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The Digital Education Divide and Educational Inequality: A Systematic Literature Review

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Abstract

This study examines how the digital education divide contributes to educational inequality and identifies strategies for promoting digital equity in contemporary education systems. Using a systematic literature review approach, the study analyses 20 peer-reviewed studies selected from Scopus, Web of Science, and China National Knowledge Infrastructure. The review focuses on formal education contexts, including primary, secondary, and higher education. A Preferred Reporting Items for Systematic Reviews and Meta-Analyses-informed screening process was adopted, and thematic coding was used to synthesise findings across different national and educational settings. The review finds that the digital education divide is a multidimensional problem that extends beyond unequal access to devices and internet connectivity. It is also shaped by differences in digital literacy, quality of participation, teacher digital competence, institutional support, policy design, and cultural inclusion. These factors interact with wider socioeconomic, regional, linguistic, and cultural inequalities, creating uneven opportunities for students to engage meaningfully in digital learning. The findings further suggest that technology expansion alone cannot reduce educational inequality unless it is supported by inclusive pedagogy, sustained teacher development, equitable infrastructure, and context-sensitive policy interventions. The study concludes that addressing the digital education divide requires a shift from access-based solutions to a broader equity-oriented approach that values meaningful participation, cultural responsiveness, and systemic support. This review contributes to a clearer understanding of the mechanisms through which digital inequality reproduces educational disadvantage and highlights future directions for research, policy, and educational practice.

Keywords

digital education divide, educational inequality, digital equity, digital literacy, systematic review

1. Introduction

Over the past two decades, digital technologies have significantly reshaped education worldwide. Online platforms, digital resources, and networked learning environments have created new opportunities for flexible and personalized learning. At the same time, these developments have exposed persistent inequalities in access, skills, and participation. The COVID-19 pandemic further accelerated the shift to remote and technology-mediated learning, making disparities in digital readiness more visible across educational systems [1].

The concept of the digital divide has evolved beyond differences in device ownership or internet access. It is now widely understood as a multidimensional phenomenon involving technological access, digital literacy,

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quality of participation, and learning outcomes [2, 3]. Students from low-income households, rural areas, and culturally or linguistically marginalized communities often face overlapping barriers in digital learning environments, which can limit participation, reduce academic performance, and reinforce existing educational inequalities [4, 5].

Existing research also shows that digital inequality is closely linked to broader structural and pedagogical conditions. Unequal access to infrastructure reflects socioeconomic and regional disparities, while differences in digital literacy are shaped by prior experience, language, and cultural context [6, 7]. In addition, teacher preparedness and institutional support play a critical role in determining whether digital tools are used in inclusive and pedagogically effective ways. Without sufficient training and support, digital technologies may reproduce rather than reduce educational inequality [8, 9].

At the policy level, scholars increasingly argue that digital inequality should be understood not only as a technical issue, but also as a matter of social justice, cultural inclusion, and educational opportunity [10, 11, 12]. To ensure analytical consistency, this review focuses on formal education sectors, namely primary, secondary, and higher education, where learning processes, institutional structures, and outcomes are more systematically documented and comparable across contexts. Rather than presenting individual studies separately, this review synthesizes existing research into key thematic areas to provide a coherent understanding of how digital inequality operates across education systems.

This study therefore conducts a systematic review of research examining the relationship between digital inequality and educational disparity. It aims to identify the key mechanisms through which digital divides shape unequal learning opportunities and to synthesize policy and pedagogical strategies that may promote digital equity.

The research questions guiding this review are:

- What key mechanisms contribute to the digital education divide in contemporary education systems?
- What policy and educational interventions have been proposed to reduce the digital education divide and promote greater educational equity?

2. Method

This study adopts a systematic review methodology to examine empirical and conceptual research on the digital education divide and its relationship to educational inequality. It also investigates strategies, policies, and pedagogical practices proposed to promote digital equity. The review generally follows the principles of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, adapted to the scope of this topic [13].

2.1 Search Strategy

To enhance the breadth and reliability of the data sources, multiple academic databases were used in this review. Scopus was selected as the primary database due to its extensive coverage of peer-reviewed literature in education, social sciences, and technology-enhanced learning. In addition, Web of Science was included to ensure comprehensive coverage of high-impact international research, and China National Knowledge Infrastructure (CNKI) was incorporated to capture relevant studies published in the Chinese context. The inclusion of multiple databases helps reduce selection bias and improves the robustness of the review.

Search terms were designed to reflect the multidimensional nature of the digital divide, including: digital education divide, educational inequality, digital equity, technology access, digital literacy, online learning resources, educational policy, remote learning, socioeconomic gap, ICT in education, digital inclusion, and educational justice. Boolean operators (AND, OR) were applied to combine keywords and refine the search results.

To ensure relevance and recency, the search was limited to studies published from 2009 onward. Only peer-reviewed journal articles, including both empirical and conceptual studies, were included.

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2.2 Eligibility Criteria

Studies were included if they focused on the digital divide within formal education contexts, specifically primary, secondary, and higher education. This focus was adopted to ensure consistency and comparability across studies, as these stages represent structured educational systems with established curricula, institutional support, and relatively clear learning outcomes. Compared with early childhood or vocational education, these sectors are more frequently examined in the literature on digital inequality and therefore provide a stronger basis for synthesis.

In addition, studies were included if they addressed educational inequality, digital participation, or equity issues; examined digital access, digital skills, teacher competence, institutional support, or learning outcomes; proposed or evaluated strategies to reduce digital inequality; and were published in English in peer-reviewed journals.

Studies were excluded if they focused mainly on technical ICT development without clear educational relevance, discussed digital divide issues outside learning environments, concentrated solely on early childhood or vocational training without broader implications for formal education, or were commentary pieces without empirical or theoretical support.

2.3 Screening Process

The screening process followed the PRISMA framework [13]. Records from Scopus, Web of Science, and CNKI were first combined, and duplicates were removed [14].

A title and abstract screening was then conducted to exclude studies not related to education or digital inequality. The remaining articles underwent full-text screening based on the predefined inclusion criteria, including educational context and relevance to digital equity. Studies focusing only on technical ICT issues were excluded.

The process was iterative, with studies rechecked where necessary to ensure consistency [15]. From an initial 58 records, 20 studies were finally included.

2.4 Data Extraction and Thematic Coding

Key information from each study (e.g., author, context, participants, design, and focus) was extracted and summarised in Appendix A.

The analysis used thematic coding, following Virginia Braun and Victoria Clarke [16].

First, all studies were read several times to become familiar with the data. Initial codes were then generated from relevant text segments (e.g., access issues, digital skills, teacher support), following an inductive approach [17].

Next, codes were grouped into broader categories. A semantic coding approach was applied, meaning themes were developed from explicit meanings in the data rather than deeper interpretation [16].

Finally, themes were reviewed and refined to ensure consistency across studies. This iterative process helps improve credibility and transparency in qualitative analysis [18].

3. Results and Findings

Twenty peer-reviewed journal articles met the eligibility criteria for inclusion in this review. Together, these studies represent a range of educational contexts across Europe, Asia, North America, Africa, and the Middle East, and cover primary, secondary, and higher education. Although the studies differ in method, including surveys, qualitative interviews, modelling, and conceptual analysis, they consistently show that the digital education divide is a layered phenomenon shaped by access, skills, pedagogy, policy, and culture.

3.1 Access and Infrastructure

The reviewed studies consistently indicate that unequal access to devices, reliable internet, and supportive learning environments remains a major driver of educational inequality. Across both high-income and lower-

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resource contexts, students from disadvantaged, immigrant, and rural backgrounds experienced reduced learning time and weaker engagement, especially during remote learning [1, 3]. In addition, regional disparities in infrastructure investment and digital opportunity suggest that access inequality is closely linked to broader structural inequality rather than being a purely technical issue [5, 6].

3.2 Digital Literacy and Participation

The findings also show that digital inequality is shaped by uneven digital literacy, confidence, and prior experience. Students from linguistically and culturally diverse backgrounds often face additional barriers to meaningful participation, particularly when digital environments are not language-responsive or culturally inclusive [4, 7]. Evidence from higher education further suggests that prior familiarity with digital tools influences academic performance and engagement, indicating that digital literacy functions as a form of social and educational capital [11, 12, 19].

3.3 Teacher Competence and Pedagogical Practice

Another major finding is that teacher readiness strongly affects the inclusiveness and effectiveness of digital learning. Where teachers lacked confidence, training, or pedagogical understanding, digital tools were often used in limited and transmissive ways, reducing opportunities for student interaction and engagement [20, 21]. By contrast, stronger pedagogical competence and better institutional support were associated with more interactive and equitable learning experiences [9, 22]. These findings suggest that teacher digital competence is central to digital equity.

3.4 Policy and Structural Inequality

The reviewed studies further demonstrate that digital inequality is embedded in policy and system design. Emergency remote teaching and policy reforms that did not adequately account for socioeconomic differences often intensified existing disparities, as more advantaged students and families were better able to compensate for disruption through additional resources and support [8, 23]. This supports the view that effective responses must address not only access, but also use, school-level conditions, and wider structural disadvantage [2, 24].

3.5 Cultural and Social Dimensions

Finally, the studies indicate that digital inequality also has important cultural, linguistic, and ethical dimensions. Students from minority and marginalized communities may be excluded not only because of limited access, but also because digital learning environments fail to reflect their identities, languages, and lived experiences [4, 7]. Approaches grounded in cultural responsiveness, community engagement, and digital justice have therefore been identified as important for improving belonging, participation, and equity in digital learning [10, 25].

4. Discussion and Future Directions

The findings of this review suggest that the digital education divide is not simply a descriptive pattern of inequality, but a structurally produced phenomenon shaped by the interaction of social, institutional, and policy-related factors. Rather than reiterating the results, this section interprets the underlying mechanisms that explain why these inequalities persist across contexts.

First, the persistence of access inequality reflects broader socioeconomic and regional disparities rather than purely technological limitations. As highlighted by Digital Divide Research literature, unequal infrastructure distribution is closely tied to patterns of economic investment and social stratification [2, 6]. This explains why even in high-income countries, marginalized groups continue to experience reduced access and weaker learning conditions. In this sense, digital inequality should be understood as an extension of existing social inequality rather than a new, independent problem.

Second, differences in digital literacy and participation can be explained through the concept of digital capital. Students who possess prior technological experience, language resources, and cultural familiarity with digital environments are better positioned to benefit from online learning [11]. Conversely, students from disadvantaged or linguistically diverse backgrounds face cumulative barriers that limit meaningful

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participation. This supports the argument that access alone is insufficient, as unequal capacity to use technology effectively continues to reproduce educational disparities.

Third, the central role of teacher competence reflects deeper issues in professional preparation and institutional support. The findings indicate that when teachers lack pedagogical training in digital environments, technology tends to be used in passive and transmissive ways. This aligns with previous research suggesting that technological innovation without pedagogical transformation often reinforces, rather than reduces, inequality [8]. Therefore, teacher digital competence should be viewed not only as a technical skill, but as a form of pedagogical and equity-oriented expertise.

At the policy level, the findings can be explained by the mismatch between rapid technological implementation and slower institutional adaptation. During the COVID-19 pandemic, many education systems adopted emergency remote teaching without sufficiently accounting for socioeconomic differences [5]. As a result, policies that aimed to ensure continuity of learning often unintentionally advantaged already privileged groups. This highlights the importance of policy design that is sensitive to context, equity, and long-term sustainability.

In addition, the cultural dimension of digital inequality reveals that exclusion is not only material but also symbolic. When digital content does not reflect students' languages, identities, or lived experiences, participation becomes limited even in the presence of adequate access [4]. This supports the growing emphasis on digital justice, which frames digital inclusion as a matter of representation, agency, and belonging rather than access alone.

Building on these interpretations, several directions for future research and practice emerge. Future studies should move beyond cross-sectional analysis and adopt longitudinal approaches to examine how digital inequality evolves over time, particularly in hybrid and AI-supported learning environments. In addition, more intersectional research is needed to explore how digital exclusion is shaped by overlapping factors such as class, gender, language, and disability.

From a practical perspective, greater attention should be given to evaluating the effectiveness of policy interventions. While many strategies have been proposed, there is still limited evidence on which approaches produce sustained improvements in digital equity. Future research should therefore focus on implementation and impact rather than conceptual discussion alone.

Finally, participatory approaches that involve students, teachers, and communities in the design of digital learning environments may offer more context-sensitive and inclusive solutions. Such approaches can help bridge the gap between policy intentions and classroom realities, ensuring that digital transformation contributes to meaningful educational change.

5. Conclusion

This study demonstrates that the digital education divide is a complex and systemic form of educational inequality shaped by the interaction of access, digital literacy, teacher competence, policy design, and cultural inclusion. The evidence shows that technological expansion alone does not guarantee equitable learning opportunities, as existing social and institutional inequalities continue to influence how digital resources are accessed and used. Addressing this issue therefore requires a shift from a narrow focus on access to a broader emphasis on meaningful participation, pedagogical transformation, and equity-oriented policy design. Ultimately, achieving digital equity depends on coordinated efforts across educational, institutional, and policy levels to ensure that digital technologies contribute to inclusion rather than the reproduction of inequality.

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The Evolution and Reconstruction of Mother-Daughter Relationships in Feminist Films

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Abstract

As the most pivotal primary relationship in women's spiritual development and the formation of female subjectivity, the mother-daughter bond has become one of the most enduring narrative motifs in women's cinema. Rather than merely depicting family ethics or domestic conflicts, films centered on mother-daughter relationships reveal the complex psychological and emotional dynamics that exist between women, including intimacy, dependence, manipulation, trauma, attachment, resentment, and eventual estrangement. These narratives not only reflect the lived experiences of women under patriarchal social structures but also illuminate the continuous negotiation of identity across generations. This paper selects representative Chinese and international films as its primary research texts. Through a comparative analysis of four dimensions—melancholia and trauma, emotional alienation, intergenerational control, and women's self-liberation—it examines the diverse visual representations and underlying psychological structures of mother-daughter relationships in different cultural contexts. Furthermore, it explores how daughters achieve the construction of female subjectivity through emotional negotiation, psychological separation, and identity reconstruction in relation to their mothers, thereby enriching theoretical discussions and textual studies of mother-daughter narratives in contemporary women's cinema.

Keywords

mother-daughter relationships, feminist films, image theory

1. Introduction

The construction of female subjectivity is deeply rooted in the primordial mother-daughter kinship. This bond serves as the origin of women's self-perception, emotional patterns and gender identity, yet it may also evolve into a fetter that hinders women's pursuit of independence. This constitutes an inescapable structural paradox in women's growth. Unlike father-son relationships, which carry social discipline and power inheritance, mother-daughter ties feature profound physical and emotional bonds. As the first reflection and object in a daughter's life, a mother lays the foundation for her daughter's self-development. Meanwhile, she may easily suppress the emergence of her daughter's independent subjectivity through emotional bondage, imposition of will and experiential indoctrination. Such profound interdependence and emotional entrapment have become core research topics for psychoanalysis and feminist theories examining the predicament of female subjectivity [1-3]. In current film narratives, mothers and daughters are no longer simplified symbols of pure affection or sheer confrontation. Their relationships are defined by a complex mix of love and hatred,

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attachment and resistance—an audiovisual reflection of the operational mechanisms of mother-daughter dynamics and the paradox of female subjectivity. Against this backdrop, this study centers on a core question: How do mother-daughter relationships follow a psychological trajectory of symbiosis, control, separation and ultimately subjectivity reconstruction in diverse cultural contexts?

2. Mother-Daughter Relationships in Contemporary Cinema: Theoretical Perspectives and Research Review

In Black Sun, Kristeva analyzes the intricate emotional bond between mothers and infants based on clinical observations of female patients with depression, and puts forward the concept of the “virgin mother”. A “virgin mother” longs for a reliable companion who is utterly dependent on her, and seeks to create such a companion through childbirth to alleviate her own depression [1]. Passionate Detachment: An Introduction to Feminist Film Theory by Thornham systematically reviews the development of Western feminist film theories from the 1970s to the 1990s. Breaking away from the early binary framework that merely focused on the male gaze and patriarchal oppression, it emphasizes the internal power struggles among women, the subjectivity of female audiences, and the fluid reconstruction of female subjectivity. It thus provides a critical framework and theoretical support for interpreting on-screen mother-daughter relationships and the construction of female subjectivity from a maternal and filial perspective [2]. Building on Freud's psychoanalytic theories, Klein developed the object relations theory. While classical psychoanalysis prioritized biological drives, object relations theorists regard the pursuit of relational objects as the primary human motivation. Klein argues that infants establish their internal and external object relations via introjection and projection, which shape the formation of the ego and superego, with unconscious fantasies acting as the medium for these psychological processes [3].

Regarding mother-daughter relationships in contemporary films, Zhang notes that films adopt female desire narratives and spatial narratives to explore the influence and implications of the “mother-daughter mirror image” on women's growth, and discuss ways to break free from this predicament. She also analyzes feminist aesthetic explorations in terms of resisting the male gaze, verbal expression and reflecting on the “other” [4]. Existing studies mostly focus on plot analysis of single or multiple films, confined to sociological or one-dimensional psychological interpretations. Comprehensive research integrating psychoanalysis and feminist film theories remains scarce. Accordingly, this paper adopts a multi-theoretical framework to systematically analyze how mother-daughter relationships influence the full process of women's self-reconstruction along the trajectory of symbiosis and control, resistance and separation, and final reconstruction.

3. The Evolution of Mother-Daughter Relationships in Film Narratives

3.1 Symbiosis and Control: Emotional Discipline under Mirror-like Attachment

In the construction of female subjectivity, women often take their mothers as a “mirror” for imaginative projection. Such projection distorts their self-perception through alienation and misrecognition, weaving intricate emotional fetters between mothers and daughters. In the film *The Old Town Girls* (2021), Li Miaomiao regards her long-absent mother Qu Zhicheng as an ideal spiritual mirror and projects her emotions onto the mother out of longing. Driven by a yearning for maternal love and a sense of belonging, the teenage girl deliberately imitates her mother's words and deeds, trying to define her own identity through attachment to this mirror. Yet clouded by cognitive bias, she fails to see her mother's selfishness and cowardice. The distorted mirroring warps her judgment, trapping mother and daughter in a tangled bond filled with craving for warmth and emotional estrangement, which ultimately derails the construction of the daughter's independent subjectivity [4].

In *Song of Spring* (2022), an 85-year-old mother takes care of her daughter suffering from Alzheimer's disease, reversing the traditional role of motherhood time and again. In her youth, Feng Jizhen had long borne family responsibilities and suppressed her own emotions and desires. After losing her memory and ability to live independently in old age, she once again becomes emotionally dependent on her mother. Though seemingly warm and tender, the film reveals profound female trauma: women spend their lives engaged in caregiving and self-sacrifice, trapped in emotional labor, and neither mother nor daughter can achieve true independence from one another. Even in her later years, Feng Jizhen still craves her mother's comfort and

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recognition like a child, while the mother reaffirms her own sense of worth through constant care. Their mutual reliance embodies deep affection, as well as the fragility and emptiness of female subjectivity depleted by long-term familial obligations [5].

Control and attachment within mother-daughter relationships reflect the continuation and distortion of female desires across generations. When mothers impose their unfulfilled aspirations on their daughters, it is essentially an imposition of personal will. In *It's OK* (2026), mother Hu Chunrong repeatedly mentions the great efforts she made to send Xuke to a choir in her childhood, while Xuke's true passion has always been painting. Gradually, the audience learns that it is Hu Chunrong herself who loved singing but never had the chance to pursue it in her youth. Convinced that singing is a promising path, she forces this choice on her daughter. Many mothers project their unaccomplished dreams onto their daughters, expecting them to fulfill the life they never had. As feminist film theories suggest, traditional maternal norms demand that women realize their self-worth through their children. Suppressed by social constraints, mothers transfer their unfulfilled desires to their daughters in the form of education and discipline. Xuke's love for painting is ignored, signifying that her individual desires as an independent subject are overshadowed by her mother's.

Xiao and Guo point out that director Yang Lina deconstructs the ethical norms of maternal duty embedded in traditional filial piety by dismantling the “myth of the mother”, depicting maternal resentment, portraying maternal illness and highlighting paternal absence. Her works reshape the asymmetric power dynamics within mother-daughter relationships and break the conventional “praise and sentimentality” paradigm of family ethics films, blazing a new trail for gender studies and film criticism [5]. Some mothers live in constant fear of abandonment within intimate relationships and even resort to hurtful behaviors to ensure their children stay attached to them. In *Spring Tide* (2019), the grandmother fears her daughter and granddaughter will leave her. Resentful of her adult daughter, she manipulates her young granddaughter—who is easier to control—and sows discord between mother and daughter to keep the girl by her side. Such mothers tie their sense of self-worth to their children's needs, demanding absolute devotion to ease their anxiety about separation. In *Hot Milk* (2025), having lost her husband, the mother lives in terror of her daughter leaving her someday. Psychologically, she feigns paralysis to bind her daughter to herself as a full-time caregiver. During medical treatment, she realizes she could recover physically, yet recovery would mean facing independence and her daughter's eventual departure—a prospect that fills her with agony, to the point where she even considers amputation. By fabricating physical ailments, she traps her daughter in a caregiving relationship, reducing the young woman to an emotional object for her own sense of security.

3.2 Separation and Reconstruction: Subjectivity Awakening and Renewal of Intergenerational Experience

As daughters grow up and engage more with the outside world, they gradually recognize that they are not extensions of their mothers. Mother-daughter relationships then enter a phase of separation, as daughters begin to form self-awareness and view the world from perspectives independent of their mothers. In *Lady Bird* (2017), adolescence drives Christine, who calls herself *Lady Bird*, to break away from the family sphere defined by her mother. She develops a distinct sense of self through school life, friendships, romance and life planning. At the beginning of the film, the two still share moments of reading and emotional communication, but conflicts soon emerge. *Lady Bird* rebels against her mother's disciplines in various ways: she adopts a new name, hides her applications for out-of-state universities, and pursues a lifestyle beyond her family's social class. Her actions mark her realization that she is not a vessel for her mother's will, but an individual with her own desires and independent subjectivity. Adolescence necessitates a transition from infantile symbiosis with the mother to psychological separation, a crucial step in establishing boundaries between self and others. *Lady Bird*'s mother holds a pragmatic outlook on life, seeking to guide her daughter's choices regarding finances, college admission and daily conduct, and hoping she will attend a local university for stability. In contrast, *Lady Bird* yearns to move to New York, seeing relocation as a path to self-reinvention. Their conflicts are not mere generational friction, but a daughter's struggle for subjectivity against maternal control. Her rebellion is both an affirmation of her independent self and a resistance to manipulation.

In the article A New Path for Narrative in Feminist Films: Deconstructing Visual Pleasure through Female Images, Cheng and He state that the similarities between mothers and daughters exacerbate their conflicts. A woman's growth is a constant process of clashing with her mother: daughters forge independent consciousness amid conflicts and achieve self-identity after reconciling differences [6]. The process of separation is often

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accompanied by fierce clashes. During adolescence or when stepping into the wider society, daughters may fluctuate in their attitudes toward their mothers, or blame all life setbacks on maternal control, deliberately choosing life paths, academic pursuits and values opposed to their mothers'. This is a defense mechanism to shield themselves from conflicting emotions. Just as an infant may perceive its mother as a “bad breast” and harbor aggressive fantasies when hungry, yet idealize her as a perfect figure when comforted, teenage daughters exaggerate differences and confrontation to assert their individuality, reducing the mother-daughter bond to a simple power struggle. At this stage, they fail to acknowledge the emotions and generational limitations behind their mothers' behaviors. As daughters leave their original families, integrate into society and mature, their perspectives become more diversified. Intense confrontation fades, and extreme antagonism subsides. They no longer equate independence with denying their mothers, and start to re-examine the mother-daughter bond rationally, laying the groundwork for empathy, reconciliation and the establishment of an equal, mutually respectful new relationship.

In *Lady Bird*, the protagonist initially rejects her given name Christine and insists on being called *Lady Bird*. After leaving home for college, however, she comes to understand and appreciate her mother's devotion, and reverts to her original name—a true symbol of full personal independence. Similarly, in *It's OK*, Xuke once scoffs at her mother's frugal lifestyle, but later chooses to take the bus to save money after gaining a new understanding of her mother.

While embracing their independence, daughters also develop feelings of guilt and a sense of responsibility toward their mothers, and gradually learn to empathize with them. Meanwhile, enlightened by feminist ideas amid social progress, they engage in cultural feedback across generations. Individual awakening and the reconstruction of subjectivity jointly drive the transformation of mother-daughter relationships. In *It's OK*, as an adult, Xuke reflects on her relationship with Hu Chunrong. She realizes that her mother's control and emotional reliance stem not from malice, but from the hardships women endured under the constraints of gender and social norms in her era. Denied the chance to pursue her artistic and emotional dreams when young, Hu Chunrong pinned all her unfulfilled hopes on her daughter. Xuke felt suppressed and resistant during her youth, yet after stepping into society and undergoing identity changes, she came to comprehend the dilemmas women like her mother faced caught between family and society.

Nevertheless, this understanding does not mean she fully endorses the traditional logic of maternal duty. Anthropologist Mead categorized intergenerational cultural relationships into three types: pre-figurative culture, co-figurative culture and post-figurative culture. The post-figurative culture refers to reverse socialization, in which the older generation learns new knowledge and ideas from the younger one. Influenced by contemporary feminist thoughts, Xuke recognizes the harm of mothers projecting their own desires onto daughters, and rethinks the boundaries of female subjectivity. She moves beyond mere attachment or resentment, and strives to build a new equal mother-daughter bond. This cultural feedback enables her mother to re-examine womanhood, self-identity and intimate relationships. Transcending conventional intergenerational reconciliation, the film depicts the flow and renewal of female experiences across generations: while understanding their mothers' traumas, daughters break the old maternal norms with new subjective awareness, guiding mother-daughter relationships away from attachment and control toward mutual recognition.

4. Conclusion

As women's most primordial and profound emotional bond, the mother-daughter relationship shapes their early self-awareness and emotional structure, and exerts a far-reaching influence on the construction of their subjectivity. Drawing on Kristeva’s feminist psychoanalysis, Klein’s object relations theory and Thornham’s feminist film theories, this paper analyzes films including *Spring Tide*, *Song of Spring*, *Lady Bird* and *It's OK*. It finds that on-screen mother-daughter dynamics are far more complex than the warm sacrifice and reconciliation depicted in traditional ethical narratives. These relationships exist in a constant state of flux, rupture and reconstruction. The growth of female subjectivity inevitably follows a psychological journey: from symbiosis and control, to separation, and finally to reconstruction, accompanied by trauma, guilt, attachment, resistance and renewed understanding. Therefore, mother-daughter narratives in contemporary women's films reveal the deepest spiritual structures and emotional predicaments behind the construction of female subjectivity. Beyond family ethics, the mother-daughter bond has become a core theme for women's cinema

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to explore female identity, desire, trauma and subjectivity. By portraying such relationships, women's films dismantle the myth of the ideal mother, expose oppression and attachment within female interpersonal relationships, and demonstrate women's potential to achieve spiritual awakening and reconstruction after painful separation. These films tell not only personal growth stories of individual women, but also reflect the shared struggles and self-liberation of women across generations under the influence of social and gender structures.

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Developing A Culturally-Sensitive Teaching Framework for Creative Art Education in the Afigya Kwabre South District, Ghana

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Abstract

In a postcolonial setting, culturally responsive education is an urgent issue. Still, little systematic consideration is given to how teachers of art perceive, practice and work towards the integration of indigenous culture into the classroom, or what a viable, teacher-led model of culturally responsive education might include. This article aims to directly address these gaps by drawing on a larger qualitative study conducted on cultural competency in Creative Art education in the Afigya Kwabre South District of the Ashanti Region, Ghana. Using semi-structured interviews with ten purposively selected Junior High School (JHS). Creative Art teachers drawn from two schools in the district were analysed thematically. Results indicate that teachers agree on cultural integration as essential and central, not ancillary, to the teaching of art, and that there is a coherent and informal pedagogical repertoire of using stories, demonstration, project-based learning, and indigenous materials in the teaching of art. These findings led to the development of the Culturally-Sensitive Art Teaching Framework, which is based on four interconnected components: Cultural Grounding, Pedagogical Responsiveness, Community Partnership, and Reflective Assessment. The article ends with some practical suggestions for curriculum authorities, teacher education, and collaboration with the community in post-colonial educational contexts like that of Ghana.

Keywords

Akan artistic heritage, culturally responsive pedagogy, cultural competence, culturally-sensitive teaching framework

1. Introduction

History of formal education in the postcolonial world has made it difficult to teach and value art in the African classroom because it has engrained Western artworld conventions and epistemologies as the dominant system [1]. This tension is particularly evident in Creative Art education in Ghana where the curriculum claims to value indigenous symbols, motifs and crafts including Adinkra, Kente and traditional pottery, but has been documented in the classroom for a long time to have fallen short of this goal [2]. This lack has been corroborated by more recent scholarship, which reveals that the appraisal of indigenous art as "primitive" by

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the colonialists still affects teachers' and students' attitudes to the art of the local people in spite of the growth of design and art programmes in universities [3]. In this wider context, the Afigya Kwabre South District, in the Ashanti Region provides a very instructive backdrop. Whilst the district is located in the epicentre of Akan artistic and craft traditions, no empirical evidence has been found of the deliberate inclusion of these traditions in the teaching of Creative Art at the Junior High School (JHS) level in the district as is the case in many districts of Ghana. These needs go beyond what students know and can do as discussed elsewhere in the parent study, and must be acknowledged as a gap in teacher perceptions, pedagogical practices in the classroom, and the structures in which they operate. Teachers are a central figure in the literature that shapes the implementation of curriculum promises for cultural integration in the classroom [4,5]. What students experience is more about the teachers' beliefs, pedagogical knowledge and resources and training than the formal curriculum document itself.

The importance of incorporating indigenous culture into the teaching and learning of art in school has been documented in the literature [6,4], but there is a gap between the expected and the actual as far as curriculum implementation is concerned in many schools in Ghana. In policy documents and curriculum frameworks, teachers are assumed to be prepared and willing to teach art in a culturally relevant way. There is however, little evidence-based and context specific understanding of what Creative Art teachers in districts like Afigya Kwabre South believe about cultural integration, what they are currently doing and what specific challenges are impeding them from doing more. Nor has there been developed an empirically-based, teacher-informed framework for culturally-sensitive Creative Art teaching for this context. If there is no such framework, good policy pronouncements can end up being only wishful thinking. This study directly tackles that gap by examining the teachers' voice as the main source of evidence in the diagnosis of the problem and design of its remedy. This article aims at finding out the perceptions, pedagogy and problems that Creative Art teachers face in using local culture in the teaching of the creative art in Afigya Kwabre South district and to propose some of the ingredients of a culturally sensitive teaching framework for the teaching of Creative Art in the district. In particular, the study aimed to: understand the perspective of Creative Art teachers on the significance of teaching local culture; find out the existing pedagogical strategies and practice of Creative Art teachers in incorporating local culture into Creative Art teaching; explore the challenges and obstacles faced by Creative Art teachers in teaching local culture; find out what kind of support and resources Creative Art teachers need to carry out local culture teaching effectively; and formulate a practical, culturally inclined teaching framework for Creative Art education in the district.

The following research questions from the parent study were addressed: What are Creative Art teachers' perceptions of integrating local culture in art teaching in Afigya Kwabre South District? What are the practices of integrating local culture in the art teaching in Afigya Kwabre South District? What are the challenges of integrating local culture in art teaching in Afigya Kwabre South District? Do Creative Art teachers think that incorporating local culture is significant to their teaching? What are the teaching practices and approaches those teachers are currently using to integrate cultural aspects in classroom art? What are the difficulties and obstacles of teachers in implementing local culture in Creative Art in teaching? The study develops and assess a sustainable, culturally sensitive teaching framework for Creative Art education in the Afigya Kwabre South District by exploring teachers' resource and support needs, describing key components and pedagogical ideas of the framework, incorporating traditional and modern art techniques, and identifying appropriate assessment tools to evaluate students' cultural competencies.

2. Literature Review

2.1 Theoretical Framework

This article draws from two complementary theories: Culturally Responsive Pedagogy [7] and the Cultural Competence Model [8]. These two frameworks offer, respectively, a pedagogical perspective on the interpretation of teachers' practice and a developmental perspective for positioning the framework for this study.

2.1.1 Culturally Responsive Pedagogy

Culturally Responsive Pedagogy (CRP) described by Gloria Ladson-Billings [7] for the context of African American education and later extended literature widely across the sub-Saharan contexts, provides three

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aspects of culturally responsive teachers: academic achievement, cultural competency, and sociopolitical consciousness. Culturally responsive teachers respect students' cultural identities and students' cultural knowledge and experience as legitimate pedagogical resources, not barriers to the standard pedagogy. Paris and Alim [9] later broadened their work on CRP to Culturally Sustaining Pedagogy, positing that being responsive is not enough if education does not simultaneously sustain and perpetuate culturally marginalised communities' cultural practices. CRP offers the conceptual framework for understanding teachers' descriptions of their own practice when they are involved with Creative Art education in the Afigya Kwabre South District, as in their use of storytelling based on Akan proverbs, project-based teaching around cultural festivals and teaching that consistently positions local culture as the main value for the purposes of meaningful Art education. However, by focusing on sociopolitical consciousness, CRP also highlights the obstacles and pressures teachers encounter to fulfill these commitments, which places the difficulties experienced in this study in a broader structural framework, rather than solely individual.

2.1.2 Cultural Competence Model

Cross, Bazron, Dennis and Isaacs [8] describe cultural competence as a developmental continuum, ranging from cultural destructiveness, to cultural incapacity, to cultural blindness, to cultural pre-competence, to cultural competence, to cultural proficiency. A model created for child welfare services was later adapted and expanded in education, such as in the field of arts education, to analyse the impact of a curriculum or institution on the affirmation or contestation of the cultural identity of the learner. Stepanova et al. [10] expanded this model by stating that cultural competency frameworks need to focus on systemic and institutional processes for meaning and sustainable change; this systemic approach is clearly presented in the four-pillar framework proposed in this article. The Cultural Competence Model is used in this study to identify the district's Creative Art programme and individual teachers on this developmental continuum, and to explain how the four domains of the proposed framework are a structured approach for schools to progress from the cultural pre-competency to the cultural proficient stage.

According to Cross et al. [8], cultural competency is a broad term referring to the ability to communicate, understand, and interact effectively across culture, which includes awareness, knowledge, sensitivity, and skill as intertwined parts and requirements that grow with time, and Jirwe, Gerrish, and Emami [11] state that awareness of cultural differences, knowledge of them, sensitivities to them, and skills around them are all necessary components of cultural competency. Initial definitions of the concept focused on awareness and sensitivity [12], and more recent definitions are concerned with an action-oriented understanding that involves more than just noticing difference; it involves actively incorporating cultural knowledge into teaching [4]. Arts education, in particular, has a double demand for cultural competency: that teachers understand and respect student cultures in the classroom and that local symbols, motifs, and cultural arts are accepted as content for the classroom rather than as classroom decoration [6]. Stuhr, Petrovich-Mwaniki, and Wasson [13] have suggested a continuum that extends from monocultural to truly intercultural art education, with the aim of creating a standard to measure the practice of art teachers in this study.

2.2 Teacher Perceptions and Pedagogical Practice in Cultural Integration

Art teachers sit in the middle of whether or not local culture is genuinely included in the school's art programmes with their own cultural competence, subject matter knowledge and pedagogy dictates classroom experiences [5,4]. A consistent pattern throughout the literature is that teacher preparation is an important, but not sufficient, factor for successful cultural integration: teachers with poor preparation in the art of indigenous cultures will not effectively integrate local cultural elements, no matter how much they are mandated in the curriculum. In a case study of educators who sought to decolonise their arts syllabus, Choi et al. [14] identified a range of personal and institutional challenges that high-achieving teachers faced, such as the lack of culturally responsive teacher preparation, insufficient representation of cultural diversity in current curriculum materials, and conflicts between required assessments and culturally responsive teaching practices. Other institutional factors, school leadership, access to resources, community involvement and the broader policy landscape all influence how cultural integration is prioritised in practice. In Africa, research has always pointed to the importance of community-school partnerships [2,15]. A review of Opoku-Asare's [2] study on the visual arts curriculum in Ghana revealed a noticeable disconnect between policy statements on the integration of the local culture in the curriculum and classroom practices, and that teachers preferred to follow Western art practices because of the influence of external examination and their lack of training in local art practices. The same has

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been extended to graphic design education by Mensah Bonsu [3] who has shown that the colonial attitude that considers indigenous art to be primitive is still influencing the valuation of native art on the part of designers and art educators.

2.3 Barriers to Integrating Local Culture into Art Instruction

The literature identifies a consistent set of challenges to cultural integration in classrooms of art. The most common problems are caused by resources: the teaching of indigenous art forms often demands supplies, tools and reference materials which are often unavailable in under-resourced school environments [2]. A second common thread is the training-related barriers. A third issue is the conflict between the examination systems that have been externalised in the country and the aims of culturally responsive education [CRE] [2,16]. In a review of decolonising curriculum initiatives in global higher education contexts, Shahjahan, Estera, Surla and Edwards [17] discovered that, although institutions might be committed to decolonising their curriculum, it is not necessarily being implemented with an epistemic restructuring but rather with a tokenistic process of inclusion of non-Western content. Lastly, social and attitudinal factors such as the attraction of foreign art forms and lingering connotations of indigenous art with backwardness remain to influence both teacher and student values for local traditions [3,18].

2.4 Toward Culturally-Sensitive Teaching Frameworks

Paris and Alim [9] broadened Ladson-Billings' [7] Culturally Responsive Pedagogy to Culturally Sustaining Pedagogy [CSP], which acknowledges the importance of being responsive to students' cultures but also requires that educators engage in efforts to sustain and perpetuate students' cultural practices. Alim, Paris, and Wong [19] also called for a Critical Framework for Centering Communities, which argues that culturally based education should shift communities from recipient to active participants in the curriculum. In an empirical study involving sculpture students learning about Adinkra symbols, Ofosu-Asare, Andoh and Agyemang [20] found that a pedagogical sequence of action that involved cultural research followed by hands-on application led to significantly higher cultural understanding than the passive exposure of cultural information, thus empirically supporting a sequencing principle that is repeated throughout this framework.

3. Methodology

3.1 Research Design

The qualitative strand of this larger convergent parallel mixed methods study [21] on cultural competency in Creative Art education in the Afigya Kwabre South District was used in this article. The first two research questions of the parent study were answered quantitatively by using a survey with students, while the third and fourth research questions [the focus of this article] were answered qualitatively by conducting semi-structured interviews with the Creative Art teachers, followed by a thematic analysis of the data. The qualitative interviewing technique was the preferred method for capturing the depth, nuance and lived complexity of the teachers' perceptions, practices and constraints [22,23], and were best suited to the pragmatist philosophical orientation of the parent study [22].

3.2 Study Area and Participating Schools

The study was conducted in the Afigya Kwabre South District of the Ashanti Region of Ghana. The study selected two schools for the study; one was a public junior high school (JHS) and the other was a private JHS, both located in the district. The public junior high school was selected because it is among the largest and oldest JHSs in the district, and it offers Creative Art as a formal time-tabled subject with a dedicated art room. The private school was selected to compare and contrast the differences in resourcing and pedagogy between public and private institutions within the same district. The two schools were selected from the Afigya Kwabre South District Education Directorate’s list of 38 basic schools that offer Creative Art at the junior high school level. The two schools selected met the inclusion criteria for this study. These criteria were that the school must have at least two qualified creative art teachers with a minimum of two years’ experience and currently involved in teaching the creative art curriculum.

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3.3 Population and Sample

All 52 Creative Art teachers in 38 registered basic schools at the JHS level that offer the Creative Art programme in the Afigya Kwabre South District, Ashanti Region, constituted the population. Ten teachers were purposefully selected from the two participating schools (one public and one private) to participate in semi-structured interviews. The study employed purposive sampling as the sampling process was aimed at securing participants who met the following criteria: certified Creative Art teachers, currently working at the JHS level with a minimum of two years' teaching experience, having active interaction with the curriculum, and willing to participate [24]. The number of ten teachers was considered adequate as the data saturation for the qualitative strand was based on the criteria suggested by Lincoln and Guba [25] for qualitative inquiry.

From a total of ten teachers interviewed, the transcripts for six are included in the analysis described here. The other four (Teachers 7-10) were excluded from the analysis due to the following factors: their interviews as part of the focus-group component of data collection rather than the individual semi-structured interview strand; their responses were highly repetitive of themes saturated in the individual interview data; and due to equipment malfunction during one of the four focus group discussions, incomplete audio recordings were available for transcription. The conclusion that these four participants are irrelevant to the themes identified in the article does not change the outcome, as data saturation was observed within the six individually interviewed participants whose transcripts are included here. The results described in this article are based on the data from teachers who participated in this study and should not be extrapolated to all Creative Art teachers in the district.

Additionally, a further caveat regarding methodology is recorded here for transparency purposes in relation to Teacher 1 and Teacher 3. For most of the interview questions, responses attributed to Teacher 1 and Teacher 3 are extremely similar. One of these two teachers either made a transcription or compilation error; or both teachers submitted prepared written answers. As neither can be determined retrospectively, the contributions of Teacher 1 and Teacher 3 are combined throughout this analysis for the purposes of interpretation that is, they are treated as a single voice rather than two independent confirmations of each other's responses. It is a conservative decision that prevents the inflating of the frequency of agreement for any given theme. Where Teacher 1 and Teacher 3 responses are cited, they are clearly indicated as a combined source rather than as independent data.

3.4 Data Collection Instrument

A semi-structured interview guide comprising open-ended questions around four themes was used to collect data: teachers' perceptions about the importance of cultural integration in art education; current pedagogical strategies/practices; challenges and barriers in integrating local cultural content; and resources and support needed. The semi-structured format provided flexibility to explore and follow emergent themes [26]. The interview guide was tested with five teachers from two schools in the JHS in the neighbouring Kwabre East District, which was not included in this study, to check wording and feasibility.

3.5 Data Collection Procedure

All teacher participants gave informed consent after being formally invited by the Afigya Kwabre South District Education Directorate and the school heads. The interviews were semi-structured and took place in private rooms in each school, and lasted between 45 to 60 minutes per participant. Four focus group discussions, with four to five teachers each, were also conducted to encourage collegial discussion about common problems and practices, and to give additional context to the data. With participants' permission, all interviews and focus group discussions were audio-recorded and then verbatim transcribed.

3.6 Ethical Considerations

The study adhered strictly to established ethical guidelines for research involving human subjects. Ethical clearance was obtained from the relevant institutional review body prior to data collection. Participation was entirely voluntary, and participants were informed of their right to withdraw at any time without penalty. Confidentiality and anonymity were maintained throughout: interview data were stored securely, and pseudonyms (Teacher 1 to Teacher 6) were used in all reporting of qualitative findings. Given the culturally sensitive nature of the data, the study also adopted a broader ethic of cultural sensitivity, ensuring that engagement with indigenous knowledge and artistic heritage was respectful and non-exploitative [27,28].

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3.7 Data Analysis

The six phases of Braun and Clarke's [29] thematic analysis of familiarisation with the data, initial coding, searching for themes, reviewing themes, defining and naming themes, and writing the final analytic narrative were used to analyse the data gathered from the interviews and focus groups. The coding was done manually and NVivo 12 software was then used to manage and organise the coded data. To verify emergent themes, member checking was employed. Since the description of the themes for Research Question Three and the sub-themes for Research Question Four were not fully descriptive, they were synthesised, or thematically organised, into a structured framework, using the joint display logic employed elsewhere in the mixed-methods integration of the parent study [21] to ensure that each proposed framework component could be explicitly linked to specific interview evidence.

3.8 Limitations

This study has several limitations that should be acknowledged. The first one stems from the fact that the pool of ten teachers was selected from only two schools located in the Afigya Kwabre South District. Although purposive sampling was justified in this case, since the goals of the qualitative study required a concentrated pool of participants, the findings may not be entirely applicable to other Creative Art teachers working in this educational setting. Therefore, the phrases referring to teachers across the board have been modified in this version of the manuscript, for example, ‘teachers across the district’ changed to ‘the teachers participating in this study.’ A second limitation is related to the fact that, as mentioned in Section 3.3, the data of four participants out of ten were excluded from thematic analysis, and the responses of Teacher 1 and Teacher 3 were combined due to their similarity. Despite being justified at the stage of data analysis and fully explained in the 3.3 section, this circumstance might affect the overall conclusions of the study. The third limitation is connected with the absence of classroom observations in the study. Such a design choice might impact the validity of the findings, since observing the participants in a classroom setting would allow cross-verifying the information received from the teachers with their actual performance. Therefore, future directions of this study could include following up with these teachers in the classroom and researching a greater number of schools across the district.

4. Results and Discussion

The findings are presented and discussed for each of the Research Questions, and are then discussed more generally in relation to the study's theoretical framework.

4.1 Teacher Perceptions, Practices, and Challenges

4.1.1 Perceived Importance of Cultural Integration

There was a strong and unanimous consensus among all six teachers participating in this study that it is vital to incorporate local culture in Creative Art lessons. This importance was rooted in three interwoven rationales: preserving heritage for future generations, relevance and engagement of learning through connection with students' lived experience, and the building of students' sense of cultural identity and pride. Perhaps most unambiguously, the notion that local culture is not 'extra' but 'core' to quality art education was articulated by Teacher 2 as a consensus. When interviewed separately, Teacher 6 highlighted the importance of linking classroom learning to community life, making culture a stepping stone to the community rather than just historical artefacts.

4.1.2 Pedagogical Strategies and Practices

Teachers reported a fairly uniform set of strategies, indicating that there is already a certain pedagogical culture that is shared, but not formally coordinated, among the teachers participating in this study. The main strategies that emerged in almost all responses were demonstration and modelling, storytelling using Akan proverbs and oral tradition, project-based learning around cultural themes and festivals, and the use of locally available materials [clay, raffia, natural dyes], rather than imported materials. Teacher 2 indicated that they used storytelling with Akan proverbs to teach concepts and values before starting practical activities, while

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Teacher 4 indicated that teachers generally use "demonstrations, storytelling, project-based learning, cultural discussion, field trips and practical activity using local art forms."

4.1.3 Challenges and Barriers

Five barriers were identified that were consistently reported by the teachers participating in this study, so that these barriers could be considered a finding rather than an isolated complaint. The most common barrier was lack of teaching materials and funding. Teacher 6 reported "insufficient teaching materials and resources" and Teacher 2 reported "limited teaching/learning resources such as local materials and reference books on Akan art, as well as funding to invite artisans into the classroom." A second consistent barrier was inadequate teacher training and professional development. Teacher 2 mentioned that "teacher training in indigenous art techniques was lacking" and Teacher 6 mentioned "inadequate teacher training and professional development" independently. Curriculum and time pressure was identified as a third barrier. A fourth barrier was the lack of resource persons and community partnerships. Teacher 1 and Teacher 3 (whose responses are treated collectively, as explained in Section 3.3.1) reported "a problem in establishing partnerships with local artisans, cultural practitioners and community organisations." Foreign art forms were the fifth and most attitudinally based obstacle. Teacher 1 and Teacher 3 referred to "the influence of foreign art styles increasing."

4.1.4 Resources and Support Needed

The needs that teachers declared were closely aligned to the challenges outlined above, providing some internal consistency to the data. Four areas of need were identified: culturally relevant teaching and learning materials; professional development; funding to recruit artisans as resource persons; and institutional/community partnerships. Teacher 2 expressed this best, calling for "digital content with local motifs, symbols, and Akan art history", "in-service training/workshops on how to incorporate culture into the new curriculum", and "policy support that emphasizes culture in assessment."

4.2 Components of a Culturally-Sensitive Teaching Framework

Table 1 presents the nine framework components synthesised from the teacher interview data, which have been merged into four key interdependent pillars forming the CSATF.

Table 1: Proposed Components of a Culturally-Sensitive Teaching Framework, Synthesised from Teacher Interview Data

Frame Work Component	Description	Primary Source
Community Engagement & Authenticity	Formal, ongoing involvement of local artisans, elders, and cultural custodians as resource persons, so cultural knowledge is lived rather than textbook-only	Teachers 1/3, 2, 6
Contextualised, Culturally-Relevant Content	Lesson topics grounded in local festivals, proverbs, symbols, and history so that art connects to students' lived experience	Teachers 1/3, 2, 4
Traditional-to-Contemporary Sequencing	Teach traditional knowledge and technique first [e.g., Adinkra history and printing], then bridge to contemporary media, themes, and design problems	Teachers 1/3, 2, 4
Cultural Reflection & Critical Thinking	Structured opportunity for students to discuss the meaning, evolution, and modern relevance of symbols, rather than only reproducing them	Teacher 2
Inclusive, Dual-Focus Assessment	Rubrics and portfolios that assess both technical execution and cultural understanding; process as well as product	Teachers 1/3, 2, 4
Teacher Capacity Building	Regular in-service training so culturally responsive practice does not depend on one or two individually motivated teachers	Teachers 2, 6
Resource Development & Provision	Culturally relevant materials, manuals, and digital content; consistent supply of traditional art materials [clay, raffia, dyes]	Teachers 1/3, 2, 4
Policy & Institutional Support	District/GES budgeting for local materials and formal inclusion of cultural competency in official assessment standards	Teacher 2
Community Ownership & Sustainability	District resource bank of lesson plans and student work; yearly framework review with teachers and community elders	Teacher 2

These nine components have been merged into four key interdependent pillars outlined below that collectively implement the CSATF as an integrated whole instead of a series of individual recommendations.

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Figure 1: Proposed CSATF



Source: Researchers' construct

4.2.1 Pillar 1: Cultural Grounding

The emphasis is on the indigenous tradition of the Akan people of the Ghanaian highlands as the conceptual foundation of the programme, rather than being an afterthought to the Western art historical survey [30,27]. Students who encounter their own cultures in formal education will have more powerful cultural identity, more immersive experience, and more conceptually sophisticated creative products. Opoku-Asare, Siaw and Baffoe [31] determined that the quality of the output by students and their level of motivation increased significantly when Ghanaian art teachers focused on local forms.

4.2.2 Pillar 2: Pedagogical Responsiveness

Teachers are provided with training in culturally responsive instructional strategies which are culturally affirming, promote cultural examples from the Akan culture as pedagogical anchors and connect the indigenous knowledge to the present-day artistic production. Gay's [32] meta-synthesis of over 30 studies of the implementation of CRP shows that there is a consistent positive impact on achievement and cultural identity for the learners of non-dominant groups when CRP is implemented.

4.2.3 Pillar 3: Community Partnership

Local Akan craftsmen and artisans [weavers, potters, cultural custodians] are invited to the school as co-educators and visits are made to heritage sites. This connects formal education with the living knowledge system which cannot be transmitted by textbooks. Moll, Amanti, Neff, and Gonzalez's [33] seminal “funds of knowledge” study revealed that an integrated approach using knowledge networks in the community results in significant learning gains for students. Gruenewald [34] found that place-based learning in culturally rich communities outperforms classroom-based instruction. Among the teachers participating in this study, the potential of local artisans and heritage sites was found to be not maximised due to the lack of formalised partnership structures.

4.2.4 Pillar 4: Reflective Assessment

Evaluation criteria are reimagined to be culturally relevant [e.g., the symbolic depth of an Adinkra motif, the structural accuracy of a Kente pattern, technical skills in traditional pottery] as well as universal. Teachers

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also practise reflective assessment of their own cultural assumptions. This pillar completes the framework's logic: what is valued in the curriculum, taught responsively, and learned through community engagement must also be reflected in what is assessed.

4.3 The Logic and Reinforcing Cycle of the Framework

Cultural Grounding is the starting point of the CSATF: it puts cultural traditions from among the indigenous population at the centre of the curriculum. Pedagogical Responsiveness ensures that the content identified in the first pillar is taught in culturally affirming ways. Community Partnership makes room for the living knowledge system that created the art forms. Reflective Assessment closes the loop so that the first three pillars are not undermined by continued assessment against conventional, Western aesthetic criteria. The framework also runs adaptively: feedback from Reflective Assessment feeds into decisions about community partner involvement and curriculum content, and teachers who practise reflective assessment naturally return to augment their Pedagogical Responsiveness. The result is an adaptive cycle, rather than a one-time configuration, which should grow and deepen with each use.

4.4 Discussion

This finding is theoretically significant when read against Ladson-Billings' [7] account of culturally responsive teachers as individuals who actively validate students' cultural identities and treat cultural knowledge as a pedagogical resource. That teachers in this district already hold this orientation before any external framework is introduced represents a positive starting condition. Teacher 2's framing is also consistent with Alim, Paris, and Wong's [19] call for educators to centre, rather than merely acknowledge, communities, while Teacher 6's emphasis on community life resonates with Bronfenbrenner's broader ecological insight [35] that meaningful learning occurs at the junction between the school microsystem and the wider community systems. However, as the barriers reported demonstrate, positive perception alone proved insufficient to guarantee consistent, high-quality practice, a pattern consistent with Choi, Murray, and Rivera's [14] finding that even highly motivated educators face substantial institutional obstacles in translating aspirational values into classroom reality.

Teacher 2's account is notable for explicitly sequencing strategy, introducing narrative and cultural meaning before technical practice begins. This sequencing is directly consistent with Vygotsky's [36] sociocultural account of learning, and mirrors the pedagogical logic that Ofosu-Asare et al. [20] found to be effective in their project-based learning intervention.

The five barriers cluster into two categories with distinct theoretical and practical implications. Structural and resourcing barriers are ones that institutional investment could directly address, while cultural and motivational barriers likely require pedagogical rather than purely material solutions. This distinction is consistent with Opoku-Asare's [2] finding and Shahjahan et al.'s [17] comparative finding. Mensah Bonsu [3] offers a direct account of the attitudinal barrier, documenting that colonisation left a legacy in which indigenous Ghanaian art was long regarded as primitive [18]. This finding also supports Eisner's [37] argument that assessment in arts education must be responsive to the cultural logic of the artistic tradition being evaluated, and Banks' [38] contention that culturally inclusive assessment frameworks more accurately surface the real competencies of students from non-dominant cultural groups.

The findings support three broader theoretical observations. First, consistent with Ladson-Billings' [7] account, the unanimous positive perception of cultural integration among the teachers participating in this study represents a favourable starting condition, but one that the Cultural Competence Model [8] would classify as, at most, cultural pre-competence at the institutional level. This distinction between individual and institutional competence, emphasised by Stepanova et al. [10], is precisely why the CSATF is structured around institutional pillars rather than teacher-level recommendations alone. Second, the barriers teachers describe map closely onto patterns long documented in the Ghanaian and broader African literature [2,17,3]. Third, the convergence between Teacher 2's independently articulated pedagogical principle and the parent study's independent quantitative finding constitutes a striking instance of genuine methodological triangulation that exemplifies the value of mixed-methods research [39].

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5. Conclusion

The study identified the key elements of a culturally-sensitive teaching framework, and drew out the Creative Art teachers' perceptions, practices and challenges on the use of local culture in the teaching-learning of art in the Afigya Kwabre South District, Ashanti Region, Ghana. The results reveal that the teachers participating in this study agree on the importance of cultural integration and they have a repertoire of pedagogies, though not formalised but well-coordinated, including storytelling based on Akan proverb, demonstration, project-based learning, and use of indigenous materials. There are, however, five recurring barriers: lack of teaching materials and funding, lack of professional training, lack of time allocated in the curriculum, lack of resource persons, and the pull of foreign artistic styles. The findings have been synthesised into the Culturally-Sensitive Art Teaching Framework [CSATF] which incorporates four interwoven elements: Cultural Grounding, Pedagogical Responsiveness, Community Partnership, and Reflective Assessment; elements that collectively shift the focus of cultural integration from being dependent on the individual motivated teacher to becoming a community-owned, institutionally supported, and pedagogically coherent initiative within Creative Art education in the district.

The study has the limitation of two-school sampling frame and treatment of Teacher 1 and Teacher 3 as one group, as discussed in detail in the section 3. Therefore, the results should be generalized to the teachers in this study rather than all the teachers in the Creative Art. Further investigations of the CSATF with a larger and more representative sample of the school district are recommended. While positive teacher perceptions of cultural integration are a necessary precondition, the study shows that they do not necessarily ensure consistent or high-quality classroom practice. In order to bring about sustained pedagogical practice, teacher perceptions of the favourable must be accompanied by structural enablement: materials, training, time, and community partnership. The CSATF, which is based directly on teachers' descriptions of what is needed and supported by the research of Culturally Responsive Pedagogy [7] and the Cultural Competence Model [8], provides a model that is both practical and theoretically sound.

6. Recommendations

Based on these findings, the following recommendations are made. The Ghana Education Service (GES) and the National Council for Curriculum and Assessment [NaCCA] should make it part of the official Creative Art syllabus to include culturally grounded content standards and assessment criteria. Teacher preparation programs and in-service training programs need to provide culturally responsive pedagogies and indigenous art techniques in a structured, continuous professional development approach. District Education Authorities should establish linkages between schools and craftsmen, custodians of culture, and cultural institutions at the local level. Schools and districts should create collaborative formats to share culturally responsive strategies and materials. Last, stakeholders in education can view the CSATF as a model to be iterated and reviewed with teachers and community elders over time.

This study also brings several suggestions for further research. There is a need to conduct longitudinal research to evaluate the real impact of the CSATF on the development of cultural competency of students, once it is implemented, and to investigate its scalability to other culturally rich districts in Ghana. Future research could also explore teachers' perceptions of the influence of incorporating cultural competencies in Creative Art on students' motivations and overall learning outcomes.

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Multimodal Approaches in Teaching Chinese as a Foreign Language: A Study of Idioms in TCFL Microlessons

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Abstract

Microlessons have emerged as an effective means for foreign learners to acquire Chinese in technology-enhanced education. As a video-based format, microlessons typically integrate multiple semiotic resources, including language, images, sound, and gestures. However, in the context of Teaching Chinese as a Foreign Language (TCFL), particularly in idiom instruction where metaphorical meaning and cultural load are prominent, how multimodal resources function together across different instructional stages remains less explored. Therefore, the present study adopts a mixed-methods design combining qualitative and quantitative approaches to examine patterns of multimodal use and their pedagogical effects in two award-winning TCFL idiom microlesson series. The results show that teachers' speech, on-screen text, and images constitute the core modalities, with auditory–visual complementarity as the dominant pattern, while kinesthetic cues play a reinforcing role at key explanatory moments. Moreover, modality choices also vary across instructional stages and content types. Based on these findings, the study recommends complementary, functionally appropriate modality design guided by adaptability, efficiency, and economy to improve metaphor comprehension and retention.

Keywords

microlessons, teaching Chinese as a foreign language, multimodal teaching, idioms instruction

1. Introduction

Microlessons have become an increasingly common format in technology-enhanced education for their short duration, focused content, and flexible access across online learning [1, 2]. Early definitions typically describe a microlesson as a brief instructional video that focuses on a single learning point within a limited time span [3]. In China, the concept of microlesson was first systematically introduced as a video-centered integration of teaching resources organized around a specific knowledge point or a particular instructional stage [4]. In this sense, microlessons offer an efficient way to present focused content efficiently, allowing learners to access key points quickly and review them when needed.

In language education, these features make microlessons especially suitable for learning beyond the classroom, as learners can revisit the lessons at their own pace and reinforce key points after instruction [5].

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This is particularly relevant in Teaching Chinese as a Foreign Language (TCFL), where learning often involves cross-cultural communication and culturally embedded expressions that may not be fully grasped for the first time. Therefore, TCFL learners can benefit from additional opportunities for preview and review through microlessons, which support comprehension and help consolidate learning over time.

Within this TCFL context, Chinese idioms represent a high-value yet demanding domain because idiom interpretation is often culturally grounded and metaphorically embedded. Learners' comprehension therefore depends not only on lexical meaning but also on linking linguistic forms to culturally shared conceptual associations and prior knowledge [6]. Since idiom microlessons are video-based and multimodal, they can realize culturally grounded metaphorical mappings through the coordinated use of speech, on-screen text, images, and sound [7], thereby supporting learners' idiom comprehension. More specifically, visual resources can provide concrete scenes that activate source-domain knowledge, while teachers' speech and on-screen text can guide learners toward target-domain interpretation. Overall, idiom microlessons provide an effective multimodal pathway for making culturally embedded metaphorical meanings more accessible to TCFL learners.

However, existing research on microlessons has largely focused on learners' willingness to use microlessons and their learning outcomes, often relying on self-report measures and technology-acceptance perspectives to explain adoption intentions and perceived effectiveness [5, 8, 9]. Despite these contributions, these studies are largely outcome-oriented, while how to enhance microlesson quality through the design and stage by stage coordination of multimodal resources remains underexplored.

To address this gap, the present study analyzes two award-winning TCFL idiom microlesson series through multimodal discourse analysis and triangulates the qualitative patterns with learner and expert evaluations, aiming to identify the multimodal strategies across instructional stages that facilitate metaphor-based idiom comprehension.

2. Literature Review

2.1 Microlessons and Multimodal Instruction in TCFL

In recent years, the scope of microlesson research typically falls into three main aspects. The first concerns microlesson design, focusing on how content, teaching stages, and learner groups are aligned and organized within a short instructional unit [4, 10]. The second examines pedagogical integration with broader instructional models, which explores how they complement other classroom practices [11, 12]. The third addresses effectiveness and evaluation, assessing learning outcomes and learner experience through measures such as tests, questionnaires, and interviews [5, 13, 14]. However, many of these studies have been conducted in general education or first-language instructional settings, whereas research in TCFL remains comparatively limited.

Importantly, microlessons are also multimodal by nature, typically combining speech, on-screen text, images, and sound within tightly timed instructional stages. In TCFL, where learning often involves cross-cultural communication and culturally embedded meanings, understanding how these semiotic resources are coordinated across stages is therefore pedagogically important. However, research on TCFL microlessons has been largely practice-oriented. Many studies take prize-winning microlesson competition videos as cases, summarize common design features, and offer suggestions for improving how microlessons are produced and used in teaching. For example, Li analyzed prize-winning TCFL microlessons on near-synonym discrimination and summarized how target points are presented, sequenced, and practiced, while similar case-based work on culture-themed microlessons discusses how cultural content is condensed, visualized, and made interactive within short video units [15, 16]. However, most of this work stays at the level of pedagogical design guidance for microlessons.

A small but growing body of research has begun to examine TCFL microlessons from a multimodal perspective, describing how semiotic resources are used across instructional stages [17,18]. Yet the evidence is still largely descriptive, offering limited guidance on which modality combinations are most appropriate for particular teaching stages or how multimodal choices relate to learning outcomes. To address this gap, this

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study adopts a multimodal coordination perspective to examine modal coordination across teaching stages and their pedagogical functions in idiom microlessons.

2.2 Theoretical Foundations of Multimodal Coordination

Multimodality has been defined as both a theoretical and applied perspective on how meaning is made through the integration of language, visual resources, and other semiotic systems in traditional and digital media [19]. In educational settings, multimodal resources such as images and animation increasingly play a central role in meaning communication, which makes instructional design inseparable from how modes are selected and coordinated [20].

In the field of TCFL, research on multimodality primarily focuses on its application in teaching, analysis of multimodal functions, and studying multimodal interaction and synergy [7, 21-24]. Across these studies, a shared point is that modes rarely work separately in classrooms. Teachers typically combine speech, on-screen texts, visuals, and body language to make meanings clearer. As a result, understanding how these modes are coordinated in instruction is of particular importance, since effective teaching in multimodal settings relies on selecting and sequencing modes in ways that fit the demands of different teaching stages.

To examine modal coordination systematically, the present study adopts Zhang's framework of multimodal relations [7]. Zhang argues that a single mode often cannot fully convey meaning, which is why additional modes are introduced to supplement interpretations [7]. The framework distinguishes complementary and non-complementary relations and specifies relation types such as highlighting, prioritizing, expanding, coordinating, embedding, and overlapping. Table 1 summarizes these definitions and is used as the theoretical framework in the present study.

Table 1: Definition of Multimodal Relations

Type	Relation of modalities	Interrelation	Definition
Complementary	Reinforced	Highlighting	Modality 1 serves as a background and highlights modality 2.
		Prioritizing	Modality 1 is the primary means of communication, while modality 2 assumes a secondary role and provides support.
		Expanding	Modality 1 complements what modality 2 does not adequately express.
	Non-reinforced	Coordinating	Modality 1 and 2 collaborate in conveying a complete meaning.
		Combining	In the same modality, meaning is shared through different types of media channels.
		Intersecting	Modality 1 and 2 are used interchangeably to indicate either a specific time or an activity.
Non-complementary	Embedding	Part-whole	Modality 1 conveys the complete semantic content, while modality 2 only replicates a portion of the information.
		Abstract - concrete	Modality 1 represents an abstract summary, while modality 2 provides concrete examples.
	Overlapping	Redundant	Modalities 1 and 2 deliver identical information with no additional or reduced meaning—used for repetition or convenience.
		Resistant	Modality 1 and 2 conflict or negate each other, conveying opposite or contradictory meanings
		Exclusive	Modality 1 and 2 are mutually exclusive, valid only in their respective contexts and not co-present.
	Contextual Interaction	Independent	Each modality can be interpreted separately without relying on others.
		Dependent	Modality 1 must rely on modality 2 for interpretation; meaning arises from contextual linkage

In addition to relation types, Zhang proposes principles for modality collocation that are widely used in multimodal teaching research in China [7]. The principles of multimodal collocation mainly include the principles of effectiveness, adaptation, and choice. The effectiveness principle emphasizes that the use of instructional modalities should serve learning objectives. The adaptation principle highlights that different modes should be integrated in a way that fits the instructional sequence and works together coherently. The

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economy principle concerns using modes efficiently and avoiding unnecessary complexity. If two modes are sufficient to achieve the intended instructional effect, introducing the third mode is likely to be unnecessary. Effective multimodal design involves finding a balance between using enough modes to support learning and avoiding unnecessary complexity.

Although multimodal teaching has been widely discussed, two limitations remain when it comes to TCFL microlessons. First, compared with the extensive studies on multimodal teaching, relatively few have examined multimodality in the specific context of TCFL, especially in microlesson settings. Second, the limited work that does address TCFL microlessons tends to describe modal distribution but provides less analysis of how modes relate to one another and how modalities align with different microlesson stages. Therefore, this study builds on multimodal discourse analysis framework, with particular attention to intermodal synergic relations framework to examine how auditory, visual, and kinesthetic resources are coordinated across teaching stages in TCFL microlessons and to provide implications for microlesson design [7].

2.3 Teaching Chinese Idioms in TCFL Through Multimodal Instruction

Chinese idiom instruction is widely recognized as an important component of TCFL as idioms often express cultural meanings that are not clear from the literal words [25]. At the same time, idioms are difficult for L2 learners because understanding them often requires cultural background knowledge and knowing how they are used in context. These difficulties also mean that idiom teaching is not only about giving a definition. Teachers usually need to help learners build a clear meaning, connect the idiom with a cultural story or image, and learn how the idiom works in real contexts, such as typical collocations, register, and pragmatic restrictions. In practice, TCFL idiom instruction often emphasizes origin explanation, paraphrasing, and example sentences. For instance, Wu and Wang analyzed how example sentences are used in idiom teaching and stressed their role in presenting usage patterns [26], while Wang and Luo highlighted the importance of cultural explanation and contextualized input [25]. However, these approaches can be less effective when time is limited and when learners have little cultural knowledge to rely on.

From this perspective, multimodal instruction is especially applicable for idiom learning. Visual resources like pictures and animation can make the idiom image and story easier to understand, while spoken explanation and on-screen text can guide attention to key meaning components. In some cases, embodied resources such as gesture can further strengthen memory by linking language to action. For microlessons, multimodality is a way to make short instruction more efficient by showing key images, highlighting meaning parts, and reducing learners' guessing load within a limited time window. Evidence from language learning research also suggests that learning outcomes can vary with different modalities, which further supports the need to design and coordinate modes carefully in video-based instruction [27].

A useful theoretical basis for this is embodied cognition, which views meaning as grounded in body experiences. In language learning, gestures can provide an embodied link between form and meaning, and studies have shown that words learned with gestures are often remembered better than words learned through verbal input alone [28, 29]. This embodied account is relevant to idioms because many idioms are image-based and require learners to move beyond literal words to a figurative interpretation. In cognitive terms, idiom processing typically involves both literal meaning activation and figurative interpretation and can be analyzed using mechanisms that are widely discussed in metaphor processing [30]. In fact, research in figurative language suggests that conceptual metaphor can play an active role in idiom comprehension, indicating a cognitive connection between idioms and metaphor processing [31]. In microlessons, multimodal resources can therefore provide a visual representation of source-domain information, which supports the construction of metaphor-based idiom meaning. Despite these theoretical insights, little research has examined how metaphor-based idiom meaning is constructed through the coordinated use of multimodal resources in TCFL idiom microlessons, especially in relation to different instructional stages and their pedagogical functions.

To address the above gaps, the present study seeks to answer the following research questions:

(1) What multimodal resources are used in TCFL idiom microlessons, and what is their overall distribution and interaction pattern?

(2) How are auditory, visual, and kinesthetic modalities coordinated across different instructional stages in TCFL idiom microlessons?

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(3) How is metaphor-based idiom meaning constructed through multimodal resources in TCFL idiom microlessons?

(4) What implications can be drawn for the multimodal design of TCFL idiom microlessons?

3. Method

3.1 Research Design

This study adopted a mixed-methods design to examine multimodal distribution, relational patterns, and metaphorical meaning construction in two award-winning TCFL idiom microlesson series. For the qualitative analysis, ELAN-based annotation and multimodal relation coding were conducted across instructional stages. The quantitative analysis involved descriptive statistical analyses of the annotated multimodal data and evaluative questionnaire results, which were used to identify overall patterns of modal use and to triangulate the qualitative findings with learner and expert feedback.

3.2 Materials

This study selected six first-prize-winning idiom microlesson videos from the second and third sessions of the Tangfeng Chinese Microlesson Competition as research materials [15]. The dataset consists of two series (Series I and Series II), with three videos in each series.

The Tangfeng competition is a well-established national platform in international Chinese language education, and its award-winning videos provide a relatively stable benchmark for examining multimodal teaching design. Idiom-focused microlessons are particularly suitable for multimodal analysis because idiom meaning is often metaphorical and culturally grounded.

Two sets of winning works were included and labeled as Series I and Series II. Series I (third session) targets intermediate-to-advanced learners from diverse L1 backgrounds and focuses on idioms related to zodiac culture (HSK 4 and above). The three videos last 9:42, 9:56, and 9:47. Series II (second session) targets native English-speaking university learners at HSK 4 and above (approximately 2,500 common words). The three videos last 9:53, 9:23, and 9:35.

The selection of these two series followed three criteria. First, only first-prize-winning works were included to ensure high instructional quality and pedagogical validity. Second, all selected videos focused on idiom instruction, allowing for direct comparison of multimodal strategies in metaphor-rich content. Third, the two series differ in learner profile and instructional design, which enables comparative analysis of multimodal choices across learner groups while maintaining overall comparability in lesson length and teaching objectives.

By analyzing these materials, the study aims to identify shared multimodal characteristics of effective TCFL idiom microlessons and to explore how different multimodal configurations support metaphorical meaning construction and learning outcomes.

3.3 Multimodal Annotation and Coding

Multimodal annotation was conducted using ELAN 6.7 (EUDICO Linguistic Annotator) to segment, label, and quantify multimodal resources in the selected microlesson videos. Following the stage segmentation criteria proposed by Zhang and Yuan, a six-stage instructional framework (lead-in, review, new study, practice, assignment, and summary) was adopted to align subsequent coding with pedagogical function [32].

A modality coding scheme was then applied, adapted from the multimodal classification proposed by Liu and Wang (see Table 2) [33]. Three modality categories were coded: auditory (A), visual (V), and kinesthetic (K). The auditory modality included teachers' speech (At), students' speech when present (As), and background music (Am). The visual modality included slide-based presentation (Vppt), material objects (Vo), and images (Vi). The kinesthetic modality captured embodied actions such as gestures (Kp), and body language (Kb). To enhance annotation reliability, three coders independently annotated the videos and resolved discrepancies through discussion to reach consensus before exporting the final statistics. Because the dataset consisted of single-presenter microlessons, learner participation occurred primarily through language-based

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instruction; accordingly, context-related variables such as Social distance (Es) and Individual distance (Ei) were not coded in the present study.

Table 2: Liu and Wang's Multimodality Classification

Modal type	Coding	Mode	Coding
Visual modality	V	Slide	Vppt
		Material object	Vo
		Images	Vi
Auditory modality	A	Teachers' speech	At
		Students' speech	As
		Background music	Am
Kinesthetic modality	K	Gesture language	Kp
		Body language	Kb
Environmental modality	E	Social distance	Es
		Individual distance	Ei

After completing the annotation process, ELAN statistical tools were used to extract the number of annotations and durations for each modality. These outputs were summarized using descriptive statistics and compared across microlesson series and instructional stages.

3.4 Learner Questionnaire and Expert Evaluation

A five-point Likert questionnaire (0 = strongly disagree, 4 = strongly agree), adapted from Shen's multimodal evaluation scale [34], was administered to 67 learners, all of whom had reached HSK Level 4 or above. Participants were randomly assigned to evaluate either Series I or Series II. 45 valid responses were retained. For each series, descriptive statistics were calculated across nine dimensions of perceived multimodal quality, including teachers' speech, on-screen text, images, gestures, facial expressions, video use, slide design, and background music. Independent-samples t-tests were conducted to examine between-series differences.

Seven experts from multiple universities evaluated the two microlesson series across auditory, visual, and kinesthetic dimensions. Expert feedback was summarized to identify strengths and weaknesses in multimodal design and to triangulate learner perceptions. The initial inter-coder agreement rate (percentage agreement) reached 90% across all annotated units. All discrepancies were subsequently resolved through joint discussion to reach a final consensus.

4. Results and Discussion

4.1 Multimodal Distribution and Interaction in TCFL Idiom Microlessons

This study analyzed 596 annotated segments from two series of award-winning idiom microlessons to examine the overall distribution and interaction of multimodal resources. As shown in Fig. 1 (a-d), both Series I and Series II share a similar distribution of multimodal resources. Teachers' speech, on-screen text, and images on slides constitute the three longest annotated durations, accounting for 31.94%, 25.85%, and 16.05% of the total annotated duration in Series I, and 29.96%, 37.40%, and 11.01% in Series II, respectively. By comparison, the use of students' speech, facial expression, and background music occurs only occasionally (Series I: 0.91%, 0.17%, 0.97%; Series II: 0.00%, 0.44%, 2.20%).

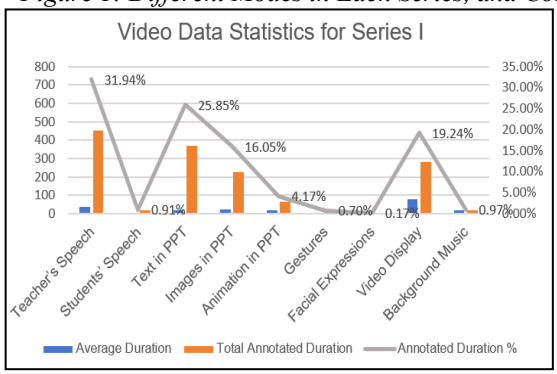
From the above data, it can be seen that both series of microlessons rely primarily on visual modalities, particularly text and images embedded in slide presentations. Through these visual cues, idiomatic meanings are anchored in concrete, familiar scenes, thereby facilitating learners' comprehension and cultural association. The auditory modality, represented by the teacher's speech, is also used frequently to explain, interpret, and elaborate on the definition or usage of idioms, thereby reinforcing conceptual understanding. Kinesthetic resources are relatively limited in both series. This is due to the structural nature of the microlesson format, which is largely monologic and screen-based, thus only leaving little space for interactive or embodied teaching behaviors. Nonetheless, despite their limited frequency, gestures are selectively employed at key points, especially when illustrating metaphorical mappings or spatially oriented idioms. These gestures serve as a valuable supplement to teachers' speech, enhancing teacher-learner engagement and strengthening students' understanding. The slightly higher kinesthetic proportion in Series II also suggests a more dynamic

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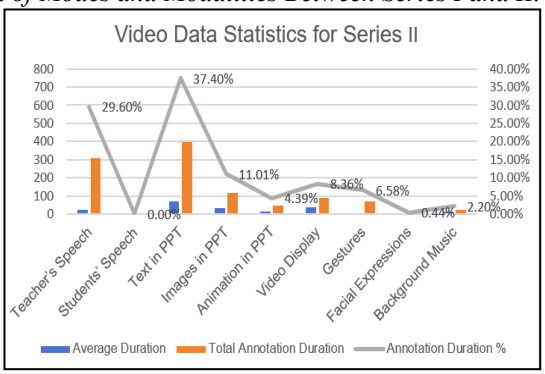
visual-embodied style of instruction, where the teacher actively integrates gesture to visualize metaphorical structures.

In addition to the above similarities, the two series of microlessons also demonstrate some different multimodal strategies. Series I rely more heavily on the auditory modality (37.83%) and video display (19.24%), whereas Series II shows lower proportions for auditory input (31.80%) and video display (4.39%). Meanwhile, the proportion of kinesthetic cues increases from 0.83% in Series I to 7.02% in Series II, suggesting a more dynamic visual–embodied instructional style in Series II. These kinesthetic cues, whether deictic or metaphorical, contribute to emphasizing key concepts, visualizing abstract idiomatic meanings, and maintaining discourse rhythm.

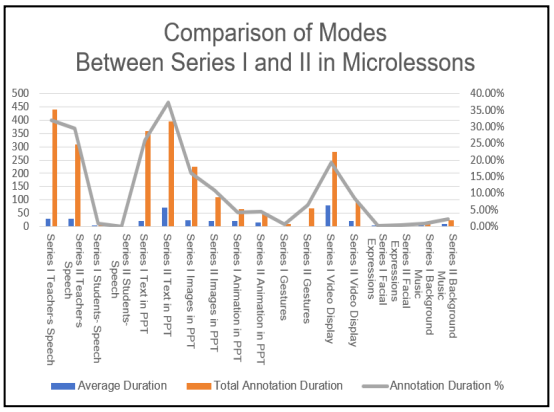
Figure 1: Different Modes in Each Series, and Comparison of Modes and Modalities Between Series I and II.



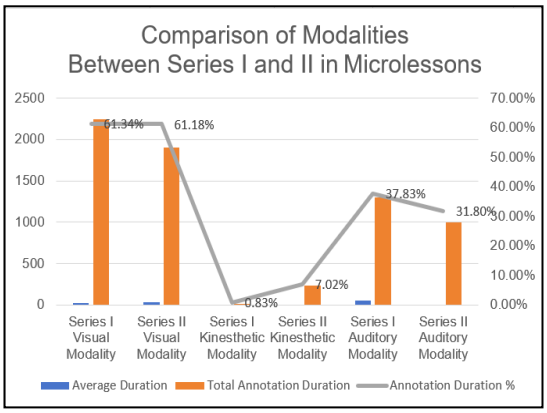
(a) Different modes in Series I.



(b) Different modes in Series II.



(c) Comparison of modes between Series I and II.



(d) Comparison of modalities between Series I and II.

According to Zhang' s multimodal relations framework, the multimodal patterns observed in the two series of idiom microlessons primarily reflect complementary non-reinforced (C-nR) relations, in which visual and auditory modalities cooperate through coordination [7]. In both Series I and Series II, texts and images on slides illustrate idioms with definitions, examples, and contextual images, while the auditory modality, represented by teachers' speech (37.83% in Series I; 31.80% in Series II), explains these visual cues by clarifying figurative meanings, elaborating metaphorical associations, and contextualizing idiom use in discourse. Without either modality, the communicative intent of idiom teaching would be incomplete or difficult for international learners to comprehend.

This finding differs from the complementary-reinforced (C-R) relation typically observed in traditional face-to-face classrooms [35], where the teacher's speech serves as the primary modality and the visual modality plays a secondary role. In idiom microlessons, however, teaching is screen-based and pre-structured, with information visually foregrounded through on-screen text, images, and animations. As a result, meaning in TCFL idiom instruction is jointly constructed through the coordination of auditory and visual modalities, with kinesthetic modality reinforcing comprehension and learner engagement.

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4.2 Modalities Across Instructional Stages in the Microlessons

According to Zhang and Yuan's multimodal discourse segmentation criteria, a six-stage instructional framework (lead-in, review, new study, practice, assignment, and summary) was adopted to examine how modalities are distributed and coordinated across pedagogical stages [32]. Based on the 596 annotated segments from both series, the further analysis examined how different modalities were distributed and coordinated across these stages.

As shown in Table 3, across most stages, the auditory and visual modalities exhibit C-nR relations, indicating that they cooperate to construct meaning without redundancy. The kinesthetic modality forms C-R relations with speech in all the teaching stages, serving to highlight key points, maintain teaching rhythm and enhance expressiveness. In the summary stage, the relation between auditory and visual modalities shifts to C-R, as teachers' speech becomes foregrounded and visual information functions mainly as reinforcement.

Table 3: Multimodal Relational Patterns in Different Teaching Stages in Series I and II.

Series	Stage	Auditory modality	Visual modality	Kinesthetic modality
I	Lead-in	Main modality	C–nR	C–R
	Review	Main modality	C–nR	C–R
	New study	Main modality	C–nR	C–R
	Practice	C–nR	Main modality	C–R
	Assignment	Main modality	C–nR	C–R
II	Lead-in	Main modality	C–nR	C–R
	New study	C–nR	Main modality	C–R
	Practice	C–nR	Main modality	C–R
	Assignment	C-nR	Main modality	C–R
	Summary	Main modality	C–R	C–R

Figure 2 presents the time proportion of modalities across stages, illustrating how multimodal coordination aligns with pedagogical focus. However, since the two series did not realize all six stages as discrete segments, only stages that were explicitly present in each video were coded. Specifically, Series I did not include a standalone summary stage, and Series II did not include a review stage; these stages were therefore not separately coded or reported in the stage-level analyses.

In the lead-in stage, teachers' speech remains the dominant mode, while on-screen text presents only brief keywords or thematic prompts. Gestures and facial expressions appear selectively to attract learners' attention and establish engagement. Both Series I and Series II demonstrate concise modal combinations, reflecting the principle of economy in initial input. Since idiom topics are introduced briefly to activate prior knowledge rather than convey detailed and new information, excessive multimodal layering is avoided to prevent cognitive overload.

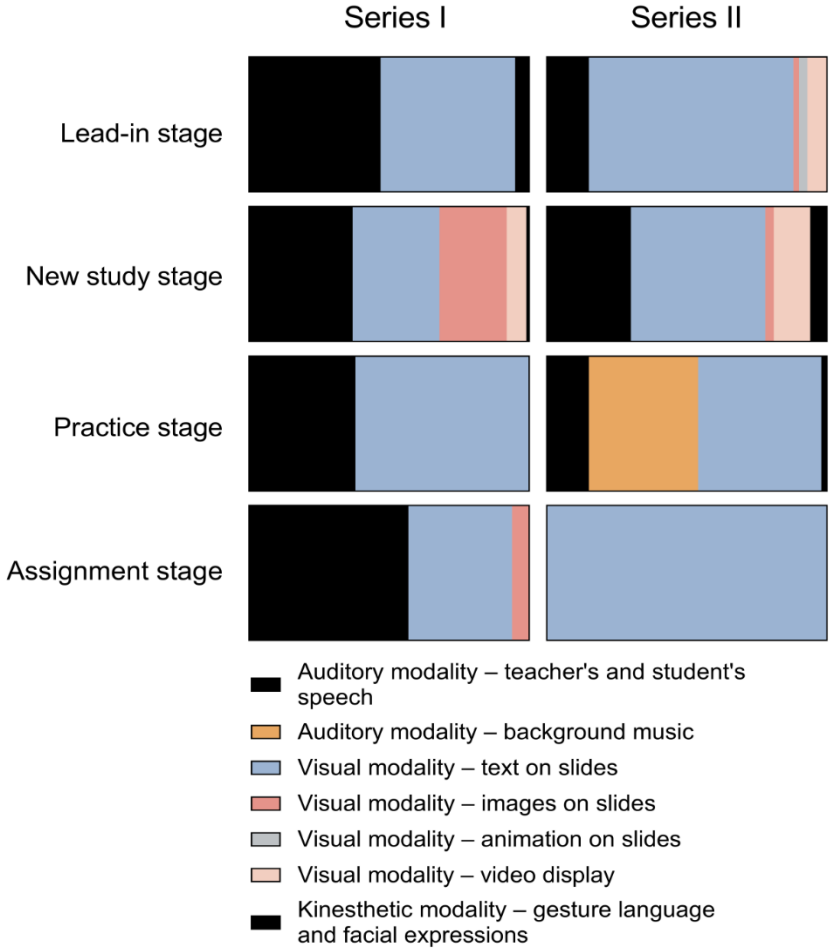
In the new-study stage, which constitutes the core of idiom instruction, the two series differ in modal dominance. Although visual elements such as slide text and images remain visible throughout, in Series I they mainly serve as information carriers accompanying teachers' oral explanation. As shown in Table 3, the auditory modality thus functions as the main modality to meaning making. In Series II, visual modalities provide bilingual texts, illustrative images, and contextual examples to present idiom meanings and usage, while teachers' speech mainly connects and supplements these visual inputs.

In the practice stage, both series showed a visual dominant pattern. The practice stage is essential for students to internalize the learning content through hands-on practice. Therefore, it is crucial to guide students' enthusiasm and initiative and empower them to take ownership of their learning at this stage. Visual modality (text on slides) is used to explain the rules, while the auditory modality (teachers' speech) is used to guide the practice process. Slide-based animations and background music are used as supportive cues to sustain attention and facilitate participation, rather than to introduce new conceptual content.

In the assignment stage, Series I and Series II showed different patterns. Series I typically delivered homework through teacher's speech, with slides as support. Series II, by contrast, delivered homework through the slides, while teacher's speech served to emphasize the key requirements. In both series, assignment was delivered through a speech-slide combination, with each mode compensating for the other when needed.

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Figure 2: Time Proportion of Modalities in Different Teaching Stages in Series I and II



In response to Research Question 1, the above analysis reveals that multimodal teaching in TCFL idiom microlessons is achieved through the coordinated integration of auditory and visual modalities, whose dominance varies with the pedagogical focus of each stage. The kinesthetic modality, though less frequent due to the screen-based format of microlessons, is strategically employed to support learners' comprehension of abstract or metaphorical meanings.

4.3 Multimodal Construction of Metaphorical Meaning in Idioms

Many Chinese idioms are metaphorically motivated, and idioms teaching inevitably involves mapping conceptual structures between source and target domains. From a cognitive perspective, idioms and metaphors share similar representational and inferential processes. The analysis of the two series of idiom microlessons shows that multimodal design plays a crucial role in realizing these metaphorical mappings, where visual, auditory, and kinesthetic modalities jointly externalize abstract cognitive associations and facilitate embodied understanding. Specifically, three major metaphor types are identified in the two series, animal metaphors, body metaphors, and mythological metaphors, each realized through distinctive multimodal strategies.

In animal metaphors, the visual modality provides concrete representations of the source domain, while the auditory modality elaborates their figurative meanings. Visual images, by depicting familiar animals and their behaviors, help learners activate prior knowledge and construct embodied associations between the source and target domains, thereby deepening their conceptual understanding of idiomatic meaning. For example, in teaching "井底之蛙" ("a frog at the bottom of a well"), images and animations in PPT illustrate the literal scene, and the teacher's explanation guides learners toward its extended metaphorical interpretation of limited perspective. This combination forms a C-nR relation, in which visual and auditory inputs cooperate to convey both surface and abstract meanings.

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In body metaphors, teachers integrate gestures, facial expressions, textual and visual cues to guide learners in simulating embodied sensations. In this way, students can map bodily perceptions onto abstract meanings, thereby inferring the figurative implications embedded in physical actions. Kinesthetic cues form C-R relations with auditory explanations, enhancing emotional vividness, expressive intensity, and engagement in the comprehension process.

In mythological metaphors, images and short animations are employed to present historical and cultural contexts, supporting learners' understanding of idioms' origins and moral implications. Across all types, the integration of visual and auditory inputs facilitates learners' transition from perceptual familiarity with the source domain to conceptual understanding of the target domain.

From a pedagogical perspective, the multimodal construction of metaphorical meaning in TCFL idiom teaching can be summarized in three aspects. First, understanding metaphors requires transforming abstract concepts into concrete. This process is effectively achieved through multimodal coordination, where visual modalities such as images and on-screen text provide direct conceptual grounding, while auditory explanations elaborate on underlying figurative meanings, enabling learners to grasp metaphorical mappings between domains. Second, different modal strategies should be applied to the source and target domains: the source domain can be represented through clear visual cues, whereas the target domain requires precise verbal elaboration, particularly for idioms grounded in Chinese cultural contexts that demand deeper interpretation. Finally, each teaching stage serves distinct pedagogical purposes and therefore requires appropriate multimodal integration across stages. Overall, integrating multimodality with metaphor helps make abstract meanings more concrete, enhances cognitive engagement, and facilitates idiom comprehension in TCFL microlessons.

4.4 Evaluation of Multimodal Effectiveness in TCFL Idiom Microlessons

Student evaluation. A questionnaire survey was administered to 67 students, yielding 45 valid responses (response rate = 67.16%). Adapted from Shen's (2019) multimodal evaluation scale [34], it adopted a five-point Likert format (0=strongly disagree, 4=strongly agree) and showed satisfactory reliability (Cronbach's $\alpha >$ 0.80, KMO = 0.68). Results indicated that 93% of respondents enjoyed Chinese classes and 64% preferred multimodal instruction. As shown in Table 4, Series I scored highest on video ($M = 3.09$) but lowest on facial expression ($M = 2.09$), whereas Series II scored highest on teachers' speech ($M = 3.27$) and lowest on images in slides ($M = 2.75$). Significant differences were found in facial expression ($t = –3.939$, $p < .001$) and body movement ($t = –4.053$, $p < .001$).

The results suggest that Series I, focusing on zodiac idioms, was rich in verbal and visual explanation but limited in embodied engagement—an approach that ensured clarity yet underused gestures that could have enhanced cultural and metaphorical understanding. In contrast, Series II relied heavily on speech and text, which, though coherent, appeared visually monotonous; contextual images might have made idioms more vivid and memorable. Overall, learners valued clear verbal delivery and structured visuals, but the findings highlight the need for a more balanced integration of auditory, visual, and kinesthetic modalities to optimize comprehension and engagement in TCFL idiom microlessons.

Table 4: Descriptive statistics of nine evaluated dimensions in Series I and II

Dimensions	Minimum	Maximum	Mean	SD
Series I				
teachers' speech	2	4	2.91	0.802
Text on slides	1	4	2.68	0.829
Body language	1	4	2.32	0.800
Facial expression	0	4	2.09	0.936
Images on slides	0	4	3.00	0.988
Font in slides	1	4	3.05	0.834
Teaching videos	1	4	3.09	0.884
Overall design of slides	1	4	2.89	0.813
Music and rhyme	0	4	2.64	0.917
Series II				
teachers' speech	1	4	3.27	0.758
Text on slides	2	4	3.2	0.701
Body language	1	4	3.00	0.778

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Dimensions	Minimum	Maximum	Mean	SD
Facial expression	1	4	3.00	0.715
Images on slides	1	4	2.75	0.751
Font in slides	1	4	3.09	0.858
Teaching videos	1	4	3.16	0.680
Overall design of slides	1	4	3.05	0.806
Music and rhyme	1	4	3.00	0.863

Expert evaluation. To further examine multimodal design quality, seven experts from universities including Northwest Normal University, Lanzhou University, Dalian University of Foreign Languages, Guangxi Normal University, South China Normal University, Jilin University, and Zhejiang Normal University evaluated the two microlesson series based on visual, auditory, and kinesthetic dimensions.

Experts identified both strengths and weaknesses, emphasizing multimodal coordination as a key indicator of high-quality microlessons. Three main findings emerged from expert feedback.

(1) Speech-image coordination enhances comprehension. Experts emphasized that clear visuals, Chinese subtitles, and occasional English explanations in Series II facilitated learners' understanding and retention of idioms, suggesting that limited use of L1 support can aid comprehension in TCFL contexts.

(2) Auditory and kinesthetic modalities are central to evaluation. Experts agreed that the teachers demonstrated fluent and expressive speech delivery, complemented by natural gestures and facial expressions. However, minor issues such as overly fast pace and monotonous tone were noted, highlighting the need for rich intonation and moderate rhythm in microlesson narration.

(3) Moderation in video use is essential. Although embedded videos enriched microlessons, overlong segments were viewed as excessive. Quantitative analysis further indicates that video display accounted for about one-fifth of the total annotated duration in Series I (19.24%), whereas the proportion was much lower in Series II (4.39%). This pattern supports the experts' view that embedded clips can enrich microlessons, but they should remain concise and tightly aligned with the teaching objective. In summary, both student and expert evaluations confirm that effective multimodal design hinges on the complementary use of auditory, visual, and kinesthetic elements. High-quality TCFL microlessons should foreground the teacher's oral performance, integrate supportive visual cues and gestures, consider bilingual accessibility, and maintain a balanced, moderate use of multimedia resources.

These evaluation findings align with and extend prior work on multimodal instruction. Consistent with the principles proposed by Zhang [7], our results confirm that effective modality use adheres to effectiveness, adaptation, and economy. Unlike traditional face-to-face classrooms where teacher speech typically serves as the primary channel of instruction [7, 35], our findings demonstrate that in microlesson settings, visual modalities—particularly on-screen text, images, and video—assume a substantially greater and more active role in meaning construction. Royce [23] observed that multimodal resources in TESOL classrooms—particularly visual and auditory modalities—can be configured in various logical-semantic relations to construct coherent instructional meaning. Extending this line of inquiry to the microlesson context, our analysis reveals that complementary non-reinforced coordination (C-nR) constitutes the prevailing intermodal pattern in idiom microlessons—a distinction that reflects the screen-based, pre-structured nature of video-based instruction. Similarly, whereas Zhang and Wang [24] emphasized the importance of examining multimodal interaction in relation to communicative contexts, our study operationalizes this framework by specifying how modal configurations shift systematically across lead-in, new study, practice, and assignment stages in the microlesson format. Regarding kinesthetic modality, Wang [21] observed that gestures play a supporting role in Chinese immersion classrooms; our findings extend this observation by identifying their additional cognitive function in scaffolding metaphorical mapping for idiom comprehension. Together, these comparisons position the present study as both a validation and a contextual extension of existing multimodal frameworks, offering empirical, stage-sensitive evidence for designing effective video-based idiom instruction.

5. Pedagogical Implications for TCFL Idiom Microlesson Design

Drawing on the multimodal and metaphorical analyses above, three pedagogical implications can be proposed for the design of TCFL idiom microlessons.

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(1) Emphasize multimodal complementarity rather than accumulation. In the microlesson format, multimodal design provides an efficient means of delivering linguistic and cultural knowledge within limited time, ensuring learner focus and interaction in online learning contexts. Teachers' speech and on-screen text function as the primary meaning carriers, while visual and kinesthetic cues provide complementary support through C–nR or C–R relations. Therefore, multimodality should not be pursued by merely increasing sensory channels, but by ensuring complementary coordination across modalities. For instance, clear visual cues can ground learners' understanding of the source domain, while teachers' verbal explanation extends these cues to metaphorical interpretation.

(2) Match modality use with teaching content and stage. Effective idiom instruction requires matching modality use with both the nature of the teaching content and the pedagogical focus of each stage. In the lead-in stage, concise auditory and visual input such as key phrases, images, and brief narration helps activate learners' prior knowledge and interest. During the new-study stage, teachers' speech should be closely coordinated with on-screen visuals, while gestures and facial expressions play a supportive role in explaining idiomatic meanings and guiding metaphorical interpretation, making metaphorical mappings easier to follow. In the practice stage, slide-based text typically carries task prompts, while teachers' speech guides the learning procedures. In the assignment stage, speech and slides usually combined to make task requirements explicit, with either mode taking the lead depending on task design.

At the design level, a comparison of the two microlesson series indicates that visual presentation should remain clear, coherent, and pedagogically purposeful. Text and images should complement rather than repeat each other, with images clarifying abstract meanings and concise text highlighting essential information. Similarly, auditory delivery, including tone, pacing, and intonation, should be expressive yet well controlled to ensure clarity and maintain attention. Matching modality use with instructional content and stage thus promotes cognitive efficiency, pedagogical coherence, and deeper understanding of idiomatic and metaphorical meaning.

(3) Integrate embodied cognition and contextual interaction across modalities. Beyond verbal-visual coordination, TCFL idiom microlessons should incorporate embodied and contextual interaction among modalities to deepen learners' metaphorical understanding. According to the theory of embodied cognition [36-38], human cognition is grounded in perceptual and bodily experiences, and abstract concepts are often understood through metaphorical extensions of sensorimotor schemas. Idioms such as "一马当先" (to take the lead) and "呆若木鸡" (dumbstruck with fear) exemplify this mechanism: the former maps bodily experience of movement and direction onto abstract notions of initiative, while the latter reflects a physical state of immobility as a metaphor for emotional paralysis.

In idiom microlessons, teachers can leverage gestures, facial expressions, and situational visuals to evoke such embodied simulations, enabling learners to feel metaphorical meanings through perceptual and motor resonance rather than verbal explanation alone. When these embodied cues are integrated with contextual auditory and visual inputs—such as narrative background, sound effects, or scene-based imagery—learners are guided to reconstruct idiomatic meaning within lived communicative scenarios. This multimodal–embodied approach not only supports semantic comprehension but also strengthens affective engagement and memory retention.

Such an approach is consistent with Zhang's multimodal collocation principles of effectiveness, adaptation, and economy, emphasizing that each modality should serve a distinct pedagogical function, be flexibly aligned with instructional goals, and contribute efficiently to meaning construction [7].

6. Conclusions

This study examined how multimodal resources are distributed, coordinated, and pedagogically deployed in TCFL idiom microlessons, with particular attention to stage-based multimodal relations and the multimodal construction of metaphorical meaning. By analyzing two award-winning microlesson series through ELAN annotation and multimodal relation coding and triangulating these patterns with learner questionnaires and expert evaluations, the study provides empirical evidence on how high-quality idiom microlessons orchestrate auditory, visual, and kinesthetic resources to support meaning-making.

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Across both series, teachers' speech, slide-based text, and images constituted the core resources, and meaning was mainly built through complementary (non-reinforced) auditory–visual coordination. Kinesthetic cues were strategically employed at key explanatory moments to highlight metaphorical mapping, emphasize critical semantic contrasts, and maintain learner attention. Importantly, multimodal coordination varied systematically by instructional stage and content. Lead-in segments tended to use economical modality combinations to activate attention, whereas the new-study stage showed the greatest variability as idiomatic meanings were explained; practice stages generally used speech-supported visuals for recall and application; and the assignment stage more often used speech-slide combination to deliver the homework. These findings point to a complementary, functionally appropriate approach to multimodal design guided by adaptability, efficiency, and economy. In particular, in TCFL idiom microlessons, well-timed gestures can help learners move from literal cues to figurative meaning when idiomatic mappings need to be made explicit.

This study makes both theoretical and pedagogical contributions to TCFL multimodal instruction. Theoretically, it extends multimodal discourse analysis from traditional face-to-face classrooms to the microlesson context in three ways. First, by demonstrating that modal relations—particularly the distinction between complementary-reinforced (C-R) and complementary non-reinforced (C-nR) coordination—are not static but shift systematically across instructional stages, this study challenges the static view of modal configurations prevalent in previous research [7, 24]. Second, unlike prior studies that have largely focused on general modal distribution or static text-image relations, our stage-sensitive analytical framework offers a more dynamic and pedagogically-oriented model for examining video-based instruction. Third, by integrating metaphor theory with multimodal analysis, this study reveals how visual, auditory, and kinesthetic resources jointly externalize abstract cognitive associations and facilitate cross-domain mapping in idiom comprehension—a dimension largely underexplored in previous TCFL multimodal research. Pedagogically, the findings translate into three evidence-based design guidelines: (a) prioritizing complementarity over accumulation, ensuring each modality serves a distinct pedagogical function; (b) aligning modality choices with instructional stages and content types; and (c) integrating embodied cues such as gestures and facial expressions to scaffold metaphorical comprehension, particularly for culturally grounded idioms. These recommendations directly inform the design of more effective TCFL idiom microlessons in technology-enhanced language education, offering novice teachers and instructional designers a practical reference for multimodal resource orchestration.

Despite its contributions to understanding multimodal coordination and metaphor-based meaning construction in TCFL idiom microlessons, this study still has several limitations. First, the analysis was based on two prize-winning microlesson series, which may not capture the full range of instructional practices and production conditions in TCFL contexts. In addition, the questionnaire involved a relatively small sample size and relied on learners' perception instead of direct learning outcomes, which may limit the generalizability of the evaluation results. Future studies should expand both the scope of materials and the participant pool to build a more comprehensive picture of international learners. Such extensions would help test the robustness of the stage-specific multimodal patterns in this study and refine multimodal design guidance for TCFL idiom microlessons.

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Research on Multimodal Pathways for the Digital Narrative of Qilu Culture from the Perspective of Cross-Cultural Communication

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Abstract

Qilu culture is an important representative of the Yellow River civilization. It is not only a peak of Chinese civilization, but also a vivid witness to the long-term continuation of river civilization. Nowadays, with the continuous advancement of digitization and globalization, this paper believes that Qilu culture should assume the role of promoting mutual learning of global civilization. As far as the current cross-cultural communication practice of Qilu culture is concerned, it is necessary to sort out its current situation and try to design a multi-modal digital narrative communication mode according to its characteristics. To do so, first, it can provide theoretical basis and practical operation scheme for the construction of Chinese civilization identity system and the promotion of international influence; second, it can also provide a reference sample for the effective dissemination of culture in other regions.

Keywords

Qilu Culture, cross-cultural communication, digital narrative, multimodality

1. Introduction

In 2026, China will enter the historical gateway of the first year of the "15th Five-Year Plan." At this new historical point of departure, the Outline of the 15th Five-Year Plan for National Economic and Social Development explicitly outlines the aim to boost the dynamism of cultural innovation and creativity throughout the entire country and encourage the vibrant growth of socialist culture and includes the creation of a cultural powerhouse among the 16 powerhouse construction goals. This strategic arrangement indicates the strategic importance of cultural development in the grand scheme of national rejuvenation and the establishment of a powerful country. To promote the great practice of building a powerful country and realize the national rejuvenation through Chinese-style modernization, it must have not only a firm material base but also a vigorous spiritual base. As a specific spiritual symbol and significant civilizational legacy of the Chinese-style modernization, cultural prosperity focuses on the promotion of the creative transformation and innovative development of China's excellent traditional culture. The Outline of the 15th Five-Year Plan sets the goal of accelerating the development of China discourse and narrative system and improving the effectiveness of China discourse and narrative system as the key task to improve the influence and attractiveness of Chinese civilization. In the context of a complicated international situation, Chinese civilization has an urgent need to shift its current state of going global to becoming leading globally, and this requires Chinese culture

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international communication to reach a higher level of physical presence to value-based resonance. The Outline also highlights the importance of promoting the integration of culture and technology and the digital and intelligent empowerment and information-driven transformation of cultural development. The continuous improvement of digital technologies offers fresh narrative opportunities and communication platforms to disseminate culture across cultures. The question of how Qilu culture can be expressed innovatively and disseminated internationally using multimodal digital narrative in this strategic framework is not only the task given to us by the times but a critical challenge that should be urgently resolved.

2. The Necessity of Cross-cultural Communication of Qilu Culture

At the historic juncture of 2026, which marks the inaugural year of China's 15th Five-Year Plan (2026–2030), the necessity of cross-cultural communication of Qilu culture will be discussed from four dimensions: national strategic orientation, wave of technological revolution, the mission of regional cultures, and the evolving architecture of international communication.

2.1 National Strategic Orientation-the New Deployment of Cultural Power Construction

Recommendations of the Central Committee of the Communist Party of China for Formulating the 15th Five-Year Plan for National Economic and Social Development (hereinafter referred to as "the 15th Five-Year Plan") explicitly calls for "establishing a recognizable identification system for Chinese civilization" [1], thereby charting a clear course for the advancement of Qilu culture in the years ahead. As an important source of Chinese civilization and the birthplace of Confucianism, Qilu culture harbors a wealth of foundational values: the ethos of "benevolence and propriety", the ideal of "state-family" solidarity, and the strategic wisdom of military thought, all of which constitute invaluable resources for building the identification system of Chinese civilization. The era proposition that needs to be responded urgently, therefore, lies in how to translate the essence of Qilu culture into identifiable and communicable emblems of Chinese civilization. Qilu culture itself carries a very deep narrative potential, which provides a solid content foundation for telling Chinese stories and shaping a good national image. Based on this, this paper argues that this cultural advantage can play two roles: one is to promote the construction of a more recognizable narrative communication system with Chinese characteristics, so that Chinese stories can be told more smoothly and smoothly; second, with the help of this cultural system, China' s international influence will expand faster, and the communication effect will really take effect, and ultimately go further and further in the context of globalization.

2.2 The Wave of Scientific and Technological revolution-Qilu Culture is Accelerating Its Deep Integration with Digital Intelligent Technology

The 15th Five-Year Plan outline clearly puts forward the next step to continue to promote the construction of digital China and improve the development level of digital intelligence. This article believes that there are actually two benefits to using digital tools to promote the global dissemination of Qilu culture. First, it can reactivate those static historical resources with immersive experience, so that the audience has a sense of immersion. Second, it can broaden the cross-border communication channels of cultural heritage and break free from the constraints of the traditional output mode. This two-way effort helps to build a deeper resonance in the hearts of overseas audiences, so that they can truly feel the unique value of Qilu culture.

2.3 Regional Cultural Mission-the Innovative Development of Qilu Culture

Based on the background of the creative transformation and innovative development of Qilu culture and the actual development needs, although the relevant cultural construction work has achieved outstanding development results, it still faces many new development challenges in the process of adapting to the requirements of cultural communication in the new era. First, the depth of cultural translation is limited, and it is difficult to fully convey the cultural core; Second, the adaptability of the existing communication strategy is insufficient, and it cannot fit the current public's receiving habits; thirdly, the quantitative evaluation system of communication effect is not perfect, and it is difficult to accurately measure the effectiveness of communication landing. The industry is in urgent need of breakthroughs at present. We cannot simply rely on established methods and past experience. More innovative optimization schemes are required to address the existing problems.

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2.4 International Communication Pattern-new Opportunities and New Challenges for Qilu Culture Going Global

The transformation from “export of cultural form” to “implantation of cultural value” is a higher-level pursuit in the international dissemination of Qilu culture. At present, the global dissemination of Qilu culture still encounters the “cultural discount” effect. It is difficult to lead international audiences beyond a superficial understanding of Confucius merely as a symbolic figure and help them deeply grasp the profound connotation of Confucian philosophy. To overcome this challenge, multi-modal digital narratives should be adopted to foster cross-cultural empathy via diverse media including vision hearing and text. This type of empathetic interaction serves as a key driver that moves audiences from superficial cultural cognition toward meaningful cultural identity. It further turns passive consumption into active cross-cultural communication and participation.

3. The Theoretical Basis of Cross-cultural Communication of Qilu Culture

3.1 The Current Situation of Qilu Cultural Dissemination

Telling compelling stories of Qilu culture in the new era and aligning the pulse of regional culture with global resonance helps respond to national strategic calls and serves as a practical approach to meet the real needs of local development. It represents a long-term undertaking requiring sustained commitment. Nevertheless amid the growing influence of digital technology cross-cultural communication of Qilu culture still faces numerous pressing challenges that demand effective solutions.

Narrative thematic perspectives are too limited. Current communication practices are still predominantly led by government institutions and official media. As far as the narrative strategy is concerned, it still focuses on the display of achievements and positive publicity. The problem is that there is a lack of smooth coordination mechanism between the central and local governments at the vertical level, which leads to the lack of unified top-level design and effective connection of functions. There are also similar dilemmas at the horizontal level. There is a lack of systematic resource co-ordination and collaborative arrangements among cities in the region. Information dissemination is decentralized and it is difficult to form a joint force. This vertical fragmentation and horizontal dispersion are superimposed together, which constitutes a structural constraint and directly drags down the overall effect of the international dissemination of Qilu culture.

Narrative cintent tends to be grand and abstract. The current narrative of Qilu culture focuses on the grand theme, and the depiction of specific details is relatively weak. This disconnection between macro presentation and micro description is particularly prominent in international communication. Cultural symbols such as Fengshan Grand Ceremony at Mount Tai, the Three Confucian Sites in Qufu, and the Jixia Academy in Zibo do carry profound historical implications and are also important symbols of Chinese civilization. The problem is that these symbols are difficult for overseas audiences to find emotional clues that can touch them. Unfamiliar with China's historical context and cultural background, these grand concepts can easily become distant, abstract labels, neither touching, it is difficult to really trigger a sense of identity. More fundamentally, the content of communication mostly stays in the macro cultural interpretation and value promotion, and rarely builds a bridge that overseas audiences can perceive and touch by telling a person's story, digging the details behind an object, or having any connection with our current life. In other words, the lack of a “living” entry point, so that people really go in and feel. At the same time, the narrative method is also relatively single, lack of ups and downs, contradictions or turning the introduction of the entire text seems to spread out straight, no waves, it is difficult to form enough narrative tension. As a result, the audience often see a beginning does not continue to pursue the desire, not to mention continued attention and in-depth understanding.

Interactivity and participatory engagement in narrative approaches remain markedly insufficient. Although digital technology has indeed brought many new patterns to the spread of Qilu culture in recent years, such as VR experience, short video, and interactive websites, it seems to be lively in form. However, the problem is that most of these technologies only change the appearance, and really make interactive transformation in the narrative structure, so that the audience can participate in the attempt, the progress is actually very slow. The problem is that overseas audiences generally lack a sense of participation and interaction. This leads to an awkward situation: the information is out, but the deep connotation of culture does not follow in place. The audience read and listened, but may not really understand what Qilu culture wants to express. The reason is

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that the current communication practice still stays on the old road of one-way output, treats the audience as a passive receiver, and does not fully develop a deep interactive narrative mode. There is also a serious imbalance between communication input and audience feedback, and information transmission and meaning generation are out of section. In this way, the dialogue and participation characteristics that communication activities should have are not reflected, and the role of promoting cultural integration is naturally reduced.

3.2 Theoretical Foundation

The 15th Five-Year Plan has drawn a clear policy direction and implementation path for the transformation of cultural communication mode. The digital narrative theory proposed by Marie-Laure Ryan integrates the perspective of possible world theory and media research, and provides theoretical support and logical basis for us to create immersive experience scenes in cultural communication [2]. Relying on digital technology, digital narrative is not only a practical way of cultural practice, but also carries forward-looking cultural innovation ideas and imagination [3]. It can be said that this transformation concept makes the role of digital technology no longer limited to the tool level, but rises to a strategic means in narrative construction. Its function is not limited to the communication channels of propaganda films, but to promote the overall reconstruction of the narrative mechanism with the help of digital technology. Taking Qilu culture as an example, in this way, the original abstract and obscure concepts can be transformed into specific stories containing plots and characters, which is easier to understand and perceive. This transformation helps overseas audiences to perceive and understand Qilu culture more smoothly, and also opens up new narrative space for international communication. With the help of digital technology, we can build an immersive virtual cultural space. In this space, the audience can not only feel the cultural atmosphere, but also participate in two-way interaction, forming a real sense of the dialogue scene. The two sides of cross-cultural communication thus obtain equal opportunities to communicate, gradually eliminate cultural barriers, and achieve deeper mutual understanding. Relying on immersive experience, this model can also effectively stimulate the emotional resonance of overseas audiences, help Qilu culture gain a broader cross-cultural identity, and enhance the actual communication effect.

4. The Optimization Path of Qilu Culture Digital Narrative

Qilu is located in the core area of the Yellow River civilization. It is the birthplace of Confucianism and the hometown of Confucius. The historical and cultural resources are extremely rich. However, as far as the current external communication is concerned, the region still lacks a narrative perspective that can truly adapt to the needs of overseas audiences [4]. *The Report on Chinese Overseas Network Communication in 2025* [5] systematically sorts out and analyzes the overseas network communication performance of 31 provinces and 338 prefecture-level cities in China. The relevant data show that Shandong Province ranks ninth nationally, which represents a certain decline compared with its fifth-place ranking in 2024. Among cities within Shandong, Qingdao ranks the highest (12th nationwide), followed by Jinan (19th), Yantai (40th), with all other cities in Shandong ranking outside the top 50. These data reveal two concurrent trends: first, national-level cultural “going global” policies continue to release institutional dividends, with both the agency and resource investment of cities in overseas communication showing an upward tendency; second, despite Shandong Province being endowed with the deep historical resource base of Qilu culture, its overseas online communication power had slipped to 9th place at the provincial level by 2025. At present, there is a significant asymmetry between the profound historical accumulation of Qilu culture and its actual spread in the international public opinion field. This gap reminds us that during the strategic window period when the policy environment continues to improve and the construction of national cultural soft power is comprehensively promoted, how to effectively transform static cultural stock resources into dynamic digital communication kinetic energy with global radiation is still a key proposition that needs to be broken through. In other words, the stock advantage of cultural heritage has not yet been transformed into the incremental efficiency in international communication. This transformation process is the core bottleneck of the current Qilu culture going out. Facing this realistic challenge, the international communication of Qilu culture can be systematically explored and developed from the following multimodal dimensions, in order to gradually bridge the gap between cultural thickness and communication validity.

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4.1 Explore Cultural Symbols Adapted to Cross-cultural Communication Scenarios

Cultural symbols are a kind of symbolic carriers formed through language images or material forms. Such carriers can be widely recognized by members of specific cultural groups and carry multi-level symbolic meanings and cultural connotations [6]. Cultural symbols are not fixed or static objects. Their refining process itself is dynamic and continually evolving. Digital media has become deeply embedded in the daily lives of the public under the new background. It relies on personalized or immersive experience formats to present cultural symbols. This approach provides feasible ideas for transforming abstract cultural concepts into intuitive and perceptible experiences. Such a communication method can guide overseas audiences to actively produce their own cultural interpretations rather than passively receive one-way cultural content. In this way, it can effectively eliminate language differences and communication barriers formed at the cognitive level. The recently popular overseas social platform game *Black Myth Wukong* serves as a highly representative practical case. It is not just a beautiful picture, music with a sense, but the visual, auditory, text, player operation, as well as the linkage between different media narrative, all together, forming a set of three-dimensional and complete expression. Through the synergy of these multimodal means, it has successfully built a cultural "possible world" that can be immersed in it-a virtual but immersive space for global players to not just "watch" the game, but really "walk in" the game. In this world, we play while chatting, while experiencing while discussing, naturally there is a foundation and platform for communication and interaction. Moreover, cities such as Taiyuan, which feature cultural symbols embedded in the game, have become popular tourist destinations for players from different countries of the world [7]. In this process of cross-cultural communication, the cultural symbol of Jinci Temple has evolved into a spiritually resonant touchstone with global appeal, in turn enhancing the city's international visibility.

4.2 Build Global Issues with Qilu's Multi-modal Narrative Content

Global issues such as social peace and stability remain a major focus of international attention. Local narrative restructuring of these global issues can be carried out through diversified means such as comprehensive short film collections, traveler self-made video blogs, real-time data visualization, and oral interviews with local residents. This strategy can demonstrate the actual conditions of cities in Shandong Province in responding to relevant issues at multiple levels. It transforms abstract global reality anxiety into concrete expressions with sensory experience and places them within the corresponding geographical and humanistic contexts. At the same time, this method can rely on contemporary digital media discourse to intuitively present the core ethical connotations of Confucianism, including benevolence, righteousness, propriety, wisdom, and trustworthiness.

4.3 Relying on Multi-modal Narrative to Build Multi-dimensional Resonance in the External Communication of Qilu Culture

There is a prominent practical dilemma in the international communication process of Qilu culture. The selection of existing narrative themes is relatively limited. Under the traditional communication framework, most communication subjects are concentrated on mainstream platforms such as government agencies and official media. The voices of the people, individual perspectives, and the power of enterprises are not involved enough, and the entire communication pattern appears to be a bit "heavy". The problem with this model is that for overseas audiences, this expression is too far from their lives and lacks an emotional entrance that resonates. The Outline of the 15th Five-Year Plan calls for "stimulating the vitality of cultural innovation and creativity across the nation, and fostering the flourishing development of socialist culture" [1]. Activating cultural vitality entails a shift in narrative agency from a handful of authoritative institutions toward a more diversified, grassroots resonance. An emerging, more balanced relationship between state-led efforts and individual civilian participation is gradually taking shape. A notable example is China Daily's *China Storyteller Partnerships*, which engages foreign online influencers as cultural intermediaries. Through their embodied experiences and active participation in Chinese society, these influencers generate first-person narratives that facilitate a softer, more organic transmission of Chinese stories [8]. In fact, the spread of culture is not only by "speaking", but more importantly, by "doing" and "feeling". Those who really participate in cultural activities and experience them in person often put abstract cultural concepts into practice more than simple publicity. In this way, between the official grand narrative and the more down-to-earth expression of the folk, the original sense of distance will be naturally eliminated, no longer making people feel that culture is high and unreachable.

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Therefore, at this stage, how to fully activate this folk digital narrative vitality has become a very critical breakthrough to enhance the national cultural communication ability [9]. Accordingly, the international dissemination of Qilu culture calls for greater civilian participation to realize a co-creation of Qilu stories.

5. Conclusion

Taking Qilu culture as a case in point, this study proceeds from a critical diagnosis of prevailing communicative challenges toward the construction of a digital narrative framework, thereby advancing a systematic argument that moves from problem identification to strategic pathway design. The core is to turn the static Qilu culture that has been stuck in books and sites into a living scene that can be seen, understood and felt in front of overseas audiences. At the same time, the pattern of communication has to change-to create a pluralistic ecology in which the government, the people, the enterprises and the individuals can participate in the voice. Everyone tells their own stories and shows their own characteristics. Only in this way can Qilu culture truly show its vitality and vitality on the stage of global dialogue. On a larger level, this exploration is not only a concrete supplement and enrichment of the identification system of Chinese civilization, but also a positive response to the proposition of "how regional culture really survives and spreads in the digital age". It can be said that these explorations and practices of Qilu culture in international communication can provide a regional sample with local characteristics, reference and replication for the shaping and dissemination of the entire Chinese cultural identity system on a global scale, and contribute to Shandong's own wisdom and experience. Ultimately, the goal is to cultivate the global audience that not only comprehends Qilu culture but also actively participates in, narrates, and empathizes with it, transforming Qilu culture from a regional heritage into a window through which the world may gain a more nuanced and comprehensive understanding of the real China.unity gain a more comprehensive and multi-dimensional understanding of the real China.

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Reconceptualizing Test Anxiety Through Hope Theory: From Fear of Failure to Academic Goal Regulation

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Abstract

Test anxiety constitutes a critical educational concern that impairs students' exam performance, cognitive functioning, emotional well-being, and sustained academic engagement. Existing scholarship largely centers on its adverse effects on attention, working memory, stress reactivity, and academic outcomes, yet it overlooks a key discrepancy: some learners persistently chase academic goals amid test anxiety, whereas others engage in avoidance, procrastination, self-handicapping, or disengagement. This conceptual review reconceptualizes test anxiety through hope theory and academic goal pursuit via a targeted literature review and conceptual synthesis, integrating research on test anxiety, fear of failure, self-regulation, and goal cognition. Rather than merely framing test anxiety as a situational cognitive-emotional reaction to evaluative pressure, this work frames it as a goal-adjustment challenge shaped by fear of failure, perceived goal attainability, pathways thinking, and motivational agency. Fear of failure amplifies evaluative threat and drives defensive goal pursuit, while hope acts as a vital goal-regulatory resource. It sustains learning motivation, fosters alternative learning pathways, enables strategic adjustment, and supports persistent academic striving amid anxiety. This paper's core contribution reframes test anxiety research away from failure-induced performance impairment toward hope-centered goal regulation, offering a robust framework to explain student academic persistence under evaluative stress.

Keywords

test anxiety, hope theory, fear of failure, academic goal pursuit, goal regulation

1. Introduction

In highly evaluation-oriented educational environments, test anxiety has become an important issue affecting students' academic performance, cognitive processing, emotional well-being, and long-term engagement in learning [1–4]. Existing research often understands test anxiety as a set of cognitive, emotional, and physiological responses that arise in testing or evaluative contexts due to concerns about failure, negative evaluation, or the consequences of exams. This body of work has mainly focused on its negative effects on exam performance, attentional control, working memory, stress levels, and mental health [5–8]. Educational interventions in this area have therefore tended to emphasise anxiety reduction, stress management, cognitive behavioural training, and emotion regulation [9,10]. Existing research has explained well how test anxiety weakens students' exam performance, cognitive processing, and psychological well-being. Its main focus, however, has often been placed on immediate performance impairment in testing situations. Less attention has

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been given to the ongoing process of goal pursuit, including exam preparation, interpretation of feedback, strategy adjustment, and long-term engagement in learning. This leaves an important question for further consideration. Why are some students, even when they experience test anxiety over a long period of time, still able to remain engaged in learning and sustain the pursuit of academic goals, while others gradually show avoidance, procrastination, self-handicapping, or even academic disengagement? Research on fear of failure suggests that when students interpret failure as evidence of damaged self-worth or insufficient ability, they are more likely to adopt self-protective avoidance strategies, such as procrastination, self-handicapping, and academic disengagement [11,12]. This indicates that test anxiety should not be understood only as an isolated negative emotional response. It may also be closely related to how students understand their goals, evaluate their own capacity for action, and identify possible pathways for achieving those goals.

This article aims to reinterpret exam anxiety: it is not only an emotional reaction, but also can be understood as a signal that students' pursuit of academic goals is disturbed. This perspective requires a cognitive-motivation framework to explain how students set goals, generate paths to achieve them, and maintain the motivation to take action. Snyder's hope theory defines hope as a goal-oriented system composed of goal, active thinking and path thinking [13,14], which fits this theoretical need. In this framework, agency thinking refers to individuals' perceived capacity and motivation to continue working toward their goals. Path thinking refers to the ability of individuals to generate routes to the goal and identify alternative strategies when existing routes are blocked. From this perspective, exam anxiety may increase when students no longer believe that they can continue to move towards their goals or cannot find an effective way to meet academic challenges. On the contrary, a higher level of hope may help students maintain action-oriented motivation, adjust their learning strategies, and still pursue academic goals in the case of fear of failure and exam anxiety [15,16]. This paper uses Hope Theory as a framework to look again at the relationship between test anxiety and academic goal pursuit. Many studies have discussed test anxiety through its symptoms and negative effects. This paper takes a slightly different focus. It looks at what happens when students feel both fear of failure and test anxiety. In this situation, some students keep working toward their academic goals, while others begin to avoid tasks or give up. Hope may play an important role in this process because it can support students' motivation and help them find ways to continue their pursuit of academic goals under pressure.

2. Literature Review

2.1 Traditional Theoretical Explanations of Test Anxiety and Their Limitations

In existing research, test anxiety is usually viewed as a multidimensional psychological response. Liebert and Morris initially distinguished test anxiety into two core components: worry and emotionality. They also pointed out that these two components have different relationships with expected test performance [17]. Zeidner further conceptualised test anxiety as a multidimensional psychological phenomenon involving cognitive, emotional, somatic, and behavioural manifestations [2]. Within this framework, the cognitive dimension has long been regarded as a key mechanism for explaining the negative effects of test anxiety. From the perspective of attentional processes, Sarason argued that test anxiety is largely reflected in the interference of intrusive thoughts with task-focused thinking [5]. Cassady and Johnson further examined the measurement and validation of cognitive test anxiety. Their findings showed that this cognitive dimension is significantly associated with poorer performance in both course examinations and standardised tests [3]. These studies suggest that traditional research has mainly understood the negative effects of test anxiety as a mechanism of performance impairment. In this view, anxiety affects students' immediate test performance by weakening attentional focus, information processing, and task execution efficiency [5,6]. Traditional research has also treated tension, physiological arousal, and stress responses as important emotional and somatic manifestations of test anxiety [2]. A meta-analysis by von der Embse et al. further showed that test anxiety is significantly and negatively associated with educational outcomes, including test performance, standardised test scores, and GPA. It is also related to individual and contextual variables, such as self-efficacy, motivation, self-regulation, achievement goals, and testing contexts [7]. An important contribution of this research tradition is that it clearly shows how test anxiety can impair students' immediate test performance in evaluative contexts through cognitive, emotional, and physiological mechanisms. Its explanatory focus, however, has mainly remained on the relationship between anxiety responses and performance impairment. It has paid less attention to the longer-term regulation of learning behaviour, goal maintenance, and academic engagement before and after

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exams. As a result, it has limited capacity to explain why students differ in their long-term academic persistence. For the present paper, traditional theories provide a useful starting point for understanding the negative effects of test anxiety. Yet it is still necessary to examine how test anxiety may extend beyond an emotional-cognitive response in evaluative situations and become part of a broader process that shapes students' learning behaviour and goal regulation.

2.2 From Performance Impairment to Goal Pursuit: An Expanded Perspective on Test Anxiety Research

Exams should not be understood as isolated events. They are embedded in a broader learning process involving exam preparation, effort regulation, strategy use, task engagement, and goal maintenance. In this sense, the influence of test anxiety may extend beyond students' immediate exam performance. It may also shape how students continue to pursue academic goals when they anticipate failure or face evaluative pressure. Research on coping and self-regulation helps support this wider view. Endler and Parker's coping model divides responses to stress into three types: task-oriented coping, emotion-oriented coping, and avoidance-oriented coping [18]. Task-oriented coping means that people try to deal with stress through planning, problem solving, and changes in action. Avoidance-oriented coping is different. It means that people reduce stress by moving away from the stressful situation, related thoughts, or related behaviours. This view is useful for understanding test anxiety. In a meta-analysis, von der Embse et al. found that test anxiety was positively related to avoidance coping. They also found that test anxiety was negatively related to problem-focused or active coping. Test anxiety was also linked to lower self-regulation, self-efficacy, and academic confidence [7]. These findings show that test anxiety is not only about feeling tense or worried in exams. It may also be linked to how students manage their learning, put in their effort, and stay involved in academic work when they are under pressure. The cognitive side of test anxiety also helps explain why fear of failure matters here. Cassady and Johnson pointed out that cognitive test anxiety is mainly shown in students' worries and inner thoughts before, during, and after evaluative tasks. These worries may include comparing their performance with others, thinking about the results of failure, lacking confidence, paying too much attention to grades, feeling unprepared, and fearing harm to their self-worth [3]. These thoughts show that worry in test anxiety is often connected with self-evaluation and perceived threat. Test anxiety may not only reduce students' thinking during exams. It may also make students pay more attention to failure and its possible results when they are trying to reach academic goals. Fear of failure is usually understood as an anticipatory concern about the consequences of failure in achievement contexts. Its core concern is not simply the possibility of receiving a low grade. Rather, it involves worries that failure may lead to doubts about one's ability, damage to self-worth, negative evaluation from others, and loss of future opportunities [11,19]. In achievement motivation research, fear of failure is often regarded as an important source of avoidance-oriented motivation. When students interpret failure as evidence of insufficient ability or damaged self-worth, they may be more likely to adopt self-protective learning strategies.

These may include lowering the difficulty of goals, avoiding challenging tasks, delaying study, engaging in self-handicapping, or withdrawing from academic tasks [11,12,20,21]. Fear of failure can therefore explain why worry within test anxiety may move beyond an internal cognitive response and develop into defensive academic behaviours. On this basis, fear of failure can be seen as an important theoretical mechanism linking test anxiety with defensive goal pursuit. It will strengthen students' assessment of threats in the exam situation and make students pay more attention to the negative meaning of failure. It may also cause students to temporarily protect their self-worth by avoiding, procrastinating or self-limiting. From this point of view, the fear of failure provides an important perspective for understanding how exam anxiety affects the pursuit of academic goals. However, since this perspective mainly focuses on students' expectations and avoidance of failure-related consequences, it still has certain limitations in explaining how students can still maintain goal commitments, adjust learning strategies, seek support and maintain academic investment in the presence of anxiety and the risk of failure. For example, two students may have a similar fear of failure. One student may delay revision because they are afraid of failing again. This student may avoid difficult exam tasks or slowly lower their academic goals. Another student may also fear failure, but they may still keep the original goal. They may make a new revision plan, ask the teacher for feedback, discuss difficult points with classmates, or change their exam preparation methods. This difference shows that the pursuit of academic goals under the pressure of evaluation is not only about what negative results students try to avoid, but also about how they

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judge whether the goal can still be achieved, whether they can find a feasible path to the goal, and whether they have the initiative to continue along these paths [13,14].

Hope Theory provides a more process-oriented cognitive-motivational framework for explaining this process of goal regulation. The theory understands hope as a goal-directed system composed of goals, pathways thinking, and agency thinking [13,14]. Goals provide direction for individual action. Pathways thinking refers to individuals' perceived ability to generate workable routes towards their goals. Agency thinking refers to individuals' perceived ability to initiate and sustain goal-directed action. In academic contexts, pathways thinking can be reflected in students' perceived capacity to identify learning strategies, problem-solving approaches, and alternative courses of action. Agency thinking can be reflected in students' perceived capacity to maintain effort and goal commitment under pressure, setbacks, or uncertainty. From this perspective, test anxiety may affect students' academic behaviour not only by activating the threat of failure. It may also undermine academic goal pursuit by weakening students' pathways thinking and agency thinking. In turn, hope may serve as a goal-regulation resource that helps students maintain goal-directed action under evaluative pressure.

2.3 Integrating Test Anxiety, HOPE, and Academic Goal Pursuit: A Theoretical Framework

Based on the literature reviewed above, test anxiety can be understood as an evaluative stress condition with implications for goal regulation. Fear of failure helps explain why students may adopt avoidance, procrastination, or self-protective strategies under evaluative pressure. Hope Theory further explains how students may still maintain goal commitment, generate pathways for action, and remain engaged when the risk of failure is present. This paper therefore proposes a goal-regulation framework based on Hope Theory. The framework is used to explain how test anxiety may influence academic goal pursuit, and how hope may play a potentially protective role in this process.

3. Research Methodology

This article is a conceptual review. It uses a targeted literature review together with conceptual synthesis. The article brings together key theories and representative studies on test anxiety, fear of failure, Hope Theory, and academic goal pursuit. Based on these studies, it builds a goal-regulation framework to explain how test anxiety may affect students' pursuit of academic goals. The purpose of this article is not to review all studies on a single variable relationship. It also does not compare effect sizes across different studies. The focus of this article is theory building. For this reason, the article selects classic theories, important empirical studies, and meta-analytic reviews that are closely related to the research question. By bringing these studies together, the article shows the limits of existing test anxiety research. It also explains how Hope Theory can help us understand students' pursuit of academic goals in anxiety-related contexts. Relevant literature was identified through searches in Google Scholar, Web of Science, Scopus, PsycINFO, ERIC, and ScienceDirect. The search covered studies published from 1980 to 2025. This time range was chosen because it includes both early theoretical literature and recent studies on test anxiety, fear of failure, and Hope Theory. The main search terms included "Hope Theory," "pathways thinking," "agency thinking," "test anxiety," "cognitive test anxiety," "fear of failure," "achievement motivation," "goal-directed cognition," and "self-regulation." The reference lists of key theoretical works and highly cited empirical studies were also checked to find other relevant sources. This article prioritised peer-reviewed journal articles, theoretical papers, meta-analytic reviews, and classic literature that were highly relevant to the research topic. Studies were included if they met one or more of the following criteria: they discussed the cognitive or motivational mechanisms of test anxiety; analysed the relationship between fear of failure and avoidance-oriented achievement motivation; explained pathways thinking and agency thinking in Hope Theory; or examined the relationships among self-regulation, coping, and academic engagement. Studies were not treated as core sources for the theoretical integration if they only discussed general anxiety without a clear educational evaluation context, or if they discussed hope without addressing the process of goal pursuit.

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4. Theoretical Synthesis

This paper proposes a goal-regulation framework based on Hope Theory. The framework is used to explain the relationships among test anxiety, fear of failure, hope, and academic goal pursuit. Within this framework, test anxiety is not only an emotional-cognitive response that affects exam performance. It can also be understood as an evaluative stress condition that may interfere with students' goal-regulation process. More specifically, fear of failure may strengthen the threatening meaning of testing situations. It may make students more focused on the consequences of failure, negative evaluation, and damage to self-worth. Test anxiety may further affect how students judge goal attainability, possible pathways for action, and their capacity to sustain effort. Hope Theory offers a complementary perspective on this process. It helps explain whether students can continue to generate pathways towards their goals and maintain the agency to act towards those goals while anxiety is present. First, fear of failure forms an important motivational pathway through which test anxiety may shift towards defensive academic goal pursuit. Based on the review above, fear of failure may strengthen students' threat appraisal of testing situations. In this way, test anxiety may move from a general experience of tension to a perceived threat to ability, self-worth, and future opportunities. As a result, students may become more likely to adopt defensive academic behaviours, such as avoidance, procrastination, self-handicapping, or reduced engagement. Second, test anxiety may influence academic goal pursuit by interfering with the process of goal regulation. Traditional research emphasises that test anxiety may affect exam performance through cognitive interference, the occupation of attentional resources, and impaired information processing. Cognitive test anxiety has also been found to be associated with lower performance in course examinations and standardised tests [3,7]. From a goal-regulation perspective, however, the influence of test anxiety may extend further into the learning process before and after exams. Students with high test anxiety may find it more difficult to understand academic difficulties as problems that can be addressed through strategy adjustment. They may also find it harder to identify effective pathways for action or maintain the subjective belief that they can continue to invest effort. Test anxiety may therefore affect not only cognitive processing during exams, but also exam preparation, strategy adjustment, effort maintenance, and continued goal pursuit after receiving exam feedback. Third, Hope Theory can help explain why some students still stay involved in learning when they feel test anxiety. Some explanations of test anxiety mainly focus on the threat of failure. Hope Theory gives a different angle because it looks at how students think about possible ways to reach a goal and whether they believe they can keep working toward it [14].

In academic settings, pathways thinking can be seen in everyday learning actions. Students may make revision plans, change their study methods, ask for feedback, or look for another way to understand difficult content. Agency thinking is more about whether students can keep putting in effort when they face pressure, setbacks, or uncertainty. Fourth, this distinction is useful for understanding academic persistence. Students with a stronger sense of agency may still believe that they can work toward their academic goals, even when they feel anxious or experience temporary failure. For example, a student who performs poorly in an exam may continue reviewing, change the study plan, and stay focused on the course goals. This student may not immediately reduce effort or give up on later assessment tasks. In this situation, the agency helps the student return to action and keep working under exam pressure.

Pathways thinking also matters in this process. Previous research has found that hope pathways are positively related to coping strategies such as direct problem-solving, planning, and positive thinking [22]. In academic contexts, this means that students with stronger pathway thinking may be better able to change their revision strategies, ask for feedback, reorganise their time, or find another learning route when their first study plan does not work. For these students, exam pressure may be seen as a problem that needs adjustment, rather than as a sign that the goal has already failed. Overall, this paper does not argue that hope removes test anxiety. A more reasonable view is that hope may help students keep pathways thinking and agency while anxiety is still present. Test anxiety may lead some students to withdraw from academic goals, but this is not always the case. Its effect may depend on whether students can still find workable ways forward and whether they believe they can continue to act toward their goals.

5. Discussion

The main contribution of this paper is not to deny the negative effects of test anxiety on students' performance and psychological well-being. Rather, it further suggests that the influence of test anxiety may

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extend beyond performance impairment during the exam itself. Existing research has already provided substantial evidence on how test anxiety affects exam performance through cognitive interference, the consumption of attentional resources, emotional arousal, and stress responses [5–8]. Building on this work, this paper extends the focus of analysis to the process of goal regulation before and after exams. From this perspective, test anxiety is not only an emotional-cognitive response in evaluative situations, but also a goal-regulatory stressor that may shape students' judgments of goal attainability, their generation of action pathways, and their belief in sustained effort. The theoretical contribution of this paper lies in using Hope Theory to complement the threat-avoidance explanation centred on fear of failure. Fear of failure helps explain why students may develop avoidance, procrastination, or self-protective responses under evaluative pressure. However, it is less able to explain why some students continue to engage in learning when they face similar risks of failure and experiences of anxiety. Hope Theory offers a further explanation through pathways thinking and agency. Whether students persist in pursuing their goals may depend not only on how strongly they fear failure, but also on whether they can generate workable pathways and believe that they are still able to continue taking action. Unlike traditional views that mainly treat test anxiety as a negative emotion that needs to be reduced or eliminated, this paper argues that anxiety does not necessarily lead to academic goal withdrawal. Its influence depends on whether students are able to maintain pathways thinking and agency. In this sense, the value of hope does not lie in removing anxiety, but in supporting students to continue taking action, adjusting their pathways, and sustaining goal commitment while anxiety is still present.

6. Future Directions

Future research could test the relationships between the main variables discussed in this paper. One useful direction would be to examine how test anxiety, fear of failure, hope, and academic goal pursuit change together over time. Researchers may pay particular attention to the roles of pathway thinking and agency. These two parts of hope may mediate, moderate, or protect against the link between test anxiety and academic goal withdrawal. It would also be useful to compare students with different levels of test anxiety. This may help show whether hope can reduce the risk of academic disengagement among students who experience high test anxiety. Another important direction is to clarify how test anxiety affects academic goal pursuit at the psychological level. This paper suggests that fear of failure may lead students toward defensive goal pursuit because it makes exams feel more threatening. At the same time, pathways thinking and agency may help students keep taking goal-directed action. Future studies could examine two possible chains: one linking fear of failure, threat appraisal, and avoidance behaviour, and another linking hope, pathway generation, and sustained engagement. These studies could also look more closely at related factors, such as cognitive worry, emotional arousal, self-efficacy, achievement goals, and self-regulation. The framework may also need to be examined in different educational settings. Test anxiety may not work in the same way across all assessment situations. Its effect on goal regulation may change with the type of assessment, the level of pressure, the stage of education, and the cultural background of students. For example, ordinary classroom quizzes, high-stakes entrance examinations, and standardised tests may shape students' fear of failure and academic goal pursuit in different ways. Similarly, secondary school students, undergraduate students, and postgraduate students may differ in their pathways thinking, agency, and learning autonomy. Future studies could therefore examine the applicability and boundary conditions of this framework across different assessment contexts, educational stages, and cultural settings. Future research could also explore how Hope Theory can be used in educational practice. Existing interventions for test anxiety often focus on anxiety reduction, cognitive reappraisal, relaxation training, or emotion regulation [9,10]. The theoretical framework proposed in this paper suggests that interventions could also focus on how students maintain goal-directed action while anxiety is still present. For example, teachers could guide students to clarify short-term revision goals, develop several workable pathways for exam preparation, adjust their strategies when their original revision plans are disrupted or when they perform poorly in an exam, and use process-based feedback to strengthen students' belief that they can continue taking action. In this way, such interventions may help students maintain learning engagement and academic goal pursuit even when test anxiety remains present. Future studies could further examine whether this type of hope-based intervention can complement traditional test anxiety interventions and support students' long-term academic persistence and goal pursuit.

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7. Conclusion

By integrating literature on test anxiety, fear of failure, Hope Theory, and academic goal pursuit, this paper proposes a theoretical framework centred on goal regulation. It argues that test anxiety should not be understood only as a problem of performance impairment driven by fear of failure. It should also be understood as a goal-regulatory process involving goal maintenance, pathway generation, and agency. Moving beyond fear of failure and paying closer attention to how students maintain pathways thinking and agency under evaluative pressure may provide a more constructive theoretical perspective for understanding academic persistence and goal pursuit.

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Differentiated Difficulties Instead of Hierarchical Gaps: A Rebuttal to the Bias About Dialect Speakers' English Pronunciation Learning

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Abstract

This paper aims to rebut a social cognitive prejudice that dialect-speaking learners face greater difficulties in acquiring English pronunciation than Mandarin-speaking learners. To correct such misconceptions, the paper introduces several theories, which collectively prove that pronunciation acquisition only generates differentiated difficulties rather than hierarchical gaps, including the Speech Learning Model (SL) and the Revised Speech Learning Model (SLM-r), positive and negative transfer, phonological sieve and contrastive analysis. This study chooses Cantonese-speaking learners and Wu Dialect-speaking learners as samples and adopts an interdisciplinary perspective combining sociolinguistics and second language acquisition to challenge that bias. To avoid misunderstanding, key concepts such as regional dialect speakers, standard Mandarin speakers and accurate English pronunciation, are redefined. After analyzing both positive and negative transfer of Mandarin, Cantonese and Wu Dialect speakers, the study confirms its core proposition, there are only differences in learning problems rather than hierarchical distinctions. The study contributes to distinguishing the relationship between Chinese dialects and L2 pronunciation acquisition, challenges the Mandarin-centered evaluative framework, strives to provide support for forming comprehensive English pronunciation instruction, and hopes to eradicate the social stereotype.

Keywords

English pronunciation acquisition, regional dialect, mandarin Chinese, language transfer, pedagogical implication

1. Introduction

Nowadays, a prevailing misconception has increasingly gained popularity, sparking a heated debate, that people who master regional dialects face more difficulties in acquiring accurate pronunciation of English as a second language (L2) than speakers who are proficient in Standard Mandarin. It is well known that an array of reasons might influence second language learning, especially pronunciation acquisition. According to the Speech Learning Model (SL), Hypothesis 2, phonetic categories are cognitive units that store speech characteristics specific to a language in long-term memory [1]. Speaking specifically, within a single language, distinct dialectal variations provide multiple phonetic category systems that are stored in learners' long-term memory. In contrast to systemic gaps in overall acquisition difficulty, mismatches between the phonetic categories of different first-language dialects and the target second-language result in uneven matching

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relations across speech segments. Therefore, the learning gaps between Mandarin and dialect speakers contribute to the inconsistent matching degrees with English phonemes. Furthermore, from Flege's perspective, Hypothesis 3 of the Speech Learning Model (SL) states that phonetic categories formed in early childhood are not fixed [1], which means speakers' original categories will be reshaped and upgraded via continuous English input and actual pronunciation practice; hence, no learners would be trapped permanently by the phonological system of their first language (L1). This theoretical finding lays a basis for challenging the stereotype mentioned at the beginning. Overall, it is a stereotype that society regards regional dialect speakers as struggling more in English (L2) pronunciation acquisition than Mandarin speakers. This bias brings potential disadvantages to English phonetic instruction and language acquisition of dialect speakers, embodying an inferiority complex, confidence loss or even feeling resistant when learning pronunciation. Consequently, with the help of previous theories and studies, this article aims to break the stereotype and analyze the differential impacts of both dialect and Mandarin phonological systems on English pronunciation acquisition, emphasizing that there are only differences in learning problems rather than hierarchical distinctions. Meanwhile, the passage will spare no effort to correct the cognitive bias in terms of the relationship between dialects and L2 pronunciation acquisition, while it will provide references for English phonetic instruction, reminding teachers to formulate targeted strategies for pronunciation correction and avoiding teaching discrimination.

2. Theoretical Foundations and Core Concepts

2.1 Theoretical Foundations

2.1.1 The Speech Learning Model (SL) and the Revised Speech Learning Model (SLM-r)

Based on the four essential hypotheses of the *Speech Learning Model* (SL), Flege demonstrates that the learners might easier identify the distinctions between the sounds of L2 and the closest L1 via the notable acoustic difference of them; furthermore, with the ability to detect these differences, they are able to establish new phonetic categories for the L2 sounds, rather than classifying the L2 sounds into an existing L1 category, namely equivalence classification, for failure of discernment [1]. Consequently, three groups of speakers will encounter distinct types of pronunciation difficulties distributed across various phonological dimensions, with both advantages and disadvantages involved. Parts of English phonetics are markedly different from Mandarin phonetics, leading to a new phonetic category; meanwhile, that might be highly similar to Cantonese or Wu Dialect phonetics, causing the equivalence classification. Since there is no universal criterion to judge the level of difficulty, none of them has an overall acquisition difficulty. Complemented by the Revised *Speech Learning Model* (SLM-r), multiple-level interactions, including segmental, suprasegmental and phonotactic, made by L1 and L2 phonetic systems bring ultimately different influence to learners, individuals might show several strengths in some sections while show weaknesses in others, due to the compatibility between their L1 and L2 phonetic systems, proving that no evident reasons to assume that one L1 background will lead to overall greater difficulty in L2 pronunciation than another [2]. Therefore, though the L1 backgrounds of Mandarin, Wu Dialect and Cantonese speakers are diverse, learners with various strengths and different weaknesses do not face problems of hierarchical distinctions.

2.1.2 Positive Transfer and Negative Transfer

Briefly, each L1 has its specific positive transfer and the learners have to face numerous challenges due to negative transfer. It is Weinreich who first defined interference phenomena as a result of language contact, including positive interference (the structures of two languages are similar and it facilitates the acquisition of L2), negative interference (structures are different and lead to mistakes) and zero interference (L1 has no corresponding structure). Later, researchers developed the concepts people are more familiar with, positive transfer, negative transfer and zero transfer. According to Weinreich, interference is a matter of selective influence in particular linguistic areas rather than ubiquitous transfer; while the type of interference of each linguistic level is dominated by the structural relations between the systems in contact [3]. Hence, Mandarin, Wu Dialect and Cantonese with various structures and systems might bring different phonological interference both positive and negative. Even within the same linguistic level, every distinguished interference is independent of each other; as a result, among different dimensions, languages just exhibit their respective complementary strengths and weaknesses rather than an overall hierarchical distinction of difficulty.

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2.1.3 Phonological Sieve

L1 with different features of the phonological system leads to differences in learning problems rather than hierarchical distinctions. Nikolai Sergeyevich Trubetzkoy, the linguist who first compared the phonological system of a language to a sieve for it determines what is phonologically relevant, regarded that speakers might focus on certain distinctive features (referring to those properties of sounds related to distinguish meaning) and deal with all other languages via the grid of their own language [4]. With specific sieves, in English pronunciation acquisition, Mandarin, Cantonese and Wu Dialect speakers take various advantages of their own grid of languages and pay attention to distinctive features respectively. Several distinctive features in one phonological system might be the non-distinctive features, being irrelevant for phonological purposes and filtered out of the process, in another. Therefore, dialect and Mandarin speakers just face different types of difficulties rather than distinct degrees.

2.1.4 Contrastive Analysis

Robert Lado, who made a landmark contribution to the field of linguistics instruction, put forward the idea of *Contrastive Analysis* (CA) in his book Linguistics across Cultures, arguing that the structural differences between the target language system and the native language system are the most significant cause of learners' challenges when learning a foreign language [5]. In phonological acquisition, according to Lado, difficulties distribute across different phonetic and prosodic dimensions rather than appearing as an overall higher difficulty level. The prevailing stereotype that dialect speakers struggle more in English pronunciation acquisition fails to adhere to the fundamental tenet of CA, perplexing the social standardization of language with phonological learning difficulty.

2.2 Core Concepts

2.2.1 Regional Dialect Speakers

A regional dialect speaker is defined as an individual whose L1 is a geographically specific variety of Chinese, such as Cantonese or Wu Dialect, who habitually uses that dialect as the primary medium of daily communication, and who may also be proficient in Mandarin.

2.2.2 Standard Mandarin Speaker

Standard Mandarin Speaker mentioned in this article does not refer to the idealized group of speakers without any accent pronunciation excelling in the standards of *PUTONGHUA SHUIPING CESHI* (PSC, a test for proficiency in Mandarin pronunciation). But it broadly refers to native Chinese speakers who use Mandarin as their primary language in daily communication. In terms of daily usage, they might have slight regional dialect accents and encounter confusions including the confusions between nasal sounds and between alveolar and retroflex sounds, but are still fundamentally distinct from regional dialect speakers.

2.2.3 Accurate English Pronunciation

Accurate English Pronunciation reflects the pronunciation that follows the standard pronunciation norms of native English speakers (such as Received Pronunciation or General American). The speakers or learners can clearly distinguish the core phonemes and master the basic prosodic rules (linking, weak form and stress).

3. The Impact of Mandarin on English Pronunciation Acquisition

3.1 Phonological Features of Mandarin

The major feature of Mandarin phonology is fundamentally syllable-based rather than segment-based, like English. According to Robert L. Cheng, the early generative study shows that syllables serve as the main unit of phonological representation and generation while syllable grammar is the best way to describe Mandarin phonological structure [6]. In terms of this structural perspective, contemporary views reflect that the syllable structure of Mandarin with high constraint significantly conforms to CV patterns (a consonant + a vowel, like "妈" <*mā*> refers to mother or mam, consisting of consonant <*m*> and vowel) and lacks consonant clusters. It is also worth noting that each syllable is compulsively associated with a lexical tone. Moreover, the number

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of codas is limited, consisting primarily of /n/ and /ŋ/; hence, Mandarin, as a tonal language, has a relatively small syllable inventory compared to English, a non-tonal language [7].

3.2 Negative Transfer

According to Weinreich, negative transfer refers to L1 phonological structures being really different from L2's, which leads to systematic deviations in L2 pronunciation [3]. The Mandarin phonological system, as a syllable-based organization, lacks consonant clusters. Such phonotactic constraints imply that pronunciations like */pleɪ/* (play), */striːt/* (street) or /sprɪŋ/ (spring), the initial cluster is */pl-/*, */str-/* or */spr-/*; while learners (Mandarin speakers) might possibly pronounce *[pəleɪ]*, *[səpərɪŋ]* or *[sətəriːt]*, because Mandarin does not have the phonological structure */pl-/*, */str-/* or /spr-/ [6]. Therefore, learners resort to syllable repair strategies, a kind of phonological modification employed by speakers to use wrong syllable structures to conform to the phonotactic constraints of their native language, to help their pronunciation acquisition. The occurrence of vowel epenthesis reflects that Mandarin speakers implement native syllable templates to deal with the unfamiliar English consonant clusters rather than an inability to pronounce the targeted consonant. With the limited number of codas, herein lies a tendency that Mandarin speakers might delete the final consonants of English words; for example, learners might pronounce *[kæ]* instead of */kæt/* (cat) or *[mæ]* instead of */mæp/* (map). This deletion derives from the prohibition of stop consonants such as /p/, /t/ or /k/ in the final position of syllables in Mandarin, causing the English codas to be simplified to match their familiar structures.

Flege's *Speech Learning Model* (SL) mentioned above could clearly explain the segmental transfer in Mandarin-speaking learners' English pronunciation, illustrating that L2 sounds are created and perceived in connection with the existing L1 phonological categories [1]. Mandarin lacks the phoneme */θ/* which is frequently used in English syllables; as a result, Mandarin speakers have difficulty uttering */θɪŋk/* (think) and transform */θ/* to */s/* or */t/*. Also, they pronounce */d/* to replace */ð/* (*/ðɪs/* this) and */w/* to replace */v/* (*/ˈveri/* very) due to the absence of consonants. Therefore, learners are apt to assimilate the unfamiliar English phoneme into the closest available Mandarin categories, causing a consonant substitution.

Another challenge Mandarin speakers have to face in English pronunciation acquisition is lexical stress. Mandarin as a tonal language has four tones for differentiating words' meanings, which means the same consonants and vowels lead to various sounds due to the tone; for example, <*mā*> and <*mǎ*> refer to "妈 (mother or mam)" and "马 (horse)". However, compared to English the intonation language, Mandarin does not have lexical stress. Researchers find that although Mandarin speakers employ acoustic cues such as duration, intensity, fundamental frequency and vowel quality, they still produce less native-like stress patterns [8]. For instance, "object" with two classes, both noun (OBject) and verb (obJECT), its stress position changes the acoustic prominence of the syllables. Mandarin speakers produce such contrast differently from native speakers or even neglect this detail.

3.3 Positive Transfer

Although Mandarin and English are significantly different from each other, they share several consonantal articulatory features. As a number of shared consonants with similar articulatory places and manners, Mandarin-speaking learners meet few troubles acquiring proficiency in them, even at their initial stage of learning. Take */m/*, */n/*, */f/* and */l/* for instance, all of them occur in both Mandarin and English with highly analogous articulatory gestures. When the sounds of L2 are considerably similar to L1 categories, L2 sounds are assimilated to existing L1 phonological categories rather than being regarded as an entirely new one, which is in line with Flege's study. Some English monophthongs, a speech sound that consists of only one vowel sound, are akin to Mandarin vowels in acoustical and articulatory terms; hence this allows Mandarin-speaking learners to assimilate L2 sounds to the existing L1 vowel categories during their acquisition. For example, */i/* in Mandarin and */iː/* in English share strikingly similar tongue position and lip configuration, truly bringing benefits to the first-stage learners.

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4. The Impact of Regional Dialects on English Pronunciation Acquisition

4.1 Cantonese and English Pronunciation Acquisition

4.1.1 Phonological Features of Cantonese

With a rich and highly organized phonological inventory at the segmental level, researchers propose that the Cantonese consonantal system is essentially structured on an aspiration contrast instead of the voicing contrast [9]. In addition to maintaining a well-developed inventory of nasals, fricatives, glides, and liquids, stops occur in aspirated and unaspirated pairs, such as */p/–/pʰ/*, */t/–/tʰ/*, and */k/–/kʰ/*. The vowel system includes front-rounded vowels like /y/ and /œ/, as well as differences in vowel height, backness, and lip rounding. The segmental system of Cantonese is distinguished by its internal regularity and stable phonology rather than just having a large number of phonemes. With strongly constrained syllable structure, one of the most distinctive features of Cantonese phonology, researchers demonstrate that the Cantonese syllables conform to a regular phonotactic pattern to a high degree [9]. Meanwhile, some also highlight that it is vital to attach great importance to syllable structure as a central organizing rule of Cantonese, whose syllables consist of an optional onset, a vocalic nucleus and a highly restricted coda [10]. There are a limited number of syllables that could serve as a coda, involving nasal /m, n, ŋ/ and the unreleased stop /p, t, k/; therefore, Cantonese phonology reflects a high degree of structural regularity with syllables serving as the principal domain of phonological organization. Cantonese, as a tone-dominant language, is different from many other Chinese varieties in the following aspects [11]. To begin with, there is a severely complex tonal specification throughout the language for almost every syllable is associated with a lexical tone. Secondly, there is no phonological counterpart of a neutral-tone category similar to that found in Mandarin for Cantonese lacks a systematic distinction between stressed and reduced syllables. Thirdly, the language shows a close relationship between syllables and lexical units and a strong trend toward monosyllabicity.

4.1.2 Negative Transfer

One of the distinct challenges in plosive acquisition is clearly recognized as final voiced stop devoicing. Study shows that because of the lacking voiced plosives in Cantonese phonological inventory and only voiceless plosives given the access to the final position of the syllables, Cantonese-speaking learners persistently substitute the final voiced plosives */b, d, g/* in English with their voiceless counterparts */p, t, k/*, which directly neutralizes the voicing contrast in minimal pairs like rope/robe and mate/maid [12]. However, syllable-initial voiced plosives also undergo devoicing to a lower extent. Researchers also point out that at the phonological level, all final plosives in Cantonese are unreleased, which means no airflow is produced following the formation of the articulatory closure [12]. Cantonese learners negatively transfer this L1 articulatory habit to English, generating English terminal plosives with a “swallowed” unreleased quality, with /step/ (step) pronounced as *[step̚]* and */nɒt/* (not) as *[nɒt̚]* as typical examples, as further explained in the section on learning challenges. This transfer further worsens the semantic confusion caused by devoicing and weakens the voicing contrast of final plosives. The paper explicitly documents inter-group variation in Cantonese phonology: especially among younger Cantonese speakers, the contrast between syllable-initial nasal */n/* and lateral */l/* is neutralised, and the two sounds function as free variants. Researchers demonstrate explicitly the inter-group variation in Cantonese phonology, especially among the younger speakers, neutralization of the distinction between syllable-initial nasal */n/* and lateral */l/*, functioning as free variants [12]. Such negative transfer of L1 leads learners to commonly substitute word-initial */n/* with */l/* in English, confusing word pairs like nine/line and knife/life. Meanwhile, word-initial */l/* may also take on a nasal quality and surface as a nasalized lateral.

4.1.3 Positive Transfer

As it has been mentioned above, the Cantonese plosive system, whose core distinct feature is aspiration, only involves voiceless plosives, forming a phonemic opposition between aspirated */pʰ, tʰ, kʰ/* and unaspirated */p, t, k/* [9]. Such a phonological feature enables Cantonese-speaking learners to map onto the two sets of allophones of English voiceless plosives. English voiceless plosives */p, t, k/* appear as unaspirated allophones after */s/* (e.g., speak, stay, sky), yet must be aspirated in stressed syllable-initial position (e.g., peak, team, key). As native Cantonese speakers, who do not need to learn new articulatory gestures, they have already acquired the phonemic-level skill, the articulatory regulation of aspiration. Therefore, learners could naturally grasp the

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allophonic patterns of English voiceless plosives by mapping L1 aspirated plosives onto English word-initial voiceless plosives, while mapping L1 unaspirated plosives onto post-*/s/* plosives. Compared to L1 backgrounds, a phonemic aspiration confers an exceptional positive transfer advantage. As a prototypical tone language, Cantonese with six distinctive lexical tones, involving pitch height, direction and contour, straightforwardly determines lexical meaning [9]. Native speakers grasp pitch perception and production control maturely due to their daily and enduring L1 acquisition; hence, they obtain relatively higher sensitivity to fundamental frequency variation. Such property fosters positive transfer, so that Cantonese-speaking learners are more likely to detect differences in English intonational contours. Furthermore, intonational patterns, like declarative falling tone, interrogative rising tone and fall-rise tones, could be more accurately distinguished by learners whose performance in intonation perception and imitation is much more perfect.

4.2 Wu Dialect (Jiangsu-Zhejiang-Shanghai Area) and English Pronunciation Acquisition

4.2.1 Phonological Features of Wu Dialect

The preservation of a contrast between voiced and voiceless obstruents is one of Wu Dialect's most notable phonological characteristics and phonemic contrasts like */p-b/*, */t-d/*, and */k-g/* exist in many Wu varieties. Acoustic analyses confirm that the so-called "voiced" consonants are consistently differentiated from voiceless unaspirated consonants, proving that the voiced obstruent contrast is still a fundamental element of Wu phonology [13]. With contrasts such as */pa/* versus */ba/* or */ta/* versus */da/* in some Wu varieties, Wu speakers routinely identify consonants based on voicing. The phonological function of phonation type is another significant aspect of the Wu Dialect. Researchers contend that breathy phonation and other laryngeal changes are often linked to the so-called voiced consonants in Wu, rather than only vocal-fold vibration [13]. Spectral analyses find significant acoustic variations at the onset of vowels following voiced and voiceless consonants, revealing that the contrast incorporates both phonation and voicing differences. For instance, a syllable can be realized as a modal *[pa]* or as a breathy *[b̤a]*. As Wu speakers, therefore, the difference includes variations in voice quality as well as whether or not the vocal folds vibrate. The register system of Wu Dialect is a further essential feature. Regarding the investigation, the seven citation tones, which can be classified into upper register and lower register (the lower ones are frequently characterized by depressed pitch onsets and non-modal phonation, such as breathy voice), are distinguished by pitch contours [14]. For instance, even when the two syllables exhibit falling pitch contours, one might be in the upper register and the other in the lower. Typically produced with a lower pitch onset, the latter one may also show breathy phonation.

4.2.2 Negative Transfer

One of the major challenges Wu-speaking learners have to overcome is over-reliance on phonation type during speech categorization. The distinction between voiced and voiceless obstruents in Wu Dialect is accompanied by voicing as well as by variations in voice quality, like breathy phonation [13]. Furthermore, researchers discover that Wu-speaking learners actively use voice-quality cues in speech classification, and that phonation constitutes a perceptually significant dimension across languages [15]. Hence, instead of solely relying on two crucial cues in English stop perception, aspiration and voice onset time (VOT), learners might fully comprehend English consonantal differences through phonation. However, this might cause under-aspiration of voiceless stops, non-native breathy realizations of voiced stops, and over-reliance on voice quality for identifying English obstruents. For example, learners produce *[b̤æt]* rather than */bæt/* (bat) due to over-reliance on phonation. As Wu Dialect preserves a phonemic voicing contrast, the speakers acquire a stable category of voiced consonants from an early age. According to Flege's *Speech Learning Model* (SL), learners often assimilate similar L2 sounds into an existing L1 category rather than establishing a new phonetic category [1]. Consequently, learners might combine several English voiced consonants into a single L1 category based primarily on voicing, ignoring variations in articulatory manner. For example, learners overlook the fricatives in English and concentrate their focus on voiced only, producing *[w]* instead of */v/*, *[d] i*nstead of */ð/*, or *[dz]* instead of */z/*.

4.2.3 Positive Transfer

The systematic description of Wu Dialect (Lili Wu Dialect, spoken in a town named Lili) states that an essential phonetic characteristic of Northern Wu Dialect is the three-way laryngeal contrast of obstruents (including stops and affricates), voiceless unaspirated, voiceless aspirated and voiced [16]. With the stable phonation patterns and perceptual categories of voiced obstruents, native Wu speakers can detect the phonatory

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distinctions between voiceless and voiced obstruents. Such L1 phonetic experience is beneficial to L2 phonetic acquisition, accelerating learners' proficiency in the voicing contrast system of English stops and affricates. For example, the minimal stop contrast in Wu, voiceless unaspirated */p/* and voiced */b/*, can be transferred to the distinction between English */p/* (pen /pen/) and */b/* (ben /ben/). The Wu Dialect's fricatives exhibit a two-way laryngeal contrast between voiceless and voiced, according to the acoustic study. In word-initial position, voiceless fricatives are produced with modal voice, whereas voiced fricatives are accompanied by a slight breathiness. Meanwhile, acoustic measurements reveal that the proportion of frication duration in total syllable duration is significantly higher for voiceless fricatives than for voiced ones, forming a stable acoustic contrast [16]. The articulatory control and perceptual markers of fricative voicing contrast have been mastered by native Wu speakers. Consequently, learners may appropriately create and comprehend paired voiceless and voiced fricatives in English with the aid of this L1 experience.

4.3 Brief Discussion

Mandarin-speaking learners and dialect-speaking (Cantonese and Wu Dialect) learners encounter significantly different types of challenges in terms of English pronunciation acquisition, yet each group develops its distinct advantages. According to the existing experimental data and findings, people could not explicitly conclude that dialect-speaking learners face greater difficulties than Mandarin-speaking learners in acquiring the pronunciation of English as an L2. Though dialect speakers truly exhibit negative transfer due to their L1 phonological categories, they simultaneously possess positive transfer which Mandarin speakers do not demonstrate. Hence, herein solely lie different types rather than different degrees.

5. Pedagogical Inspirations

In terms of pedagogy, people should critically reconsider the existing educational structure of English pronunciation acquisition, or the implicit Mandarin-centered structure. According to Rosina Lippi-Green, a standard language is an ideological construct influenced by social power dynamics rather than a structurally superior form of language [17]. Mandarin is unintentionally regarded as the standard for measuring other dialects, because Mandarin is gradually viewed as the sole phonological starting point for Chinese learners. However, such equivalence without linguistic justification is an extension of Standard Language Ideology into pedagogical practice. Therefore, instruction should acknowledge dialects like Cantonese and Wu Dialect as legitimate linguistic systems rather than as departures from Mandarin. It is important to avoid the imposition of a single norm that might force the learners under pressure to perform well. Secondly, to prevent misunderstandings of L1 transfer processes, English pronunciation instruction should move from holistic assessments of learner ability to a componential study of phonological competence. Terence Odlin proposes that language transfer, as a selective phenomenon, takes place in subsystems like phonology, lexicon, and syntax, yet not as a single process that affects the whole linguistic system [18]. Hence, it is a simplification and misunderstanding of second language acquisition processes to regard a specific dialect as naturally making English harder to learn. In terms of reality, various Chinese varieties make different impacts on English pronunciation, which are typically restricted and influence syllable structure or prosodic features rather than an overall linguistic ability. Pronunciation instruction should break down competence into multiple levels and pinpoint dialect-specific transfer patterns, which helps to foster much more targeted pedagogical intervention. Finally, the bias that connects accentedness with linguistic deficiency needs to be revised in English pronunciation instruction. There is no notable relation between accentedness and intelligibility in L2 speech, which means that a more noticeable accent does not definitely lead to less effective communication [19]. However, in reality, listeners evaluate language ability based on the prominence of phonetic distinctions, leading to systematic cognitive bias. With certain dialect backgrounds, learners might display perceptually apparent phonetic elements in English pronunciation, which are often misinterpreted as having lower overall proficiency. Accordingly, assessment systems in pronunciation instruction should accurately reflect learners' language competency via shifting focus from native-likeness to communicative intelligibility.

6. Conclusion

Throughout the whole study, the paper aims to confirm again that there are only differences in learning problems rather than hierarchical distinctions, and the widespread point that dialect-speaking learners face

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greater challenges than Mandarin-speaking learners is just a stereotype or prejudice. Mandarin as the standard language in China, still exhibits negative and positive transfer in English pronunciation acquisition as well as other Chinese varieties, such as Cantonese and Wu Dialect. Challenges learners have to overcome are determined by their L1 phonological categories rather than the L1 itself. In conclusion, this study tries hard to address cognitive bias and provide a relatively objective analysis of the impact of Mandarin, Cantonese and Wu Dialect on English pronunciation learning, in terms of phonological features and positive/negative transfer of L1. Furthermore, the findings also try to offer practical, differentiated, and just guidance for English phonics instruction. The limitations of the paper are explicit, as it only involves two kinds of Chinese varieties, Cantonese and Wu Dialect, resulting in an insufficient sample size. However, it is worth noting that the numerous dialects in China help to enrich Chinese cultural diversity. It is a pity to fail to integrate specific linguistic analysis, such as comparing pronunciation recordings between different learning groups, and solely rely on theoretical analysis. Moreover, this study does overlook individual elements including personal learning motivation, personal sensitivity to pronunciation and so on. And the analyses of negative transfer and positive transfer of Mandarin, Cantonese and Wu Dialect are not comprehensive; while this study just selects and lists the most distinctive aspects to facilitate the understanding of readers. Meanwhile, the analyses of phonological features display a similar shortcoming. Regarding the future, it is prudent to expand the coverage of dialects, exploring their impact on English pronunciation acquisition in comparison with Mandarin, which could contribute to a much more accurate and scientific outcome. Focus should also be put on the combination with corpora such as recordings and practical tests so as to conduct quantitative analysis of pronunciation errors. Furthermore, the interactions between individual differences and L1 background are worth investigating as well, which possibly influence L2 pronunciation acquisition.

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Insecure Attachment, Mindfulness, and Resilience Among Adolescents: A Moderating Mechanism Review

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Abstract

Many teenagers today struggle with mental health issues: anxiety, depression, emotional dysregulation, relationship difficulties, and school-related stress are common. A key underlying cause is insecure attachment. When teens are insecurely attached, they tend to have low resilience and more emotional problems. Resilience is a protective factor for mental health. It is the dynamic ability to cope effectively under stress, and it can buffer the negative effects of insecure attachment and life stress on anxiety and depression. Resilience is not fixed from birth. Research suggests that mindfulness is a relatively stable trait that may predict resilience, and the two are closely linked. In this review, we explore how attachment styles relate to resilience in adolescents. We ask whether high mindfulness can reduce the harmful impact of insecure attachment on resilience. Theoretically, this adds a moderating mechanism; practically, it provides a basis for school-based mindfulness interventions targeting at-risk youth. The findings of this paper can offer actionable psychological guidance for frontline school counselors and mental health educators working with adolescents.

Keywords

mindfulness, insecure attachment, psychological resilience, adolescents, emotion regulation

1. Introduction

In recent years, adolescent mental health has become a growing concern. Many young people show poor stress tolerance, imbalanced emotion regulation, and negative rumination. According to the World Health Organization, about one in seven individuals aged 10-19 has a mental disorder such as depression or anxiety-a global priority [1]. A large body of work links these emotional difficulties to insecure attachment. Early attachment quality deeply shapes how individuals cope and regulate emotions when facing pressure. Secure individuals often seek support and bounce back quickly. Insecure individuals, in contrast, tend to use maladaptive strategies, which raises their risk of internalizing problems like depression and anxiety. High resilience can offset these negative psychological effects. It helps people break out of negative thought cycles and rebuild adaptive cognition and regulation [2]. Historically, attachment has been seen as the developmental foundation for resilience [3]. Secure attachment fosters a stable internal working model [4], creating positive expectations about self-worth and external support-a good basis for resilience. Insecure attachment, however, promotes negative self-views, weakens emotion regulation and stress tolerance, and thus lowers resilience, increasing the risk of internalizing disorders. So attachment and resilience are clearly connected. But attachment is an early-formed relational variable that is hard to change quickly. Mindfulness, however, is a

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trainable psychological strategy that can also play a protective role. Studies confirm that mindfulness cultivates non-judgmental present-moment awareness, curbs negative rumination, and prevents people from staying stuck in negative thinking [5]. It also enhances emotional acceptance and recovery from stress, thereby boosting resilience and lowering risks of anxiety and depression.

Most existing studies examine only the separate effects of attachment or mindfulness on resilience. Few consider how both together affect adolescent resilience. Adolescence is a period of high plasticity, yet we lack analysis on how mindfulness might buffer insecure attachment and foster resilience. No study has specifically tested whether mindfulness can offset the negative effects of insecure attachment. So our review focuses on adolescents. We aim to examine the moderating role of mindfulness in the attachment-resilience relationship. Can high mindfulness buffer the negative impact of insecure attachment? This could compensate for early attachment disadvantages and promote healthy development.

2. Attachment Style and Adolescent Resilience

Attachment theory holds that early relationships with caregivers influence emotion regulation and stress coping throughout life. Ainsworth et al. divided attachment into secure and insecure, with insecure including avoidant, anxious, and disorganized types [6]. Secure individuals tend to seek support and regulate emotions effectively under stress; insecure individuals tend to use less adaptive strategies and struggle to recover. Among insecure types, anxious and avoidant individuals handle emotions differently. Anxious people use hyperactivating strategies, for example, excessive reliance on others for security. Avoidant people use deactivating strategies, suppressing emotions or avoiding intimacy to appear independent. These strategies look different, but both weaken recovery from stress. Improving attachment security is thus a core therapeutic goal. Many studies show that insecure attachment is a risk factor for low resilience. Mikulincer and Shaver explained from an attachment perspective how insecurity increases pathology risk by weakening emotion regulation and coping, thus reducing resilience [7]. Godor et al. studied 390 early adolescents (ages 9-12) on parent-child attachment, resilience, and daily coping. Their path analysis showed that attachment anxiety predicted all three resilience subscales (mastery, relatedness, emotional reactivity), while avoidance predicted only two, suggesting that anxiety has a broader impact [8].

Findings from Chinese samples align with this. One survey of 609 junior high students found that secure attachment had significantly higher resilience than all three insecure types. Correlation analysis showed that attachment affinity positively correlated with resilience factors, while anxiety negatively correlated [9]. Another canonical correlation study with 570 high school adolescents found 44.1% shared variance, meaning attachment explains a large portion of resilience differences [10]. Researchers have also explored mechanisms. Zhang et al. found that secure teens use cognitive reappraisal more, which supports resilience under stress; insecure teens use expressive suppression more, weakening recovery [11]. Li et al.'s meta-analysis confirmed the attachment-resilience correlation, noting that the negative association between anxiety and resilience is stronger than that for avoidance [12]. In brief, secure attachment helps teens develop higher resilience, while insecure attachment-especially anxiety and avoidance-lowers resilience. And anxiety has a more pervasive negative effect than avoidance.

3. Mindfulness Level and Resilience

Mindfulness is a kind of awareness that comes from intentionally attending to the present moment without judgment [13]. As a stable trait, it helps people maintain psychological distance under stress through decentering and emotion regulation. Decentering allows individuals to observe their inner experience from a third-person perspective, rather than being overwhelmed by emotions [14]. Emotion regulation is equally important: mindful people recognize and accept emotional changes more effectively and use fewer avoidant or suppressive strategies [15]. Empirical work continues to document a positive association between mindfulness and resilience. Xu surveyed 1,010 Chinese secondary school students and ran a mindfulness yoga intervention. She found that mindfulness did not directly reduce negative emotions; instead, it worked indirectly by improving cognitive reappraisal and resilience, which then reduced depression and anxiety [16]. Mindfulness exercises are low-cost and easy to implement in schools, making them a feasible intervention. Another study with 584 adolescents found that mindful awareness enhances resilience by increasing cognitive reappraisal and decreasing expressive suppression [17]. Li et al. surveyed 674 high school students on trait

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mindfulness and test anxiety. Their structural equation model identified three pathways: cognitive reappraisal, resilience, and a chain from reappraisal to resilience-all reducing test anxiety [18]. Liu et al. conducted a 10-week controlled trial with 125 Chinese students and found that school-based mindfulness training significantly raised both mindfulness and resilience, and reduced learning burnout [19]. Synthesising these empirical outcomes, we can observe that mindfulness appears to be an important protective factor for resilience. The positive correlation is stable and operates through various mechanisms like emotion regulation and decentering. If mindfulness can repair cognitive and emotional abilities, can it also offset the negative effects of insecure attachment? And does it play a moderating role in the attachment-resilience link? We turn to these questions next.

4. The Moderating Role of Mindfulness in the Attachment-Resilience Relationship

The previous sections confirmed that both attachment style and mindfulness are separately related to resilience. But none of those studies directly tested whether mindfulness moderates that relationship. We propose that mindfulness might act as a cognitive-emotional repair tool, buffering between insecure attachment and low resilience, gradually restoring the safe base and improving resilience-thus compensating for early attachment disadvantages. It should also be kept in mind that most existing correlational research cannot firmly establish causal directions, which limits the strength of current inferences. Still, indirect evidence is suggestive. DeMaranville et al. studied 453 high school students and found that attachment predicted resilience indirectly through meditation and adherence to the Five Precepts. Meditation and precept-keeping mediated the anxiety-resilience link, suggesting that mindfulness practices are key protective mechanisms. Secure individuals practiced more, but insecure individuals could also achieve high resilience through long-term meditation [20].

Another review examined mindfulness, loving-kindness, and compassion meditation in adults. It identified two pathways: first, buffering attachment insecurity-reducing anxiety and avoidance; second, reshaping internal working models to enhance security. Non-judgmental awareness helps anxious people stop overfocusing on negative emotions, and helps avoidant people let go of emotional isolation and accept support [21]. Yang and Oka found that trait mindfulness positively predicts resilience by building internal emotional awareness and acceptance. For anxious individuals, mindfulness reduces rumination; for avoidant individuals, it fosters acceptance of inner experiences and gradually lowers defenses. Both insecure types can benefit: high mindfulness helps repair attachment trauma and enhances resilience [22]. Campbell ran a school mindfulness program and found that teens with high attachment anxiety showed greater emotional improvement-possibly because they had a higher baseline emotional burden. But short-term intervention was not enough for comprehensive regulation change; long-term practice might be needed to slowly shift cognition and attachment responses [23]. All these findings hint at an interaction between mindfulness and attachment in shaping resilience. Therefore, we hypothesize that mindfulness moderates the attachment-resilience relationship.

5. Discussion

Our review suggests that insecure attachment is a risk factor for resilience, while mindfulness is a protective factor, and mindfulness may moderate the link. We also propose the concept of an internal safe base. Attachment theory says secure individuals have one; insecure individuals have a damaged one. We argue that mindfulness can build or repair this safe base through present-moment awareness and acceptance of one's own emotions. Yousefi and Hasani surveyed about 14,000 Iranian adolescents and found that mindfulness directly predicted mental health, and also indirectly through cognitive flexibility, emotion regulation, and self-compassion [24]. Adult samples show similar mechanisms. Wang et al. used cross-sectional and longitudinal designs with over 1,600 participants and found that decentering mediates the effect of mindfulness on emotional distress-viewing thoughts as temporary events reduces negative emotions [25]. Nila et al. found that MBSR improved distress tolerance and resilience, with mindfulness fully mediating these outcomes [26]. Mo and Liu's review conceptualized resilience as recoverability, vulnerability, and interplay. They argued that open-monitoring meditation reduces vulnerability and enhances interplay via decentering, while focused-attention meditation enhances recoverability through executive control. This explains why mindfulness can improve resilience from multiple angles and be useful in the context of insecure attachment [27].

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Practically, mindfulness training can be a valuable way to enhance adolescent resilience, especially for insecurely attached youth. Schools could incorporate these methods. But educators should use differentiated approaches. For anxious teens-who tend to depend on others and get lost in emotions-training should emphasize non-judgmental awareness, helping them observe emotions without being controlled. For avoidant teens-who suppress feelings and avoid closeness-training should focus on accepting inner experiences and gradually reducing defenses. Mindfulness practices come in many forms-meditation, breath awareness, yoga-and are easy to learn and implement. Teachers should pay extra attention to insecurely attached students and help them build or repair emotion regulation in a safe environment. It is also worth noting that mindfulness practices are well accepted by adolescents. Many online communities and meditation podcast comments show young users sharing positive experiences: reduced exam stress, better mood, inner calm, and improved focus, which aligns with our theoretical reasoning.

6. Conclusion

After reviewing the literature on attachment, mindfulness, and resilience, we draw the following conclusions. First, insecure attachment is a major factor contributing to low resilience in adolescents. Secure individuals have an internal safe base and recover quickly from stress; insecure individuals lack this base and struggle to recover. Among insecure types, anxiety has a broader negative impact than avoidance. Second, mindfulness and resilience are positively associated. Mindfulness helps people stay calm, observe themselves, and recover faster through decentering and emotional awareness-mechanisms that have been validated in adolescent samples. Third, and most importantly, we propose that mindfulness moderates the attachment-resilience relationship. High mindfulness can buffer the negative effects of insecure attachment. The ability to observe and accept one's emotions can compensate for attachment deficits. Building an internal safe base through mindfulness offers a pathway for later-life repair. These findings provide theoretical and practical guidance for school mental health education. Schools should consider integrating mindfulness training into their curricula to help students become more aware of themselves and their emotional flow. For insecurely attached students, mindfulness is a simple and scalable intervention. Future research can test this moderation effect with experimental designs-for example, group interventions that distinguish anxious vs. avoidant attachment, and compare differential effects of mindfulness training. This would provide more evidence for precise school-based implementation.

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The Bidirectional Association Between English Learning Motivation and Foreign Language Anxiety Among Secondary Students: Classroom Intervention Strategies

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Abstract

This study aims to investigate the interaction between motivation and anxiety among secondary school students in second language acquisition (SLA), with the intervention strategies that teachers can adopt accordingly. Research on motivation and anxiety in second language acquisition (SLA) has attracted considerable attention from scholars. However, existing studies have primarily focused on university students, while research involving secondary school students remains limited and requires further exploration. Moreover, current research tends to emphasize the underlying mechanisms of the interplay between motivation and anxiety, leaving a gap in effective practical interventions that need to be further investigated. This paper systematically reviews the historical and recent developments in domestic and international research on motivation and anxiety in second language acquisition (SLA), categorizing key research directions and theoretical frameworks in the field. By integrating existing emotional research across all age groups with the unique characteristics of secondary school students, this study proposes targeted intervention measures specifically for this student population. Grounded in solid theoretical foundations, this paper integrates insights from SLA and educational psychology, summarizing the evolution of research on affective factors in second language learning and reviewing established intervention strategies. It also identifies potential future research directions and unresolved issues requiring further investigation. The goal is to provide future researchers with a comprehensive reference and deeper theoretical support regarding SLA among secondary school students.

Keywords

SLA, secondary school, language anxiety, learning motivation, teaching intervention

1. Introduction

In second language acquisition (SLA), affective factors play an irreplaceable role, with motivation and language anxiety directly influencing the efficiency of language learning. During secondary education, a second language is often taught as a core subject, exposing students to prolonged academic pressure and standardized testing across all four language skills, listening, speaking, reading, and writing. Adolescents' heightened self-awareness makes them fear mistakes and negative evaluations from others, which undermine their motivation and intensify their anxiety during second language learning. Most secondary school teachers currently lack a comprehensive approach, often treating emotional guidance and motivational strategies separately, resulting in unsatisfactory outcomes. In academia, there is a notable scarcity of review literature

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specifically addressing the interaction between learning motivation and language anxiety among secondary school students in second language classrooms, with existing studies generally focusing on motivation and anxiety across all subjects and educational stages in a fragmented manner [1]. To address this research gap, this paper clarifies the core theoretical foundations in educational psychology that underpin secondary students' motivation and language anxiety in second language learning, and further explains how relevant theories interpret the intrinsic relationship and bidirectional influence between these two constructs based on the characteristics of English learning among secondary school students. This study also explores whether individual variables such as English proficiency level and classroom learning environment affect the interaction between English learning motivation and language anxiety of secondary school students, and sorts out effective classroom intervention strategies summarized by existing research to enhance students' learning motivation and alleviate their language anxiety in secondary English classrooms. In addition, the paper analyzes the current limitations of affective research on secondary students' second language learning in terms of research design, measurement methods and intervention experiments, and explores new research directions aligned with educational psychology theories to better suit secondary English teaching. Thus, this study will fill the gap in research on emotional interaction in second language learning among secondary school students, grounded in Self-Determination theory and Social Cognitive theory and enriching their interpretation and application within the context of secondary education. Based on the unique psychological characteristics of adolescents and the exam-oriented teaching environment, it proposes practical classroom intervention strategies for secondary school teachers. This paper first introduces the theoretical foundation of the study, clearly establishing the research base by distinguishing between educational psychology and SLA theories and focusing specifically on the population of secondary school students. Secondly, it reviews existing literature, synthesizing previous research on anxiety and motivation among secondary students as well as their current status in second language learning to form mutually supportive research evidence. Finally, based on prior studies and the specific characteristics of secondary school students, a set of implementable teacher response strategies will be developed.

2. Theoretical Background

This study integrates research perspectives from linguistics and educational psychology, drawing on four classic frameworks as an analytical basis: two linguistic theories (Krashen's Affective Filter Hypothesis and the Second Language Motivation Self-System Theory) and two educational psychology theories (Self-Determination Theory and Bandura's Social Cognitive Theory).

2.1 Linguistics Core Theories

2.1.1 Affective Filter Hypothesis

The affective filter hypothesis was first proposed by Dulay and Burt, and later Krashen integrated and refined it into one of his five input hypotheses in SLA [2]. According to Krashen's view, comprehensible input is a prerequisite for language acquisition [3]. Language learners typically possess a psychological barrier that prevents them from fully absorbing input, this is known as the affective filter [2]. Only assimilable intake can enter the language acquisition mechanism and ultimately result in successful second language learning [3]. Four main factors primarily influence the level of this filter: motivation, attitude, anxiety, and self-confidence. Thus, when learners experience high anxiety, low motivation, and weak self-confidence, the filter becomes highly active, blocking input from reaching the acquisition process. Conversely, when learners are highly motivated, confident, and experience low levels of anxiety, the filter is lowered, allowing input to be deeply absorbed [2]. This theory places motivation and anxiety within the same dimension of SLA research, laying the foundation for the present study. As Gardner and Krashen proposed, a bidirectional cycle: motivation directly affects students' focus, while high levels of anxiety distract learners and diminish their willingness and motivation to learn [3].

2.1.2 L2 Motivational Self System

The Second Language Motivation Self System (L2MSS) was proposed by Csizér and Dörnyei based on empirical research conducted in Hungary, drawing partly from advances in applied linguistics and psychology [4]. Building upon the possible selves theory and self-discrepancy theory, Dörnyei divided the future self into two dimensions, ideal and ought-to, and integrated contextualized English learning experiences to reconstruct

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the concept of L2 motivation [5]. This theory integrates motivation into three interrelated dimensions: Ideal L2 Self, Ought-to L2 Self, and L2 Learning Experience. Specifically, the Ideal L2 Self represents intrinsic motivation, which is the most stable and enduring one; it refers to the future vision of being able to use a second language fluently. The Ought-to L2 Self refers to traits learners believe they must possess to meet others' expectations, associated with avoiding negative evaluation [6], and is driven by external obligations. The L2 Learning Experience reflects current affective states during learning and constitutes an internal motivator shaped by situational factors such as teachers, curriculum design, and peer success [5]. Dörnyei validated its internal logic: the Ideal L2 Self positively influences the L2 Learning Experience, which in turn strongly predicts intention to exert effort. Apart from internal motivation transmission, the three dimensions also generate disparate anxiety levels. Regarding emotional pathways, the Ought-to L2 Self significantly increases anxiety, whereas the Ideal L2 Self and positive L2 Learning Experience are effective in reducing anxiety [5]. This theory abandons the single logic of explaining motivation merely through external group acceptance, and instead introduces a new paradigm centered on internal self-visions, the L2MSS model, integrating motivation and anxiety research in a coherent framework.

2.2 Educational Psychology Core Theories

2.2.1 Self-Determination Theory

The Self-Determination Theory was proposed by Deci and Ryan. It broke the binary opposition theory of internal and external motivations and proposed a continuous spectrum model, which refined the classification of motivations. It is not limited to linguistics but can also be applied to research in education and psychology [7]. The underlying logic of SDT is that for individuals to generate high-quality motivation, they must first satisfy three innate and universal basic psychological needs: autonomy, competence, and relatedness [8]. Specifically, autonomy means that learners have a sense of choice and their behaviors stem from self-identity rather than external coercion; competence means that individuals perceive that they have the ability to complete learning tasks and receive positive feedback and a sense of achievement; relatedness refers to safe interpersonal relationships, establishing safe and positive interpersonal connections with teachers and classmates. Noels pioneered a systematic presentation of the correspondence between the four learning orientations proposed by Clément and Kruidenier and the SDT motivation continuum. The core framework forms a continuous system based on the degree of self-determination, namely the motivation continuum ranging from no motivation and multi-level extrinsic motivation to intrinsic motivation. Among them, identified and intrinsic motivation is positively correlated with the willingness to continue learning, and negatively correlated with the anxiety level; external regulation has a relatively weak relationship with the maintenance of learning intention [7]. To date, SDT has gained widespread recognition in the field of language education. It overcomes the shortcomings of traditional orientation theories and differs from traditional theories that only focus on and describe learning goals. SDT focuses on how psychological mechanisms predict variables such as motivation level, learning persistence, and classroom anxiety, and possesses verifiable causal logic [7].

2.2.2 Social Cognitive Theory

Bandura proposed a dynamic conceptual framework of triadic reciprocity, presenting the interaction among the three influencing factors of behavior, environment, and individual [9], and centered on human subjectivity. Specifically, personal processes are the core carrier of motivation, associated with seven concepts including goals and self-evaluation of progress, self-efficacy as the core hub, social comparisons, values, outcome expectations, attribution and self-regulation, while behavioral processes belong to the result of motivation, generally pointing to factors such as activity selection, effort investment, and persistence, and environmental processes are related to role models, teaching guidance, and rewards. In this model, the three domains have a mutual dual influence: thoughts shape behavior and the surrounding environment; behavior changes thoughts and the environment; the environment reshapes cognition and behavior. The motivational process is completely within the influence scope of personal factors. After 2000, Bandura's triadic reciprocity framework was widely applied in the research of SLA, using self-efficacy as a mediating personal factor connecting the classroom environment, learning behavior, and language achievement [10]. Raoofi transferred the SCT framework to foreign language learning, constructing a complete influence path covering classroom behavior, personal psychological factors, learning practice and final language scores. The final results confirmed that the strongest predictor of language scores was self-efficacy, while factors such as strategy training, peer guidance,

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and virtual learning environments, as auxiliary factors to enhance second language self-efficacy, also play important regulatory roles in foreign language learning [9].

3. Literature Review

3.1 Developmental Trajectory of Research on Motivation and Language Anxiety

This section chronologically reviews prior studies to clarify the evolving bidirectional relationship between L2 motivation and language anxiety, along with key academic debates. Early anxiety research yielded inconsistent conclusions. Chastain's foundational work found positive, negative, and negligible correlations between anxiety and SLA outcomes, while most early studies examined anxiety independently without exploring its interactive mechanisms with motivation [11]. 1986 represented a pivotal milestone in theoretical and methodological advancement. Horwitz et al. [12] systematically defined foreign language classroom anxiety as a context-specific, independent psychological construct encompassing learners' self-perceptions, beliefs, emotions, and behavioral responses, which differs from general or test anxiety. The team also developed the 33-item Foreign Language Anxiety Scale (FLAS) targeting speaking anxiety, test anxiety, and fear of negative evaluation, enabling quantitative assessment of classroom anxiety; nevertheless, the scale overlooks listening, reading, and writing anxiety dimensions. Since the 1990s, research has deepened understanding of language anxiety. MacIntyre and Gardner [13] adopted Tobias's three-stage cognitive model, demonstrating that anxiety affects the entire input, processing, and output stages of language learning rather than only oral production, sparking sustained scholarly debate regarding the causal link between anxiety and learning performance [11,14]. Longitudinal research by Sparks et al. [15] validated that first-language learning difficulties predict subsequent L2 anxiety. MacIntyre and Gardner [13] further experimentally confirmed that anxiety significantly impairs learners' performance across all learning stages. Collectively, existing evidence supports a cyclical mechanism wherein language anxiety concurrently acts as both a cause and outcome of suboptimal learning performance [11]. Recent scholarship has broadened research scope beyond oral anxiety to other language skills. Cheng et al. [16] investigated the association between general classroom anxiety and L2 writing anxiety, and Cheng [17] established the SLWAT scale for targeted writing anxiety measurement. Meanwhile, Elkhafaifi [18] developed the FLLAS scale to assess listening anxiety, complementing qualitative inquiries into listening-related affective stress. Methodologically, conventional studies rely heavily on static, retrospective quantitative designs [11]. To address this limitation, MacIntyre and Legatto [19] proposed a dynamic real-time measurement approach combining self-reports, observer ratings, and video analysis, which effectively captures the fluctuating nature of language anxiety and overcomes the constraints of traditional static research paradigms.

3.2 Internal and External Variables Moderating the Interaction Effect

Motivation and anxiety represent two opposing psychological states in second language learning. Positive learning motivation encourages students to engage actively in learning tasks and tackle academic difficulties, whereas language anxiety originates from concerns over negative evaluation and poor academic performance, leading students to resist knowledge input and avoid learning challenges [20]. At the individual level, secondary school students' L2 learning emotions change dynamically with grade progression. MacIntyre and Baker [21] found gradual reductions in L2 anxiety and improvements in perceived communicative competence among Grade 7 to 9 students, alongside steady growth in learning motivation and willingness to use English. Xu [22] further illustrated that seventh-grade students experience greater adaptive and test anxiety than eighth graders, primarily due to the primary-to-secondary school transition; such adaptive anxiety naturally declines as students acclimate to new learning rhythms and instructional modes. Language proficiency also moderates the motivation–anxiety relationship. Students with weak linguistic foundations frequently encounter learning frustration, which undermines sustained learning motivation [23]. Difficulties in grammar comprehension, pronunciation imitation, and vocabulary acquisition similarly trigger negative emotions and low learning engagement [24]. Consistently, low-anxiety learners demonstrate stronger overall language competence, adaptive capacity, reading comprehension, and linguistic memory. Gender constitutes another influential individual variable. Longitudinal evidence confirms stable gender disparities in adolescent L2 learning: females possess stronger intrinsic motivation and more positive learning attitudes yet exhibit higher classroom anxiety regarding oral mistakes and linguistic deficiencies, while males show relatively lower motivation but milder anxiety symptoms [25,26,27]. At the environmental level, teacher support serves as the primary external

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factor moderating the motivation–anxiety interplay, mainly through standardized classroom management and targeted motivational guidance [28]. Fair classroom evaluation and supportive instructional practices effectively reduce students' test anxiety and enhance class-wide learning self-efficacy and self-regulation [29]. In contrast, teacher-centered lecturing, threatening classroom cues, and frequent public error correction create a restrictive atmosphere that suppresses learning initiative and exacerbates anxiety [30]. Mismatched teaching and assessment systems, such as communicative instruction paired with exam-oriented evaluation and impromptu oral quizzes, further heighten anxiety and demotivate students [30]. Diversified instructional approaches, including cooperative learning, layered tasks, low-pressure communication activities, and graded oral training, effectively alleviate the anxiety–demotivation cycle and sustain long-term learning engagement [30,31]. Additionally, immersive L2 classroom environments narrow the perceived gap between L1 and L2 learning, reduce foreign language anxiety, and continuously boost students' learning motivation [32].

3.3 Empirical Studies on Collaborative Interventions in Secondary English Classrooms

Current classroom interventions targeting secondary students' L2 motivation-anxiety interaction are predominantly developed based on the three dimensions of the L2 Motivational Self System (L2MSS), covering ideal self cultivation, ought-to-self regulation, and learning experience optimization. Cultivating students' Ideal L2 Self constitutes the core of affective intervention. Teachers can foster sustainable internal motivation by assigning attainable, stage-specific learning goals tailored to students' abilities, which prevents learning frustration and unnecessary anxiety. For adolescent learners, teachers can build positive L2 self-perceptions by setting classroom role models and incorporating cultural resources such as English songs and films. Such immersive classroom environments effectively mitigate anxiety and stimulate intrinsic learning interest. By contrast, the guiding role of the Ought-to L2 Self should be appropriately downplayed in teaching practice. Rooted in external pressures including parental expectations and exam demands, over-reliance on this extrinsic motivation leads to passive learning, intensified classroom anxiety, and diminished long-term learning enthusiasm [5,33]. Teachers are thus advised to reduce rigid mandatory requirements, minimize exam-oriented learning pressure, and help students internalize external learning demands into personal learning goals [34]. Optimizing the L2 learning experience is critical for simultaneous motivation enhancement and anxiety reduction. Differentiated teaching and personalized tasks enable students at all proficiency levels to gain a sense of achievement. Diversified activities including situational teaching, thematic salons and language contests replace repetitive drills, reducing learning burnout and creating a low-anxiety classroom atmosphere. Task-based teaching further shifts students' focus from error avoidance to practical language application, improving learning efficiency and alleviating situational anxiety. Based on Horwitz's three-component framework of foreign language anxiety [12], hierarchical interventions can target distinct anxiety types. Considering adolescents' high self-esteem and emotional sensitivity, teachers should adopt an error-tolerant approach in oral instruction, reducing public error correction and organizing low-pressure pair or group dialogues to relieve communication anxiety. To reduce the prevalent fear of negative evaluation, class ranking should be abandoned in favor of personalized, progress-focused feedback. For pervasive test anxiety, differentiated teaching designs are required to balance motivation cultivation and anxiety relief across student proficiency levels. Guided by Bandura's self-efficacy theory, targeted strategies can further reduce anxiety and strengthen learners' confidence. Layered learning tasks help students accumulate small learning achievements, fostering stable self-efficacy and transforming extrinsic motivation into enduring intrinsic drive. Process-oriented praise, rather than score-based evaluation, consolidates students' learning confidence and engagement. Teachers should offer more presentation opportunities and positive feedback for female students who tend toward self-denial to compensate for motivational deficiencies. Considering grade-based anxiety disparities, graded psychological intervention is recommended: seventh graders with higher adaptive anxiety require targeted emotional guidance, including in-class emotional regulation training, a non-competitive classroom atmosphere, regular psychological counseling, and one-on-one support for students with severe language anxiety.

4. Discussion

4.1 Consensus and Controversies in Existing Studies

From the perspective of affective factors in language learning, scholars have reached consistent conclusions that foreign language anxiety of secondary school students has a significant negative correlation with academic

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performance, and higher anxiety will weaken learning motivation and reduce second language academic results, making anxiety a powerful negative predictor of language learning achievement, as anxious emotion directly damages learners' classroom output, test performance and internal learning motivation. Researchers also recognize the mediating role of self-efficacy in the emotional path of SLA. L2 anxiety acts as a core mediator variable between self-efficacy and academic achievement. L2 self-efficacy is negatively correlated with anxiety and positively correlated with learning performance, and its core mechanism is that self-efficacy improves academic results by lowering anxiety levels. This conclusion is supported by Bandura's self-efficacy theory, which states that learning achievement is regulated by self-perceived learning ability through intermediate emotional variables [9]. Under the framework of social cognitive theory, scholars agree on the bidirectional correlation characteristics of self-efficacy. Higher self-efficacy restrains anxious emotions and promotes better learning outcomes, which explains the interactive linkage among language emotion, self-cognition and learning effects. Research based on L2MSS theory also forms a stable consensus targeting secondary school samples. Domestic and foreign studies all show that Ideal L2 Self ranks first among the three dimensions, while Ought-to L2 Self ranks last [5]. In terms of anxiety classification, students report the highest fear of negative evaluation, followed by communication anxiety and public test anxiety [12]. In addition, Ideal L2 Self and L2 Learning Experience show a moderate positive correlation with language proficiency, while Ought-to L2 Self has no obvious connection with academic performance [5]. Such stable mediating mechanisms provide a solid theoretical basis for classroom intervention centered on improving self-efficacy [9]. There are still theoretical conflicts in existing research on secondary students' SLA emotional interaction due to differences in research samples, age ranges and regional backgrounds. First of all, scholars hold conflicting views on the changing trend of anxiety with age. Some longitudinal studies covering junior and senior high school students argue that anxiety rises along with growing academic pressure, while field research focusing on local Chinese secondary schools proves that Grade 7 students have significantly higher anxiety than Grade 8 students [22]. Such inconsistent results originate from insufficient grade-segmented longitudinal tracking research, which also explains why most existing intervention strategies lack a differentiated grade-specific design. Secondly, international research proposes that moderate anxiety may generate facilitating effects on language learning, while empirical research based on Chinese secondary school samples only confirms the inhibitory impact of anxiety, without valid evidence to support the promotion effect of mild anxiety [22,33], so the functional influence of moderate anxiety remains inconclusive. Most mainstream relevant research takes university students as research objects and verifies that the Ideal L2 Self can effectively predict low anxiety [4,5], while targeted experiments on secondary school students fail to obtain the same significant correlation [33]. This difference comes from the developmental uniqueness of adolescent samples, whose self-concept is not fully mature, so the internal driving force of Ideal L2 Self cannot completely offset the pressure from examinations and further education.

4.2 Evaluation of Existing Intervention Strategies

Considering adolescents' mindset, relevant research promotes the formation of the self-images of cultural messengers and responsible learners under the L2MSS framework, which can cultivate students' Ideal L2 Self-image [35]. This spontaneously motivates students rather than passively preparing for exams. The commonly advocated stratified teaching methods and gender-differentiated guidance intervention, based on collective intervention, are further subdivided. Even if they cannot achieve personalized effects, they significantly enhance the intervention's effectiveness. Based on students' differences in second language motivation, anxiety levels, and second language performance, stratified tasks and differentiated emotional guidance are designed. This can simultaneously cater to students with weak foundations and top students, avoiding the frustration that students may experience due to uniform classroom standards [33,34]. At the same time, under such individualized teaching arrangements, students can reduce language anxiety and enhance motivation, while top students can also strengthen their confidence and motivation, thereby reducing the degree of academic polarization [33,34]. From relying on multimedia, enriching the classroom with foreign culture materials and establishing regular English interaction in the classroom to Chinese and foreign culture English classroom activities, such as oral interaction and cultural expansion strategies are easily implemented in the classroom, and easy to integrate into regular daily teaching. Teachers do not need to significantly adjust class hours and teaching plans, which is easy for front-line teachers to learn, operate, and promote [34]. Intervention strategies proposed by scholars are generally tailored to specific groups studied, so the sample lacks generalizability [22,33,34]. Wu's research and intervention were conducted exclusively with eighth-grade students from a

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single secondary school in Yulin, Shaanxi Province, making the sample overly narrow in terms of region and school type [33]. Xu's intervention targeted only students from one secondary school in Shenzhen, and his approach was heavily influenced by the unique socioeconomic backgrounds and educational environments of these students, making it difficult to apply nationwide or even across rural secondary schools in Shenzhen [22]. All existing intervention experiments rely on single-school localized samples, which cannot reflect regional and urban-rural disparities [32]. Currently, the longest intervention cycles last no more than two months. Interventions such as classroom optimization and goal-oriented guidance remain short-term in implementation, yielding only temporary effects and posing risks related to sustainability [22,33]. So it is impossible to determine whether the regulation of motivation and anxiety is enduring and effective over time. In practice, teachers typically conduct instruction in whole-class settings, so interventions must be designed for entire classes. Even differentiated instruction struggles to achieve one-on-one effectiveness, limiting overall intervention outcomes. For students experiencing severe language learning anxiety or low motivation, individualized psychological counseling remains essential [33,34]. Implementing these strategies requires second-language teachers to possess both strong language teaching skills and basic psychological counseling abilities. However, most secondary school foreign language teachers have not received systematic or professional training in psychological support. They lack expertise in attribution retraining and emotional regulation techniques, and developing personalized intervention plans based on class-specific student conditions presents an additional challenge. Generalized teacher training often leads to superficial, formulaic practices that fail to deeply address students' emotional states in second language learning. Moreover, existing intervention strategies merely suggest general activity directions without establishing standardized procedures, frequency, or evaluation criteria. Reliance on teachers' subjective judgment makes it difficult to ensure consistent outcomes and evaluate the quality of interventions effectively [22,33].

4.3 Research Directions for Secondary School Students in the Future

To make the research more comprehensive, there are several directions that can be further explored in the secondary school students' interaction research on motivation and anxiety. Firstly, the sample of students can be further classified in a more detailed manner, with more in-depth research on their characteristics. Students can be classified according to their learning conditions, dividing students into struggling students, average students, and outstanding students, which can be a possible way, and can help the "graded teaching" be more targeted. Moreover, the types and regional scope of the sample can also be expanded. For instance, comparing urban and rural areas, students from key secondary schools and ordinary secondary schools regarding the motivation and anxiety for learning a second language will be valuable research directions [22,33]. Secondly, a single research method should be replaced by mixed methods. Classroom observations, student diaries, and teacher-student interviews can be adopted, as they can present some deep psychological causes that cannot be reflected by questionnaires [11,20]. If conditions allow, long-term longitudinal tracking studies would be more ideal to make the conclusions more convincing [21,22]. Finally, structural equation models and chain mediation models can be used to make the research more logically and theoretically supported. With this help, the complex chain influence paths of the interaction between motivation and anxiety in the process of second language learning can be clarified more easily [4,9].

5. Conclusion

To conclude, adolescent secondary school students exhibit unique emotional interactions in L2 learning due to their psychological sensitivity, developmental transitions, and academic pressures. The shift from primary to secondary education brings more demanding learning methods and increased difficulty, while college entrance examination stress further shapes their learning motivation and anxiety. This study demonstrates that current classroom interventions primarily target motivational enhancement and low-anxiety learning environments. When embedded in daily instruction, these strategies effectively strengthen student self-efficacy, protect adolescent self-esteem, and optimize learners' affective experiences and intrinsic L2 motivation. Accordingly, teachers should establish a sustainable classroom model that integrates anxiety reduction and motivational stimulation. Meanwhile, identified grade-based emotional differences validate the necessity of differentiated teaching. Unlike most existing reviews that focus on university populations, this study centers specifically on secondary students' bidirectional motivation–anxiety interaction and corresponding classroom interventions, filling targeted research gaps and enriching interdisciplinary

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connections between SLA and educational psychology. This review also presents several limitations. The analysis mainly concentrates on English as the target L2, with insufficient attention to less commonly studied second languages, leaving room for future expansion. In addition, senior high school students undergoing intense college admission pressure possess more mature psychological traits, which may reshape their L2 emotional interactions. Further specialized research is therefore required to explore developmental differences across secondary grade stages.

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L2 Grit and Classroom Willingness to Communicate: The Moderating Role of Anxiety

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Abstract

Developing oral proficiency has long been a goal of college English education in China, yet many non-English major undergraduates remain reluctant to speak English in class. This reluctance may reflect not only linguistic limitations but also affective and situational barriers. The present study examined whether L2 grit is positively associated with classroom speaking willingness to communicate (WTC) among non-English major undergraduates and whether this association varies across levels of English classroom anxiety. An explanatory sequential mixed-methods design was employed. Quantitative data were collected from 504 non-English major undergraduates through questionnaires measuring L2 grit, English classroom anxiety, and classroom speaking WTC. Follow-up semi-structured interviews were conducted with 12 purposively sampled participants representing four grit-anxiety profiles. Quantitative results supported both hypotheses: higher L2 grit was associated with stronger WTC, and this association weakened as anxiety increased, though it remained significant across the anxiety levels examined. Qualitative findings revealed that sustained effort provided communicative resources but did not guarantee voluntary speaking; perceived evaluative risk and classroom conditions shaped whether readiness translated into participation. The findings suggest that L2 grit matters for communicative readiness, but its expression in classroom speaking depends on anxiety and the immediate speaking situation.

Keywords

L2 grit, willingness to communicate, English classroom anxiety, non-English major undergraduates, mixed methods

1. Introduction

Sustained English study does not necessarily lead to a willingness to speak in class. For Chinese non-English major undergraduates, an important question is whether continued engagement with English extends to voluntary classroom communication. Willingness to communicate (WTC) refers to readiness to enter discourse with particular people at a particular time [1]. It is distinct from actual speaking, which also depends on opportunities and participation requirements. Examining classroom speaking WTC therefore requires attention to learners' engagement with English and their experiences of using it in class.

L2 grit encompasses perseverance of effort and consistency of interest in language learning [2]. Sustained effort and interest may encourage learners to prepare for communication and remain engaged despite difficulties. Evidence of a positive relationship with WTC already exists: for example, a positive correlation

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among Chinese non-English major undergraduates has been reported [3]. However, this association does not establish whether grit is equally relevant to WTC across different levels of classroom anxiety. Students may maintain their commitment to English through examination preparation, written coursework, or private study while remaining reluctant to speak publicly. The question is therefore not simply whether grit relates to WTC, but whether the strength of that relationship varies with learners' anxiety.

English classroom anxiety provides a reason to examine this variation. Research has generally found a negative association between L2 anxiety and WTC, although its strength differs across populations and settings [4]. Such evidence does not, by itself, imply that anxiety moderates the grit–WTC relationship. The proposed moderation instead concerns whether sustained effort and interest are less closely associated with speaking willingness when learners experience greater apprehension about classroom communication. If public evaluation makes learners hesitant to attempt communication despite their continued commitment to English, the positive grit–WTC association may be weaker at higher anxiety levels. This is a hypothesis about differences in the strength of an association, rather than a necessary consequence of anxiety being negatively related to WTC.

The present study examines the association between overall L2 grit and classroom speaking WTC among Chinese non-English major undergraduates and tests whether this association weakens as English classroom anxiety increases. An explanatory sequential mixed-methods design combines questionnaire data with follow-up interviews involving students with contrasting grit–anxiety profiles. The interviews explore participants' accounts of sustained learning, speaking-related anxiety, and willingness or reluctance to contribute in class. Integrating these accounts with the quantitative findings allows the study to assess variation in the grit–WTC association and examine how learners describe the classroom circumstances surrounding their willingness to speak.

2. Literature Review

2.1 Classroom Speaking WTC and L2 Grit

Classroom speaking WTC concerns learners' readiness to use the target language in classroom interaction. A situational model distinguishes relatively enduring influences from more immediate antecedents of WTC, including the desire to communicate with a particular person and state communicative self-confidence. Further research showed that classroom environment was associated with WTC, communication confidence, motivation, and learner beliefs among Chinese university EFL learners [5]. These perspectives suggest that an enduring orientation toward language learning may be relevant to speaking willingness without being sufficient to explain it.

L2 grit comprises perseverance of effort and consistency of interest in language learning. Evidence links both grit dimensions and overall scores to WTC. Li reported positive correlations between both dimensions and WTC among Chinese junior high school students [6]. Liu and Zhao found a positive overall grit–WTC correlation among non-English major undergraduates. Bai and Hu likewise reported a positive bivariate association in this population, but grit was not a significant predictor in a model including foreign language enjoyment and academic buoyancy [7].

These findings support an association between grit and WTC, but dimension-level correlations and adjusted associations involving overall scores answer different questions. They do not establish a uniform contribution across populations or model specifications. The present study focuses on overall L2 grit, examining sustained effort and interest jointly while leaving their distinct contributions unresolved. The measurement and scoring approach is described in the methodology.

2.2 English Classroom Anxiety and WTC

Foreign language classroom anxiety refers to anxiety associated specifically with language learning and use in instructional settings. Horwitz et al. distinguished it from general anxiety and discussed its relationship with communication apprehension, fear of negative evaluation, and test anxiety [8]. Concern about errors and others' judgments is particularly relevant to classroom speaking, where learners' language use is open to evaluation by teachers and peers.

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Lou et al.conducted a meta-analysis of 50 independent studies and found a moderate negative association between L2 anxiety and WTC, with variation across countries, target languages, and anxiety types. The overall pattern supports the relevance of anxiety to speaking willingness, while the variation cautions against assuming an identical association across settings.

Whether anxiety also changes the strength of the grit–WTC association is a separate question. The present study examines this possibility through differences between learners in reported classroom anxiety and WTC, rather than through within-person fluctuations during individual speaking events.

2.3 Rationale for the Moderation Hypothesis

Anxiety has been examined as a potential mediator between grit and WTC [9]. Li, for example, found no significant anxiety-mediated association for either grit dimension. Such findings concern indirect associations; they neither establish nor exclude moderation. The question here is whether greater grit corresponds to a similar difference in WTC at different anxiety levels.

The distinction between enduring influences and immediate communicative confidence provides a starting point for considering this question. Applying that distinction to grit suggests that sustained commitment to learning and readiness for public communication need not coincide. This application extends the framework to the present research question; the original model does not specify a grit-by-anxiety interaction.

The proposed negative interaction rests on the distinction between commitment to language learning and willingness to engage in publicly evaluated communication. Sustained effort and interest may support preparation and continued engagement with English, but they do not necessarily entail willingness to speak before others. At relatively low anxiety levels, differences in learning commitment may therefore be more closely reflected in differences in speaking willingness. At higher anxiety levels, reluctance to speak publicly may persist even among strongly committed learners. If this evaluative concern limits the additional willingness associated with greater grit, the positive grit–WTC association would be weaker among more anxious learners.

Other patterns remain possible. The positive association might remain equally strong across anxiety levels, or become stronger if sustained effort and interest are particularly relevant to maintaining willingness under greater anxiety. Importantly, a positive grit–WTC association at high anxiety is compatible with attenuation; attenuation concerns a weaker association, not its disappearance. On the proposed account of evaluative constraint, the study tests a negative interaction while leaving its direction and magnitude to empirical examination.

2.4 The Present Study

The studies reviewed support the relevance of grit and anxiety to WTC but do not directly resolve whether classroom anxiety conditions the overall grit–WTC association among non-English major undergraduates. The quantitative phase therefore tests two hypotheses:

H1. Overall L2 grit is positively associated with classroom speaking WTC.

H2. English classroom anxiety moderates the association between overall L2 grit and classroom speaking WTC, such that the positive association is weaker at higher anxiety levels.

A follow-up qualitative phase explores how students with contrasting grit–anxiety profiles describe the classroom experiences surrounding their willingness to speak:

RQ1. How do non-English major undergraduates with differing levels of L2 grit and English classroom anxiety explain their willingness or reluctance to speak in class?

Cross-profile comparison allows the interviews to elaborate the statistical findings and identify experiences that do not fit the expected pattern. Particular attention is given to participants' accounts of learning commitment, evaluative concerns, and speaking opportunities, while distinguishing reported willingness from reported participation.

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3. Methodology

3.1 Research Design

This explanatory sequential mixed-methods study used questionnaire data to estimate the grit–WTC association and the grit-by-anxiety interaction. Follow-up interviews explored classroom speaking willingness among students with contrasting grit–anxiety profiles.

Questionnaire responses informed interview sampling, and quantitative findings guided the interview protocol. Integration compared statistical patterns with qualitative themes, including discrepant accounts. Questionnaire findings were interpreted as cross-sectional associations; interviews provided contextual interpretations of participants' reported experiences.

3.2 Quantitative Phase

3.2.1 Participants and Data Screening

Non-English major undergraduates were recruited by convenience sampling through an online questionnaire distributed across several universities in China. Eligibility required current or previous participation in university English courses.

Of 651 responses, 147 were excluded following screening for eligibility, completeness, and response quality. The screening criteria covered incomplete focal measures, inconsistent demographic information, unusually short completion times, repetitive response patterns, and restricted item-response variation. The final sample comprised 504 students aged 18–23 years (Table 1). Additional background questions covered academic discipline, years of English learning, and sense of belonging associated with English use.

Table 1: Demographic and Learning Background Characteristics

Characteristic	Distribution, n (%) unless stated
Age	M = 20.27; SD = 1.53
Gender	Male: 265 (52.6); female: 239 (47.4)
Undergraduate year	First: 126 (25.0); second: 139 (27.6); third: 129 (25.6); fourth: 110 (21.8)
Overseas residence > 3 months	Yes: 50 (9.9); no: 454 (90.1)
Self-rated English learning ability	Low: 72 (14.3); moderate: 86 (17.1); high: 346 (68.7)
Self-rated overall English proficiency	Low: 77 (15.3); moderate: 96 (19.0); high: 331 (65.7)
Frequency of English use	Low: 70 (13.9); moderate: 107 (21.2); high: 327 (64.9)

3.2.2 Instruments

The questionnaire contained background questions and three focal scales, administered using previously published Chinese versions. No new translation, back-translation, or substantive item adaptation was undertaken. Internal consistency estimates for the present sample are reported in the results.

L2 grit. The Chinese version comprised eight items: five assessing perseverance of effort and three assessing consistency of interest [10]. Responses ranged from 1 (strongly disagree) to 5 (strongly agree). After reverse-coding the consistency-of-interest items, all eight items were averaged. This item-level mean gave equal weight to each item, rather than equal weight to the two subscales; higher scores indicated greater overall L2 grit.

English classroom anxiety. An eight-item Chinese measure, based on the shortened scale and the original Foreign Language Classroom Anxiety Scale, assessed nervousness, lack of confidence, and physical manifestations of classroom anxiety [11]. Responses ranged from 1 (strongly disagree) to 5 (strongly agree). Item scores were averaged, with higher scale scores representing greater anxiety.

Classroom speaking WTC. A 10-item Chinese measure, based on two previously reported classroom WTC scales, assessed willingness to speak in meaning-focused and form-focused classroom activities [12]. Responses ranged from 1 (very unwilling) to 6 (very willing). An item mean represented overall classroom speaking WTC, with higher scores indicating greater willingness.

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3.2.3 Quantitative Analysis

Analyses used IBM SPSS Statistics 27 and the PROCESS macro. Descriptive statistics included means, standard deviations, skewness, and kurtosis. Cronbach's alpha assessed internal consistency, and principal component analysis provided a preliminary description of item structure. Harman's single-factor test described the variance attributable to a single factor; it was not treated as sufficient evidence to rule out common method bias.

Pearson correlations described the bivariate associations among the focal variables. Simple linear regression estimated the unadjusted grit–WTC association. PROCESS Model 1 then estimated an adjusted model containing grit, anxiety, their interaction, and eight covariates: gender, age, undergraduate year, overseas residence experience, self-rated English learning ability, self-rated overall English proficiency, frequency of English use, and sense of belonging associated with English use. WTC was the outcome.

Grit and anxiety were mean-centered before their product term was constructed. Moderation was evaluated using the interaction coefficient and the increase in explained variance relative to the model containing the same covariates and both focal main effects. Conditional grit–WTC associations were estimated at the 16th, 50th, and 84th percentiles of anxiety. These percentile values were used to probe the continuous interaction, not to divide the quantitative sample into groups. Tests were two-tailed, with a significance threshold of .05; regression estimates were reported with 95% confidence intervals.

3.3 Qualitative Phase

3.3.1 Participant Selection

Interviewees were purposively selected from questionnaire respondents who had volunteered for follow-up contact. Selection sought contrasting combinations of relatively high or low grit and anxiety scores. WTC served as a secondary criterion to include cases that reflected or complicated the quantitative pattern.

Twelve students were interviewed, with three in each profile: high grit–low anxiety (HG–LA1, HG–LA2, HG–LA3), high grit–high anxiety (HG–HA1, HG–HA2, HG–HA3), low grit–low anxiety (LG–LA1, LG–LA2, LG–LA3), and low grit–high anxiety (LG–HA1, LG–HA2, LG–HA3). Profiles supported purposive comparison rather than defining fixed learner categories. Students were not informed of their scores or profile classifications before or during interviews. Profile-based codes were used in reporting.

3.3.2 Interview Procedure

Individual semi-structured interviews were conducted in Mandarin Chinese and lasted approximately 35–45 minutes. The protocol addressed classroom speaking experiences, sustained English-learning effort, speaking-related anxiety, preparation, perceived competence, teacher and peer responses, and occasions of willingness or reluctance to communicate.

Students from the researchers' institution were interviewed face to face in a quiet, private setting; those from other institutions were interviewed through Tencent Meeting. Interviews were audio-recorded with consent, and brief field notes documented contextual information and initial analytic observations.

Recordings were transcribed verbatim in Chinese and checked against the audio. Identifying information was removed or replaced with general descriptors. Analysis was conducted on the Chinese transcripts. Quotations selected for publication were translated into English and checked against the original transcripts to preserve their meaning.

3.3.3 Qualitative Analysis

Thematic analysis combined case-based coding with cross-profile comparison. Repeated transcript reading and individual case summaries supported familiarization. Initial coding combined deductive attention to grit, anxiety, WTC, preparation, perceived competence, and classroom conditions with inductive coding of participants' descriptions.

Codes were grouped into broader categories through within-case, within-profile, and cross-profile comparisons. Analysis distinguished willingness, perceived speaking ability, reported participation, and the circumstances surrounding speaking or silence. Candidate themes were checked against coded extracts and

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case summaries. Analytic notes recorded coding decisions and developing interpretations. Discrepant cases were examined to refine themes and the interpretation of the quantitative findings.

3.4 Ethical Considerations

Participation in both phases was voluntary. Students received information about the study purpose, procedures, confidentiality, and intended use of the data before providing informed consent. Interviewees provided additional consent for the qualitative phase. Participants were informed that they could withdraw or decline questions without penalty.

The quantitative analytic dataset contained no direct personal identifiers. Contact information was stored separately and used for interview recruitment and scheduling. Transcripts were de-identified, and only anonymized quotations were reported. Research files were password-protected and accessible only to the research team.

4. Results

4.1 Quantitative Results

4.1.1 Preliminary Analyses and Bivariate Associations

The three scales showed high internal consistency, with Cronbach's alpha ranging from .924 to .942 (Table 2). Preliminary principal component analysis yielded a KMO value of .958 and a significant Bartlett's test, $\chi^2(325) = 8976.293$, $p < .001$. Three retained components accounted for 66.564% of the variance. The first unrotated component accounted for 34.359% of the variance in the single-factor diagnostic; this finding does not exclude common method bias.

Overall L2 grit was positively correlated with WTC ($r = .431$, $p < .001$). Anxiety also showed a positive, although smaller, correlation with WTC ($r = .174$, $p < .001$), and a weak positive correlation with grit ($r = .105$, $p = .018$).

Table 2: Reliability, Descriptive Statistics, and Correlations

Variable	M	SD	α	1	2	3
1. L2 grit	3.345	0.984	.924	—		
2. Classroom anxiety	3.240	1.029	.933	.105*	—	
3. Classroom speaking WTC	4.166	1.092	.942	.431***	.174***	—

*Note. N = 504. M = mean; SD = standard deviation; α = Cronbach's alpha. Grit and anxiety used 5-point scales; WTC used a 6-point scale. Correlations are Pearson coefficients. *p < .05. ***p < .001.*

4.1.2 Grit–WTC Association and Moderation

The unadjusted regression supported H1: greater grit was associated with higher WTC, $B = 0.478$, $SE = 0.045$, $\beta = .431$, $t = 10.697$, $p < .001$. The model explained 18.6% of WTC variance, $F(1, 502) = 114.424$, $p < .001$.

The adjusted moderation model explained 31.8% of the variance, $F(11, 492) = 20.808$, $p < .001$ (Table 3). At mean anxiety, the grit coefficient was positive ($B = 0.322$, $p < .001$). At mean grit, the anxiety coefficient was also positive ($B = 0.125$, $p = .002$).

The grit-by-anxiety interaction was negative, $B = -0.104$, $SE = 0.040$, $t = -2.591$, $p = .010$, 95% CI [−0.183, −0.025]. Adding the interaction increased explained variance by .009, $F(1, 492) = 6.715$, $p = .010$. The negative interaction supported H2: the positive grit–WTC association was weaker at higher anxiety levels, although the interaction accounted for only an additional 0.9% of the variance.

Table 3: Adjusted Moderation Model Predicting Classroom Speaking WTC

Predictor	B	SE	t	p	95% CI
Constant	5.715	0.688	8.305	< .001	[4.363, 7.067]
Gender	0.039	0.082	0.471	.638	[−0.122, 0.199]
Age	−0.045	0.030	−1.479	.140	[−0.104, 0.015]
Undergraduate year	−0.039	0.042	−0.927	.354	[−0.123, 0.044]
Overseas residence experience	−0.804	0.143	−5.617	< .001	[−1.086, −0.523]

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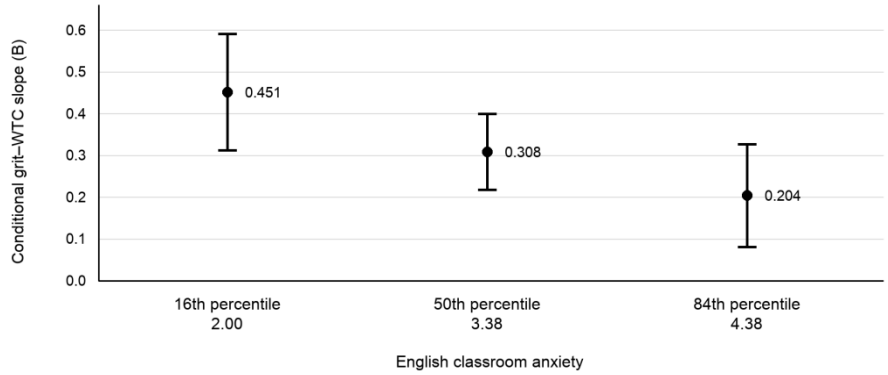
Predictor	B	SE	t	p	95% CI
Self-rated English learning ability	0.115	0.047	2.461	.014	[0.023, 0.208]
Self-rated overall English proficiency	0.046	0.042	1.098	.273	[−0.036, 0.128]
Frequency of English use	0.064	0.043	1.484	.139	[−0.021, 0.148]
Sense of belonging in English use	−0.039	0.040	−0.972	.332	[−0.116, 0.039]
L2 grit	0.322	0.046	6.945	< .001	[0.231, 0.413]
English classroom anxiety	0.125	0.041	3.049	.002	[0.045, 0.206]
Grit × anxiety	−0.104	0.040	−2.591	.010	[−0.183, −0.025]

Note. N = 504. B = unstandardized coefficient; SE = standard error; CI = confidence interval. Grit and anxiety were mean-centered. Overseas residence experience was coded 1 = yes and 2 = no. R^2 = .318; interaction ΔR^2 = .009.

4.1.3 Conditional Associations

At the 16th percentile of anxiety, the grit–WTC slope was 0.451 (SE = 0.071, 95% CI [0.312, 0.590], p < .001). The corresponding slopes were 0.308 at the median (SE = 0.046, 95% CI [0.217, 0.399], p < .001) and 0.204 at the 84th percentile (SE = 0.062, 95% CI [0.081, 0.326], p = .001). All three estimates were positive, with smaller slopes at higher anxiety levels (Figure 1).

Figure 1: Conditional Grit–WTC Associations at Three Anxiety Levels



Note. Points show conditional unstandardized slopes from the adjusted moderation model; bars show 95% confidence intervals. Anxiety values are rounded to two decimals.

4.2 Qualitative Results

The findings are organized around learning investment, evaluative concerns, and classroom participation conditions, with comparisons across grit–anxiety profiles within each theme.

4.2.1 Learning Investment and Available Language

Participants linked sustained English learning with expressions and topic knowledge they could draw on when speaking. HG–LA1 explained: “When I have something in my mind, I can just open my mouth and speak. I will not hold it back simply because I am afraid of losing face.” The participant distinguished sustained learning, described as “building up underlying strength,” from preparation for a particular task. HG–LA3 similarly described regular engagement with English-language technology materials as helpful in discussions of artificial intelligence and online learning, without having to “translate from Chinese on the spot.”

In contrast, LG–LA2 emphasized the limits of intermittent study: “If I do not touch English for half a month, there is nothing in my mind. Even if I am not afraid of speaking, I have nothing to say.” LG–LA1 and LG–LA3 also described reliance on recently prepared vocabulary, phrases, or notes. These accounts connected speaking readiness to the availability of language, even when fear of speaking was limited.

Preparation did not invariably accompany willingness. HG–LA1 reported losing the desire to participate when a prepared presentation was changed to include unexpected improvised interaction. This episode contrasted with the same participant’s account of sustained learning as a source of readiness to speak.

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4.2.2 Evaluative Concerns Despite Preparation

In high-grit, high-anxiety accounts, preparation and relevant knowledge coexisted with reluctance to volunteer. HG–HA2 had prepared a script, checked words and pronunciation, and rehearsed a group presentation, but did not volunteer to address the class: "Even though I had memorized it very well, I became extremely nervous when I thought of the whole class looking at me, forgetting words, or mispronouncing something."

HG–HA3 described studying financial English and foreign trade reports and wanting to contribute to a related discussion. Speaking before classmates and an invited external teacher nevertheless heightened concern about mistakes: "Long-term learning does make me want to share, but once I think of speaking in public, anxiety stops me." The participant also linked sustained effort with expectations of performing well.

HG–HA1 worried about "speaking in a stumbling way" and creating embarrassment despite having ideas to express. For LG–HA1, however, anxiety accompanied limited preparation: when nominated by the teacher, the participant "did not know what to say" after completing the learning task superficially. Thus, evaluative concerns appeared alongside both available ideas and uncertainty about how to formulate a response.

4.2.3 Classroom Conditions and Reported Participation

Paired and small-group activities featured in accounts of less uncomfortable speaking experiences. HG–HA2 described a prepared, ungraded paired dialogue as smoother and less embarrassing than presenting publicly. HG–HA3 reported greater fluency in a four-person discussion with "no whole-class audience." These accounts concerned perceived performance and discomfort in different activities, rather than directly measuring changes in WTC.

LG–LA2 described being able to "follow others' points" in group discussion without sustaining an extended contribution independently. LG–LA3 reported willingness to speak actively in a paired role-play using a few prepared words and valued permission to bring handwritten keywords. These examples showed how participants with low grit described willingness in activities supported by recent preparation or contributions from others.

Feedback and peer responses also mattered. LG–LA1 preferred a teacher who "gave comments after everyone had finished" to one who interrupted individuals publicly. HG–HA2 reported withholding even a simple answer when classmates remained silent, because volunteering might appear conspicuous or self-promoting. Reluctance in this episode concerned the social meaning of volunteering as well as linguistic difficulty.

Required participation sometimes resulted in reported speech despite reluctance. HG–HA3 completed a three-minute individual presentation worth 20% of the course assessment despite not wanting to perform it. LG–HA1 described teacher nomination as a situation in which "the decision of life and death was in the teacher's hands." However, some low-grit, low-anxiety participants attached little value to small participation bonuses and described them as insufficient reasons to speak. Assessment requirements therefore featured differently in accounts of compulsory presentations and opportunities to earn participation points.

5. Discussion

Overall L2 grit was positively associated with classroom speaking WTC among Chinese non-English major undergraduates, with a weaker association at higher anxiety levels. The interviews linked sustained learning to available language and ideas, while showing how public evaluation and participation requirements featured in particular speaking experiences. These findings connect learner-level associations with situational accounts without assuming that an overall disposition determines willingness in every classroom activity.

5.1 L2 Grit and Speaking Readiness

The positive association is consistent with Li's findings for perseverance of effort and consistency of interest among Chinese junior high school students. The present analysis concerns an overall L2 grit score, so it cannot distinguish the contributions of these dimensions. Its focus on moderation also addresses a different

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question from Li's examination of anxiety as a mediator: whether the grit–WTC association varies with anxiety, rather than whether anxiety provides an indirect link between grit and WTC.

The interviews offer an interpretation through perceived access to language and ideas. Participants associated sustained learning with expressions and topic knowledge, whereas intermittent study could leave little to say despite limited fear of speaking. This is compatible with the role of perceived competence in the WTC model, although resource accumulation and perceived competence were not tested as mediators. Importantly, these accounts primarily illuminate sustained effort; they provide less insight into consistency of interest. The qualitative interpretation therefore covers only part of the overall construct represented in the regression.

HG–LA1's contrasting accounts further qualify this interpretation. Sustained learning was described as supporting readiness, yet the participant reported no longer wanting to participate when a prepared presentation included unexpected improvisation. The contrast suggests that having prepared resources and wanting to use them are distinct considerations. It also indicates why the association between overall grit and WTC need not describe a learner's response to every task.

5.2 Anxiety and the Strength of the Association

The negative interaction supported the hypothesized attenuation of the grit–WTC association at higher anxiety levels. All three probed slopes remained positive and significant, but the interaction added only 0.9 percentage points to explained WTC variance beyond the main effects and covariates. Its incremental explanatory power was therefore limited. Accounts from high-grit, high-anxiety participants contextualize this pattern: preparation and relevant knowledge coexisted with reluctance to volunteer when mistakes and audience judgments felt consequential.

The positive anxiety–WTC correlation presents a separate issue. Unlike the negative association reported by Li, it was positive both before adjustment and, at mean grit, in the adjusted model. A negative interaction does not explain this difference, because the interaction and anxiety coefficient concern different features of the relationship. Nor do accounts of compulsory speech explain it: completing a presentation reluctantly is evidence about participation, not increased willingness. The reason for the positive association remains unresolved by the present evidence and warrants examination of measurement and sampling differences before a substantive explanation is advanced.

5.3 Integrating Learner Profiles and Speaking Situations

The two strands contribute at different levels. Questionnaire scores describe differences between learners, whereas interviews reconstruct selected speaking experiences. Their convergence concerns the plausibility of resource-related and evaluative interpretations, rather than verification of a causal sequence. The interviews also extend the analysis by identifying circumstances in which profile-based expectations were insufficient: low-grit participants described willingness after brief preparation, while a high-grit, low-anxiety participant rejected a particular task.

These findings fit Cao's ecological account of WTC as arising through individual, linguistic, and classroom conditions [13]. Here, the contribution is to locate such conditions within accounts from contrasting grit–anxiety profiles. The profiles help organize comparisons, but the task-specific differences show why they should not become fixed descriptions of learners.

The interviews also illustrate the distinction between willingness and communication behavior in the WTC framework. HG–HA3 described wanting to share ideas while hesitating to speak publicly, and elsewhere completing a graded presentation despite reluctance. These accounts distinguish desire to contribute from both silence and required speech. They extend interpretation beyond questionnaire WTC, while leaving the positive anxiety–WTC correlation unexplained. This incomplete convergence is part of the mixed-methods finding, rather than a discrepancy to resolve through assumptions about beneficial anxiety.

5.4 Pedagogical Implications

The accounts suggest differentiating support according to students' reasons for reluctance. Planning time and keyword notes may help learners who lack accessible expressions; paired rehearsal may offer a more

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manageable starting point for those concerned about public evaluation. Feedback preferences also suggest discussing correction timing with students. These practices follow from reported experiences and require evaluation in the classroom.

Teachers could complement participation records with brief questions about when students wanted to contribute and what prevented them. This would help distinguish completion of required tasks from opportunities taken voluntarily, and identify whether language resources, evaluation, or task demands need attention. Changes in participation and expressed willingness could then be considered together when evaluating instructional adjustments.

5.5 Limitations and Future Research

The cross-sectional, self-report design limits causal interpretation and is vulnerable to shared response tendencies. Covariate adjustment does not establish temporal order. In addition, the overall grit analysis leaves dimension-specific associations unresolved. Replication should examine these associations and assess the stability of both the modest interaction and the positive anxiety–WTC correlation.

The 12 retrospective interviews cannot establish how willingness changed during classroom events. Differences in evidence available across participants also constrain profile-level generalization. Classroom observation combined with immediate reports of willingness could distinguish voluntary turns, compulsory speech, and occasions when learners wanted to speak but remained silent. Repeated measurements would help separate between-learner associations from within-learner changes.

Finally, the recruitment context and focus on Chinese non-English major undergraduates restrict generalization. Replication across institutions and learner populations would clarify the scope of the findings, while longitudinal or task-based designs could test the proposed roles of language resources and evaluative conditions.

6. Conclusion

This explanatory sequential mixed-methods study found that overall L2 grit was positively associated with classroom speaking WTC among Chinese non-English major undergraduates. The association was weaker at higher levels of English classroom anxiety but remained positive and significant at the anxiety levels examined. The interaction added modest explanatory power, while the positive anxiety–WTC association warrants further investigation.

The interviews provided accounts of how sustained learning, public evaluation, and task preparation featured in speaking experiences. Participants linked sustained learning with available language and ideas, yet described reluctance to speak publicly despite preparation. Others reported willingness after preparing for particular tasks. Accounts of wanting to contribute without speaking, and completing required tasks despite reluctance, further distinguished having something to say, wanting to contribute, and actually speaking.

Together, the findings connect the overall grit–WTC association with learners' accounts of specific classroom situations. The cross-sectional questionnaire data and retrospective interviews limit causal inference, and classroom participation was not directly observed. Within these limits, the study indicates that a positive association between overall L2 grit and self-reported WTC does not justify assuming voluntary participation in particular speaking activities. Learners' reported reasons for speaking or remaining silent remain essential to interpreting that participation.

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Conflicts of Interest

The authors declare no conflict of interest.

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Primary Teachers' Knowledge, Attitudes and Strategies for Inattentive ADHD in China

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Abstract

Attention-Deficit/Hyperactivity Disorder (ADHD) is among the most common neurodevelopmental disorders in school-aged children, yet pupils with a predominantly inattentive presentation are frequently overlooked because their difficulties are internalised and non-disruptive. Because primary school teachers are often the first professionals to observe children's learning and behaviour, their knowledge, attitudes and classroom practices strongly shape whether such pupils are identified and supported. This study examined Chinese primary school teachers' knowledge of the less visible, inattentive features of ADHD, their attitudes towards affected pupils, and the strategies and barriers they reported in everyday practice. An online questionnaire was administered to 93 practising primary teachers recruited through convenience and snowball sampling. The instrument comprised demographic items, a 13-item adaptation of the Knowledge of Attention Deficit Disorders Scale (KADDS), a 10-item attitude scale adapted from validated ADHD research, and two checklists of evidence-based strategies and perceived barriers. Results show that teachers' knowledge was low to moderate (mean 5.38/13; approximately 41% correct), with particularly limited understanding of gender distribution (34.8% correct) and inattentive symptoms. Attitudes were generally negative or uncertain (item means 2.24–2.51 on a five-point scale), characterised by low confidence and limited willingness to include pupils with ADHD. The most frequently reported strategies were low-cost instructional accommodations, whereas strategies requiring external support or referral were seldom used. Large class size (38.0%) and lack of time (26.1%) were the most cited barriers. The findings indicate that improving support for pupils with inattentive ADHD in China requires both targeted professional development and structural reform responsive to local sociocultural realities.

Keywords

ADHD, inattentive presentation, teacher knowledge, teacher attitudes, primary education, China

1. Introduction

Attention-Deficit/Hyperactivity Disorder (ADHD) is one of the most common neurodevelopmental disorders among school-aged children worldwide, with a prevalence of approximately 5–7% [1, 2]. A meta-analysis conducted in China estimated the prevalence among primary school pupils at around 6% [3]. ADHD is associated with substantial difficulties in social interaction and academic performance in school settings,

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and classroom-based interventions have been shown to improve both behavioural and learning outcomes, highlighting the influential role teachers play in shaping pupils' educational experiences [4].

However, ADHD-related difficulties are not always readily identifiable in everyday classroom practice. Barkley [5] distinguishes between different presentations of ADHD, noting that pupils with predominantly inattentive characteristics may not display disruptive behaviour yet still experience considerable difficulty in regulating attention and completing tasks. Similarly, Hinshaw [6] argues that ADHD should be understood as a heterogeneous condition whose symptoms vary across developmental and contextual factors. This variability increases the risk that some pupils' difficulties remain unrecognised, particularly when they do not conform to stereotypical images of hyperactivity.

The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) [7] divides ADHD into three presentations: predominantly inattentive, predominantly hyperactive-impulsive, and combined. Inattentive symptoms, which refer to difficulty concentrating, appearing not to listen, carelessness, and losing items, are largely internalised and rarely cause classroom disturbance, making them harder for teachers to notice than the overt restlessness and impulsivity of the hyperactive-impulsive presentation [5, 6].

Research on teachers' understanding of ADHD indicates that the misinterpretation of behaviour remains a persistent problem. Sciutto, Terjesen and Bender Frank [8] found that teachers' knowledge of ADHD is often partial and accompanied by misconceptions, with behaviour sometimes attributed to poor motivation or laziness rather than to underlying attentional or self-regulatory difficulties. Kos, Richdale and Hay [9] similarly report that teachers rely heavily on observable behaviour and academic performance when identifying pupils in need of support, which may lead to the under-identification of pupils whose difficulties are less visible.

This invisibility has significant implications for educational practice. Pupils with less visible or inattentive presentations are at risk of being under-identified and inadequately supported. Because primary school teachers are often the first professionals to observe children's learning and behaviour in formal educational settings, their perceptions and interpretations are crucial in shaping access to support. This concern is especially salient in educational systems that prioritise order, discipline and measurable academic achievement, i.e., features that characterise much of Chinese primary education [10].

While some emerging studies in China have examined teachers' general understanding of ADHD and the challenges they face [10, 11], research on how teachers conceptualise and respond to the less visible, inattentive difficulties within specific national contexts remains limited. Existing work has focused predominantly on teachers' overall perceptions of ADHD or their attitudes towards disruptive, hyperactive symptoms [8, 9], leaving a gap regarding how teachers identify and respond to pupils whose difficulties are not readily perceptible.

Focusing on Chinese primary schools, this study explores how teachers perceive and interpret ADHD-related behaviour and how they judge when such behaviour indicates a need for additional support, with particular attention to less visible, inattentive presentations. The study is guided by three research questions:

RQ1. What is the level of knowledge that primary school teachers hold about the less visible, inattentive symptoms of ADHD?

RQ2. What are teachers' attitudes towards pupils who display such behaviour, and what challenges do they perceive?

RQ3. What strategies do Chinese primary school teachers report using to support pupils with ADHD, particularly when difficulties are less visible, and what barriers do they perceive?

2. Literature Review

2.1 Defining ADHD and the Inattentive Presentation

The inattentive presentation of ADHD is central to this study. Barkley [5] notes that pupils with predominantly inattentive characteristics may experience substantial difficulties in attention regulation and task completion without displaying disruptive behaviour, while Hinshaw [6] emphasises that ADHD is heterogeneous, with symptoms varying across developmental and contextual factors. This variability heightens

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the risk that pupils' difficulties remain unrecognised when they do not conform to stereotypical images of hyperactivity, and it justifies examining teachers' understanding of inattentive symptoms as a distinct construct.

2.2 Teachers' Knowledge of ADHD

A consistent finding in the literature is that teachers frequently misunderstand ADHD-related behaviour and attribute it to motivational or personality deficits. Sciutto and colleagues [8] observed that teachers' understanding of ADHD often contains misconceptions, with behaviour sometimes attributed to a lack of motivation or an unwillingness to self-regulate, i.e., a pattern confirmed and extended in subsequent research. Njeri [12] found that Kenyan primary teachers most often encountered the inattentive subtype yet lacked a comprehensive understanding of ADHD's core features, indicating that the very symptoms most prevalent in classrooms are those teachers understand least well. Likewise, recent evidence indicates that pre-service teachers possess limited factual knowledge of ADHD, even while expressing optimism about supporting affected pupils [13]. Such findings highlight the need for targeted professional development, a need that is arguably more urgent in China, where teachers contend with large classes and limited training.

To measure these gaps systematically, the Knowledge of Attention Deficit Disorders Scale (KADDS) developed by Sciutto and colleagues [8] has been widely used to assess three domains of knowledge: symptoms/diagnosis, causes, and treatment. Studies employing the KADDS consistently report moderate-to-high knowledge of symptoms but weaker understanding of causes and treatment [13, 14]. Importantly, teachers show lower accuracy in identifying inattentive than hyperactive-impulsive symptoms [15], which directly relates to the risk of under-identifying pupils with less visible difficulties. Kos and colleagues [9] demonstrate that teachers over-rely on observable behaviour and academic performance, which can lead to the neglect of pupils whose difficulties are not obvious.

Although reliance on observation is understandable given classroom demands, it produces a systematic bias towards identifying externalising behaviour; pupils who internalise their difficulties, such as those with inattentive ADHD, may be assumed to have no problem and therefore receive no intervention [16]. This bias is central to the present study: if teachers treat observable disruption as the principal indicator of need, pupils with invisible difficulties will be overlooked. Intervention research suggests that these knowledge gaps are modifiable. Barker and colleagues [17] found that neuroscience knowledge translation improved pre-service teachers' understanding of ADHD, with personalised content, particularly personal stories from individuals with ADHD, more effective than depersonalised content in reducing misconceptions about social causation, although expert-led delivery without lived experience could also shift attitudes.

In the Chinese context, Jin and Fu [18] conducted a controlled study in which an experimental group (n = 53) received six training sessions while a control group (n = 59) received none; training significantly improved teachers' understanding of the aetiology, symptoms and treatment of ADHD, reduced negative attitudes, enhanced self-efficacy, and broadened teachers' repertoire of support strategies. Notably, 71%

of participants had previously attended only short seminars, and 16.3% cited a lack of training as a barrier to support. Similarly, a randomised controlled study of 72 primary teachers in Egypt found significant knowledge gains in the intervention group [19]. These studies suggest that scalable professional development can be both feasible and effective, even in resource-constrained contexts.

2.3 Teachers' Attitudes Towards ADHD

Beyond knowledge, teachers' attitudes, including beliefs about the legitimacy of ADHD, perceptions of affected pupils' abilities, and perceptions of their impact on classroom dynamics, shape teachers' willingness to provide support [9]. In a large cross-sectional survey of Irish primary and secondary teachers, Adamis and colleagues [20] found generally low knowledge (mean identification of 9.5/18 DSM symptoms) and reported that 58% of teachers held negative attitudes, which were associated with teaching in boys' schools; intriguingly, more positive attitudes were associated with discussing ADHD less often with peers, indicating that the knowledge–attitude relationship is not simply linear. Al-Moghrabi and colleagues [21] surveyed 732 kindergarten and primary teachers and found that, despite basic knowledge of aetiology and symptoms, significant gaps remained regarding diagnosis and treatment, and that special educational needs (SEN) training significantly predicted knowledge, highlighting the value of structured professional development.

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A recurring theme is the gap between beliefs and practice. Ghram and Alkahtani [22] found that although primary teachers recognised the importance of social-emotional learning for pupils with ADHD, systemic barriers such as limited resources and institutional support constrained implementation, with teachers relying mainly on academic support strategies. Consistent with this, teachers' self-reported knowledge of ADHD has been shown to influence how they plan and implement strategies for pupils' social and emotional wellbeing [24]. These belief–practice gaps are likely relevant to the Chinese context, where comparable constraints may shape teachers' responses.

Several consistent patterns emerge. Although many teachers accept ADHD as a genuine condition, some remain concerned about overdiagnosis or attribute ADHD-related behaviour to environmental factors such as parenting [8, 14]. Teachers may experience frustration and stress when teaching affected pupils [9], yet they generally remain willing to include such pupils and express interest in learning how to support them better [15]. Redha and Ahmad [23] found that teachers' attitudes in Kirkuk, Iraq, were significantly associated with their knowledge and private training experiences, indicating that professional development can positively influence attitudes.

Notwithstanding this body of work, most research examines hyperactive-impulsive or combined presentations, with far less attention to attitudes towards predominantly inattentive pupils, whose difficulties are less visible and less disruptive. Teachers may feel frustrated by disruptive behaviour yet underestimate the needs of quiet, inattentive pupils who do not disturb the class. Further research into attitudes towards less visible presentations is therefore needed.

2.4 Supporting Pupils with ADHD in Mainstream Classrooms

Classroom intervention can significantly improve behavioural and learning outcomes [4]. Three broad categories of effective strategy are commonly identified: antecedent-based, instruction-based, and consequence-based [4, 26]. Antecedent-based strategies include seating pupils near the teacher or away from distractions, giving clear and concise instructions, breaking tasks into smaller units, and using visual prompts. Instruction-based strategies include extending deadlines, providing frequent feedback and encouragement, and teaching organisational skills. Consequence-based strategies include daily behaviour report cards, token economies, and consistent home–school communication [4].

Cultural context shapes how these strategies are understood and applied. A systematic review of teacher perceptions in Arab countries found generally limited knowledge and considerable variation in the interpretation of ADHD-related behaviour, emphasising the influence of cultural factors on identification [25], a point that resonates with the Chinese context. Alghamdi [26] argues that effective interventions must be tailored to individual needs, implying that pupils with inattentive symptoms may require approaches distinct from those used for hyperactive-impulsive pupils. For inattentive pupils specifically, recommended strategies include providing additional cues to sustain attention, using private signals to redirect focus, reducing task load, frequently checking understanding, and giving clear, timely feedback [24]. Unlike strategies aimed at reducing disruption, these focus on capturing attention, building organisational skills, and providing structured support for task completion.

A meta-analysis by Sadek, Al-Hroub and Khatib [27] reported moderate knowledge but highly variable attitudes, and found that knowledge did not reliably predict attitudes, supporting the argument that distinct strategies are needed to address knowledge gaps and negative attitudes respectively. Aljumah [28] found that general-education teachers' judgements of strategy effectiveness predicted their implementation, even when those judgements were inconsistent with the evidence, and that confidence predicted the use of evidence-based strategies. This suggests that misconceptions about "what works" can lead teachers to adopt ineffective approaches. Widiastuti and colleagues [29] similarly found that effective support for pupils with ADHD involved direct, individualised methods and positive reinforcement rather than punishment, an emphasis particularly relevant in the discipline-oriented Chinese context. Whether teachers implement recommended strategies, however, depends on their knowledge, attitudes and self-efficacy [30, 32]: teachers who lack knowledge may struggle to identify need, those with negative attitudes may be unwilling to invest effort, and those lacking confidence may avoid implementation even when they recognise difficulties. This knowing–doing gap may be especially evident in China, where structural constraints such as large classes and limited resources complicate implementation [33].

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2.5 Research in the Chinese Context

Chinese research has begun to examine teachers' overall perceptions of ADHD and the challenges they face. Li and Wang [11] found that urban primary teachers held moderate knowledge but significant gaps regarding aetiology and treatment, and that recognition was based mainly on impulsive symptoms, which implies that pupils with poor concentration are more likely to be overlooked. Ching, Li and Li [10] reported that Chinese teachers' understanding was shaped by a disconnect between medical and educational perspectives: teachers accepted ADHD as a medical diagnosis but lacked practical knowledge for support, and cultural emphases on discipline and achievement shaped their definitions of "normal" and "problematic" behaviour, such that behaviour not directly threatening academic performance or classroom order was less likely to be seen as warranting intervention.

Wang and Feng [34] documented the challenges of implementing inclusive education for children with ADHD in mainstream Chinese classrooms, while Long, Sharma and Subban [33] identified barriers including large classes (often 40–50 pupils), heavy workloads, limited professional support, and insufficient pre-service and in-service SEN training. Under such conditions, teachers must make difficult decisions about allocating limited attention, and pupils whose difficulties are less visible may be more readily overlooked, reflecting structural constraints rather than a simple lack of concern.

In sum, although ADHD can have serious educational consequences, pupils with less visible, inattentive presentations are at particular risk of under-identification and inadequate support, and research on how teachers understand and respond to such difficulties within specific national contexts remains limited. Four gaps are especially notable. First, existing studies typically use general measures of ADHD knowledge that do not distinguish inattentive from hyperactive-impulsive symptoms, so teachers' specific knowledge of inattention is poorly understood. Second, attitude research focuses largely on disruptive behaviour, with few studies examining attitudes towards pupils whose difficulties are internalised. Third, although Western research documents effective strategies and recent work has examined predictors of strategy use [28, 30], little is known about whether Chinese teachers implement these strategies or the barriers they encounter. Fourth, few studies use a single, integrated design to examine the relationships among knowledge, attitudes and strategies specifically in relation to less visible difficulties. The present study addresses these gaps by focusing on Chinese primary teachers' perceptions of the inattentive presentation of ADHD.

3. Methodology

3.1 Participants

The study received ethical approval from the UCL Institute of Education. A total of 93 primary-school teachers were recruited. One participant was excluded due to incomplete survey responses, yielding a final analytical sample of N = 92. Table 1 summarises the sample. The largest groups had 6–10 years (33.3%) and 2–5 years (28.0%) of teaching experience. Teachers were distributed across grade levels, most commonly middle primary (37.6%). Almost all teachers (98.9%) had taught a pupil with a formal ADHD diagnosis. Regarding training, 26.9% had received systematic training or a course, 71.0% had attended only short workshops or seminars, and one teacher (1.1%) had received none. Nearly half taught in rural/township public schools (49.5%), with the remainder in urban public (25.8%) and private schools (23.7%). The high proportion of rural teachers is noteworthy, as structural barriers such as oversized classes may be more pronounced in these settings [33]. Participants represented all six major Chinese regions, most frequently the Northeast (26.9%).

Table 1: Demographic characteristics of participants (N = 93)

Variable	Category	n	%
Teaching experience	2–5 years	26	28.0
	6–10 years	31	33.3
	11–15 years	19	20.4
	16 years or more	16	17.2
Grade level	Lower primary (Grades 1–2)	33	35.5
	Middle primary (Grades 3–4)	35	37.6
	Upper primary (Grades 5–6)	24	25.8

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Variable	Category	n	%
ADHD training	Systematic training/course	25	26.9
	Short workshops/seminars	66	71.0
	Never received	1	1.1
Taught pupil with ADHD diagnosis	Yes	92	98.9
School type	Urban public	24	25.8
	Rural/township public	46	49.5
	Private	22	23.7

3.2 Materials

An online questionnaire was administered via Microsoft Forms in four sections. It includes four sections. Section A (six researcher-designed items) collected demographic information: years of teaching experience, current grade level, experience teaching a pupil with a formal ADHD diagnosis, prior ADHD/SEN training, school type, and region.

Section B (13 items, see Table 2 in Section 4.1) assessed knowledge of ADHD symptoms, diagnosis and related features, adapted from the KADDS [8]. The KADDS is a well-validated instrument assessing three domains (symptoms/diagnosis, aetiology, treatment); the 13 items most relevant to inattentive presentations were selected, each answered as True, False, or Don't Know. The Don't Know option is a key feature of the KADDS, distinguishing lack of knowledge from misconception [8].

Section C (10 items, see Table 3 in Section 4.2) measured attitudes and perceived challenges using a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree), adapted from validated attitude scales [9, 14], covering confidence, beliefs about inclusive education, stress/frustration, belief in ADHD as a valid condition, and interest in professional development.

Section D comprised two checklists: 14 evidence-based strategies (see Table 4 in Section 4.3) for supporting inattentive pupils (based on [4, 24]) and 12 common barriers to implementation (see Table 5 in Section 4.3) (based on [30]), each with an "Other" option.

3.3 Procedures

The questionnaire was created in Microsoft Forms with a participant information sheet and consent form on the first page. Recruitment messages were distributed through teacher WeChat groups and private messages to relevant professionals. The survey remained open for four to six weeks (April–May 2026), with a reminder posted after three weeks. Responses were downloaded as spreadsheet files and stored securely in institutional cloud storage.

3.4 Data Analysis

Data were analysed in SPSS. Data from one participant was excluded due to incompletion of the questionnaire. The KADDS total score was computed by awarding one point per correct answer and zero for incorrect or "Don't Know" responses. Pearson correlation was used to examine associations between continuous variables (e.g., knowledge and attitudes). All tests were two-tailed with significance set at $p < .05$. Before inferential testing, assumptions of normality (Shapiro-Wilk) and homogeneity of variance (Levene's test) were assessed. Given the very low proportion of missing values, listwise deletion was used, and box plots were inspected for outliers. Cronbach's α was calculated for the adapted KADDS and attitude scales, with a threshold of 0.70 for acceptable internal consistency.

4. Results

4.1 Teachers' Knowledge of ADHD (RQ1)

Total knowledge score. The mean KADDS total was 5.38 (SD = 4.59) out of 13, or approximately 41% correct. Scores ranged from 0 to 13 and were highly dispersed: 27.2% scored 0, while only 14.1% scored 11 or above. Overall, most participants failed to identify more than half of the symptoms and features assessed.

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Item-level knowledge. As shown in Table 2, correct-response rates ranged from 33.7% to 47.8%, indicating low-to-moderate knowledge. The highest accuracy was for Item 4 ("difficulty awaiting their turn," 47.8%) and the lowest for Item 11 ("difficulties with peer relationships," 33.7%). Only 34.8% correctly answered Item 2 ("ADHD is more common in boys than in girls"), indicating that roughly two-thirds of teachers misunderstood the gender distribution. Items addressing inattentive symptoms (Items 6, 10, 12 and 13) yielded accuracy between 40.2% and 45.7%, comparable to items on hyperactivity/impulsivity but all below 50%, indicating that teachers' limited understanding extends across both presentations.

Table 2: Teachers' knowledge of ADHD (N = 92)

Item	Statement	Correct (%)
1	Symptoms must have appeared before age 7 for diagnosis	41.3
2	ADHD is more common in boys than in girls	34.8
3	Difficulty organising tasks and activities	41.3
4	Difficulty awaiting their turn	47.8
5	Often fidget or squirm in their seats	40.2
6	Difficulty sustaining attention on tasks	45.7
7	Difficulty playing quietly	40.2
8	Often interrupt or intrude on others	42.4
9	Difficulty following instructions and finishing schoolwork	42.4
10	Avoid tasks requiring sustained mental effort	43.5
11	Difficulties with peer relationships	33.7
12	Inattentive pupils often appear to be daydreaming	40.2
13	Good academic performance can coexist with attention difficulties	41.3

4.2 Teachers' Attitudes and Perceived Challenges (RQ2)

Table 3 presents attitudes measured on a five-point scale. Item means ranged from 2.24 to 2.51, clustering between "Disagree" and "Neutral" and indicating generally negative or uncertain attitudes. The highest mean was for Item 5 ("ADHD is a valid educational/medical condition," M = 2.51, SD = 0.96), indicating some acceptance of its validity. Lower scores for Item 1 ("confident in my ability to teach children with ADHD," M = 2.28, SD = 1.23) and Item 6 ("would welcome a child with ADHD into my classroom," M = 2.24, SD = 1.01) reflect limited confidence and reservations about inclusion. Item 3 ("behaviour is often intentional or manipulative," M = 2.41, SD = 1.08) indicated some negative attribution, while responses to items on stress and support reflected moderate frustration. Teachers reported generally negative attitudes marked by low confidence and reluctance, which may hinder their willingness to provide support.

Table 3: Teachers' attitudes towards ADHD (N = 92)

Item	Statement	M	SD
1	I feel confident in my ability to teach children with ADHD	2.28	1.23
2	Children with ADHD should be educated in regular classrooms	2.38	0.99
3	The behaviour of children with ADHD is often intentional/manipulative	2.41	1.08
4	Teaching a child with ADHD creates extra stress for me	2.41	1.07
5	I believe ADHD is a valid educational/medical condition	2.51	0.96
6	I would welcome a child with ADHD into my classroom	2.24	1.01
7	I feel frustrated when teaching children with ADHD	2.29	1.12
8	More resources should be allocated for children with ADHD	2.42	1.00
9	I am interested in learning more about ADHD and how to support pupils	2.34	1.02
10	With appropriate support, children with ADHD can learn like others	2.27	0.99

4.3 Reported Strategies and Perceived Barriers (RQ3)

Strategies. As shown in Table 4, the most frequently reported strategies were low-cost instructional accommodations: providing clear, concise instructions (42.4%), breaking assignments into smaller tasks (38.0%), and seating pupils near the teacher or away from distractions (35.9%). Strategies involving external support were used far less often, referral for external evaluation (14.1%) and consulting a school psychologist or SEN staff (12.0%), as were providing frequent feedback (8.7%) and incorporating movement breaks (6.5%).

Barriers. Table 5 shows that the most cited barriers were large class size (38.0%) and lack of time (26.1%), followed by insufficient training/knowledge (16.3%) and concern about stigma or labelling (13.0%). Notably,

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5.4% reported that a pupil's adequate academic performance made intervention seem unnecessary, reflecting a possible misconception about the relationship between achievement and support needs.

Table 4: Strategies used to support inattentive pupils (N = 92)

Rank	Strategy	n	%
1	Providing clear, concise, simple instructions	39	42.4
2	Breaking assignments into smaller tasks	35	38.0
3	Seating near the teacher / away from distractions	33	35.9
4	Modifying assignments (quantity, format)	18	19.6
5	Collaborating with parents on consistent strategies	15	16.3
6	Recommending/referring for external evaluation	13	14.1
7	Daily behaviour report card / home–school communication	12	13.0
8	Peer tutoring or buddy systems	12	13.0
9	Consulting school psychologist/SEN staff	11	12.0
10	Teaching organisational skills	10	10.9
11	Allowing extended time	10	10.9
12	Using visual cues or prompts	9	9.8
13	Providing frequent feedback and encouragement	8	8.7
14	Incorporating movement breaks	6	6.5

Table 5: Perceived barriers to supporting inattentive pupils (N = 92)

Rank	Barrier	n	%
1	Large class size / too many pupils	35	38.0
2	Lack of time during the school day	24	26.1
3	Insufficient training or knowledge about ADHD	15	16.3
4	Concern about stigma or labelling the pupil	12	13.0
5	Lack of support from school administration	10	10.9
6	Difficulty balancing one pupil's needs with the whole class	9	9.8
7	Lack of confidence in my ability to help	8	8.7
8	Limited access to resources or materials	8	8.7
9	Lack of support from parents/families	7	7.6
10	Pupil's behaviour is too challenging	6	6.5
11	Uncertainty about which strategies are effective	5	5.4
12	Adequate academic performance, so intervention seems unnecessary	5	5.4

The adapted KADDS (13 items) showed excellent internal consistency (Cronbach's $\alpha = .917$), as did the attitude scale (10 items; $\alpha = .904$). A one-way ANOVA found no significant difference in KADDS total scores across the four experience groups, $F(3, 88) = 1.71$, $p = .170$, indicating that knowledge did not differ significantly by teaching experience. A Pearson correlation revealed a small, non-significant positive association between knowledge and attitudes, $r(90) = .085$, $p = .420$, indicating no meaningful relationship between the two. Because only one teacher reported having received no ADHD training (n = 1), a meaningful group comparison by training status could not be conducted.

5. Discussion

5.1 Teachers' Knowledge of ADHD

Regarding the first research question, teachers' knowledge of ADHD was generally low (mean 5.38/13; ~41% correct), indicating that most participants lacked accurate knowledge of diagnostic criteria, prevalence and associated features. This is consistent with prior findings that teachers' knowledge is incomplete and contains misconceptions [8], that gaps are particularly evident for difficult-to-identify symptoms [15], and that Chinese urban teachers hold moderate knowledge with notable gaps regarding causes and treatment [11]. The present study extends this work by showing that knowledge of inattentive symptoms is particularly limited.

The low accuracy for Item 2 (34.8%) indicates that about two-thirds of teachers did not recognise the gender distribution of ADHD, a misconception that may contribute to the under-identification of girls, who more often display inattentive rather than hyperactive-impulsive symptoms [6]. It should be noted that our study did not directly collect or analyse student-level gender data; therefore this remains a speculative implication for future investigation rather than a finding demonstrated by the current results. The lowest accuracy, for peer-

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relationship difficulties (Item 11, 33.7%), suggests limited recognition of the social difficulties associated with ADHD, and the modest accuracy for Items 12 and 13 (40.2% and 41.3%) indicates an incomplete understanding of the core features of inattentive ADHD. Such gaps may lead teachers to interpret inattentive behaviour as laziness, poor motivation or inadequate parenting rather than as a potential sign of neurodevelopmental difficulty [9], delaying identification and intervention and contributing to cumulative academic and social difficulty [16].

5.2 Teachers' Attitudes and Challenges of ADHD

Attitudes were generally negative or uncertain, with all item means below 2.6. Low confidence (Item 1, M = 2.28) and limited willingness to include pupils (Item 6, M = 2.24) echo findings that teachers often feel they lack the resources or skills to teach pupils with ADHD [14] and that such teaching is experienced as stressful [9]. The negative-attribution item (Item 3, M = 2.41) indicates that some teachers still attribute ADHD-related behaviour to low effort or laziness rather than neurodevelopmental difficulty [8], an attribution that can damage teacher–pupil relationships and reduce willingness to support [10]. Although belief in ADHD as a valid condition received the highest mean (Item 5, M = 2.51), this remained below the scale midpoint, suggesting that acceptance is tentative and may reflect the still-developing public understanding of neurodevelopmental conditions in China [10]. The most cited challenges, large class size (38.0%) and lack of time (26.1%), reflect the realities of Chinese primary education, where classes frequently exceed 40 pupils and workloads are heavy [33]; these conditions may underlie teachers' low confidence and reluctance.

5.3 Strategies and Barriers of ADHD

The most frequently reported strategies, clear instructions (42.4%), task-breaking (38.0%) and strategic seating (35.9%), are evidence-based [4, 24] and, notably, low-cost and easy to implement without extensive training or resources, which may explain their popularity. By contrast, strategies requiring external support or collaboration were rarely used (external referral 14.1%; consulting a psychologist 12.0%), consistent with reported barriers of limited time (26.1%), insufficient training (16.3%) and limited administrative support (10.9%), and with the reality that referral pathways and school psychological services remain limited in China [33]. Large class size and lack of time again emerged as principal structural barriers: with classes exceeding 40 pupils, individualised attention is difficult, and in a system that prizes discipline and achievement, pupils who neither disrupt the class nor depress academic outcomes are unlikely to be prioritised [10]. The finding that 13.0% cited concern about stigma is important for understanding how teachers decide whether to intervene: in a cultural context that values "face" and the avoidance of negative labels, teachers may hesitate to single out pupils for support even when they perceive a need, which is consistent with evidence that Chinese pre-service teachers' intentions to interact with pupils with ADHD depend on attributions and perceptions of effort [10].

5.4 Implications and Future Research

The findings both align with and extend prior research. Consistent with earlier work [8, 9, 15], teachers showed limited knowledge, some misconceptions, and particular difficulty with inattentive symptoms, and their perceptions appeared shaped by cultural emphases on achievement and order. The study extends this literature by focusing specifically on the inattentive presentation, by using a context-adapted KADDS, and by examining the knowledge–attitude relationship directly. The absence of a significant correlation between knowledge and attitudes ($r = .085$, $p = .420$) indicates that these are distinct constructs and that providing information alone may be insufficient to change attitudes, which is consistent with meta-analytic evidence that knowledge does not reliably predict attitudes [27] and with evidence that implementation depends on factors beyond knowledge [28]. An unexpected finding was the absence of significant knowledge differences across experience groups, $F(3, 88) = 1.71$, $p = .170$; contrary to the assumption that experience brings greater knowledge, this suggests that ADHD knowledge is not acquired through classroom experience alone and that professional development is needed regardless of tenure, which is consistent with evidence that training, rather than experience, predicts knowledge and attitudes [23].

The study indicates that distinguishing inattentive from hyperactive-impulsive symptoms is valuable when assessing teacher knowledge; that knowledge and attitudes may represent separable dimensions requiring separate attention; and that cultural and structural factors, class size, achievement pressure, and stigma, must

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be considered when interpreting teachers' responses. The low knowledge levels point to an urgent need for professional development focused specifically on inattentive presentations, correcting common misconceptions (e.g., gender distribution) and equipping teachers with accessible strategies. Because knowledge and attitudes were uncorrelated, training should include a dedicated component addressing attitudes, e.g., structured contact with individuals who have ADHD [17]. The prominence of structural barriers indicates that teacher-level intervention alone is insufficient; school- and system-level reform, reducing class sizes where feasible, protecting preparation time, and ensuring access to professional support services, is also needed. Finally, concerns about stigma suggest that schools should adopt policies that normalise additional support, favouring universal support measures that benefit all pupils over conspicuously targeted interventions.

Several limitations qualify these findings. Convenience and snowball sampling limit generalisability and may over-represent digitally active teachers; self-report data are subject to social desirability bias; and the abbreviated 13-item KADDS is not directly comparable with the full instrument. Future research should employ larger, more representative samples across regions and school types; develop and evaluate targeted interventions, including randomised comparisons of information-based and contact-based training, to improve knowledge of and attitudes towards inattentive ADHD; and examine specifically how Chinese schools identify and support girls, who are especially likely to be overlooked. Cross-cultural comparative studies would further clarify how cultural attitudes towards disability and classroom management shape teachers' responses.

6. Conclusion

This present study examined Chinese primary teachers' knowledge, attitudes and practices regarding pupils with less visible, inattentive ADHD. Teachers demonstrated low-to-moderate knowledge (~41% correct), with particularly limited understanding of inattentive symptoms and gender distribution; they held generally negative or uncertain attitudes marked by low confidence and reluctance to include affected pupils; they relied predominantly on low-cost instructional accommodations while rarely using strategies requiring external support; and they identified large class size and lack of time as the principal barriers. The study makes theoretical contributions by foregrounding the neglected inattentive presentation, demonstrating empirically the independence of knowledge and attitudes, and situating ADHD research in a non-Western context shaped by class size, achievement pressure and stigma. Practically, it identifies specific knowledge gaps and structural barriers that professional development and school policy should address.

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Conflicts of Interest

The authors declare no conflict of interest.

Ethics and Consent

The study was conducted in accordance with the Declaration of Helsinki and approved by the UCL Institute of Education. All participants provided digital informed consent prior to participation, and all data were fully anonymised.

Data Availability

The anonymised dataset is available from the corresponding author on reasonable request.

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Permissions

Not Applicable.

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A Systematic Review of the Aesthetic and Performative Dimensions of Akan Folk Games

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Abstract

Akan folk games are living performance traditions in which movement, song, speech, rhythm, gesture, material objects and social rules operate as an integrated expressive system. Although their educational and sociocultural value is increasingly recognised, evidence about the aesthetic and performative dimensions of these games remains dispersed across ethnomusicological, educational, cultural and practice-based scholarship. This review synthesised evidence on how Akan folk games generate aesthetic meaning, organise performance and sustain cultural transmission. A systematic integrative review was conducted in accordance with PRISMA 2020, with additional guidance from ENTREQ and synthesis-without-meta-analysis principles. Searches covered Google Scholar, ERIC, Crossref Metadata Search, named institutional repositories, targeted publisher and journal websites, and backward citation searching from database inception to 31 July 2026. English-language empirical, ethnographic, practice-based and analytically substantive studies focused on Akan games or closely related Ghanaian play-song traditions were eligible. Sixteen studies were included and appraised using design-appropriate Mixed Methods Appraisal Tool criteria. The evidence revealed six mutually reinforcing dimensions: sonic and oral, kinetic and embodied, spatial and material, dramatic and affective, communal and ethical, and transmission and adaptation. Adaptation for schools and digital media can extend access, but decontextualisation may weaken linguistic, embodied and community-authenticated meanings. Akan folk-game aesthetics are relational and performative. Their beauty emerges from coordinated action and from the fit between artistic form, social purpose and cultural memory. Safeguarding therefore requires multimodal documentation, community validation and educational use that retains the games' sonic, kinetic, spatial and participatory integrity.

Keywords

Akan folk games, aesthetic performance, indigenous games, embodied heritage, intangible cultural heritage

1. Introduction

Folk games occupy a distinctive position in Akan cultural life because they join play to music, language, bodily discipline, imagination and social instruction. A game may begin with a leader’s call, a sung formula or an agreed spatial arrangement; it may then unfold through clapping, stepping, jumping, pursuit, object passing, strategic calculation, mimetic gesture or collective response. The event is simultaneously recreational and performative. Participants do not merely execute rules. They shape tempo, produce sound, manage suspense, display skill, interpret social cues and sustain a shared aesthetic atmosphere.

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This integrated quality is consistent with broader African performance traditions in which artistic form is rarely separated from practical, moral and communal purpose. Nketia's documentation of Ghanaian folk songs [1] demonstrated that music is embedded in social activity, while Taylor's distinction between the archive and the embodied repertoire [2] clarifies how cultural memory is transmitted through repeated action as well as through written records. From this perspective, Akan folk games are not minor children's diversions. They are embodied repositories in which movement patterns, song texts, tonal modulations, materials, rules and social relationships are repeatedly enacted.

The aesthetic dimension of these games has sometimes been reduced to visible attractiveness or musical ornament. Such a reduction is inadequate. Everyday aesthetics [3] emphasises that ordinary practices can organise perception, emotion and value, while performance studies treats play, ritual and games as structured events that generate meaning through presence, repetition, interaction and restored behaviour [4]. Aesthetic analysis of Akan folk games must therefore ask how the event feels, sounds and moves; how bodies and objects are arranged; how suspense, humour and rhythm are created; and how participants recognise a performance as skilful, appropriate or culturally resonant.

Existing studies have examined Ghanaian children's singing games, indigenous music pedagogy, school-based folk games, language learning, mathematical instruction and cultural preservation [5-10, 18, 22, 26]. A smaller body of directly Akan-focused work has documented particular games such as Antoakyire, Pilolo, Oware, Abatoɔ, Alikoto and other locally named forms. However, findings remain dispersed across journals, theses and institutional repositories, and many studies foreground educational outcomes without explicitly theorising the performative mechanisms that produce those outcomes. This fragmentation obscures the aesthetic system linking sound, movement, space, materiality, emotion and communal regulation.

A systematic synthesis is particularly necessary at a time when urbanisation, changing leisure patterns, reduced intergenerational contact and screen-based entertainment are reshaping children's play. Curricular integration and digital documentation offer important opportunities, but preservation can become reductive when a game is represented only through its rules or a short video detached from language, occasion, local variation and participant interpretation. A rigorous account of aesthetic and performative dimensions is therefore a prerequisite for culturally responsible documentation, teaching and digitisation.

The purpose of this systematic integrative review was to synthesise scholarship on the aesthetic and performative dimensions of Akan folk games and closely related Ghanaian play-song traditions. The review addressed four questions: (1) Which sonic, embodied, spatial, material, dramatic and communal elements structure the performance of Akan folk games? (2) How do these elements produce aesthetic experience and cultural meaning? (3) What educational and social functions are enabled by the performance structure? and (4) What methodological and preservation priorities emerge from the existing evidence?

2. Methods

2.1 Review Design and Reporting Framework

A systematic integrative design was selected because the evidence base combines ethnography, qualitative case studies, practice-based accounts, educational interventions, quasi-experimental work and theses. The review was reported in accordance with the PRISMA 2020 statement [11]. ENTREQ [12] informed the transparent reporting of qualitative synthesis, while the Synthesis Without Meta-analysis guideline [13] informed the explanation of study grouping and narrative comparison. A meta-analysis was not appropriate because outcomes, units of analysis and methods were heterogeneous and because the primary aim was interpretive synthesis rather than estimation of a common intervention effect. The review protocol was specified before full-text selection but was not registered in a public registry. Eligibility criteria, selection counts, extraction fields, appraisal procedures and the recoverable search information are reported below and in Appendix A; complete reconstructed source-specific strategies are provided in the accompanying Supplementary Search Strategy.

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2.2 Eligibility Criteria

Eligibility was organised around population and cultural context, phenomenon of interest, evidence type and report characteristics. Studies were included when they examined Akan traditional or folk games, Akan children's play songs, or Ghanaian indigenous games whose performance features were directly transferable to the interpretation of Akan traditions. The phenomenon of interest comprised at least one aesthetic or performative element, including song, rhythm, clapping, movement, gesture, bodily coordination, spatial formation, costume or objects, humour, role-play, improvisation, audience participation, affective response or culturally patterned rules. Empirical qualitative, quantitative, mixed-methods, ethnographic, practice-based and analytically substantive educational studies were eligible.

Reports were excluded when they concerned digital or commercial games without a clear indigenous Akan or Ghanaian basis; discussed games only as an abstract metaphor; described educational benefits without reporting identifiable game features; lacked sufficient methodological or analytical substance; duplicated another report; or were not available in English. Books and foundational theoretical works were used to frame interpretation but were not counted as included studies. No lower publication-date limit was applied; searches ended on 31 July 2026.

2.3 Information Sources and Search Strategy

The information sources were Google Scholar; ERIC; Crossref Metadata Search; the University of Education, Winneba Institutional Repository; the Kwame Nkrumah University of Science and Technology Institutional Repository; the University of Ghana Research Repository; and targeted searches of the journal or publisher websites that hosted potentially eligible records. These sites included International Journal of Education & the Arts, Social Education Research, International Journal of Research and Innovation in Social Science, Integrated Journal for Research in Arts and Humanities, Hybrid Journal of Literary and Cultural Studies, International Journal for Multidisciplinary Research, Research Journal in Advanced Humanities, Cogent Education, Youth Theatre Journal, African Journal of Social Sciences and Humanities Research, Journal of Advanced Research and Multidisciplinary Studies, Simulation & Gaming, and European Journal of Mathematics and Science Education. Backward citation searching was undertaken from the included reports and key Akan-focused studies. Searches covered each source from inception to the final update reported on 31 July 2026. The consolidated log did not retain the execution date for each individual source.

The principal concept structure was (Akan OR Ashanti OR Ghana*) AND ("folk game*" OR "traditional game*" OR "indigenous game*" OR "play song*" OR "singing game*") AND (aesthetic* OR perform* OR music* OR rhythm OR movement OR gesture OR dance OR embody* OR "cultural value*"). The syntax was adapted to each platform, and targeted searches used the game names Antoakyire, Pilolo, Oware, Abatoɔ, Alikoto and Kyempe. English-language reports were retained; no lower publication-date limit was applied. The search generated 78 records from database, metadata and publisher-platform searching and 18 from repositories and citation searching, for 96 records in total. The original consolidated log did not retain counts for each individual source. Duplicate records were identified by normalising and matching titles, author names and publication years, with DOI comparison where available, followed by manual review; 24 duplicates were removed. Appendix A and the supplementary file distinguish contemporaneously reported information from reconstructed reproducible strategies.

2.4 Study Selection

Titles and abstracts were screened against the predefined criteria. Potentially eligible reports were then examined in full. To reduce inconsistency in a single-author review, all inclusion decisions were verified in a second screening pass using the same criteria, and exclusion reasons were recorded at full-text stage. When a study contained both educational outcomes and descriptions of performance, only evidence relevant to aesthetic form, enactment or culturally mediated function was extracted.

2.5 Data Extraction

A standardised extraction form captured bibliographic details, location, cultural group, participants, named games, study design, data-collection methods, aesthetic and performative elements, reported cultural or educational functions, and limitations. Extracted aesthetic evidence was coded initially using descriptive

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categories derived from the literature: sound and oral expression; movement and bodily technique; spatial organisation; material and visual features; dramatic and affective expression; participation and social regulation; and transmission or adaptation. New categories were added when evidence did not fit the initial framework.

2.6 Methodological Appraisal

Methodological quality was appraised using design-appropriate criteria from the 2018 Mixed Methods Appraisal Tool [14]. The appraisal considered clarity of the research question, adequacy of data sources, coherence between design and analysis, relevance of participants, completeness of outcome reporting and acknowledgement of limitations. Practice-based and reflective papers were judged for transparency of context, analytic depth and the traceability of claims to described experience. In keeping with MMAT guidance, no aggregate numerical score was calculated. Studies were assigned high, moderate or limited methodological confidence to aid interpretation rather than to determine inclusion.

2.7 Synthesis Procedure

The synthesis proceeded in three stages, guided by ENTREQ and SWiM reporting principles [12, 13]. First, extracted evidence was summarised by study and game type. Second, line-by-line codes were grouped into descriptive themes. Third, relationships among themes were interpreted to produce an integrative model of Akan folk-game aesthetics. Greater interpretive weight was given to findings that recurred across culturally specific ethnography, direct observation and participant testimony. Educational outcome studies were used primarily to clarify how performative structures functioned in learning rather than to infer causal effectiveness beyond their designs.

3. Results

3.1 Search and Selection Results

The search produced 96 raw records: 78 from databases, metadata and publisher platforms and 18 from repositories and citation searching. After 24 duplicates were removed, 72 titles and abstracts were screened. Forty-four records were excluded during screening, and 28 reports were sought for retrieval. Two reports could not be retrieved, leaving 26 full-text reports for eligibility assessment. Ten reports were excluded because they fell outside the Akan or Ghanaian scope, lacked usable aesthetic or performance evidence, provided insufficient methodological detail, or overlapped with another report. Sixteen studies were included in the qualitative synthesis, as shown in Figure 1.

Only one in six raw records was retained. This attrition reflects a field in which many publications discuss the educational or cultural value of indigenous games without describing how the games sound, move, occupy space or organise participation. The final corpus therefore privileges reports with traceable performance evidence.

3.2 Characteristics of Included Studies

The 16 studies spanned 1996 to 2026 and were concentrated in Ghana, as shown in Table 1. Most used qualitative designs, including ethnography, case study, interviews, focus groups, observation and multimedia analysis. Sample sizes ranged from nine expert players to 129 pupils. Two recent studies used quantitative or quasi-experimental approaches to examine mathematical learning, while several studies analysed children's singing games or classroom adaptation. Directly Akan-focused studies examined game repertoires in Ashanti and other Akan-speaking settings, including Antoakyire, Pilolo, Oware, Abatoɔ, Alikoto and a range of locally named singing and movement games.

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Figure 1: PRISMA 2020 flow diagram for the identification, screening and inclusion of studies.

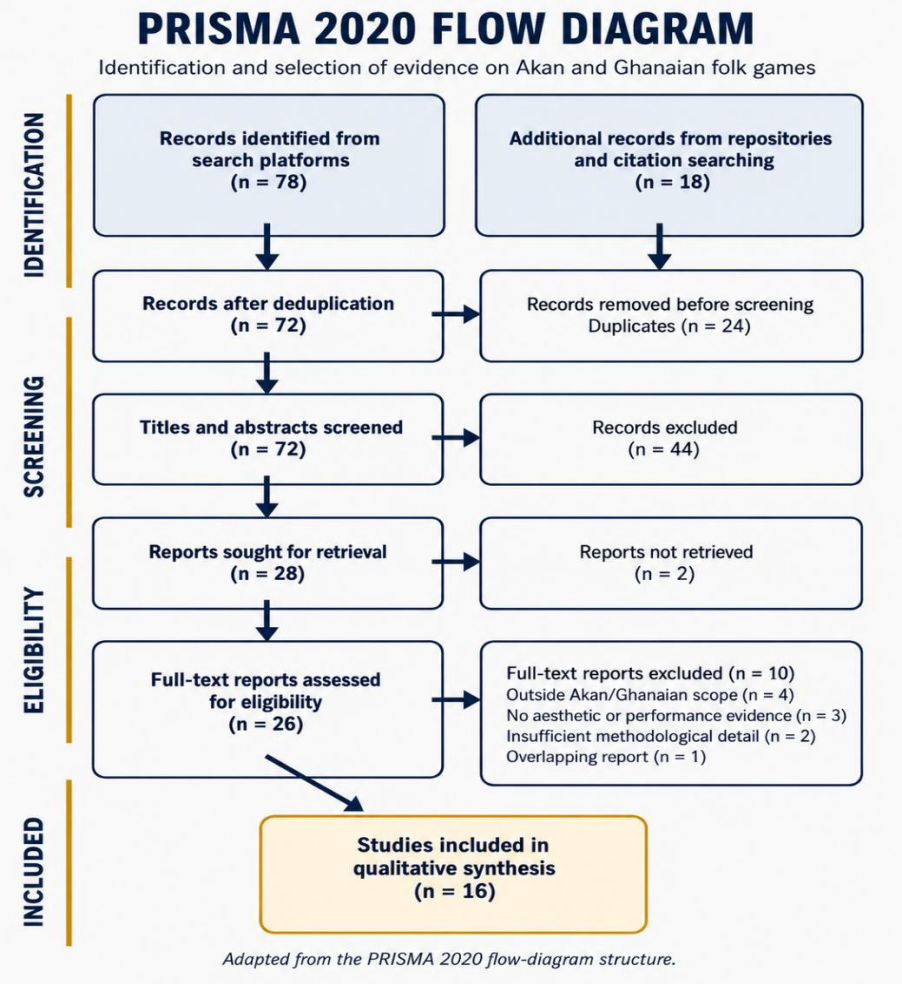


Table 1: Characteristics and principal contributions of the 16 included studies

Study	Setting / participants	Design	Game focus	Contribution to this review
Addo (1996)	Ghanaian children; multimedia corpus	Multimedia/ethnomusicological analysis	Play songs and singing games	Links musical form, performance practice and social meaning; foregrounds song, movement and cultural norms.
Dzansi (2002)	Ghanaian children's singing games	Interpretive qualitative study	Singing games	Shows indigenous culture through language, rhythm, communal participation, gendered roles and embodied play.
Gyadu (2014)	Six public schools, Central Region	Qualitative case study; observation, interviews, questionnaires	Folk games in schools	Documents cognitive, psychomotor and psychosocial values and the decline of regular play.
Acquah et al. (2015)	Children and indigenous music educators in Ghana	Qualitative descriptive study	Musical games and songs	Treats music, movement and participation as resources for holistic wellbeing and social development.
Boateng-Nimoh & Nantwi (2020a)	129 pupils, Ghana	Qualitative survey/case study	School folk games	Reports reduced participation but sustained educational value; identifies social and academic implications.
Boateng-Nimoh &	115 pupils, Ghana	Action-oriented qualitative study	Modified Abatoɔ	Demonstrates how visual-art elements and structured

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Study	Setting / participants	Design	Game focus	Contribution to this review
Nantwi (2020b)				adaptation can increase engagement while retaining a traditional game base.
Agyeman & Brewu (2020)	16 children aged 7–10, Ashanti Region	Eight-week ethnographic case study; video and focus groups	Eight Akan ethno-musical games	Rich evidence on song, movement, rules, role allocation, social context and children's interpretations.
Duhoe & Otibua (2020)	12 Ghanaian participants	Qualitative thematic analysis	Indigenous children's play songs	Identifies aesthetic pleasure in singing, clapping, dance, rule-governed creativity and emotional expression.
Opoku & Obeng (2022)	Asotwe community; pupils, teachers and community representatives	Qualitative case study	Seventeen Akan folk games	Details artistic integration through singing, clapping, dancing and game materials; connects performance to values and curriculum.
Obeng et al. (2022)	25 participants in early childhood setting	Qualitative case study; observation and interviews	Indigenous folk-game songs	Shows how repetition, melody, movement and local language enable active learning and participation.
Agbenyo et al. (2022)	Three members of the Organization of American Kodály Educators	Multiple-case interview study	Kodály principles and contextual adaptation	Explains how Kodály principles may be adapted to Ghanaian basic-school music education through local singing and movement resources.
Mensa et al. (2023)	100 participants in three Ghanaian municipalities	Qualitative interviews and observation	Akan traditional games	Associates interactive performance with communication, teamwork, language proficiency, motivation and cultural appreciation.
Deh (2023)	University of Ghana drama-education context	Practice-based reflective analysis	Ghanaian indigenous games	Shows the dramaturgical value of role-play, improvisation, mime, concentration, spontaneity and ensemble work.
Owusu & Obuo Addo (2023)	Ghanaian upper-primary mathematics context	Educational case/application study	Alikoto	Demonstrates how a culturally familiar spinning game embodies numerical reasoning, prediction and participatory problem-solving.
Kyei-Nuamah (2026)	Nine Akan expert players	Narrative and interpretative phenomenological analysis	Antoankyire, Pilolo, Oware and related games	Connects expert experience to imagination, observation, social intelligence, storytelling, physical activity and wellbeing.
Baidoo (2026)	80 Basic Six pupils, Ghana	Quasi-experimental study	Kyempe adapted for fractions	Shows measurable mathematics gains and illustrates the pedagogical conversion of embodied, rule-governed indigenous play.

3.3 Methodological Confidence

Four studies provided high methodological confidence because they combined a clearly bounded cultural context with direct observation, transparent analysis or a well-described comparison design, as summarised in Table 2. Ten studies provided moderate confidence. Their findings were useful and generally coherent, but reporting of sampling, reflexivity, analytic procedures or participant characteristics was sometimes incomplete. Two studies provided limited confidence because their methods and evidential chains were only briefly described. No study was excluded solely on quality grounds because thinly reported local scholarship can still

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preserve culturally important detail; however, lower-confidence evidence was not used alone to support major interpretive conclusions.

Table 2: Design-sensitive methodological confidence in the included evidence

Confidence	Studies	Basis for judgement
High	Addo (1996); Agyeman & Brewu (2020); Kyei-Nuamah (2026); Baidoo (2026)	Clear research focus; traceable data; appropriate design; transparent connection between evidence and claims.
Moderate	Dzansi (2002); Gyadu (2014); Acquah et al. (2015); Boateng-Nimoh & Nantwi (2020a, 2020b); Duhoe & Otibua (2020); Opoku & Obeng (2022); Obeng et al. (2022); Mensa et al. (2023); Owusu & Obuo Addo (2023)	Relevant evidence and coherent findings, with some limitations in sampling detail, reflexivity, analytic description or consistency of reporting.
Limited	Agbenyo et al. (2022); Deh (2023)	Strong contextual or practice insight but restricted empirical breadth or insufficiently detailed analytic procedures.

3.4 Thematic Synthesis

3.4.1 Sonic and Oral Architecture

The most consistently reported aesthetic domain was sonic and oral form. Songs, chants, spoken cues, clapping and rhythmic patterns organised the beginning, continuation and closure of play. In singing games, the musical phrase commonly specified when a player should move, turn, pass an object, change position or respond. The leader-and-chorus pattern distributed authority while allowing the group to sustain a shared pulse. Repetition made the performance learnable, but variation in tempo, vocal intensity, wording or response prevented repetition from becoming mechanical.

Across the evidence, sonic form was inseparable from action [5, 6, 9, 15, 16]. Clapping was both music and measurement: it marked beats, coordinated bodies and signalled collective attention. Song text also carried linguistic and social content through names, proverbial expressions, instruction, teasing and commentary. Aesthetic pleasure arose from accuracy of response, vocal blend, rhythmic stability and the gradual intensification of the group. The evidence therefore supports the interpretation of sound as an operational architecture rather than an accompaniment.

3.4.2 Embodied Movement, Timing and Virtuosity

Movement constituted a second major domain. Running, hopping, turning, crouching, balancing, stamping, hand gestures, object passing and coordinated changes of direction made knowledge visible through the body. The studies described games in which players learned by watching and imitating, then refined their performance through repeated participation and correction. Timing was especially important. A movement made too early, too late or outside the agreed rhythm could alter the outcome of the game and expose a player to playful correction or elimination.

This bodily precision created a vernacular form of virtuosity. Skill was recognised in quick reaction, balance, strategic deception, graceful movement, accurate hand-eye coordination and the ability to remain composed under group attention. The body functioned as both medium and archive: participants remembered the game by performing its sequence. Studies of Akan ethno-musical games and classroom adaptations also showed that embodied action supported attention, numeracy, language use and observational learning. These educational effects were not external benefits added after play; they emerged through the sensory and motor organisation of the performance itself.

3.4.3 Spatial and Material Dramaturgy

Akan folk games were spatially composed. Circles enabled visibility, equality of response and the circulation of a leader or object. Lines created opposition, sequence or pursuit. Grids, marked grounds and bounded areas converted everyday spaces into temporary performance environments. Proximity and distance generated tension: the nearness of a pursuer, the hidden location of an object or the narrowing space available to a player intensified attention and suspense. Material objects were generally simple but symbolically and functionally rich. Seeds, stones, sticks, chalk marks, cloth, spinning tops and locally available objects served as counters, props, targets, boundaries or instruments of chance and calculation. Their aesthetic significance

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lay partly in transformation: ordinary materials became meaningful through agreed rules and skilled handling. Studies of Abatoɔ and Alikoto further showed that visual form and object manipulation could be deliberately adapted for classroom learning. Such adaptation was most culturally coherent when the object, movement and social pattern of the original game remained recognisable [17, 18].

3.4.4 Dramatic, Humorous and Affective Expression

The evidence consistently portrayed games as affective events. Suspense arose from uncertainty about selection, capture, successful concealment, strategic response or the final beat of a song. Humour appeared in mimicry, teasing, exaggerated gesture, deliberate feinting and the public but temporary embarrassment of a mistake. Victory could produce celebration and boasting, while defeat was ritualised through laughter, correction or immediate reintegration into another round.

Practice-based drama and play-song evidence clarified the dramaturgical importance of these features [15, 19]. Indigenous games trained spontaneity, role awareness, concentration, ensemble sensitivity and improvisation. Participants moved between being players, observers, judges, leaders and responsive chorus members. The event's emotional range - anticipation, excitement, fear of error, relief and collective amusement - made cultural rules memorable. Humour therefore did more than entertain; it regulated tension and allowed instruction and correction to occur without severing belonging.

3.4.5 Communal Participation and Ethical Form

Aesthetic success depended on communal cooperation. Even competitive games required agreement on rules, turn-taking, boundary conditions and acceptable conduct. Leaders initiated songs or organised the sequence, but the group's response sustained the performance. Spectators were often active witnesses who clapped, sang, corrected, encouraged and authenticated the event. This participation produced a social aesthetics in which beauty was perceived through coordination, reciprocity and the visible fit between individual skill and collective order. The studies repeatedly linked these structures to discipline, patience, respect, cooperation, courage, fair competition and acceptance of outcomes [6, 20]. Such values should not be romanticised as automatic or uniform, because games may also reproduce age, gender or status distinctions. Nevertheless, the evidence indicates that ethical learning was embedded in the form of play: participants practised waiting, leading, responding, correcting and rejoining. The communal framework also permitted local variation. A game could retain its identity while songs, rules, names or movement patterns changed across communities.

3.4.6 Aesthetic Pedagogy and Cultural Transmission

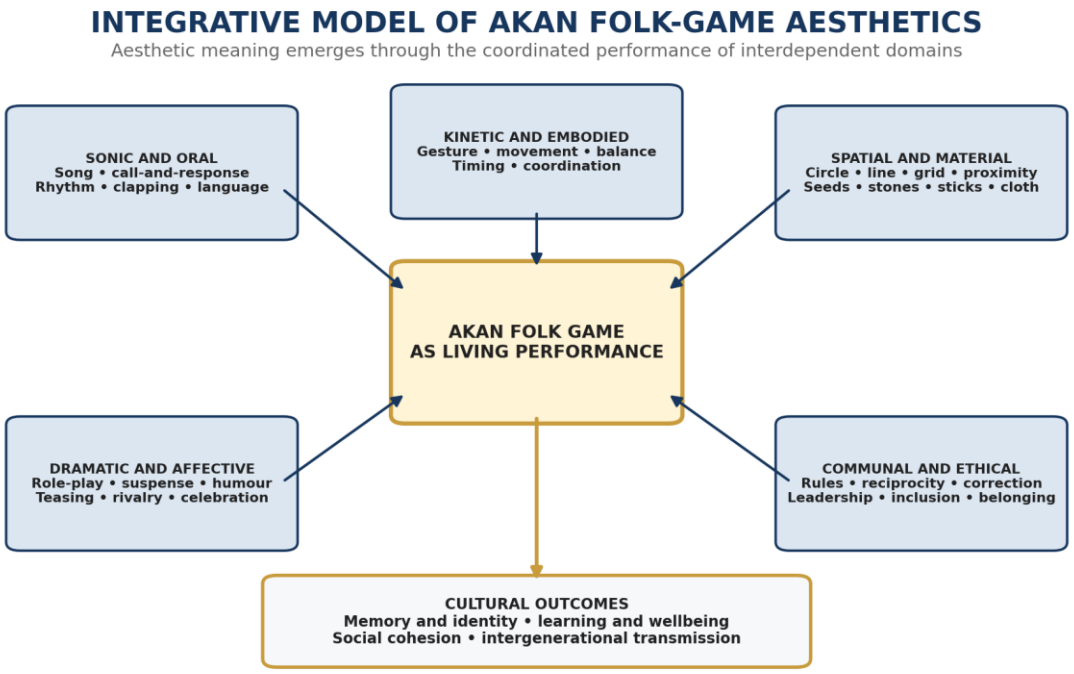
The sixth theme integrated the preceding domains. Folk games taught because they were aesthetically compelling. Rhythm held attention, movement embodied concepts, repetition strengthened memory, suspense motivated persistence, and group response made learning public and collaborative. Studies in language, music, drama and mathematics showed that culturally familiar games could support communication, storytelling, problem-solving, fraction concepts, observation and social intelligence [10, 18-22]. However, the synthesis does not support a simple claim that every traditional game automatically improves every educational outcome. Benefits depended on appropriate selection, skilful facilitation, curricular alignment and preservation of the game's internal logic. When a game was reduced to a motivational label or detached worksheet, its cultural and performative resources were weakened. Effective aesthetic pedagogy retained the sequence of action, the collective rhythm, the local language or narrative where applicable, and opportunities for participants to interpret the game's meaning.

3.5 Integrative Model

The themes were synthesised into a relational model with five interacting performance domains and a set of cultural outcomes. Sonic and oral, kinetic and embodied, spatial and material, dramatic and affective, and communal and ethical domains converge in the live game event. None is sufficient in isolation. A recorded song without movement, a rule list without spatial practice, or a video without community explanation preserves only a partial object. Cultural memory, learning, wellbeing, cohesion and transmission arise through the coordinated operation of the domains.

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Figure 2: Integrative model of the aesthetic and performative dimensions of Akan folk games



The model in Figure 2 positions aesthetic value as an emergent relation rather than an ornamental layer. Sound, bodily action, space and materials, affective drama and communal ethics meet in the live event. Preservation or teaching is strongest when it represents these domains together and links them to cultural outcomes.

4. Discussion

This review shows that the aesthetics of Akan folk games are best understood as relational performance. Beauty is produced when the timing of bodies, voices, materials, space and social response becomes coherent. The pleasure of a well-executed game is therefore not reducible to a beautiful tune or graceful movement. It lies in the patterned coordination of elements and in the cultural intelligibility of that coordination. This finding aligns with performance theory, which understands play as structured behaviour restored through repeated enactment [4], and with everyday aesthetics, which locates aesthetic meaning within ordinary practices that shape perception, conduct and world-making [3]. The synthesis also clarifies why educational studies repeatedly report engagement and holistic development. The games compress multiple learning channels into one event. Participants hear and produce language, observe sequences, calculate timing, move within constraints, predict others' actions, regulate emotion and negotiate social expectations. Such density helps explain why indigenous games can support language, mathematics, music, drama, physical development and social learning. The educational power resides in multimodality and participation, not simply in the presence of a culturally familiar label.

A further contribution is the identification of audience participation as part of the aesthetic system. Western distinctions between performer and spectator do not adequately describe many of the reviewed games. A person outside the immediate round may still sing, clap, judge, warn, tease or correct. The performance is co-produced by a responsive community. This social aesthetics explains how games transmit norms: approval, laughter, correction and repetition make standards visible without requiring formal exposition. At the same time, the literature frequently treats 'tradition' as stable and uniformly positive. A more critical approach is needed. Games vary by town, generation, gender, age and occasion, and their meanings may change when moved from a courtyard to a classroom, stage or digital archive. Curricular adaptation can democratise access, but institutional control may also standardise one local version as authoritative [24, 25]. Digital recording can preserve sound and movement, yet framing, editing, metadata and platform design determine whose interpretation is visible. Community participation is therefore epistemic, not ceremonial: knowledge holders

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should help identify versions, meanings, restrictions, ownership and appropriate modes of access. The review further demonstrates that scarcity of high-quality evidence should not be confused with scarcity of cultural knowledge. Much Akan game knowledge remains oral, embodied and locally held [23, 26]. The academic record is uneven because performance is difficult to represent in print and because regional scholarship is dispersed across repositories and journals with variable indexing. Future research should combine audiovisual ethnography with detailed textual description, local-language transcription, music and movement analysis, participant interpretation and transparent ethical protocols.

5. Implications for Scholarship, Education and Heritage Practice

5.1 Research and Documentation

Researchers should document the complete performance ecology of each game: local name and variants; community and occasion; participant roles; opening and closing procedures; song text and translation; rhythm and tempo; movement sequence; spatial formation; materials; rules and sanctions; humour and affect; audience response; and interpretations offered by knowledge holders. Video should be supplemented with annotated stills, movement maps and notation, where useful, as well as field notes that explain what a camera cannot capture, including social relationships and locally understood cues [2, 23, 27, 28].

Comparative studies should avoid assuming that a shared name denotes an identical game. Researchers should specify version, place, language and generation, then analyse both continuity and variation. Longitudinal work is needed to examine how play changes across rural, urban, school and digital settings. Mixed-methods designs can connect ethnographic depth to measurable outcomes without treating cultural context as a nuisance variable.

5.2 Curriculum and Pedagogy

Teachers should introduce games as cultural performances rather than as isolated classroom techniques. Instruction can begin with community history and demonstration, proceed through embodied participation, and conclude with reflection on language, music, movement, mathematics, ethics or social meaning. Learning objectives should arise from the internal structure of the game [17, 19, 10]. A counting or strategy game may support mathematics; a singing and response game may support language and music; a mimetic game may support drama and oral narrative. Adaptation should be proportionate. Safety, class size and accessibility may require modification, but the rhythm, sequence, relational roles and cultural explanation should be retained wherever possible. Elders, cultural practitioners and experienced players can support teacher preparation and prevent inaccurate or trivialised representation.

5.3 Digital Preservation and Public Presentation

Digital archives should preserve more than names and rules. Each game record should connect searchable metadata to audiovisual performance, song transcription and translation, movement description, spatial diagram, material culture, community commentary, educational possibilities and rights information [25, 28]. Multiple versions should be presented as legitimate local expressions rather than errors to be normalised. Interface design should allow users to hear the rhythm, follow the movement sequence and understand the cultural context before attempting the game. Ethical design requires informed consent, agreed access levels, attribution of communities and performers, protection of restricted knowledge, and a mechanism for communities to correct or update records. Sustainable preservation also requires durable file formats, redundant storage, descriptive and preservation metadata, and a governance plan extending beyond the initial project.

6. Limitations of the Review

The review has five principal limitations. First, English-language and web-accessible reports were prioritised, which may have excluded locally circulated texts and unpublished community documentation. Second, the boundary between Akan-specific and broader Ghanaian evidence required interpretive judgement. Closely related Ghanaian play-song studies were included only when they provided performance mechanisms

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directly relevant to the Akan evidence, but they cannot erase cultural differences among Ghanaian groups. Third, most included studies were qualitative and heterogeneous, and several provided incomplete reporting of sampling, reflexivity or analysis. Fourth, selection and appraisal were conducted by one reviewer with a structured second-pass verification rather than by two independent reviewers. Fifth, the consolidated search log retained aggregate identification counts but not source-specific retrieval counts, individual execution dates or complete platform query histories; consequently, those details could not be reported retrospectively as contemporaneous records. The findings should therefore be interpreted as a rigorous integrative map of the available literature rather than as a complete inventory of living Akan game traditions.

7. Conclusion

Akan folk games are aesthetic performances in which sound, language, body, space, objects, emotion and community are organised into culturally meaningful play. Song and clapping regulate time; movement gives knowledge physical form; circles, lines, grids and materials create a temporary performance world; humour and suspense intensify participation; and collective response binds individual skill to social order. These elements do not simply decorate the game. They are the means through which the game teaches, entertains, remembers and renews communal identity. The most important implication is that preservation must retain relationships among elements. A name, rule list or isolated recording cannot represent the full cultural object. Scholarly documentation, curriculum design and digital archiving should therefore be multimodal, community-validated and attentive to local variation. When safeguarded in this way, Akan folk games remain not remnants of a disappearing past but adaptable repertoires of artistic intelligence, social knowledge and embodied heritage.

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Appendices

Appendix A Search Strategy and Eligibility Logic

A1 Principal Search Strategy

The original manuscript recorded the following principal concept structure: (Akan OR Ashanti OR Ghana*) AND ("folk game*" OR "traditional game*" OR "indigenous game*" OR "play song*" OR "singing game*") AND (aesthetic* OR perform* OR music* OR rhythm OR movement OR gesture OR dance OR embody* OR "cultural value*").

Targeted title and topic query: (Akan OR Ashanti) AND ("traditional games" OR "indigenous games") AND (culture OR education OR performance).

Play-song query: Ghana* AND ("children's singing games" OR "play songs") AND (movement OR rhythm OR culture).

Named-game query: (Antoakyire OR Pilolo OR Oware OR Abatoɔ OR Alikoto OR Kyempe) AND Ghana.

Repository query: (site:ir.uew.edu.gh OR site:ir.knust.edu.gh OR site:ugspace.ug.edu.gh) AND ("folk games" OR "play songs" OR "indigenous games"). The accompanying Supplementary Search Strategy documents platform adaptations, fields and filters, and the limits of the surviving search record.

A2 Reporting Notes and Inclusion Decision Rule

The final search update was reported as 31 July 2026. The surviving consolidated log records 78 records from database, metadata and publisher-platform searching and 18 from repositories and citation searching, but it does not preserve individual source dates or counts. A report was included when it met all three minimum conditions: (1) an Akan or directly relevant Ghanaian indigenous-game context; (2) identifiable evidence about the enactment, sensory form, material organisation, affective experience or social performance of a game; and (3) sufficient methodological or analytical substance to trace the reported claim. Reports focused only on generic gamification, commercial digital games or abstract educational benefits were excluded.

Appendix B Thematic Coding Framework

Domain	Indicative codes	Analytic question
Sonic and oral	Song, chant, call-and-response, rhythm, clapping, spoken cue, tonal variation, repetition	How sound regulates action, memory, participation and linguistic meaning
Kinetic and embodied	Gesture, stepping, running, turning, jumping, balance, timing, coordination, imitation	How bodily technique produces skill, pleasure and embodied knowledge
Spatial and material	Circle, line, grid, boundary, distance, seeds, stones, sticks, cloth, spinning object	How place and objects create a temporary performance environment
Dramatic and affective	Role-play, suspense, humour, mimicry, teasing, rivalry, celebration, embarrassment	How emotion and dramaturgy intensify attention and make rules memorable
Communal and ethical	Leadership, chorus, audience, turn-taking, correction, reciprocity, inclusion, local variation	How collective order and values are enacted through participation
Transmission and adaptation	Observation, repetition, oral teaching, curriculum, redesign, digital recording	How games persist, change and risk de-contextualisation

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Conflicts of Interest

The authors declare no conflict of interest.

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Film Subtitle Translation from the Perspective of Eco-translatology: A Case Study of *The Lychee Road*

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Abstract

As China's film and television industry accelerates its international expansion, subtitle translation has emerged as a pivotal nexus of cross-cultural communication. Historical films set in the Tang Dynasty pose distinctive challenges for subtitle translation due to the high density of culture-loaded terms, including official titles, ritual conventions, and cultural artifacts. Taking the official English subtitles of the film The Lychee Road as its corpus, this study conducts a case analysis of the film's subtitle translation along the linguistic, cultural, and communicative dimensions, drawing on the "three-dimensional transformation" framework of Eco-translatology proposed by Hu Gengshen to conduct a case analysis of the film's subtitle translation along the linguistic, cultural, and communicative dimensions. The study finds that, under the dual ecological constraints of subtitling spatiotemporal limits and the cognitive gap among Western low-context audiences, the translator adopts domestication as the dominant strategy: striving for fluency along the linguistic dimension, prioritizing simplification along the cultural dimension, and securing communicative intent along the communicative dimension. Cultural discount is essentially an inevitable by-product of the translator's adaptive choices within a specific translational eco-environment, and its occurrence is ecologically determined. Explanatory translation, differentiated translation, and paratextual construction can each enhance the target text's degree of holistic adaptation and selection from different levels, thereby alleviating the loss of cultural information. This study extends the application of Eco-translatology to Tang-Dynasty film and television subtitle research and provides strategic references for the overseas dissemination of Chinese historical films.

Keywords

eco-translatology, three-dimensional transformation, subtitle translation, culture-loaded terms, cultural discount, *The Lychee Road*

1. Introduction

In recent years, China's film and television industry has flourished and accelerated its expansion into international markets with subtitle translation serving as a core nexus of cross-cultural communication. However, Chinese historical films—particularly those set in the Tang Dynasty—present severe translation challenges amid the strict spatiotemporal constraints of subtitling, because of their extremely high density of culture-loaded words.

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The film *The Lychee Roa*d is adapted from Ma Boyong's novel of the same title. It tells the story of Li Shande, a low-ranking official in the Shanglin Office (the imperial garden administration), who is appointed "Lychee Envoy" and tasked with transporting fresh lychees from Lingnan to Chang'an. The film abounds with cultural elements such as Tang official titles, forms of address, and cultural artifacts, making it an ideal case for investigating this category of subtitle translation. The academic significance of this study lies in examining the applicability and explanatory power of the "three-dimensional transformation" framework of Eco-translatology for the subtitle translation of Tang-Dynasty films. Its practical significance lies in providing strategic references for the translation of culture-loaded words and the compensation of cultural discount in the overseas dissemination of Chinese historical films.

This study addresses the following three research questions:

First, what adaptive selection and transformation strategies are employed in the English subtitle translation of *The Lychee Road* along the linguistic, cultural, and communicative dimensions, respectively?

Second, what are the concrete manifestations of cultural discount in the film's subtitle translation, and what ecological motivations underlie it?

Third, for subtitles of Tang-Dynasty historical films, which compensation strategies can effectively enhance the target text's degree of holistic adaptation and selection?

2. Literature Review

Existing research on film subtitle translation generally falls into two strands: media norm studies and cross-cultural transfer studies. Internationally, Díaz-Cintas and Remael laid the disciplinary foundation with their audiovisual translation framework, addressing the technical constraints and cultural norms of multimodal translation [1]. On the cultural dimension, Baker's classification framework for culture-loaded terms and Venuti's domestication and foreignization theory provide classic analytical tools [2, 3]; Keane's research on the global export of Chinese film and television points out that institutional cultural elements in period dramas—such as official systems and rituals—are the core factors contributing to the cognitive gap among Western audiences [4]. Domestic scholarship aligns with this trajectory: Li Yunxing proposed strategies of "condensation, simplification, and direct rendering" [5]; studies by Jin Hui, Cao Li and others have examined the translation of official-title culture-loaded words and confirmed the cultural discount in Tang-Dynasty film and television, yet they focus heavily on tactical summaries and devote insufficient attention to underlying mechanisms [6, 7].

From a theoretical perspective, audiovisual translation research has generated classic paradigms such as Skopos theory and Multimodal Discourse Analysis, yet these frameworks fall short of Eco-translatology in terms of explanatory power. Skopos theory emphasizes the functional adaptation of strategies but struggles to coordinate the interaction among multimodal elements; polysystem theory focuses on external normative constraints but gives insufficient attention to translator subjectivity and intra-textual ecology. Eco-translatology is centered on the principle of "adaptation and selection". Through its three-dimensional (linguistic, cultural, and communicative) framework, it integrates media constraints, cultural context, audience reception, and translator agency into a unified analytical system, offering stronger explanatory power. Internationally, Dollerup recognizes the core logic and theoretical value of Eco-translatology; Cronin expands the boundaries of translational ecological research from a political-ecology perspective; and Valdeón explicitly calls for extending Eco-translatology into audiovisual translation. Domestically, Hu Gengshen has progressively constructed a complete theoretical paradigm of Eco-translatology, while scholars such as Liu Yunhong have further advanced its local interpretation [8-11].

At the level of applied research, ecologically oriented explorations of multimodal translation have already appeared internationally: Hejazi and Davoudi applied the Eco-translatology framework to multimodal advertising translation, verifying its applicability to audiovisual texts, though such research has not yet extended to Chinese Tang-Dynasty historical subjects [12]. Domestic film and television applications of Eco-translatology have concentrated on mythology and revolutionary ("red") themes: scholars such as Liao Lanling and Feng Shuqi used Chang'an as a sample to verify the framework's applicability to film and television subtitles [13, 14]; Wang Yan and Li Ziwei extended the research to red-themed and mythological subjects

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respectively [15, 16]. Yet existing studies generally show a tendency to "emphasize the classification of strategies while neglecting the analysis of motivations," and systematic investigation of Tang-Dynasty historical subjects remains insufficient.

In sum, existing research exhibits a twofold research gap: internationally, ecologically oriented audiovisual translation research has not yet covered Chinese Tang-Dynasty historical subjects; domestically, research on cultural discount in Tang-Dynasty films lacks the systematic framework of Eco-translatology, and the application of three-dimensional transformations has not yet penetrated the internal logic of ecological adaptation. Taking *The Lychee Road* as its case and drawing on the Eco-translatology framework, this study, on the one hand, extends the thematic boundaries of international ecological audiovisual translation research and enriches the scholarship on Chinese historical costume dramas; on the other hand, it deepens the theoretical reach of domestic cultural-discount research and offers a new analytical path for the subtitle translation of Tang-Dynasty films going global.

3. Theoretical Framework

Eco-translatology was developed by Hu Gengshen in 2001. Its core tenet is that "translation is adaptation and selection": the translator must both adapt to the translational eco-environment and make adaptive selections of the target text within that environment, and the optimal translation is the one with the highest "degree of holistic adaptive [17].

Several core concepts form the analytical tools of this study and are defined uniformly as follows:

First, the translational eco-environment. It refers to the ecological system formed jointly by the source text, source language, and target language—an integrated whole where linguistic, communicative, cultural, and social dimensions interact with agents such as the author, readers, and clients. It is the objective field in which the translator carries out adaptation and selection [18].

Second, translator-centeredness. It conceptualizes the translator as the nexus of multiple contradictions in the translation process, and as the core ecological subject who actively makes adaptive selections within the translational eco-environment.

Third, three-dimensional transformations. This is the core methodology of Eco-translatology and comprises three dimensions: the linguistic dimension focuses on adaptive selection and transformation of linguistic form; the cultural dimension attends to the transfer and interpretation of cultural connotations between the two languages; and the communicative dimension centers on adaptive selection and transformation of the bilingual communicative intentions.

Film subtitles are simultaneously subject to the dual ecological constraints of spatiotemporal limits and cross-cultural reception, while also offering compensatory conditions through multimodal synergy. The traditional binary analytical framework of "literal versus free translation" can hardly account for linguistic form, cultural connotation, and communicative effect simultaneously. The holistic perspective of Eco-translatology and its three-dimensional transformation method are better suited to systematic study of such subtitle translation.

4. Case Analysis

This study takes the official English subtitles of *The Lychee Road* as its corpus and analyzes them along the linguistic, cultural, and communicative dimensions. The analytical procedure follows the path of "presenting examples—interpreting patterns—drawing on Eco-translatology to explain the reasons," with examples numbered in order of appearance. *In the following examples, ST = Source Text, TT = Target Text.*

4.1 The Translational Eco-environment of *The Lychee Road*

From the source text ecology perspective, The Lychee Road is set in the Tianbao period of the Tang Dynasty and constructs a high-density, high-context cultural system encompassing three core categories of culture-loaded elements: (1) Tang-Dynasty official titles (e.g., military governors, supervisors, palace attendants, the

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Lychee Envoy); (2) ritual forms of address (e.g., "the Sage," "your humble servant"); (3) institutional artifacts (e.g., yellow-slip amendment).

From the target-text ecology, the translator faces two core constraints while also benefiting from multimodal compensation: first, the spatiotemporal constraints of subtitles—the translation is limited by both display duration and screen space; second, the cognitive gap of Western low-context audiences, for whom institutional cultural elements are relatively unfamiliar; and third, multimodal synergy compensation, whereby some cultural information can be rendered through visual elements on screen.

Under the interactive constraints of the source and target ecologies, the translator develops an overall translational orientation led by domestication and prioritizing narrative coherence—an adaptive outcome driven by the "survival of the fittest" mechanism inherent to the translational eco-environment.

4.2 Adaptive Selection and Transformation on the Linguistic Dimension

The linguistic dimension concerns the translator's adaptive adjustments to linguistic form at the lexical, syntactic, and pragmatic levels. Subtitle translation is constrained by both character limit and display duration, and this medium-specific attribute directly shapes the translator's linguistic choices. In *The Lychee Road*, the translator mainly employs strategies of condensation/omission, sentence restructuring, affirmation-to-negation rendering, and the literalization of metaphors.

Condensation and omission are the most common linguistic-dimensional adaptive selections in subtitle translation, as the translator often compresses or omits redundant information, modifiers, or cultural imagery in the source text.

Example 1:

ST: 上林署这帮庸鱼碌虾

TT: This place is full of squareheads.

In the source text, "*yong yu lu xia*" (庸鱼碌虾) is a derogatory colloquial blend "庸庸碌碌" (mediocre and worthless) with "鱼虾" (fish and shrimp), figuratively referring to incompetents. The translation simplifies it to "squareheads" (stupid, wooden people), omitting the cultural imagery of "fish and shrimp" and retaining only the core derogatory meaning.

Sentence restructuring is another important manifestation of linguistic-dimensional adaptive transformation. Chinese tends toward parataxis, frequently omitting the subject and using subjectless sentences; English tends toward hypotaxis, requiring complete sentence structure.

Example 2:

ST: 自幼便立志到长安

TT: Since childhood, I dreamed of coming to Chang'an

The source text is a subjectless sentence, with the subject "I" implied by context. The translation supplies the subject "I" and renders "立志" as "dreamed of," bringing the sentence into conformity with basic English syntactic structure.

Affirmation-to-negation rendering is a commonly used linguistic strategy: when a positive expression in the source text sounds awkward in the target language, the translator switches to a negative expression.

Example 3:

ST: 办不成是要掉脑袋的

TT: If we fail, it would cost us our heads.

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In the source text, “掉脑袋” is a colloquial expression for the consequence of death. The rendering “cost us our heads” recasts it through the frame of “cost” (to pay a price) into a construction more idiomatic in English.

The literalization of metaphors is also a typical manifestation of linguistic-dimensional adaptive selection.

Example 4:

ST: 你这饼太大了

TT: this job is too much for me.

The source expression “饼太大了” is a metaphor in which “饼” (cake/pancake) stands for “task or errand,” alluding to the cultural allusion of “drawing a cake to satisfy hunger” (i.e., an unrealistically empty promise). The translation explicitly names the vehicle as “job,” omitting the “cake” imagery and its cultural association, so that Western audiences can grasp the sentence without cultural background.

In sum, linguistic-dimensional transformation centers on the goal of “fluency and intelligibility.” Through various adjustment strategies, the translator makes the target text conform to target-language norms within the limited spatiotemporal confines of subtitles, ensuring smooth reading for the audience.

4.3 Adaptive Selection and Transformation on the Cultural Dimension

Adaptive selection and transformation along the cultural dimension is the focus of this study. Eco-translatology holds that the core of cultural-dimensional transformation lies in attending to cultural differences between source and target languages, avoiding distortion of the original from the target culture’s perspective. Culture-loaded words are extremely dense in *The Lychee Road*; this study analyzes them under three subcategories: official titles, social appellations, and cultural objects and allusions.

(1) Official Titles

The Tang-Dynasty official system was complex, and official titles carried multiple layers of cultural information, including rank, function, and power relations. Existing research has systematically summarized strategies for translating ancient Chinese official titles: Jin Hui, using the English translation of A New Account of Tales of the World as a sample, outlined the choice between domestication and foreignization in title translation; and Li Shuyan, taking Science and Civilisation in China as a case, explored how functional-equivalent translation of official titles can be achieved [6, 19]. These studies show that translating ancient official titles generally entails a tension between institutional-cultural differences and target-language acceptability. In handling the official titles in *The Lychee Road*, the translator mainly adopts a domestication-and-simplification strategy, selecting near-functional generic English words to replace the source official titles—a process that is often accompanied by the loss of cultural information.

Example 5:

ST: 李监事

TT: Inspector Li

“*Jianshi*” (监事) was a low-ranking official in the Tang system, responsible for managing routine affairs in the Shanglin Office. The translation renders it as “Inspector.” Although there is a functional resemblance, “Inspector” in English commonly refers to a police superintendent or a quality inspector, far removed from the cultural connotation and institutional background of the Tang “监事.” The translator’s choice of domesticating simplification is intended to let Western audiences quickly grasp the character’s official identity, but at the cost of losing the specific cultural information of the Tang official system.

Example 6:

ST: 鱼内侍

TT: Eunuch Yu

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"*Neishi*" (内侍) was an official title in the Tang eunuch administration, referring to a eunuch serving the emperor in the palace. The translation renders it directly as "Eunuch," reducing an official title to a description of identity. As an official title, "内侍" carries information about rank, function, and power status, whereas "Eunuch" merely denotes physical identity, erasing the institutional connotation of the position. This treatment, while making the character's identity easy for Western audiences to grasp, produces a discount in official-system culture.

Example 7:

ST: 你就是荔枝使了

TT: you're the Lychee Envoy.

"*Lizhishi*" (荔枝使)was an ad hoc title created in the film for a special mission. The term "使" is specific to the Tang dispatch system, referring to an official temporarily commissioned by the emperor to carry out a particular task. The translation renders "使" as "Envoy," which approximates the sense of "temporary commission," but in English "Envoy" usually denotes a diplomatic envoy, diverging from the institutional connotation of the Tang "使." Nevertheless, the rendering "Lychee Envoy" retains the core artifact "lychee," making it one of the cases in this sample where relatively more cultural information is preserved.

Example 8:

ST: 上林署办最合适

TT: is best handled by the Bureau of Imperial Gardens.

"上林署" was the Tang office managing the imperial gardens. The translation adopts an explanatory strategy, rendering it as "Bureau of Imperial Gardens," in which "Imperial Gardens" explicitly states the office's functional scope. Compared with the domesticating simplification in the preceding examples, this rendering conveys cultural information more fully: as an institutional name, the function of "上林署" can be stated directly through a modifier, unlike "监事" or "内侍," which involve complex rank systems. This shows that the translator does not uniformly simplify official titles, but rather flexibly chooses strategies according to the functional weight of each title.

A comparison of the above cases shows that domesticating simplification (e.g., Inspector, Eunuch) and explanatory translation (e.g., Bureau of Imperial Gardens, Lychee Envoy) differ in their degree of adaptation. Domesticating simplification accommodates the spatiotemporal constraints of subtitles and the audience's cognitive load, but produces a relatively large cultural discount; explanatory translation retains more cultural information but may lengthen subtitles and increase comprehension cost. The translator's choice is essentially a balancing act between "information retention" and "acceptability" on the cultural dimension.

(2) Social Appellations

The Tang system of social appellations deeply reflects social hierarchical order and interpersonal ethics, and the translator faces a similar tension between cultural transfer and audience comprehension when handling forms of address. Chen Ziyou, analyzing the English rendering of appellations in the web novel and screen adaptations of Joy of Life from the perspective of cultural discount, points out that appellation systems bearing hierarchical differences in costume dramas generally suffer a flattening loss in English translation, and that the ritual-cultural information embedded in humble and honorific forms of address is difficult to transfer fully into the target language [20].

Example 9:

ST: 圣人的意思是

TT: The Emperor has made it clear.

"*Shengren*" (圣人)was a special honorific for the emperor in the Tang Dynasty, embodying the cultural idea that "the emperor is morally sublime like a sage"; it was a distinctive form of address in Tang political

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culture. The translation renders it directly as "The Emperor," reducing a culturally charged appellation to a generic identity noun and losing the political-cultural connotation and emotional coloring of "圣人." While this treatment ensures Western audiences' basic understanding of the speaker's identity, the distinctive Tang cultural phenomenon of "honoring the emperor as sage" fails to emerge in the translation.

Example 10:

ST: 就是小人的一条命啊

TT: could cost me my life!

"小人" was a humble self-designation used by persons of low status in ancient China, reflecting the self-deprecation of inferiors before superiors under a strict hierarchical order. The translation omits "小人" entirely, referring only to "me," flattening a humble self-designation into an ordinary first-person pronoun. This treatment loses both the hierarchical-cultural information carried by the appellation and the character's lowly mentality, making it a fairly typical case of cultural discount in the translation of social appellations. From the Eco-translatology perspective, this omission is an adaptation to the target-text ecology: English lacks a humble self-designation fully equivalent to "小人," and forcing a rendering such as "your humble servant," while preserving the humble coloring, would sound stiff and inconsistent with the colloquial register required of subtitles.

The above cases show that cultural discount in the translation of social appellations manifests mainly as "hierarchical flattening" and "loss of ritual information." The translator reduces the source appellation system—charged with hierarchy and ritual—to generic English identity nouns or pronouns, ensuring basic communicative fluency but failing to convey Tang social hierarchy and ritual order fully.

(3) Cultural Objects and Allusions

Cultural objects and allusions are important carriers of Tang culture, and *The Lychee Road* involves a large number of object-related terms concerning lychee transport, administrative institutions, and the examination and education system.

Example 11:

ST: 给圣人送十斤岭南的荔枝煎

TT: to deliver ten jin of preserved lychees from Lingnan for the Emperor.

This example contains three culture-loaded elements: "斤" (a traditional Chinese weight unit), "岭南" (a Tang regional name), and "荔枝煎" (a processed lychee product). The translator adopts differentiated treatment: "斤" is retained through pinyin as "jin," "岭南" through pinyin as "Lingnan," while "荔枝煎" is rendered as "preserved lychees." The first two are retained in pinyin because measures of weight and place names are proper nouns, and pinyin transcription preserves cultural specificity without impeding comprehension (audiences can infer from context that they denote a unit and a place); "荔枝煎" is rendered by sense because "煎" as a processing method is unfamiliar to Western audiences, and translating it as "preserved" directly conveys its core meaning of "processed and preserved." This differentiated treatment embodies the translator's adaptive wisdom in flexibly selecting strategies according to the functional weight of each cultural term.

Example 12:

ST: 后来用贴黄改成了煎

TT: A sticker was added to fix it as "preserved".

"*Tiehuang*" (贴黄)was a distinctive Tang institution for revising official documents, referring to the practice of pasting a yellow slip over the text to amend it; it is an important cultural artifact of Tang administration. The translation simplifies it to "A sticker was added," completely losing the cultural

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connotation of "贴黄" as a specific Tang documentary institution, and reducing a historically specific administrative term to the generic act of "sticking on a note." While this enables Western audiences to grasp the basic plot that "the content of the decree was revised," the cultural information of the Tang documentary system is not conveyed.

Example 13:

ST: 昼漏尽 宵禁始

TT: The day ends, the curfew begins.

"Zhoulou" (昼漏)is an ancient Chinese timekeeping term referring to the daytime clepsydra having run out, and it carries the cultural information of ancient Chinese timekeeping institutions. The translation simplifies "昼漏尽" to "The day ends," losing the cultural imagery of the "clepsydra" as an ancient timekeeping instrument; "宵禁始" is rendered relatively accurately as "the curfew begins," because the institution of the curfew has a corresponding concept in Western history. In this example, the cultural discount occurs mainly at the timekeeping-culture level of "昼漏."

Example 14:

ST: 做事见贤思齐

TT: I've been constantly learning from those better than me.

"见贤思齐" comes from the Analects (Li Ren) and is a classic moral-cultivation maxim in traditional Chinese culture, meaning "when meeting a person of virtue, strive to emulate them." The translation renders it by sense as "constantly learning from those better than me," conveying the basic meaning but entirely losing the cultural connotation and literary coloring of "见贤思齐" as a Confucian allusion. This is a typical free rendering of an allusion, adapted to the ecological reality that Western audiences lack recognition of Confucian allusions, but the cultural value of the allusion is not preserved.

Example 15:

ST: 成为诸多飘荡在长安的浮萍之一

TT: Become one of the many adrift in Chang'an.

"浮萍" (adrift) is a common imagery in classical Chinese literature, figuratively representing a wandering and rootless state of life and carrying deep literary and cultural connotations. The translation reduces "浮萍" to the adjective "adrift," flattening a literary imagery rich in cultural association into an ordinary adjective and losing the cultural resonance and emotional depth of the image. This treatment likewise illustrates how domesticating simplification dissolves cultural imagery.

The analysis of the three categories—official titles, social appellations, and cultural objects and allusions—shows that the core contradiction of cultural-dimensional transformation lies in this: source-language culture-loaded words carry rich institutional, ritual, and literary cultural information, whereas the target-text ecology (spatiotemporal limits of subtitles, the cognitive gap of low-context audiences) requires the translator to simplify. The translator adopts domestication and simplification as the leading strategy, which, while adapting to the target-text ecology, inevitably produces cultural discount. Notably, however, the translator does not simplify all culture-loaded words uniformly, but flexibly selects strategies according to functional weight: proper nouns (e.g., place names, measures) are retained in pinyin, institutional names receive explanatory translation, and allusions and literary imagery are mostly simplified through free translation. This differentiated treatment embodies the translator's adaptive effort to achieve a higher degree of holistic adaptation and selection on the cultural dimension.

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4.4 Adaptive Selection and Transformation on the Communicative Dimension

The communicative dimension concerns whether the translator effectively conveys the source text's communicative intention and pragmatic force. Eco-translatology holds that when linguistic form, cultural imagery, and communicative effect conflict, the translator should prioritize communicative effect. In *The Lychee Road*, adaptive selection on the communicative dimension is mainly reflected in the transmission of tone, emotional expression, and multimodal synergy.

(1) Conveying Humble and Arrogant Tones

The translator must convey the information while ensuring that the communicative tone is effectively transmitted.

Example 16:

ST: 就是小人的一条命啊

TT: could cost me my life!

As noted, the humble self-designation "小人" is omitted in the translation and rendered only as "me," but the exclamatory sentence intensifies the urgency of a life-or-death stake, effectively conveying the character's fear and compensates for the pragmatic loss caused by the omission of the humble tone.

Example 17:

ST: 上林署这帮庸鱼碌虾

TT: This place is full of squareheads.

The source phrase "庸鱼碌虾 " is full of contempt for one's colleagues; the rendering "squareheads" is English slang meaning "stupid, wooden people." Although the cultural imagery differs, it successfully conveys the speaker's contemptuous tone and realizes the communicative intention of "belittling others."

(2) Conveying Self-mockery and Humor

Example 18:

ST: 你这饼太大了

TT: this job is too much for me.

The source line "你这饼太大了" is Li Shande's self-mockery after being appointed Lychee Envoy, and the "cake" metaphor carries the humor that "the errand is as unrealistic as a drawn cake." The rendering "this job is too much for me," while losing the "cake" metaphor and its humor, accurately conveys the core communicative intention that "the task exceeds one's ability."

(3) Conveying Tension and Motivational Effect

Example 19:

ST: 办不成是要掉脑袋的

TT: If we fail, it would cost us our heads.

The source line "办不成是要掉脑袋的" is a superior's warning to a subordinate, emphasizing the extreme importance of the task and the grave consequences of failure. Through a conditional clause and the expression "cost us our heads," the translation effectively conveys the urgency of the task and the fatal consequence of failure; moreover, by using "we" instead of "you," it converts the superior-to-subordinate second person into a first-person plural, softening the hierarchy and strengthening the team consciousness of shared risk.

(4) Communicative Compensation through Multimodal Synergy

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The communicative effect of film subtitles is determined not by words alone but by the synergy of multimodal elements—visuals, sound, and performance. In the film, some missing cultural information can be compensated through multimodal channels, providing the translator with ecological room for simplification at the linguistic level.

Example 20:

ST: 这敕令上的文字

TT: this imperial decree

"Chiling" (敕令) was a command document issued by the Tang emperor, carrying specific institutional-cultural connotations. The rendering "imperial decree" conveys the basic meaning of "an imperial order" but loses some of the documentary-institutional cultural connotation of "敕令." In the film's visuals—yellow scroll, red seal, and calligraphic script—these visual elements compensate at the multimodal level for the cultural information lost in the verbal translation.

In sum, communicative-dimensional transformation centers on the goal of "realizing the intended meaning." Through intensification of tone, slang substitution, pronoun adjustment, and multimodal synergy, the translator ensures that the communicative intention of the source text is effectively conveyed. Whenever linguistic form, cultural imagery, and communicative effect conflict, the translator consistently prioritizes communicative effect.

4.5 Ecological Motivations of Cultural Discount and Compensation Strategies

The above three-dimensional analysis shows that cultural discount is fairly evident in the English subtitles of *The Lychee Road*, particularly on the cultural dimension, where the translation of official titles, social appellations, and cultural objects and allusions entails widespread information loss. This section examines the ecological motivations of cultural discount from the Eco-translatology perspective and evaluates possible compensation strategies.

(1) Ecological Motivations of Cultural Discount

From the Eco-translatology perspective, cultural discount is not the result of the translator's incompetence or negligence, but a concomitant result of the translator's adaptive selection within a specific translational eco-environment, and its emergence is ecologically inevitable. Specifically, the ecological motivations of cultural discount lie in the following three aspects:

First, the inherent contradiction between high-context culture and the subtitling medium. Tang-Dynasty historical subjects are typical of high-context culture, in which a great deal of cultural information is implicit in cultural symbols such as official titles, forms of address, and material artifacts, requiring corresponding cultural background knowledge for full comprehension. Subtitles, by contrast, are a medium under strict spatiotemporal constraint, requiring the translation to complete information transfer within a limited character count and display time, and cannot unfold cultural interpretation through annotations or footnotes as book translation can. There is a structural contradiction between the "information density" of high-context culture and the "information capacity" of the subtitle medium, and the translator can only adapt to the medium's ecological constraints by simplifying the source cultural information—hence cultural discount arises.

Second, the domestication strategy oriented toward narrative coherence. In the ecology of film dissemination, narrative coherence is the basic precondition for audience acceptance. If the translator adopts foreignization in rendering culture-loaded words, retaining source-cultural forms (e.g., pinyin, word-for-word rendering), cultural information is preserved, but audience comprehension may be interrupted and narrative rhythm disrupted, undermining the film's overall communicative effect. The translator therefore tends to use domestication as the leading strategy, converting source culture-loaded words into expressions familiar to the target audience in order to safeguard narrative coherence. This strategic choice, while adapting to the target-audience ecology, inevitably produces a discount of source-cultural information.

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Third, the "survival of the fittest" mechanism of the translational eco-environment. Eco-translatology holds that the translational eco-environment has a selection mechanism of "survival of the fittest": translations adapted to the environment "survive," while those unadapted are "eliminated." In the translational eco-environment of *The Lychee Road*, translations that are overly foreignized or overloaded with cultural information are "eliminated" because they exceed the spatiotemporal capacity of subtitles and the audience's cognitive load; translations that domesticate, simplify, and moderately lose cultural information "survive" because they adapt to the target-text ecology. Cultural discount is precisely the product of this "survival of the fittest" mechanism—the outcome of the natural selection exerted on translations by the translational eco-environment.

(2) Evaluation of Compensation Strategies

Although cultural discount is ecologically inevitable, the translator can still compensate, to a certain extent, for the loss of cultural information and enhance the target text's degree of holistic adaptation and selection through specific strategies. From the Eco-translatology perspective, this study evaluates the following three compensation strategies:

First, explanatory translation—that is, when translating culture-loaded words, adding modifiers or explanatory elements to clarify their cultural connotation. As noted, "上林署" is rendered as "Bureau of Imperial Gardens" by this strategy, with "Imperial Gardens" making the institutional function explicit. The advantage of explanatory translation is that it can convey core cultural information without excessively lengthening the subtitles; it is suitable for institutional names and official functions that can be explained directly through a modifier. Its limitation is that, for culture-loaded words involving complex institutional background (e.g., "贴黄," "昼漏"), a brief modifier can hardly fully explain their cultural connotation, while over-explanation would exceed the spatiotemporal capacity of subtitles. The effectiveness of explanatory translation thus depends on the explainability of the cultural term and the capacity of the subtitle medium.

Second, differentiated translation—that is, adopting different strategies for different types of terms according to their functional weight and cultural importance. As noted, the translator retains "斤" and "岭南" in pinyin, explains "上林署", and freely simplifies "见贤思齐" and "浮萍"; this is itself an instance of differentiated translation in practice. Its advantage is avoiding a one-size-fits-all simplification: terms of high cultural importance and strong retainability are retained or explained, while terms of relatively lower importance and poorer retainability are simplified, thereby achieving an optimal overall balance between cultural information retention and target-text acceptability. From the standpoint of the degree of holistic adaptation and selection, differentiated translation enjoys a higher degree of adaptation than uniform domestication and simplification, because it achieves finer dynamic adjustment across the three dimensions.

Third, paratextual construction—that is, supplementing cultural information through paratextual channels beyond the subtitles themselves (e.g., film synopses, cultural annotations, viewing guides). In her study of the English translation of official titles and social appellations in Tang-Dynasty films, Cao Li points out that paratextual construction is an effective means of compensating for cultural discount: keep the feature-film subtitles concise to safeguard narrative coherence, while providing cultural background annotations in the paratext to meet the cultural needs of deeper viewers [7]. The advantage of paratextual construction is that it liberates cultural interpretation from the spatiotemporal confines of subtitles, freeing the translator from subtitle-length constraints and allowing fuller cultural explanation. Its limitation is that audience coverage of paratext is limited—most ordinary viewers may not actively read it—and the compensative effect is therefore constrained. Moreover, paratextual construction requires coordination between producers and distributors, and cannot be achieved by the translator alone.

Evaluated from the standpoint of the "degree of holistic adaptation and selection," each of the three strategies has its strengths and weaknesses: explanatory translation suits cultural terms that can be briefly explained; differentiated translation suits overall strategic optimization; and paratextual construction suits in-depth cultural compensation. An ideal compensation scheme should integrate the three organically: adopt differentiated translation in subtitle translation, use explanatory translation for terms that can be explained, and simultaneously build a paratextual system during distribution, forming a multi-layered cultural transfer mechanism of "concise subtitles + in-depth paratext." This combined strategy can achieve a higher degree of

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holistic adaptation and selection across the linguistic, cultural, and communicative dimensions, and is a viable path for enhancing the overseas communication of Tang-Dynasty historical films.

It should be emphasized that compensation strategies are essentially the translator's adaptive selection for a higher degree of holistic adaptation and selection between the cultural and communicative dimensions. Compensation does not aim to eliminate cultural discount—under the ecological constraints of the subtitle medium, fully eliminating it is neither realistic nor necessary—but rather to minimize unnecessary cultural loss while safeguarding narrative coherence and communicative effect, so that the translation achieves an optimal balance across the three dimensions.

5. Conclusion

This study takes the official English subtitles of the film *The Lychee Road* as its corpus and conducts a case analysis under the "three-dimensional transformations" framework of Eco-translatology. The study finds that the three-dimensional transformation framework has strong explanatory power for subtitle translation in Tang Dynasty-themed films: the linguistic dimension pursues fluency, the cultural dimension emphasizes simplification, and the communicative dimension safeguards intended meaning, with the three forming a dynamic relationship of adaptive selection. Cultural discount manifests mainly as the downgrading of official functions, the flattening of appellation hierarchies, and the dissolution of the connotations of cultural objects and allusions; its essence is the joint product of the contradiction between high-context culture and the subtitle medium, the domestication strategy orientation, and the "survival of the fittest" mechanism of the translational ecology, and is ecologically inevitable. Explanatory translation, differentiated translation, and paratextual construction can enhance the degree of holistic adaptation and selection from different levels; the ideal scheme combines the three into a multi-layered mechanism of "concise subtitles + in-depth paratext." Yet compensation does not eliminate cultural discount, but rather reduces unnecessary cultural loss while safeguarding narrative coherence and communicative effect. The theoretical significance of this study lies in expanding the scope of Eco-translatology's application to Tang Dynasty-themed film subtitle research and deepening understanding of the ecological motivations behind cultural discount; its practical significance lies in providing operable strategic references for the translation of culture-loaded words in the overseas dissemination of Chinese historical films. This study has certain limitations: the generalizability of its single-case conclusions remains to be verified; the analysis is qualitative and does not incorporate corpus-based quantitative methods; and no empirical survey of overseas audience reception has been conducted. Future research may extend to more Tang-Dynasty works for cross-case comparison, combining corpus-based quantitative analysis with audience reception surveys to further test the actual communicative effects of compensation strategies.

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