the extent that these were syntactically and/or prosodically separated from the preceding question TCU, they were treated as a separate, extension TCU (labeled *ext*), as shown in extract (3):

```
(3) [F07, Sequ 109]
01 C:      <what would you call it> | wh
02          this | frg
03          you know when you don't clean your
04          sink [like ever] | ext
```

Here, the first segment represents the question TCU; it is followed by the fragment *this*, and finally extended with *you know when you do not clean your sink [like ever]*.

Not all verbal material a speaker uses in a turn may be part of a TCU; these components are referred to as fragments (labeled *frg*). They include syntactically incomplete utterances, turn-initial particles, as well as turn-final particles. Such particles are treated as fragments only if they are separated from the TCU by an intonation boundary (indicated in the transcripts by “;”, “?” or “?”). Contrarily, if they are intonationally integrated into the TCU, they are treated as part of the TCU. For example, in extract (4), the (repeated) particle *so* heading the question-TCU [*so*] *so do you just stay on the cruise ship*, is intonationally integrated into the TCU and therefore considered a part of it. By contrast, the trail-off conjunctive *o:r = following* the question-TCU is intonationally separated and therefore a fragment:

```
(4) [F08, Sequ 207]
01 C:      [so] so do you just stay on the
           cruise ship, | pol
02          o::r= | frg
```

of the stance displayed in the question (as in rhetorical questions); or they may get responded to but not in a type-fitted manner by the selected nex-speaker but by a third, non-selected party (Lerner, 2019) who inserts some (intrusive) talk that does not provide the sought information. Another complicating factor is the occurrence of questions in turbulent turn-taking, for example due to multiple overlap, which make identification of question and particularly answer difficult.

2.5.1.2 TCU segmentation in storytellings

Storytellings are often considered multi-unit turns as they are of extended length and consist of several, often numerous TCUs. Storytellings are thus large “projects,” whose completion is potentially projected by a story preface adumbrating the story’s high point and/or the storyteller’s stance toward it (Stivers, 2008). Once the co-participants grant permission to carry out the telling project, they also implicitly agree to a suspension of ordinary turn-taking for the duration of the story, giving the storyteller the right to an extended turn, involving a series of narrative TCUs.

```
(5) [F16, story "Sad story"]
01 C:      =u:m and then they had a ↑budget↑ cut (.) | narr
02          um oh I mean u:h: | frg
03          the US reaches its um budget deficit, | narr
04          >its maximum budget deficit< | narr
05 →      °what's° (.) | frg
06 →      °what's that called again?° | int
07 →      °governmental° tt >I don't know | int
08          so there's a government shutdown< | narr
09 A:      the [fiscal cliff]
10 C:      [a:nd the !fiscal!] | frg
11 →      yeah °ye[ah]° (.) | int
12          and u:h | frg
13          and so as a result all new positions are cut | narr
14 A:      [mm]
15 C:      [uh and] his position as a as a diplomat is cut | narr
16 A:      wow
```

However, not all TCUs a storyteller uses in telling their story are *per se* a narrative TCU. Story recipients may insert comments or ask questions in mid-story position, which the storyteller responds to; alternatively, storytellers themselves may interrupt the telling, for example, to recruit story recipients in a word search. These actions/TCUs by the storyteller are not narrative TCUs with suspended turn-taking. Rather, in that the storyteller responds to or seeks to initiate a recipient’s action, these TCUs are interactive ones in which normal turn-taking is briefly resumed. Moreover, even in uninterrupted, smoothly delivered storytelling, turn transition is not avoided everywhere. On the contrary, based on a conceptualization of “storytelling as an activity that both takes a stance toward what is being reported and makes the taking of a stance by the recipient relevant” (Stivers, 2008, p. 32), the story climax can be considered the transition-relevance point in storytelling interaction. For it is here, at or around the story’s high point, that story recipients are expected to actively take a stance on the story events—a stance that, preferably, “mirrors” the storyteller’s. That is, those narrative TCUs that depict the story’s high point are then designed, not to avoid, but to initiate turn transfer.

To illustrate, in (5), (where narrative TCUs are labeled *narr* and interactive TCUs are labeled *int*), speaker A is telling a story about his father’s career as a diplomat, which the storyteller bills as a *sad story* (not shown in the transcript). The father’s career hit a bump when the US reached its *maximum budget deficit* (line 04). At this point in the telling, the storyteller changes into interactive mode by asking °what’s°(.) (line 05) °what’s that called again?° (line 06), to which none of the two recipients respond immediately, so

he continues with the story *so there’s a government shutdown*< (line 08) before, finally, recipient A does proffer *the [fiscal cliff]* (line 09) as a candidate term. Speaker A immediately confirms this as the searched-for term by repeating it emphatically (line 10) and reaffirming it (line 11), and then resumes the telling (lines 13 and 15). In line 15, the telling reaches (the beginning of) the story climax: as a result of the fiscal cliff, the father’s position *as a diplomat is cut*—which is the “sad” event that the story set out to relate. As per preference structure (Stivers, 2008), recipient A answers empathically *wow*:

Storytellers frequently, especially around story climaxes, use direct speech (or constructed dialog or enactments, which clusters around climaxes; cf. Labov, 1972; Li, 1986; Mathis and Yule, 1994; Mayes, 1990; Norrick, 2000; Clift and Holt, 2007; Rühlemann, 2013), as exemplified in extract (6); the content of direct speech (or, as in lines 01 and 06, silent gesture) is indicated by ~; TCUs containing direct speech are labeled *dr*:

Another critical part of the data pre-processing was the annotation of *Turn Transition* (TT), the response variable in model #2, addressing RQ #2.

2.5.2 Turn-transition coding

2.5.2.1 Turn-transition coding in questions

The critical variable in this study, indeed the outcome variable of the model addressing RQ #2, is *Turn Transition* (TT), a binary variable recording whether a TCU led to a speaker change and turn transition or not. In single-TCU questions, the coding as such was obvious (except for the few cases where the first response was by the non-selected third participant; cf. Lerner, 2019). In complex question turns, TCU segmentation allowed us to identify the TCU that the speaker’s response was a response to:

In extract (7), speaker A’s response “*it’s cruise ship tours*” specifically responds to speaker C’s first question-TCU “*what type of: tours is it*” for two reasons: first, the response overlaps with key lexical elements of the second question-TCU *is it (like a long) ti:me;*, and it is therefore unlikely that speaker C can even

(6) [F27, story "Black Forest"]
 01 A: I was like ~yoꞤ ((imitates typing on keyboard))~ | **dr**
 02 ~YO GUYS I think I'm gonna go to this place called <!Frei!:bu:rg
 03 a:nd> there's !some!thing here called the Black !Fo!rest~| **dr**
 04 and it's <almost like> everything STOPped | **narr**
 05 like ~↑weow↑~ | **dr**
 06 and everyone just stopped like ~((freezes/2.5))~ | **dr**
 07 B: [((laughs))]
 08 A: [it got like] !NO! REACtion | **narr**

(7) [F01, Sequ 5]
 01 C: [what] type of:: tours is it | **wh**
 02 is it [(like a long)] ti:meꞤ | **pol**
 03 [or] | **frg**
 04 A: [it's cruise ship]
 05 [tours]

hear this question-TCU, let alone process it. Second, the response “it’s cruise ship tours” is both syntactically and semantically fitted to the *wh*-question “what type of tours is it” but not to the polar question *is it like a long time*Ꞥ, which would require a *yes/no*-type answer. In QA sequences such as these, the variable Turn Transition (TT) was coded “yes” only for the responded-to question-TCU; the TCU(s) to which the response was not fitted were coded “no.” In cases where the response was fitted syntactically and semantically to more than one TCU, the question’s *last* and fully audible question TCU was coded as the one leading to the turn transition.

In extract (8), for instance, the question turn is made up of a sequence of three question-TCUs (two declarative question-TCUs and one *or* question-TCU), all three syntactically aligned (i.e., answerable

by *yes/no*), but only the last (*or*-)TCU is coded as the one leading to turn transfer:

Two types of sequences were excluded from the analysis. Sequences such as (9), where a gap of more than 1 s ensued between the (final) question-TCU and the answer, were omitted from further analysis, as a gap of this length is far beyond the “regular” gap of around 200 ms, potentially indicating comprehension problems, a dispreferred answer, uncertainty as to who is selected as the next speaker, and so on. In extract (9), it appears that the gap of 1.19 s is a harbinger of a disaligned answer (an answer, in this case, whose truth value is compromised due to it being *individual* and *subjective* only):

Sequences as in extract (10), where the answer is referenced to a TCU-extension, were removed from the data set given their lack

(8) [F08, Sequ 167]
 01 A: so it 's like not really like Fra:nce | **decl**
 02 it 's like a mix <°of the two°> | **decl**
 03 or is it like !real!ly French | **or**
 04 [like a r-] | **frg**
 05 B: [no it's] it's I I guess it's a bit like (.) Alsace=

(9) [F12, Sequ 226]
 01 B: but how is it for youꞤ | **wh**
 02 do you feel like <you: remember more than> fifty percent of what you
 03 learned in your bachelor 's degree? | **pol**
 04 or | **frg**
 05 like what what would you sayꞤ | **wh**
 06 → (1.190)
 07 A: °so° !ob!viously this is very like
 08 B: like it 's
 09 A: [individual (.) ye:ah exactly so it's very]
 10 B: [very sub!ject!ive (depending on °how it goes°)]

(10) [F04, Sequ 50]
 01 A: u:h the guy (.) | **frg**
 02 you remember Urick? | **pol**
 03 and there was like a room directly across of me; | **ext**
 04 that a guy moved out and his girlfriend?= | **ext**
 05 B: =°°yeah°°=

of syntactic and semantic independence from the preceding question-TCU (indeed, they cannot ‘survive’ without them):

2.5.2.2 Turn transition coding in stories

TCUs labeled *int* were coded as facilitating speaker change (Turn Transition = “yes”) regardless of their position in the story. By contrast, TCUs labeled *narr* and *dr* were both coded as avoiding speaker change (Turn Transition = “no”) only in pre-climax position; narrative TCUs at or around the story climax eliciting engaged recipient response, such as the one in line 15 in extract (9), were coded as inviting turn transition (Turn Transition = “yes”).

To ensure replicability, interrater-reliability (IRR) analyses were carried out both for TCU-segmentation and Turn Transition (TT) coding.

2.5.3 Interrater-reliability analyses

2.5.3.1 Interrater-reliability for TCU segmentation

From the 457 QA sequences, 92 sequences (20%) were randomly sampled, and the IPU transcriptions available in FreMIC were TCU-segmented by a second rater. The 13 stories were each divided into three same-size intervals (c. 33%), and one interval was randomly sampled from each story. The IPU transcriptions available in FreMIC for those intervals were TCU-segmented by a second rater.

The agreement percentage for question-TCUs in which both raters segmented exactly the same words was 83.58%, and the percentage for storytelling-TCUs with the exact same segments and hence the same words was 71.68%. This lower agreement rate likely reflects the fact that the IPUs underlying the segmentation in stories tend to be markedly longer than the IPUs underlying questions, thus allowing more divergent codings. This greater length of IPUs also transpires from the greater length of storytelling TCUs: as shown in Table 1 (cf. Section 2.5.6), the mean number of words in story TCUs is 7.20 (median = 6, SD = 4.58) as opposed to 6.04 in questions (median = 5, SD = 3.45) and the mean duration is 1,851 ms (median = 1,440 ms, SD = 1,506) as opposed to 1,450 ms in questions (median = 1,218, SD = 1,005).

2.5.3.2 Interrater-reliability for turn transition (TT)

In the questions subset, the IRR analysis for Turn Transition (TT) was carried out only on QA sequences with more than one question-TCU (coded *wh*, *pol*, *decl*, or *or*), as there is no choice as to which TCU is answered if there is just one. This subset consisted of 72 sequences; 24 of them (c. 33%) were rated by a second rater. In the storytellings subset, the narrative TCUs (coded *narr* or *dr*) as well as the interactive TCUs (coded *int*) were selected; a proportion of 33% of them were randomly sampled and coded for Turn Transition by a second rater.

The agreement percentage for Turn Transition coding in questions and storytellings taken together was 91.2%, yielding a Cohen’s Kappa

of 0.706 ($p < 0.001$), which indicates substantial interrater agreement (cf. Landis and Koch, 1977).

2.5.4 Statistical overview of the data

The analysis started out with a total of 1,074 TCUs. The descriptive statistics for this original data are shown in Table 1.

The mean number of words in the TCUs was 6.5, their mean duration 1,621 ms; for comparison, TCU mean length in Hömke et al. (2017) was 1,754 ms.

To address RQ #1 — *Do word frequencies in the TCUs follow an S-shaped pattern?*—TCUs with fewer than three words were excluded as no development of frequencies can be read-off of them; the number of thus-excluded TCUs was 100 (or 9.31% of the total 1,074 TCUs), leaving model #1 with 974 TCUs produced by 29 distinct participants. (For RQ #1, the distinction between question- and story-TCU was not relevant.)

Addressing RQ #2—*Which frequency-related measures predict that a TCU will be followed by turn transition or continuation?*—the data set was further reduced. Given the focus of RQ #2 on the (potential) effect of frequency-related measures on Turn Transition, question-TCUs that did not result in turn transition were excluded, thus keeping only question-TCUs coded “yes” on Turn Transition (TT), as were story-TCUs that did result in turn transition, thus keeping only story-TCUs coded “no” on Turn Transition. As noted, this decision intimately ties the results of the predictive modeling undertaken to address RQ #2 to the social-action type: whatever significant effects we may observe cannot be taken as features of turn transition in itself, independent of the type of social action in which it occurred, but will discriminate frequency-related features of turn transition in (i) transition-ready question TCUs and (ii) transition-resistant story TCUs.

After all reductions were made, model #2 was based on 876 TCUs. Of these, 457 were question-TCUs asked by 29 distinct participants and 419 story-TCUs occurring in 18 stories told by 13 participants (who were a subgroup of the 29 questioners). The participants’ demographic details are given in Table 2.

2.5.5 Computation of word frequencies

As noted, FreMIC’s total word token count is 375,637. A frequency list was computed for the whole corpus, based on *c7* word-tag combinations, giving the absolute word token frequencies for any *c7* word-tag combination. Frequencies were normalized per 1,000 words and log-transformed (to the base of 2). The top 10 most frequent *c7* word-tag combinations in FreMIC are shown in Table 3: as is to be expected from a conversational corpus, personal pronouns as well as interjections such as *yeah_UH* are ranked highly, whereas noun-related items such as *the_AT* and *a_AT1* are less highly-ranked than in general or written corpora (e.g., Biber et al., 1999; Stubbs, 2001; Rühlemann, 2007):

Assigning the corpus frequencies to the words in the TCUs presented a challenge because, as noted, in FreMIC, the underlying unit of observation is the IPU, and the *c7* word-tag ‘transcriptions’

TABLE 1 Descriptive statistics: Number of words (*N_w*) and durations of TCUs in original data (1,074 TCUs).

Type	N _w				Duration (ms)		
	Range	Mean	Median	SD	Median	Mean	SD
all	1–39	6.53	6	4.01	1,300	1,621	1258.34
question	1–33	6.04	5	3.45	1218.5	1450.43	1005.54
story	1–39	7.20	6	4.58	1,440	1851.35	1506.74

TABLE 2 Participants' gender, age, and L1 (first language).

Gender	Age	L1
Male: 13	Range: 20–49	English only: 20
Female: 13	Mean: 26.5	English + other: 6
cis-Fe/Male: 2	Median: 26	not English: 2
NA: 1	SD: 6.42	NA: 1

TABLE 3 Top 10 most highly-ranked c7 word-tag combinations in FreMIC.

w_c7	freq	f_norm	rank
I_PPIS1	16,448	43.7869539	1
it_PPH1	10,440	27.8460322	2
yeah_UH	10,270	27.4413862	3
and_CC	10,094	26.9009709	4
the_AT	9,660	25.8228023	5
you_PPY	8,583	22.9290512	6
's_VBZ	8,315	22.2368936	7
like_II	6,945	18.5418369	8
a_AT1	6,602	17.6100863	9
was_VBDZ	4,781	12.7782939	10

available in FreMIC are for IPU_s as well. Large numbers, however, of the TCUs obtained from manual segmentation in ELAN did not map onto these IPU_s either because a TCU was just one part of an IPU or a TCU spanned two or more IPU_s. Mapping c7 word-tags and their frequencies to the words in the TCUs, therefore, required additional work.

To illustrate, the utterance *so wait (wha-) [when was this]* in excerpt (11.a) represented one uninterrupted IPU in FreMIC. It is associated with the string of c7 word-tags shown in (11.b). During the TCU-segmentation process, the IPU was broken up into three segments, as shown in (11.c).

To map the c7 word-tags to each TCU segment, the c7 word-tag strings in (11.b) had to be separated into the exact same segments using a multi-step coding procedure in R so that the c7 word-tag segments could be matched to their corresponding TCU segments, as shown in (11.d):⁶

The next pre-processing step was to assign to each c7 word-tag in the TCU segments their total corpus frequencies.

6 The steps involved were: (i) map the first segment (for example, *so wait*, in extract (11.c)) to the (full) IPU of which it is a part thereby also mapping it to

2.5.6 Computation of frequency-related measures

While there is some agreement that conversationalists constantly monitor relative word frequencies during conversation (Shapiro, 1969; Hasher and Chromiak, 1977; Hasher and Zacks, 1984), the question of *how* they do it is largely an open question.

It is, for example, unclear whether conversationalists monitor frequencies relative to the turn-so-far (i.e., the Saussurian *parole*) or the language as such (i.e., the Saussurian *langue*). If word frequencies are monitored relative to *langue*, the relative word frequencies are ‘simply’ retrieved from the mental lexicon in which they are stored (e.g., Jaeger, 2010; Seyfarth, 2014), to the extent that the corpus can be seen as a microcosm reflecting the macrocosm of *la langue*,⁷ this would suggest that speakers make use directly of corpus frequency values *independently of one another*. Consider, for example, the question-turn *What’s a mountain for you?* As shown in Table 4, the lowest normalized frequency is for the noun *mountain*, a rather rare noun (and, in English, rarity is highly correlated with nouns; cf. Rühlemann and Barthel, 2024), whereas the highest frequencies are for the shortened form of the verb *is* and the pronoun *you*.⁸

If, by contrast, frequencies are monitored with reference to *parole*, that is, to their immediate context of use, the frequencies are still retrieved from the mental lexicon but are additionally put in relation to one another.

An established method to capture speakers’ monitoring of relative frequencies in turns/TCUs is *surprisal* (e.g., Piantadosi et al., 2011;

the c7 word-tag string associated with the full IPU; this mapping utilizes the fact that both units start at the same time in the recording and therefore have the same starting time in ELAN; (ii) convert CA transcription in TCU segments into orthographic transcription by removing all CA-related characters, comments, pauses etc. making use of regular expression; (iii) collapse all orthographic TCU segments into a single string; (iv) devise a function to map c7 word-tags in the IPU to the matching orthographic TCU segments; (v) apply the mapping function.

7 FreMIC is a small corpus, with less than 400,000 word tokens. This smallness may be seen as compromising its ability to reflect the macrocosm of *la langue*. However, the normalized frequencies obtained for the question *what’s a mountain for you?* from FreMIC shown in Table 4, roughly follow the same trajectory as the normalized frequencies for the same question obtained from the much larger conversational subcorpus of the British National Corpus, which comprises 4.2 million word tokens, where the frequencies are, in the order of the words in the question: 9.09, 25.4, 18.3, 0.025, 5.43, and 31.9.

8 Note that the frequencies in this example do not neatly follow the S-shaped distribution that will be demonstrated in Section 3. The example is hence representative of (the many other) cases in the question and story samples that do not behave prototypically. Examples of TCUs in which the frequencies are more closely aligned with the S-shape will be given in Section 4.

(11.a)
so wait (wha-) [when was this]

(11.b)
so_RR wait_VV0 wha-_UNC when_RRQ was_VBDZ this_DD1

(11.c) [F36, Sequ 574]
so wait | **nonQ**
(wha-) | **frg**
[when was this] | **wh**

(11.d) :
so wait | **nonQ**
so_RR wait_VV0
(wha-) | **frg**
wha-_UNC
[when was this] | **wh** when_RRQ was_VBDZ this_DD1

TABLE 4 Log-transformed normalized rank and frequency values for *What’s a mountain for you?* [F01, Sequ 9].

Word token	c7 word-tag	f_norm	f_norm_log
what	what_DDQ	5.5586	1.7153
's	's_VBZ	22.2369	3.1018
a	a_AT1	17.6101	2.8685
mountain	mountain_NN1	0.0426	−3.156
for	for_IF	5.3243	1.6723
you	you_PPY	22.9291	3.1324

Seyfarth, 2014). Surprisal may be part of the resources listeners deploy to predict the TCU’s lexico-syntactic path so as to be able to anticipate the TCU end and speed up their response (cf. Magyari et al., 2014: 2537; cf. also De Ruiter et al., 2006). To measure *surprisal*, the Conditional Probability of each word is calculated given the word or words preceding it; that probability then is converted to *surprisal* by taking the negative log of each probability.

We calculated *surprisal* based on bigrams, establishing how unexpected word B is given word A, C given B, D given C, and so forth. This method and the related unigram and trigram-based methods have some currency in linguistic research (e.g., Klafka and Yurovsky, 2021; Rühlemann and Gries, 2020; Trujillo and Holler, 2025); it implies that upon listening to a current speaker, conversationalists experience an increment to a turn-so-far (i.e., the next word) as more or less surprising based on a comparison of that increment’s frequency with the frequency of its combination with the immediately prior word(s).⁹

9 *Surprisal* on the TCU-first word, for which there is no prior word(s), is obtained from the negative log of the word’s frequency in FreMIC divided by the total number of words in FreMIC (cf. Rühlemann and Gries, 2020). An alternative method, which takes into account the fact that turn/TCU-first words are taken from a rather specialized portion of the vocabulary, may be more precise (cf. Rühlemann and Schweinberger, 2021). This method, however, could

To illustrate, as shown in Table 5, in the question *What’s a mountain for you?*, it is to be expected that *surprisal* is highest on the word *mountain*, given that the indefinite article preceding it is highly common, whereas the noun is rare.

Another frequency-based measure used here is the *number of once-attested ngrams* per TCU (*N_0_CNF*). This novel measure is based on the following rationale.

As noted, listeners seek to predict the TCU’s lexico-syntactic path in order to anticipate how and when the TCU is going to end (cf. Magyari et al., 2014: 2537; cf. also De Ruiter et al., 2006). While, clearly, successful anticipation and hence response speed may depend on a number of factors, such as syntactic affordances (Barthel and Sauppe, 2019) and early or late placement of key information (Bögels et al., 2015), a likely additional factor is the extent to which an unfolding utterance aligns with pre-established phraseological usage that members of a language community have accumulated and stored through their experience as language users (DeLong et al., 2005: Hoey, 2005). Based on this resource, they will more easily predict the trajectory of common word combinations than that of unusual or even novel combinations they have never experienced before (e.g., Corps et al., 2018; Magyari et al., 2014, p. 2537).

The variable recording the number of only once-attested ngrams per TCU, *N_0_CNF*, aims to capture the moment when the TCU-so-far has left behind the ‘trodden paths’ of everyday usage and presents the listener with a sequence of words that is, beyond this one occurrence, not yet attested— at least not in the corpus. We refer to this moment as the 0-point (as the logarithm of 1 is 0). To the extent that a corpus can be seen as a microcosm reflecting the macrocosm of a language (cf. Section 5), that 0-point would demarcate the entry point into uncharted phraseological territory: a stringing together of words that has no precedent in a language user’s experience. Listeners, lacking that experience, have no blueprint to rely on, and predicting

not be adapted to the present data (due to the unavailability of units identified as *turns* in FreMIC).

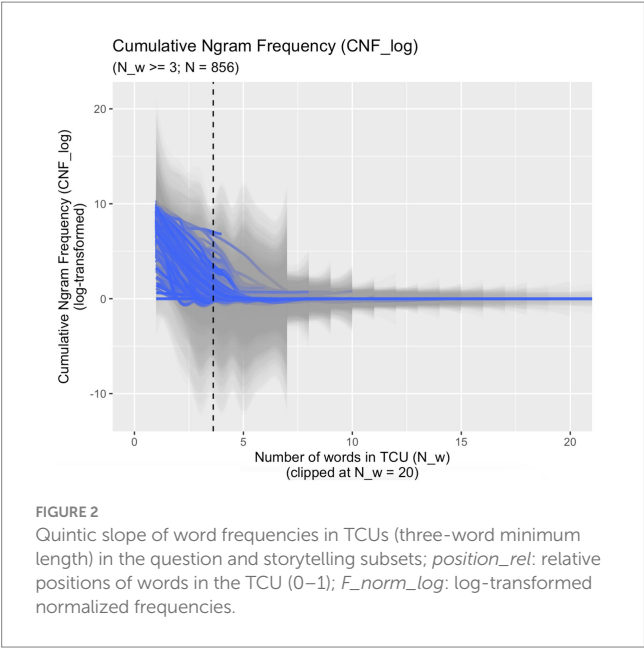


FIGURE 2
Quintic slope of word frequencies in TCUs (three-word minimum length) in the question and storytelling subsets; *position_rel*: relative positions of words in the TCU (0–1); *F_norm_log*: log-transformed normalized frequencies.

TABLE 5 Bigrams, Surprisal, Cumulative ngram, (log-transformed) Cumulative Ngram Frequency (CNF) for *What’s a mountain for you?* [F01, Sequ 9].

Bigram	Surprisal	Cumulative ngram	Cumulative Ngram Frequency (CNF; log-transformed)
what_DDQ	7.4911	what_DDQ	7.643962
what_DDQ ‘s_VBZ	3.2205	what_DDQ ‘s_VBZ	5.411646
‘s_VBZ a_AT1	3.6639	what_DDQ ‘s_VBZ a_AT1	2.484907
a_AT1 mountain_NN1	10.106	what_DDQ ‘s_VBZ a_AT1 mountain_NN1	0.000000
mountain_NN1 for_IF	4.0000	what_DDQ ‘s_VBZ a_AT1 mountain_NN1 for_IF	0.000000
for_IF you_PPY	4.5734	what_DDQ ‘s_VBZ a_AT1 mountain_NN1 for_IF you_PPY	0.000000

the TCU’s lexico-syntactic path from that point onwards likely becomes a challenging task.

To illustrate, consider Table 5, which, for the example question *What’s a mountain for you?* gives the number of only once-attested ngrams, *N_0_CNF*, and Cumulative Ngram Frequencies (CNF) representing the total log-transformed frequencies of each ngram (1-gram, 2-gram, 3-gram, 4-gram, etc.) in the TCU. The log-transformed CNF values for *What’s a mountain for you?* already on *mountain* hit the floor, that is, the minimum value 0, indicating that the ngram token *what_DDQ ‘s_VBZ a_AT1 mountain_NN1* occurs

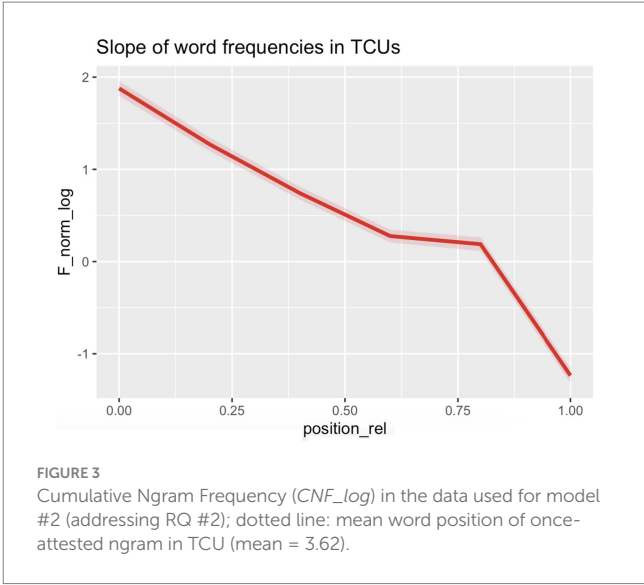


FIGURE 3
Cumulative Ngram Frequency (CNF_log) in the data used for model #2 (addressing RQ #2); dotted line: mean word position of once-attested ngram in TCU (mean = 3.62).

just once in the corpus. Inevitably, the subsequent 4-gram *what_DDQ ‘s_VBZ a_AT1 mountain_NN1 for_IF* and the 5-gram *what_DDQ ‘s_VBZ a_AT1 mountain_NN1 for_IF you_PPY* also occur just once in the corpus. Thus, the total number of only once-attested ngrams for which there is no prior attestation in the listener’s language experience, in this example, is 3.

As shown in Figure 2, in the 856 TCUs on which model #2 is based, the first ngram in each TCU that is attested only once (and, hence, has *CNF_log* = 0) occurs early on: the average word position of once-attested ngrams is 3.62. Note, however, that this average reflects the 733 TCUs (out of 856) in which the 0-point is reached; in 123 TCUs, all ngrams are attested more than once and the 0-point is never reached.

The measure for the number of only once-attested ngrams, *N_0_CNF*, is exploratory in character, and we feel justified to use it in the analyses, considering that, essentially, how conversationalists use word frequencies in conversation and what role frequencies play, if any, in turn transition is still largely *terra incognita*.

2.5.7 Statistical analysis

RQ #1—*Do word frequencies in TCUs follow an S-shaped pattern?*—was addressed using a mixed-effects model. To handle the variance in lengths of the TCUs (as measured in terms of number of words), a relative positional measure *position_rel* was computed for each TCU, assigning as many equi-distanced values between 0 and 1 as there were words in the TCU (e.g., the relative positions of the five words in a 5-word TCU are 0, 0.25, 0.5, 0.75, and 1). The fixed effects in the model were the log-transformed normalized frequencies (*F_norm_log*) (as the dependent variable) and *position_rel* (the independent variable); file/participant was modeled as a nested random factor. To account for (the expected) non-linear effects of relative position within the TCU (*position_rel*), we modeled this predictor using orthogonal polynomial terms. Models including polynomial terms of increasing order (from 1st to 6th) were fit successively. Model comparisons were conducted using AIC, BIC, and likelihood ratio tests to determine the appropriate degree of polynomial to retain. We restricted the analysis to TCUs with at least three words. This ensured that the

trajectory of word frequencies could, in principle, display the hypothesized three-step pattern. Model comparisons (AIC/BIC) further indicated improved fit when two-word TCUs were excluded.

To address RQ #2—*Which frequency-related measures predict that a TCU will be followed by turn transition or continuation?*—a generalized mixed-effects logistic regression model was fitted to the data, with *Turn Transition* (TT) as the binary outcome variable. The predictor variables were:

- *S_DiffSecndFirstHalf*: The difference of the mean *surprisal* in the second half of the TCU minus the mean of *surprisal* in the first half. This conceptualization of *surprisal* is based on Trujillo and Holler's (2024) finding that, in English conversation, *surprisal* in a turn's second half is greater than in the first half.
- *F_DropLastThird*: The difference of the largest word frequency in the first two-thirds of a TCU minus the smallest word frequency in the last third of the TCU. This conceptualization of word frequency builds directly on the assumption that the drop at turn/TCU endings might be used as a turn completion cue.
- *N_0_CNF*: The number of once-attested ngrams in the TCU. As noted, the assumption here is that the listener's task of predicting the trajectory and, finally, the end point of the TCU is becoming challenging once the speaker's talk arrives at, and extends beyond, the first 0-point (the first only once-attested ngram). How that challenge impacts the anticipation of turn completion is yet an open question.

The random variable was *FileSpeakerID*, a combination of participant and recording ID.

In the remainder of this article, we will describe, in Section 3, the results of our enquiries into our two research questions, and then, in Section 4, discuss these results, before we conclude the study in Section 5.

3 Results

3.1 RQ#1 - do word frequencies in TCUs follow an S-shaped pattern?

Our mixed-effects model predicts log-transformed normalized word frequency (F_{norm_log}) based on a fifth-degree polynomial of relative position in the turn ($position_rel$), with random intercepts for individuals (*Person_anon*) nested within files (*File*). Model comparison using AIC/BIC and likelihood ratio tests indicated that including up to the fifth-order polynomial significantly improved model fit over lower-order models, while including the sixth-order polynomial did not. The model confirms that word frequency follows a complex non-linear pattern across turn positions, which seems to align with the S-shaped effect reported in prior research.

The model summary is given in Table 6.

The Random Effects suggest that there is some variability in word frequency across different individuals within files (Variance = 0.01351, SD = 0.1162) and that differences in files contribute to variability in word frequency (Variance = 0.01153, SD = 0.1074); the largest source of variation is residual (unexplained) variation, suggesting that factors

other than position in the TCU may also influence word frequency (5.15657, SD = 2.2708).

Regarding the Fixed Effects, all polynomial terms up to the fifth order were statistically significant, providing strong evidence that the relationship between relative word position and normalized word frequency is highly non-linear. Although the large negative coefficient for the first-degree term reflects a strong overall downward trend from the beginning to the end of the TCU, the additional higher-order terms (quadratic through quintic) reveal systematic departures from this monotonic decline. Since the model employs orthogonal polynomials, the individual coefficients are not directly interpretable in terms of slope or curvature. Instead, their joint significance demonstrates that the trajectory of word frequency across positions contains multiple inflection points. To judge by the curve depicted in Figure 2, these inflection points are largely consistent with an S-shaped distribution reported in previous research, which could indicate an initial drop, a plateau, and then a sharp final drop.

3.2 RQ #2 - which frequency-related measures predict that a TCU will be followed by a turn transition or continuation?

The logistic fixed-effects model, model #2, to address RQ #2 builds on the back of the results of the model to address RQ #1. While model #1 confirms the S-shape pattern for TCUs, including specifically the steep drop at TCU ends, model #2 takes as its starting point that steep drop in frequency and operationalizes it as *F_DropLastThird* as one predictor beside the difference of the mean *surprisal* in the second half of the TCU minus the mean of *surprisal* in the first half, *S_DiffSecndFirstHalf*, and the number of only once-attested ngrams, *N_0_CNF*.

The model included *FileSpeakerID* as a random intercept to account for variability across speakers and files. However, the estimated variance for this effect was notably large (70.09), suggesting it might not be essential for explaining variation in turn transitions. To assess whether *FileSpeakerID* significantly improved model fit, we compared the revised model with a reduced model excluding this random effect using a likelihood ratio test (LRT). The model comparison revealed that removing *FileSpeakerID* resulted in a significantly poorer fit ($\chi^2 = 601.26$, $df = 1$, $p < 0.001$), justifying its inclusion in the model.

The summary of the model is given in Table 7; the reference level for turn transition (TT) is TT = "yes":

Among the three predictors, the difference of the mean *surprisal* in the second half of the TCU minus the mean of *surprisal* in the first half, *S_DiffSecndFirstHalf*, ($\beta = 0.008203$, $p > 0.5$), and the number of only once-attested ngrams in the TCU, *N_0_CNF*, ($\beta = 0.024144$, $p > 0.5$) do not have a significant effect. The only significant predictor of *Turn Transition* (TT) is *F_DropLastThird* ($\beta = 0.063434$, $p < 0.001$). Its effect is positive, that is, increases in the frequency drop in the last third of the TCU are associated with increases in the log-odds that turn transition (in questions as opposed to stories) will occur.

TABLE 6 Model summary for Model RQ#1; Formula: $F_norm_log \sim poly(position_rel, 5) + (1 | File/Person_anon)$.

Random effects			
Groups	Name	Variance	Std. Dev.
Person_anon: File	(Intercept)	0.01351	0.1162
File	(Intercept)	0.01153	0.1074
Residual		5.11856	2.2624
Number of obs: 6824, groups: Person_anon: File, 44; File, 16			

Fixed effects					
	β	Std. Error	df t value	Pr(> t)	p-value
(Intercept)	0.53032	0.04499	13.479701	1.789	1.76e-08 ***
position_ rel ¹	−74.52082	2.27249	6789.94250	−32.793	< 2e-16 ***
position_ rel ²	−7.12678	2.27354	6806.90308	−3.135	0.00173 **
position_ rel ³	−14.39053	2.26841	6789.61424	−6.344	2.38e-10 ***
position_ rel ⁴	−10.83934	2.26781	6816.12194	−4.780	1.79e-06 ***
position_ rel ⁵	−6.59510	2.26469	6789.67182	−2.912	0.00360 **

4 Discussion

In this article, we explored the possibility that frequency and frequency-related measures serve as resources for the listener to (advance-)project (imminent) turn completion. We approached this possibility from two angles relating to two research questions.

Our first research question—*Do word frequencies in TCUs follow an S-shaped distribution?*—was answered in the positive: on analyzing the log-transformed normalized word frequencies in TCUs, we found an S-shaped distribution, exhibiting a drop in initial position(s), a more level stretch in mid-TCU position(s), and a sharp drop in final position(s). For illustration, consider Figure 4, showing the trajectories of word frequencies of two questions:

This finding is noteworthy with regard to previous findings of a similar S-shape of frequencies in two ways. First, the S-shape in the literature was found in much larger datasets: in Rühlemann and Barthel (2024), for example, the underlying data comprised almost 300,000 utterances from the conversational component of the British National Corpus (BNC); in the present study, the pattern emerged from only 974 units. This indicates the robust strength of the pattern. Second, the underlying units of observation in the literature were quite different. In Yu et al. (2016), for example, it was the (written) sentence (in data from the written component of the BNC); in Klafka and Yurovsky (2021) and in Rühlemann and Barthel (2024), it was utterances (bounded by speaker change and/or pauses) but not turns in any strict conversation-analytic sense; in the present study, the pattern was found in the smallest interactionally significant unit, the TCU. Given that the frequency of a word is negatively correlated with its information content (Yu

TABLE 7 Model summary RQ#2; $TT \sim S_DiffSecndFirstHalf + N_0_CNF + F_DropLastThird + (1 | FileSpeakerID)$.

Random effects				
Groups	Name	Variance	Std. Dev.	
FileSpeakerID	(Intercept)	70.09	8.372	
Number of obs: 856, groups: FileSpeakerID, 44				
Fixed effects				
	β	Std. Error	z value	Pr(> z)
(Intercept)	−9.483750	1.604535	−5.911	3.41e-09 ***
S_DiffSecndFirstHalf	0.008203	0.046911	0.175	0.861
N_0_CNF	0.024144	0.035064	0.689	0.491
F_DropLastThird	0.063434	0.012198	5.200	1.99e-07 ***

et al., 2016; Rühlemann and Barthel, 2024), the S-shape distribution of frequencies in TCUs suggests that information content is climactically ordered not only in sentences or utterances but even in TCUs. For illustration, in the two TCUs in Figure 4, the informational peak is clearly on the last words, *projects* and *arabic*. Further, assuming that conversation represents the “core matrix for human social life” (Stivers et al., 2009) and the central context of language use from which others are departures (Goodwin and Heriage, 1990, p. 298), the finding points to the possibility that the informational asymmetry in sentences in writing may have formed in the mold of the TCU.

To address the second research question—*Which frequency-related measures predict that a TCU will be followed by turn transition or continuation?*—a logistic mixed-effects model was fitted with *Turn Transition* (TT) as the binary outcome variable. The model with the three factors suggested that neither *S_DiffSecndFirstHalf*, which captures *surprisal*, nor *N_0_CNF*, which captures the number of once-attested ngrams per TCU, discriminate significantly between turn-yielding in questions (TT = “yes”) and turn-holding in storytelling (TT = “no”). The only predictor that was found to have that discriminatory power was *F_DropLastThird*: the larger the drop in frequency in the last third of the TCU, the larger the log-odds that turn transition in questions will occur.

How to make sense of these findings? To reiterate, the findings were based on a juxtaposition of question-TCUs in QA sequences that did result in speaker change (TT = “yes”) and narrative TCUs in storytellings that did not lead to speaker change (TT = “no”). So all the findings, be they negative or positive, strictly relate to that action-transition nexus.

The *surprisal* variable *S_DiffSecndFirstHalf* and the phraseological variable *N_0_CNF* have in common that they represent resources listeners may deploy to predict the lexico-syntactic trajectory and anticipate the end point of the speaker’s talk (Magyari et al., 2014; De Ruiter et al., 2006). In the present study, these two variables fail to predict the turn transition in questions as opposed to stories. This failure does not invalidate these variables for future studies of turn transition. In different research scenarios, the variables may well be capable of discriminating turn-yielding TCUs from turn-holding

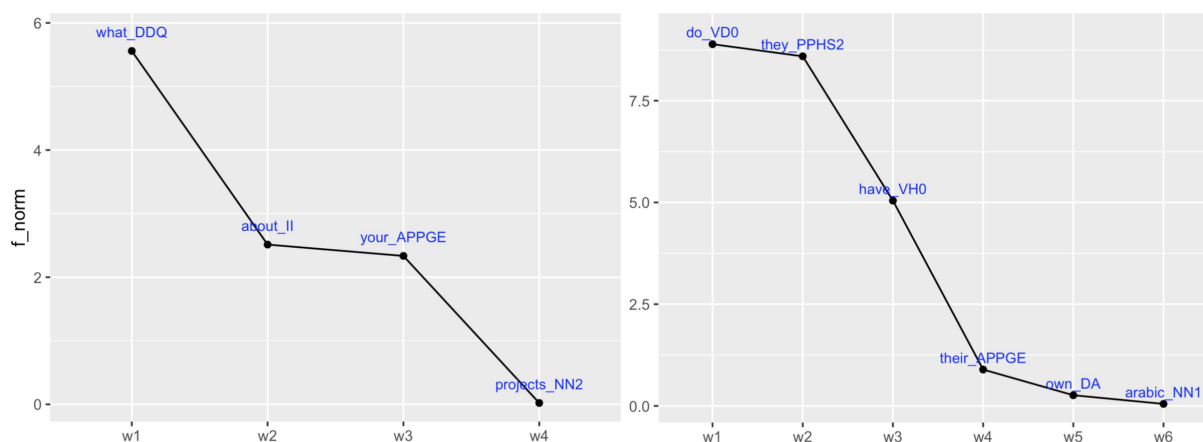


FIGURE 4

Examples of question TCUs with S-shaped word frequencies; f_norm : word frequencies in FreMIC normalized by 1,000.

ones.¹⁰ Particularly, the novel variable for only once-attested ngrams, N_0_CNF , is promising enough to be tested in future studies for its impact on listeners and their ability to predict a TCU's lexico-syntactic course.

The main finding of the model is that the drop in frequency is sharper in turn-transitioning questions than in turn-holding story TCUs. This is intriguing and, at first sight, counterintuitive as storytelling epitomizes “displaced talk,” which may require extending the “discoursal horizon” beyond the here-and-now; that extension may necessitate a more diverse vocabulary (indicating time and place, giving characters' names, describing story objects and characters' actions) than asking an information-seeking question related to the immediate situational or sequential context. A greater diversity of the vocabulary inevitably entails less-frequent words. Tentatively, however, story TCUs and question TCUs might differ in how rarer words are distributed within the TCU: while in story TCUs, the rarer (and more informative) words might be distributed more uniformly, their distribution in question TCUs might be more asymmetrical, with greater weight toward the TCU end. This hypothesis is explored in a keyness analysis in the following section.

4.1 Follow-up analysis: key c7 tags in TCU intervals

Keyness analysis (Scott and Tribble, 2006) is a statistical method that identifies items of unusual frequency in a target corpus in comparison with a reference corpus. While in most analyses of keyness, the aim is to work out *words* that are key, we are going to

apply the keyness method to the c7 PoS tags. The aim is to test the hypothesis that the distribution of rarer word classes in question TCUs is more asymmetrical, with greater weight toward the TCU end, than in story TCUs.

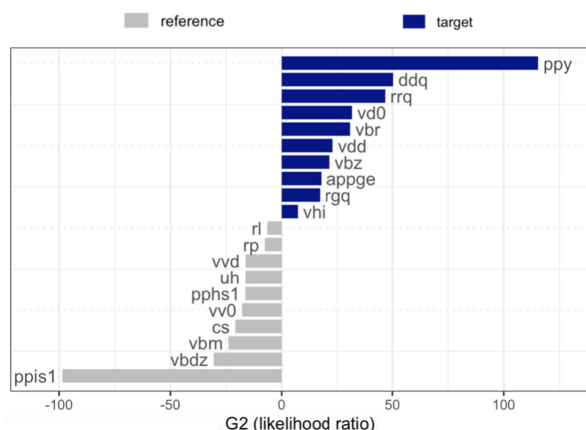
To this end, word-tag combinations (e.g., *how_RGQ*) were stripped of the word part so that only the c7 tag remained (*RGQ*). Further, two subcorpora were compiled: one for the first two-thirds of TCUs, one for the last third of TCUs, in which model #2 above found a more pronounced drop in frequency for question TCUs than for story TCUs. Finally, using the R packages *quanteda* and *quanteda.textplots*, questions were defined as the target corpus and story TCUs as the reference corpus and *key* c7 tags in questions, as compared to stories, were computed using G^2 (likelihood ratio), a measure of how strongly the observed frequency of a tag deviates from what would be expected by chance between the target and reference corpus. Also, log ratios were computed as an effect size measure (cf. Brezina, 2018). The top-most key c7 tags are shown in Figure 5.¹¹

As shown in Figure 5, the most key c7 tags in the early intervals are PPY in questions and, respectively, PPIS1 in stories, with the former designating the second-person personal pronoun, *you* (the sixth most common word in FreMIC, cf. Table 3 above), and the latter, the first-person pronoun, *I* (by far the most common word in FreMIC; cf. Table 3 above). These are very strong but obvious differences, as most questions are addressed to the interlocutor(s) (e.g., *are you guys brothers?*) and many stories are first-person stories in which the storyteller is the main protagonist. The second-most key c7 tags in the early intervals are DDQ in questions, i.e., *wh*-determiners, and VBDZ in stories, i.e., the past tense form *was*. These are also to be expected, as a large chunk of the questions are *wh*-questions, and most stories relate events that happened in the past (see also the key tag VVD for stories). What is notably *missing* from the early intervals, both in questions and stories (at least among the top 10 most key tags; s.

¹⁰ The number of once-attested ngrams (N_0_CNF) was found an important variable in a Random Forest analysis of *multimodal packages* discriminating between transition-ready question TCUs and transition-averse story TCUs; this analysis incorporated 14 predictors from the verbal, visual, and vocal modalities (Rühlemann, Auer, Gries, Holler, & Schulte, *In preparation*).

¹¹ The plot also includes the results for NN1 although the log ratio is <1 ($p < 0.05$); see [Supplementary Materials 2 and 3](#)

Key c7 tags in first two thirds in question TCUs (target)
compared to story TCUs (reference)



Key c7 tags in last thirds in question TCUs (target)
compared to story TCUs (reference)

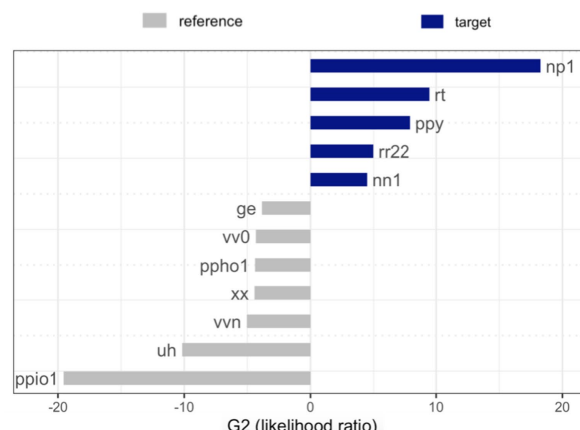


FIGURE 5

Top-most key c7 tags (with $p < 0.05$ and absolute log ratio ≥ 1) in different intervals in question TCUs (target corpus) compared to story TCUs (reference corpus): *left panel*: top 10 most key c7 tags in first two-thirds of question TCUs (blue bars) compared to first two-thirds of story TCUs (grey); *right panel*: all key c7 tags in last third of question TCUs (blue) compared to last third of story TCUs (grey).

Supplementary Materials 2 and 3 for the full lists of key tags), are tags for any type of nouns. This absence is noteworthy not only because nouns are by far the most type-rich category (cf., for example, the small inventory of pronouns) and by far the most hapax-rich category (hapax legomena are words that occur just once in a corpus and have hence the lowest possible frequency; cf. Rühlemann and Barthel, 2024). The absence is also noteworthy because nouns “carry most of the lexical content, in the sense of being able to make reference outside language” (Stubbs, 2001, p. 40; Biber et al., 1999, p. 232), and their use is “felicitous only in contexts of information novelty, disambiguation needs, or topic and perspective shifts” (Seifart et al., 2018, p. 5721). So, nouns do not play a key role in the early intervals, either in question TCUs and story TCUs. Where nouns *do* come in is in the last interval—but only in question TCUs, not in story TCUs (see the full key tag lists in Supplementary Materials 2 and 3). In the last third in question TCUs, by far the most key tag is NP1 (for singular proper noun), and the fifth most key tag is NN1 (for singular common noun). In the late interval in story TCUs, by contrast, it is the c7 tag UH, that is, interjections (often at the beginning of direct speech), VVN, that is, the past participle of lexical verbs, and VV0, that is, the base form of lexical verbs, that are key. Here, now lies the explanation to the result of model #2, which indicated that the frequency drop is more pronounced in question TCUs than in story TCUs: the drop in frequency is sharper as nouns, the most informative and potentially rarest type of word, are more asymmetrically distributed toward the TCU end in question TCUs than in story TCUs.

Table 8 shows for each social action type, four TCU examples that are “prototypical” in the sense that they include words with key c7 tags for the first two-thirds and, respectively, the last third.

Is the TCU-final frequency drop a *turn*-completion cue, regardless of social action type? This question cannot definitively be answered by this study, which compared turn-final question TCUs with turn-medial story TCUs. A *general* turn-completion signaling function for frequency is, however, unlikely. For it

would presuppose that speakers manipulate frequencies depending on whether they wish to yield or keep the turn. A manipulation of frequencies could only be achieved if the speaker were skilled enough to use one way of phrasing for one purpose and another way of phrasing for the other purpose. That certainly overestimates a speaker’s conscious control over what they say and their stylistic versatility, and it underestimates the constraints imposed by constituent order, which is strict in English, leaving little room for *in situ* variation. It appears more plausible that the frequency drop observed in this study, both in response to RQ #1 and RQ #2, functions as a TCU completion cue. Whether that TCU is (intended by the speaker) as the turn-final one is likely signaled by other, far less rules-governed *prosodic* cues such as turn-final lengthening (Duncan, 1972; Local and Walker, 2012; Bögels and Torreira, 2015), creaky voice (Ogden, 2001; Redi and Shattuck-Hufnagel, 2001), audible outbreath (Local and Walker, 2012; Torreira et al., 2015), and pitch drop (Beattie et al., 1982; Duncan, 1972; Bögels and Torreira, 2015). On this view, turn-completion is most likely signaled by the speaker and processed by the listener in *multimodal clusters*, in which the TCU-final drop in word frequency is one of the several components.

5 Conclusion

FreMIC is a small corpus. Its smallness suggests that the findings should be treated with caution. For example, normalized frequencies may not yet be completely stable, and the speed with which, in the present data, cumulative ngrams become attested only once—on average, on the fourth word—may be exaggerated in FreMIC compared to larger corpora, where multi-word combinations that occur just once in FreMIC have a higher chance of occurring more frequently. In larger corpora, TCUs will likely reach that juncture at a later point.

TABLE 8 Example TCUs with key c7 tags; emboldened items represent the w_c7 tag that had the highest frequency in the early intervals (F_max) and, respectively, the w_c7 tag that had the lowest frequency in the late interval (F_min); F_Drop (F_DropLastThird) is calculated from the difference of F_max and F_min.

Type	Early intervals (first two thirds)	Late interval (last third)	F_max	F_min	F_Drop
question	do_VD0 you_PPY guys_NN2 need_VV0 to_TO go_VVI back_RP	ikea_NP1 anytime_NNT1 soon_RR	22.92	0.03	22.89
question	did_VDD you_PPY get_VVI the_AT	poem_NN1 email_NN1	25.82	0.01	25.82
question	you_PPY ever_RR played_VVD like_II	a_AT1 banjo_NN1	22.92	0.02	22.90
question	did_VDD you_PPY get_VVI anything_PN1 out_II21 of_II22	that_DD1 relationship_NN1	22.92	0.10	22.82
story	and_CC he_PPHS1 immediately_RR the_AT second_NNT1 we_PPIS2 got_VVD on_II	just_RR zoned_VVN in_II us_PPIO2	26.90	0.01	26.89
story	i_PPIS1 do_VD0 n't_XX think_VVI	they_PPHS2 care_VV0	43.78	0.02	43.76
story	she_PPHS1 said_VVD oh_UH i_PPIS1 was_VBDZ	invited_VVN too_RR	43.78	0.04	43.74
story	uh_UH and_CC his_APPGE position_NN1 as_II a_AT1	diplomat_NN1 is_VBZ cut_VVN	26.90	0.01	26.89

The present findings hold for English conversation. To what extent they can be generalized to more languages is an open question. The generalizability may already prove difficult with closely related SVO languages such as, for example, German, which may be among the “front-loaded information languages” (Trujillo and Holler, 2024), in which the first half of utterances is information-heavier than the second half (unlike in English, which is “back-loaded,” meaning the informational peak occurs in the second half of utterances) In the relatively few languages of the world where the basic constituent order does not start with the subject constituent (c. 17% of all languages; cf. Hammarström, 2016), such as Jarawa (spoken on the Andaman Islands, India; OSV), the distribution of frequencies and related measures across words in turns will likely diverge substantially from that in English conversation (where the subject is typically a high-frequency pronominal form; cf. Rühlemann and Barthel, 2024), and it is doubtful whether in these languages any similar TCU-final frequency drop can be observed. This, however, is not to suggest that frequency patterns in these languages can never play any role in signaling that the current speaker is about to stop speaking and ready to hand over to another participant. The patterns, if any, might simply be of a different kind (for example, in an OVS language, a TCU-final *rise* in frequency might be construed by listeners as a cue that the speaker is done).¹²

Finally, frequency and frequency-related measures cannot in themselves fully explain turn completion or continuation. Frequency measures will no doubt enter into important interactions with other turn-completion cues (Bögels and Torreira, 2015, p. 55) and/or form multimodal packages. Future studies should therefore exhaustively incorporate the diverse set of turn-completion cues not only on the lexical/verbal level but also on the gestural/visual and prosodic/vocal

levels. Only thus will it be possible to gain a *comprehensive* view of how speakers give the green light to their interlocutors that they are done and that someone else can now speak.

These limitations notwithstanding, this study does suggest that, in English conversation, word frequencies form an S-shaped pattern in TCUs (RQ #1) and they do discriminate turn-final question TCUs and turn-medial storytelling TCUs (RQ #2). Information extracted from word frequencies may hence serve listeners in conversation as cues to anticipate turn completion in questions as opposed to turn continuation in stories. Whether that information also discriminates other types of social action remains to be investigated in future research.

Data availability statement

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found at: The data and the R code are openly available in Open Science Framework at <https://osf.io/ygnze/>.

Ethics statement

Ethical approval was not required for the studies in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

CR: Validation, Conceptualization, Methodology, Writing – original draft, Data curation, Supervision, Visualization, Investigation, Resources, Funding acquisition, Project administration, Writing – review & editing, Software, Formal analysis.

¹² I owe this idea to an anonymous reviewer.

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Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The author declares that Gen AI was used in the creation of this manuscript. During the preparation of this work the author used ChatGPT3 in order to explore ways to examine multicollinearity. After using this tool/service, the author reviewed and edited the content as needed and takes full responsibility for the content of the publication.

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Supplementary material

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A diachronic corpus-based study on the construction of regional image in Western mainstream media—a case analysis of Henan province in China

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Drawing on a diachronic corpus of Henan-related reports from 2006 to 2025, this study examines how the province is discursively constructed in Western mainstream media by integrating text mining with a transitivity-based social role analysis. Leximancer 5.0 was employed to map semantic themes across the two periods, and material process clauses were analyzed to identify Henan's Actor-Goal configurations within the transitivity framework. The thematic analysis reveals both continuity and change, with crisis-oriented themes continuing to dominate, accompanied by a shift toward urban-economic themes and reduced cultural visibility. The transitivity analysis reveals a pronounced diachronic shift in Henan's social-role configuration, as it transitions from being primarily Goal-positioned in 2006–2015 to predominantly Actor-positioned in 2016–2025, with the dominant Actor role shifting from Destructor to Doer and the Helped role declining substantially, which together strengthen Henan's discursively constructed agency. Overall, the findings illustrate how the combined analysis of thematic patterns and transitivity-based role configurations can trace the diachronic evolution of Henan's discursive representation in Western media.

KEYWORDS

diachronic corpus, media discourse, regional image, text mining, transitivity system

1 Introduction

Henan, situated in the core of China's Central Plains, occupies a historically and strategically significant position within China's territorial and cultural landscape. As the cradle of Chinese civilization and one of the country's most populous provinces, Henan has long played a central role in political, cultural, and economic development. In the contemporary era, it functions as a major transportation hub and a key node in the Belt and Road Initiative. Given this combination of historical depth and strategic relevance, enhancing Henan's international visibility has become increasingly important in the context of globalization. In this broader process of international engagement, understanding how Henan's image is constructed is particularly crucial. Regional images consist of both self-constructed narratives shaped by domestic actors and other-constructed representations produced by external observers (Sun, 2002). As Morgenthau (1985) notes, how others perceive a region can be just as important as what it “really” is. Although other-constructed images may be selective or distorted, they often exert significant influence over a region's global standing and identity.

To systematically examine how the other-constructed image of Henan has taken shape over time, this study focuses on the period from 2006 to 2025, a span that captures critical shifts in both Henan's development policy and international positioning. The two-decade

period aligns with the four successive Five-Year Plans (from the 11th to the 14th), which reflect staged transformations in the province's economic and social priorities. Within this broader developmental trajectory, a significant turning point occurred in March 2015, when Henan was designated as an inland hub in China's Belt and Road Initiative, substantially elevating its national strategic role. This shift was reinforced in March 2016, when the provincial government recognized the 12th Five-Year period as a milestone of scientific planning, innovation, and image enhancement. In light of these developments, the study divides the corpus into two comparative phases, with 2006–2015 period characterized by Henan's traditional development, and 2016–2025 period characterized by its modern transformation.

Despite this developmental trajectory, Henan continues to face persistent challenges in shaping its international image, which has long been constrained by regional prejudice and an enduring image crisis abroad (Liu and Hai, 2022). To capture how Western mainstream media have represented Henan over time and how these representations have changed, the present study adopts a dual analytical framework integrating text mining with transitivity analysis. Text mining is employed to identify diachronic shifts in semantic themes, while the transitivity system enables a systematic examination of discursive patterns of “Henan does what to X” and “X does what to Henan,” thereby revealing the social roles and agency configurations assigned to the province. By applying this integrated approach to a 20-year corpus (2006–2025), the study links thematic developments with their grammatical realizations, thereby offering a deeper and more nuanced account of the evolving international image of Henan. In line with this research design, the study is guided by the following two research questions:

- 1 How does the thematic representation of Henan differ between 2006–2015 and 2016–2025?
- 2 How does the transitivity-based construction of Henan's social roles differ between 2006–2015 and 2016–2025?

2 Literature review

The concept of the “city image” was first introduced by Lynch (1960), who emphasized that it is shaped through a bilateral process involving both the physical environment and human perception. While Lynch's framework highlights the interaction between external spatial conditions and individual cognitive mapping, personal impressions alone do not constitute a stable or widely accepted regional image. Media discourse therefore plays a crucial role in mediating between physical reality and collective cognition, constructing more coherent and socially recognizable representations of regions (Jiang and Kuang, 2023). Through such representational practices, the media organize information, foreground particular attributes, and shape public perceptions of regions, making discourse analysis essential for examining how regional images are formed and circulated. Existing research on regional images in media discourse adopts diverse analytical approaches, which can broadly be conceptualized in terms of what media discourse represents about regions and how it discursively constructs regional meanings.

As for what media represent about regions, scholars typically employ content analysis or corpus-based quantitative methods to

examine thematic distributions, reporting frequencies, sentiment orientations, and distributional patterns of coverage. Content analysis has been widely used to map the thematic and evaluative tendencies of regional reporting, as illustrated by studies of Brussels (Wiard and Pereira, 2018), Suzhou (Jiang and Kuang, 2023), and Henan in British media (Qin, 2019). Corpus-driven investigations, including studies on Jiangxi (Lian et al., 2024), Yiwu (Lu et al., 2022), and Shaoxing (Lou, 2022), examine regional portrayals by analyzing lexical frequency distributions, collocational patterns and other quantitative features of news discourse. While these studies illuminate the informational structure and overall tendencies of regional coverage, they primarily identify recurrent patterns of representation and offer limited insight into the linguistic mechanisms through which evaluative meanings and social representations are realized.

As for how regional images are discursively constructed in media discourse, prior studies typically draw on corpus-assisted critical discourse analysis to examine discourse bias and ideological positioning, as seen in research on Hong Kong (Zhou, 2025), Harbin (Yan, 2024), and Henan (Wei and Wu, 2024). While informative, this line of work remains largely interpretive and offers limited insight into the linguistic realization of experiential meanings. To address this limitation, some scholars have turned to Systemic Functional Linguistics, particularly the transitivity system, which provides a systematic framework for analyzing how actions, participants, and experiential meanings are encoded in news discourse. Studies on Qingdao (Feng and Liu, 2023) and Harbin (Lü and Duan, 2024) demonstrate how the transitivity framework can illuminate the ideational patterns through which city images are constructed. However, such work typically relies on small or manually compiled corpora and focuses mainly on descriptive classifications of process types, with limited exploration of participant role configurations and agency patterns.

Existing studies on regional image have largely relied on corpus-based techniques such as keyword, frequency and collocation analysis to investigate media representations of regions. While these approaches provide systematic quantitative evidence and have generated valuable insights, corpus-based discourse analysis on its own may not fully capture deeper lexical associations and latent semantic relations within large textual datasets, as noted by Mautner (2009). In this regard, text mining, as a computational technique for extracting meaningful patterns from unstructured text, offers a useful complementary perspective. It enables the identification of semantic clusters and deeper collocational relationships that go beyond surface-level quantitative regularities. Text mining has been increasingly applied in domestic studies of tourism image, including analyses of Yellow River cultural attractions (Jin, 2025) and the Mountain Yuntai scenic area (Zhou et al., 2023), yet it remains largely underutilized in research on regional image in international media discourse.

Building on these methodological considerations, the present study integrates text mining with a transitivity-based linguistic analysis to provide a more comprehensive account of Henan's representation in Western mainstream media. Text mining is employed to trace diachronic shifts in semantic themes, while the transitivity system enables a systematic examination of discursive patterns such as “Henan does what to X” and “X does what to Henan,” thereby revealing the social roles and agency configurations assigned to the province. By applying this dual framework to a 20-year corpus spanning 2006 to 2025, the study links macro-level thematic

trajectories with micro-level grammatical realizations, offering a deeper and more nuanced understanding of how Henan's international image has taken shape within western media discourse.

3 Methodology

3.1 Theoretical framework

This study draws on Systemic Functional Linguistics (SFL) and van Leeuwen's framework of social actor representation to examine how Western mainstream media discursively construct Henan's regional image and how such constructions shift over time.

As one of the most influential linguistic approaches to discourse analysis, SFL, particularly the transitivity system, provides a powerful analytical framework for examining how agency, power relations, and evaluative orientations are encoded through participant roles (Wodak and Meyer, 2016). Grounded in the experiential meta-function, transitivity system models the linguistic representation of actions, events, and participants through six process types: material, mental, relational, behavioral, verbal and existential, each of which offers a distinct perspective on how discourse constructs and organizes human experience (Halliday and Matthiessen, 2004). Among these process types, material processes play a particularly prominent role in discourse by encoding concrete "doing" events in which one entity acts upon another, with the initiator of the action functioning as the Actor and the affected entity functioning as the Goal. The Actor-Goal distinction is analytically significant in news discourse, as the ways in which these roles are linguistically realized influence how agency, responsibility, and social positioning are constructed. In media reporting on Henan, the region may be represented as an Actor that initiates substantive actions affecting other entities, or as a Goal that receives impacts, undergoes changes, or becomes the object of external forces. Such linguistic realizations reveal how news discourse assigns agency and responsibility to Henan and how it positions the region within the events being reported.

To extend the analytical capacity of transitivity, the study incorporates van Leeuwen (2008) framework of Social Actor Representation, which explains how discourse activates or passivates social participants. Within this model, social actors may be foregrounded as initiators of action or backgrounded as recipients of force or assistance. This aligns directly with the Acto-Goal configurations identified through material transitivity, enabling systematic examination of whether Henan is represented as an agentive Actor or an affected Goal. Since regional image is discursively shaped through the recurrent allocation of such roles in news narratives, changes in Henan's role distribution across Actor

and Goal positions serve as an effective indicator of shifts in its construed social agency. Accordingly, the integration of the transitivity system with Social Actor Representation provides a coherent analytical foundation for assessing how Henan's agency is distributed, negotiated, and transformed across the two corpus periods.

3.2 Data collection

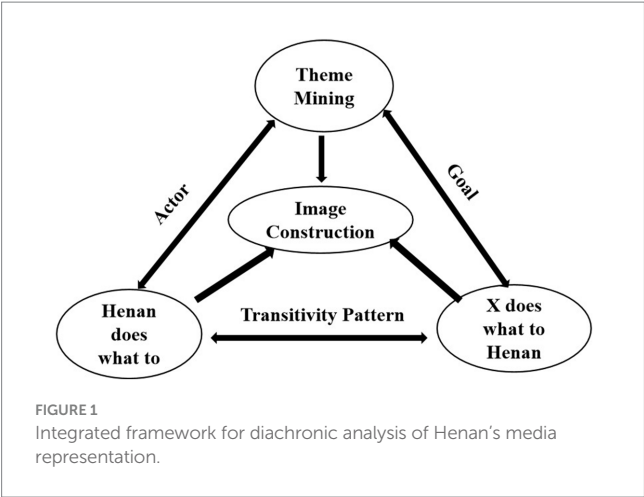
This study employed the LexisNexis database, one of the most comprehensive repositories of international mainstream media, as the primary source for data retrieval. This research examines English-language media coverage from the United States, the United Kingdom, Australia, and Canada, whose outlets hold a dominant position in structuring Western discursive environments and, by extension, the global public sphere (Zhang and He, 2016). To ensure breadth, reliability, and representativeness, six leading newspapers were selected: *The New York Times* and *The Los Angeles Times* (the United States), *The Times* and *The Guardian* (the United Kingdom), *The Toronto Star* (Canada), and *The Australian* (Australia). These outlets were chosen not only for their wide circulation and editorial authority, but also for their agenda-setting influence and established role in shaping both national and international public discourse. Taken together, they constitute a geographically diverse and media significant sample, offering a broadly representative cross-section of Western perspectives on Henan.

Using "Henan" as the search term, this paper retrieved news articles published between 2006 and 2025 that referenced Henan in the content based on the following filtering criteria: (1) The text must include the term "Henan"; (2) The genre must be "Article" (excluding Comments, Blogs, Photos, etc.); (3) Data was downloaded yearly (2006–2025) to ensure temporal stratification. A total of 1,691 valid English news articles were collected (Table 1 for source distribution). Manual inspection showed that only two articles mentioned "Henan" in their headlines, while the majority referenced Henan-related content within broader China coverage. To ensure analytical precision, Python was used to extract all paragraphs containing "Henan," thereby constructing the final corpus used for subsequent analysis.

For comparative purposes, the corpus was divided into two sub-corpora: 2006–2015 and 2016–2025. As explained in the Introduction, the year 2016 marks a pivotal transition in Henan's contemporary development trajectory. Accordingly, the two periods reflect distinct phases in the province's international positioning. The 2006–2015 corpus contains 9,195 types and 60,472 tokens, while the 2016–2025 corpus contains 7,655 types and 47,892 tokens. The corresponding type-token ratios (TTR) are 15.2 and 16.0%

TABLE 1 Sources of Henan-related news reports in Western mainstream media (2006–2025).

Corpus period	<i>The New York Times</i>	<i>The Los Angeles Times</i>	<i>The Times</i>	<i>The Guardian</i>	<i>The Australian</i>	<i>The Toronto Star</i>	Total number
2006–2015 corpus	277	110	122	178	152	65	904
2016–2025 corpus	367	40	96	210	55	19	787



respectively, indicating comparable lexical diversity between the two periods.

3.3 Data analysis

This study adopts an integrated analytical framework combining text mining and transitivity analysis to examine the diachronic construction of Henan’s image in Western mainstream media. Text mining is used to identify and compare semantic themes across the two periods, while transitivity analysis focuses on material process patterns to reveal how Henan’s social roles are discursively configured. This dual approach enables the study to link thematic transformations with grammatical realizations. The overall analytical framework is shown in Figure 1.

To investigate thematic patterns, the study employs Leximancer 5.0, a software that uses Bayesian statistical modelling and machine-learning algorithms to detect lexico-semantic co-occurrence patterns and generate semantic network visualizations (Smith and Humphreys, 2006). Prior to analysis, the two corpora were pre-processed following a standardized four-step procedure: (1) data import: corpus texts were uploaded into the software; (2) text processing: stop words were edited in the text processing options; (3) concept optimization: eliminated semantically void concepts (e.g., “day,” “year,” “time” etc.); (4) concept normalization: merging synonymous and morphologically related terms (e.g., “kung” with “fu,” “official” with “officials” and different inflectional forms of the same verb). After preprocessing, Leximancer was employed to identify the dominant semantic concepts and themes in Western reporting on Henan and to trace their diachronic reconfiguration across the two periods.

To examine how Henan’s social roles were discursively constructed across the two decades, material process clauses were extracted using WordSmith Tools 9.0 for subsequent transitivity analysis. As shown in Table 2, two recurrent patterns were identified. In the “Henan does what to X” pattern, the verbal group realizing the Process typically follows the node word Henan, indicating that the province functions as the Actor initiating concrete actions. Conversely, in the “X does what to Henan” pattern, the verbal group generally precedes Henan, thereby positioning the province as the Goal that receives the impacts of others’ actions. To systematically retrieve these material-process instances, WordSmith Tools 9.0 was employed with a span of L5-R5

TABLE 2 Instances of transitivity material process.

Material process	Actor	Process	Goal	Circumstance
Henan does what to X	Flooding in Henan Province	killed	more than 300 people	
X does what to Henan	Record-breaking rainstorms	hit	Henan province in central China	in late July

Bold text indicates the node word ‘Henan’.

and a minimum frequency threshold of five occurrences to extract verbs collocating with “Henan” ($MI \geq 3$; $t\text{-score} \geq 2$), which formed the basis for subsequent role classification.

Based on the semantic profiles of the identified material process verbs, Henan’s Actor roles can be further categorized into Destructor, Doer, and Information Disseminator, while its Goal roles were classified into the Visited, the Destroyed, and the Helped. These categories were manually annotated through iterative semantic grouping and cross-checking to ensure conceptual consistency across both corpora. After annotation, Chi-square tests were performed to assess whether the distribution of Henan’s Actor and Goal roles differed significantly between the two periods. Pearson’s chi-square was used for all roles except ‘the Helped’, for which Fisher’s exact test was applied due to low expected cell counts, respectively.

This integrated procedure allowed the study to relate theme evolution revealed through text mining with shifts in grammatical role configuration captured through transitivity analysis, thus enabling a comprehensive account of Henan’s diachronic representation in Western mainstream media.

4 Results

4.1 Diachronic shifts in thematic representation

Leximancer 5.0 was employed to identify the dominant semantic themes in Western mainstream media reports on Henan across the two periods. The software extracted high-frequency themes and concepts, generating visual thematic clusters as shown in Figure 2.

The thematic analysis reveals distinct patterns in Western media coverage of Henan across the two decades. During the 2006–2015 period, the most frequent themes included Henan (1,530 hits), officials (689 hits), village (297 hits), water project (264 hits), factory (219 hits) and miners (191). These high-frequency themes generated several conceptual clusters: government policies (officials, government), rural development (village, farmers, rural), the South–North Water Transfer Project (water, project, drought) and mine accidents (factory, miners, coal, killed). During the 2016–2025 period, the most frequent themes included Henan (1,265 hits), city (568 hits), cases (343 hits), killed (212 hits), workers (194 hits) and village (192 hits). The emerging conceptual clusters in this period included government policies (officials, government), urban development (city, million, residents), the COVID-19 pandemic (cases, health, infections), flood disasters (killed, rain, floods) and commercial development (factory, economy, manufacturing).

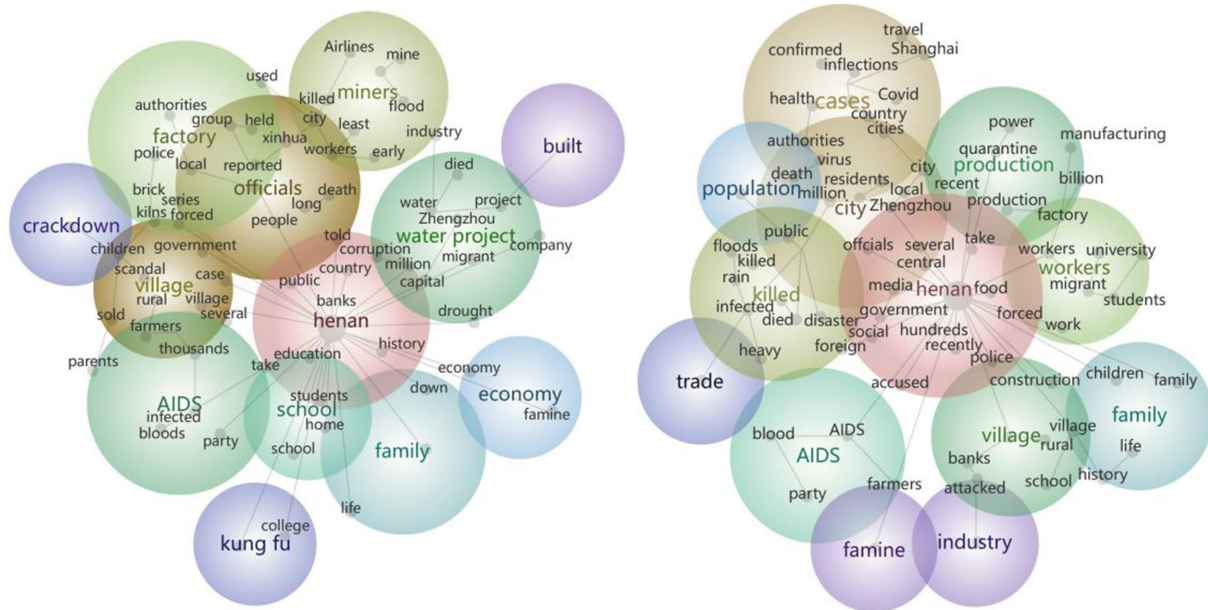


FIGURE 2
Visualized thematic networks of Henan-related coverage in Western mainstream media (Left: 2006–2015 period; Right: 2016–2025 period).

As illustrated in Figure 2, the thematic analysis of Western media coverage of Henan between 2006 and 2025 reveals consistent discursive patterns, marked by a dual emphasis on macro-political narratives and micro-livelihood concerns. At the macro level, the recurrent prominence of the theme “officials” highlights the centrality of governmental decision-making in framing Henan, underscoring the enduring significance of provincial governance as a dominant lens through which the region is represented. At the micro level, the persistent visibility of the “family” theme across both periods indicates Western media’s sustained engagement with community-level social transformations in Henan, thereby situating everyday life within broader processes of social change.

The study further reveals a striking continuity in Western media's preference for public emergencies and crises in Henan. In the 2006–2015 period, reporting was dominated by accounts of coal mine accidents (miners, coal, killed), brick kiln labor issues (brick, kilns, forced), and HIV infections through blood donation (AIDS, blood, infected), which rank 5th, 6th, 8th among high-frequency themes. By the 2016–2025 period, attention had shifted to COVID-19 (Covid, cases, infections), extreme weather (killed, rain, floods), rural bank crisis (rural, banks, attacked), and renewed references to the historical HIV contamination scandal (blood, AIDS), ranking 3th, 4th, 6th, 9th, respectively. Despite variations in the specific crises reported across the two periods, Western media consistently employed an “emergency-prone” framing, demonstrating discursive continuity that persistently positioned Henan within narratives of crisis.

From 2006 to 2025, Western media coverage of Henan underwent three notable thematic transformations: rural-to-urban transition, increasing economic emphasis, and decreasing cultural representation. First, the reversal from rural to urban narratives is particularly salient. Between 2006 and 2015, the “village” theme ranked third with 297 hits, reinforcing Henan’s image as an agrarian province. By contrast, during 2016–2025, its

frequency declined to 192 hits (6th rank), while the “city” theme rose sharply to second place with 568 hits. This discursive shift parallels Henan’s substantive urbanization process, partially destabilizing its conventional agricultural identity in Western media portrayals.

Second, economic coverage expanded significantly. Whereas the 2006–2015 period contained only one economy-related theme (ranked 11th), the 2016–2025 period witnessed the emergence of three distinct themes: production (7th), industry (11th), and trade (12th). This thematic diversification corresponds with Henan's structural transformation from traditional industries (brick kilns, coal mining) toward manufacturing and electronics (Foxconn, production), with occupational identity shifting correspondingly from "miners" to "workers."

Third, cultural representation experienced relative contraction. During 2006–2015, “kung fu” (ranked 10th) served as Henan’s sole cultural symbol; however, its frequency dropped to only five hits in 2016–2025, falling below the semantic network threshold. This erosion of cultural visibility stands in stark contrast to the province’s expanding repertoire of intangible cultural heritage, revealing a form of “cultural aphasia” in international communication that undermines Henan’s potential soft power projection.

4.2 Diachronic shifts in Henan's social role construction

Within the Systemic Functional Linguistics framework, material processes encode concrete actions and assign agency through the configuration of Actors and Goals. Examining how Henan occupies these participant roles therefore provides insight into the experiential meanings through which Western media discursively construct the province's social presence over time. Table 3 presents the Chi-square

TABLE 3 Diachronic variation in Henan's social role distributions.

Role category	Social roles	2006–2015	2016–2025	Chi-square test <i>p</i> -value
Actor	Total	35 (47%)	49 (70%)	0.006**
	Destructor	20 (27%)	17 (24%)	0.707
	Doer	10 (13%)	22 (32%)	0.010*
	Information disseminator	5 (7%)	10 (14%)	0.139
Goal	Total	39 (53%)	21 (30%)	0.006**
	The visited	19 (26%)	12 (17%)	0.213
	The destructed	14 (19%)	9 (13%)	0.321
	The helped	6 (8%)	0 (0%)	0.028*

* $p < 0.05$, ** $p < 0.01$.

test results used to assess whether the distribution of these roles changed significantly across the two periods.

The results reveal a statistically significant diachronic shift of Henan from being predominantly constructed as a Goal during 2006–2015 to being more frequently represented as an Actor in 2016–2025 ($\chi^2 = 7.628$, $p = 0.006$). During 2006–2015, Henan was slightly more frequently construed as a Goal (53%) than as an Actor (47%), suggesting that Western media tended to depict the province as the entity acted upon rather than the initiator of actions. In 2016–2025, however, this pattern reversed, with Actor roles rising markedly to 70%, substantially exceeding Goal roles (30%). As van Leeuwen (1995) argues, Actor derives social power from their ability to influence other participants within a process. Henan's shift from a Goal-oriented representation to an Actor-dominated one therefore marks a substantive discursive transformation, signaling a strengthened portrayal of its capacity to initiate actions in Western reporting.

4.2.1 Actor configurations

In order to examine how Henan's social roles and agency were realized through different types of actions, all material clauses in which Henan functioned as Actor were grouped into three sub-categories based on their process meanings. The Destructor role was realized through verbs encoding harmful or disruptive actions such as kill or crash. The Doer role corresponded to institutionally oriented actions, typically realized through verbs such as rescue, arrest, impose, detain, or extend. The Information Disseminator role referred to clauses where Henan was construed as initiating communicative actions, typically realized through material verbs such as post and issue. These verb sets operationalized distinct experiential meanings that underpinned Henan's enacted agency across the two periods.

In the 2006–2015 period, Henan was principally constructed as a Destructor, a role arising from frequent reports of public accidents such as coal-mine explosions, gas leaks, nightclub fires, and aviation incidents. In these cases, Henan was represented as the Destructor in material-process clauses, reinforcing its association with recurrent emergencies. By contrast, occurrences of Henan as a Doer were relatively rare, typically confined to reports of law enforcement activities and humanitarian interventions. As illustrated in Example 1, “Henan police” functioned as the Doer initiating a positive material action, rescuing individuals subjected to forced labor. Nevertheless, the limited occurrence of the constructive Doer roles (13%) was insufficient to counterbalance the overwhelmingly destructive

representations (27%). Consequently, Henan's Actor profile during this period was dominated by negative experiential meanings.

Example 1

(*Los Angeles Times*, June 15, 2007) Police in **Henan** province have rescued 217 people, including 29 children, who had been forced to work as slaves at brick kilns, official media reported yesterday.

In the 2016–2025 period, the distribution of the Actor roles underwent a clear reconfiguration. The Doer role became the dominant Actor type, a statistically significant increase from the previous decade ($\chi^2 = 6.680$, $p = 0.010$). Henan was now more frequently positioned as the initiator of concrete actions within material clauses, particularly in governance and public administration. As illustrated in Example 2, “Henan authorities” functioned as the Doer, initiating a series of preventive measures, which discursively constructed Henan as an agentive entity capable of implementing large-scale public health interventions. While the Destructor role remained present in the corpus, its relative frequency declined substantially.

Example 2

(*The Guardian*, January 7, 2022) Authorities in **Henan** province, China, imposed more Covid restrictions after a sharp rise in infections, limiting travel and activities in some cities or launching mass testing drives in others.

In parallel, the discursive emphasis shifted away from Henan as a site of recurrent emergencies toward Henan as a governing authority undertaking strategic and proactive actions. This transition indicates a broader redistribution of agency within Henan's Actor role configurations, whereby the province is increasingly construed as an initiator of organized social action rather than a passive recipient of adverse events.

4.2.2 Goal configurations

Henan's Goal roles were instantiated through three recurrent sub-types, each associated with distinct sets of material process verbs.

As the Visited, Henan was realized as the Goal of visiting actions, typically through process verbs such as visit or travel. As the Destructed, the province was positioned as the entity affected by adverse events, commonly through verbs such as hit or devastate. As the Helped, Henan appeared as the recipient of support in clauses involving verbs such as help or give. These configurations collectively delineated the principal ways in which the province was represented as the recipient of social action in Western mainstream media.

Across both periods, the Visited consistently emerged as the most salient Goal role. In such clauses, national leaders, journalists or tourists acted as the Actors undertaking visiting activities, while Henan, its cities, or cultural heritage sites such as the Shaolin Temple, the Longmen Grottoes and the Taoist sites were realized as the Goal. While this pattern consistently positions Henan as a location that attracts external attention across the two periods, close reading of the concordance lines reveals a diachronic shift in evaluative meaning, most notably in representations of the Shaolin Temple.

As the birthplace of Chan Buddhism and Shaolin martial arts, the Shaolin Temple functions as one of Henan's most internationally recognizable cultural symbols and frequently serves as a key reference point for the province's cultural heritage in Western media. In the first period from 2006 to 2015, this cultural landmark was typically represented in negative evaluative terms. As shown in [Example 3](#), in which the Shaolin Temple was realized as the Goal of a visiting process, *The Times* depicted it as overly commercialized and theatrical. Such evaluations generate an unfavorable semantic prosody around the site, which subtly extend to Henan as a whole.

Example 3

(*The Times*, December 17, 2009) More than 1.6 million tourists visited the site in [Henan](#) province last year, each paying about £14 to watch a half-hour knockabout kung fu show and visit stores crammed with tacky martial arts-themed souvenirs.

In the second period from 2016 to 2025, Western reporting began to foreground more dialogic and collaborative forms of cultural interaction centered on the Shaolin Temple. In [Example 4](#), the temple again occupied the Goal role in a material process of visiting, yet the experiential meaning attached to this role differed markedly from the earlier decade. Instead of being framed as commercialized or theatrical, the temple was represented as a site of artistic collaboration and spiritual engagement. Through this shift in representation, Henan is construed in more favorable evaluative terms, indicating an emerging discursive tendency to portray the province as associated with cultural depth and meaningful exchange.

Example 4

(*The New York Times*, October 11, 2018) Over a decade ago, the acclaimed Belgian choreographer Sidi Larbi Cherkaoui traveled to the Shaolin Temple in [Henan](#) Province in China to work with, and learn from, the monks there who practice Zen Buddhism and kung fu.

Among the three Goal roles, the Helped was the only one that exhibited a statistically significant diachronic change ($\chi^2 = 5.922$, $p = 0.028$). During 2006–2015, this role was typically instantiated in material clauses of helping or giving, with governmental ministries or other higher-level institutions functioning as the Actor and Henan as the Goal receiving support. Such constructions linguistically foreground Henan's dependence on external assistance and align with [van Leeuwen's \(1995\)](#) distinction between activation and passivation, whereby a social actor is discursively represented as lacking autonomous capacity to initiate action. This pattern was exemplified in [Example 5](#), where the Ministry of Education functioned as the Actor in processes of giving and helping, while Henan occupied the passivated Goal position. The accompanying request for continued support further reinforced the portrayal of diminished agency during the first period.

Example 5

(*The New York Times*, March 10, 2015) "In recent years, the Ministry of Education has given [Henan](#) a lot of support and care and, on behalf of 100 million [Henan](#) people, I thank you," said the delegate, Li Guangyu, a businessman who runs an education investment company, according to the main evening newspaper of Zhengzhou, the provincial capital. "I also sincerely ask that you continue supporting and helping [Henan](#), and let more kids from [Henan](#) win a fair chance for an education."

In the subsequent decade, the Helped role showed a statistically significant decline, and no instances of this role were attested in the 2016–2025 corpus. While this change suggested a diminishing tendency to depict Henan as reliant on external intervention, caution was needed in interpretation. The corpus comprised six major Western media outlets, and the absence of the Helped role did not imply that such representations had disappeared across the broader media landscape. Nonetheless, when considered alongside the marked rise of Actor roles in the same period, the decline of the Helped role indicates a broader discursive movement in which Henan is increasingly represented as an initiator of action rather than a recipient of assistance.

5 Discussion

This study combined text mining with a transitivity-based social actor analysis to provide a comprehensive account of how Henan has been discursively constructed in Western mainstream media over the past two decades.

The text-mining results demonstrate a marked continuity in Western media framings of Henan across the two decades. Although governance initiatives at the macro level and social transformations at the micro level appear recurrently in both periods, the most persistent and salient pattern is the sustained prominence of crisis-oriented reporting. Western media repeatedly construct the province as an "emergency-prone" region, a framing that remains remarkably stable despite broader shifts in its development trajectory. This discursive

persistence aligns with Wei and Wu's (2024) observation that French media similarly prioritize public emergencies when reporting on Henan, and it corroborates Deng's (2017) finding that accidents and crises constitute a dominant thematic cluster in Western representations of the province. From a news-values perspective, the media's focus on crises reflects the inherent newsworthiness of events characterized by immediacy, negativity, and human-interest appeal (Harcup and O'Neill, 2017). The endurance of this framing, however, suggests more than editorial preference, it also reflects recurring ideological orientations in Western media that foreground risk, vulnerability, and instability when depicting Chinese localities (Chen, 2023).

Beyond this continuity, the semantic themes of media coverage exhibit several notable diachronic shifts. Reporting that had previously foregrounded rural settings and agrarian concerns increasingly shifted toward urban development, infrastructure, and modernization; meanwhile, economic discourse expanded substantially as Henan's industrial restructuring gained prominence, whereas cultural coverage experienced a relative decline. These thematic adjustments broadly mirror Henan's developmental trajectory, particularly the province's accelerated urbanization and economic transformation over the past decade. However, the diminishing visibility of cultural themes contrasts sharply with Henan's exceptionally rich cultural heritage, which includes five UNESCO World Heritage Sites such as the Yin Xu ruins and the Longmen Grottoes, as well as internationally recognized intangible traditions such as Shaolin Kung Fu and Tai Chi. As Chen and Sun (2023) observe, Henan's cultural image suffers from a persistent "cultural discount" in external communication, a phenomenon that undermines the province's soft power and international visibility, underscoring the need for more strategic cultural communication to more effectively project Henan's cultural assets in the global arena.

The analysis of Henan's social roles in material transitivity patterns reveals a clear diachronic shift from being primarily represented as a Goal in 2006–2015 to more frequently assuming the role of an Actor in 2016–2025. This transformation is reflected both in the transition of its dominant Actor subtype from Destructor to Doer and in the marked decline of the Helped role, jointly indicating a broader discursive reorientation away from dependency toward greater autonomy and initiative. According to van Leeuwen's (1995) social actor theory, the Actor role indexes social power, as Actors possess the capacity to affect other participants within a social action. Henan's transition from being primarily Goal-positioned to predominantly Actor-positioned thus represents more than a lexical redistribution, but a substantive reconfiguration of agency, foregrounding the province's increasing capacity to initiate actions in Western reporting. This finding resonates with Lin and Miao's (2023) analysis of American media, which similarly identifies an expansion of China's agency over the past four decades. Taken together, these shifts indicate that Henan's evolving representation is situated within a broader discursive trajectory in which both China and its localities are increasingly constructed as proactive social actors, reflecting their rising visibility and influence in international discourse.

Within this overall reconfiguration of agency, the Helped role undergoes a particularly noteworthy shift across the two periods.

Tang's (2021) analysis of U.S. mainstream newspapers between 2008 and 2010 found that China was frequently positioned as the Helped in transitivity patterns, ranking third among seven Goal roles in "who does what to China." The alignment between Tang's findings and the first-stage results of this study indicates that Henan's construction as the Helped during 2006–2015 was not an isolated case but rather reflected a wider tendency in Western media to portray China and its sub-national entities as dependent recipients of support or intervention. Against this backdrop, Henan's marked decline in the Helped role in 2016–2025 represents a meaningful discursive shift. Instead of being routinely cast as reliant on higher-level institutional assistance, Henan is increasingly represented as an entity capable of initiating action, reinforcing the broader upward trajectory of its discursive agency within Western media discourse.

6 Conclusion

Drawing on a diachronic corpus of Henan-related reports in Western mainstream media from 2006 to 2025, this study integrates text mining with the material transitivity framework to examine the evolution of semantic themes and social roles of Henan over two decades. The analysis identified both persistent frames and notable transformations, showing that while Henan continued to be recurrently associated with emergency theme, its social representation evolved from being primarily a Goal to an Actor, signaling an expansion of its perceived agency in international discourse.

Building on these findings, the study contributes on multiple levels. Empirically, the study provides a diachronic account of how Western media have represented Henan in discourse, revealing the dynamics of regional image construction over time. Theoretically, the study demonstrates that integrating text-mining with material transitivity analysis provides a systematic approach for examining how semantic patterns interact with the grammatical encoding of social roles in large-scale media corpora. Practically, the findings highlight the need for regions to enhance the global visibility of their cultural heritage, cultivate sustained narratives of modernization and governance capacity, and strengthen their international communication efforts in order to foster more balanced and multidimensional representations in global media.

While these contributions underscore the analytical and practical value of the study, several limitations merit acknowledgment. First, the dataset is restricted to six major English-language newspapers accessible through LexisNexis. While these outlets are influential agenda setters, they do not encompass the full diversity of Western media environments, thereby limiting the generalizability of the findings. Second, the transitivity analysis focuses exclusively on material processes. Although this focus is theoretically motivated by the study's interest in social action and agency, it does not account for other process types such as relational, mental, or verbal processes, that may also shape Henan's mediated representation. Future research could broaden the corpus to additional media genres and incorporate a wider range of transitivity processes to build a more comprehensive picture of regional image construction.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Author contributions

MZ: Conceptualization, Methodology, Data curation, Formal analysis, Writing – review & editing, Writing – original draft.

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