Media Empowerment and Collaborative Education: An Exploration of Inclusive Education and Multimodal Literacy Teaching Practices in the Guangdong – Hong Kong – Macao Greater Bay Area from the Perspective of New Curriculum Reform

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Abstract: *The new curriculum reform emphasizes core competencies; learning tasks cluster and interdisciplinary thematic learning require learners to make sense in multilingual and multitextual, multimodal semiotic and media environment. In light of the reality of heterogeneous juxtapositions of linguistic schemata, cultural experiences and media resources, coupling of media empowerment and multimodal literacy teaching is becoming an important issue. Taking "Media Empowerment and Collaborative Education" as a thread, this paper explains the generative logic of media affordances and interculturality, the semiotic mediation mechanism and cognitive adaptation of multimodal literacy, and the ways of curriculum meaning negotiation and reconstruction of the learning ecology. Constructing a framework that includes multimodal task sequences, literacy scaffolds, a collaborative community, teacher professional collaboration, and assessment and feedback, providing theoretical references and design ideas for the coexistence of differences and collaborative inquiry in inclusive education in the Greater Bay Area.*

Keywords: *new curriculum reform; Guangdong – Hong Kong – Macao Greater Bay Area; inclusive education; multimodal literacy teaching; interculturality*

Introduction

The heterogenous linguistic and cultural backgrounds of Inclusive Education; diverse channels of meaning expression; multi-source heterogeneous curriculum resources which traditional unimodal literacy teaching can not meet the need of coexistence of differences and collaborative inquiry during the core competency-oriented new curriculum reform. There are abundant semiotic resources in the multilingual and multitextual ecology and multimodal media environment of the Guangdong – Hong Kong – Macao Greater Bay Area, but it brings up new theoretical questions on curriculum organization, instructional design, and assessment and feedback. The existing research is done with one dimension (inclusive education concept, application of media technology, multimodal literacy), there is no systematic explanation about the coupling relationship between media affordance, interculturality, cognitive adaptation, and collaborative education. We put forth media empowerment and multimodal literacy teaching from the perspective of new curriculum reform, construct an analytical framework for inclusive education in the Greater Bay Area by revealing the embedded mechanism among media, semiotic, cognitive, cultural, and relational elements via designing multimodal task sequences, literacy scaffolds, a collaborative community, teacher professional collaboration, and assessment and feedback framework so that heterogeneous learners could access, negotiate, and sustainably express their meanings and engage in collaborative inquiry.

1. Mechanisms of Media Empowerment in Inclusive Education in the Guangdong–Hong Kong–Macao Greater Bay Area from the Perspective of the New Curriculum Reform

1.1 The Generation of Media Affordances and Interculturality in the Field of Inclusive Education

An inclusive class is not a classroom with one language and one culture but a composite field where multilingual learners encounter cross-cultural semiotics and multimodal texts, collaborating on tasks. Juxtapositions of language codes, cultural schemata, and modes of expression characterize this field. Media affordances are relational – about access, editing, connecting, feeding back, and reorganizing. The relational properties provide opportunities for actions during learner-teacher or text-platform interactions. Using media affordances such as multilingual subtitles and speech transcription, image–text translation and bullet comments, collaborative documents and visual annotations, digital platforms provide visible, narratable, negotiable entry points for language resources (Cantonese, Putonghua, English, Portuguese), semiotic resources (images, sound, color, space). Interculturality arises out of the third space where the horizons of the self and the other fuse. Media affordances make cultural differences discussable curriculum resources; through joint tasks learners take perspectives, interrogate meaning, negotiate rules, recontextualize their own cultural experiences and others' semiotic systems[1].

The multilingual and multitextual ecology in the Greater Bay Area provides opportunities for interculturality through media structuring differences into a semiotic network for collaboration by connecting, translating and reconstructing them. Interculturality arises out of media-mediated boundary objects wherein learners achieve mutual recognition of differences and coordination on joint tasks via multilingual code-switching, multimodal expression and cross-cultural interpretation. Affordances of media are never neutral containers; it's the combination of their structural constraints and action possibilities which generate interculturality. It calls for teaching to design collaborative tasks with boundary crossing so that learners develop sensitivity to differences, reflective awareness of semiotic power and commitment to joint tasks while choosing, combining and redesigning multilingual and multimodal resources.

1.2 Semiotic Mediation and Cognitive Adaptation in Multimodal Literacy Teaching

Multimodal literacy's idea is that words, images, sound, action, space, color and interactive interfaces have a potential for meanings; instead of adding up different modes, multimodal literacy reconfigures semiotic mediation. Media tools mediate cognition and communication according to sociocultural theory whereas social semiotics emphasizes the meaning making of semiotic resources under specific social context. Through modal transformation, modal synergy, modal complementarity, modal redundancy, and cross-modal mapping, multimodal literacy teaching can transfer knowledge from single-language representation into multi-channel meaning construction. Learners' language proficiency varies, cultural schemata and modal preference differ in the Guangdong–Hong Kong–Macao Greater Bay Area, therefore we need to cognitively adapt by taking dual coding, the cognitive theory of multimedia learning and cognitive load theory as bases, dynamically balancing linguistic load, visual load and interactive load[2].

Multilingual subtitles, interactive e-books, digital storytelling, visual argumentation, mind maps, and multimodal learning portfolios enable us to enter comprehension through our dominant mode and express viewpoints in multimodal ways. Semiotic mediation transforms curriculum content into observable and perceptible semiotic combinations and links learners' cultural experience with disciplinary concepts. Cognitive adaptation coordinates channel adaptation, schema adaptation, and task adaptation that make multimodal literacy a cognitive practice lowering the threshold of cross-linguistic and cross-cultural understanding and facilitating deep processing and collaborative expression. Assessment of multimodal literacy focuses on the process of design, transformation, collaboration, and reflection: learners build up their intercultural communication competence and semiotic design competence by producing and recontextualizing multimodal works.

1.3 Curriculum Meaning Negotiation and Reconstruction of the Learning Ecology under the Orientation of Collaborative Education

Collaborative education is characterized as one which is governed by a shared learning vision based upon mutual recognition and collaborative inquiry with its essence being the generation of a curriculum consensus amid the coexistence of differences. Negotiation of curriculum meaning occurs among

teachers and learners (or between media and texts) involving cultural resources. Curriculum content is not predetermined knowledge to be transferred unidirectionally but it is continuously interpreted, questioned, supplemented and reconstructed via multi-agent interaction. Media provide semiotic and relational spaces for negotiation—forums and collaborative documents, video conferencing and bullet comments, digital storytelling and multimodal learning portfolios—that allow learners from different linguistic and cultural background to have channels for their expression and responses. Curriculum meaning negotiation has a polyphonic structure; different voices create dialogic relations mediated by media. Learners interpret other's position by choosing perspectives and transform them into semiotics creating a temporary consensus when doing joint tasks while asking questions continually.

Reconstruction of the learning ecology shows change: from closed class to open learning network, from linear transmission to distributed cognition, from unimodal literacy to multimodal design. Features of the learning ecology involve learners, teachers, resources, tools, activities, communities, and rules; empowered by media, they become connectivity, adaptability, generativity, and boundary crossing. Orientation of collaborative education requires organization of curriculum according to authentic problems, cross-regional collaboration, multimodal expression, and reflective practice so as to enable development of multimodal literacy, intercultural understanding, and collaborative problem-solving competence within the field of inclusive education. Reconstruction of the learning ecology implies reorganization of learning relationships, semiotic resources, and curriculum meaning; this indicates a sustainable collaborative community for inclusive education which generates, via multimodal literacy practice, an educational relationship of coexistence of differences and shared learning[3].

2. Coupling Mechanisms of Media Empowerment and Multimodal Literacy Teaching for Collaborative Education

2.1 The Support Mechanism of Multimodal Semiotic Resources for Meaning Expression of Inclusive Learners

Meaning potential of multimodal semiotic resources is realized: Words and images mean in context – so do sound and action as well as space, color or interactive interfaces. Inclusive learners differ linguistically (schemata), culturally (experiences) and modally (preferences). Accessibility and editability provide multimodal semiotic resources with a multi-channel access point for expression of meaning. Multilingual subtitles and speech transcription overcome language barriers; image–text translation and visual annotations open up new pathways towards understanding; collaborative documents enable joint writing where learners express knowledge through language code-switching and semiotic transformation. Modal transformation and modal synergy together with cross-modal mapping externalize implicit understanding into semiotic combinations that are discussable, modifiable, shareable.

Semiotic mediation - connection between curriculum content and learners' cultural experiences; Expression: multimodal design, digital storytelling, visual argumentation, multimodal learning portfolios. Learners access comprehension through their dominant modes and express points of view, argue and reflect with multimodal means; Regulation of linguistic load and expressive pressure is realized in reconfiguration of semiotic resources. Multimodal semiotic resources promote inclusion of learners' meaning expression and development of negotiable expressive forms of individual experience and intercultural understanding into semiotic networks.

2.2 The Regulatory Mechanism of Media Embedding for Cross-Linguistic Literacy and Collaborative Cognition

The media embedding controls the generative paths of cross-linguistic literacy. Multilingual subtitles, speech transcription, image–text translation, hypertext links, multimodal texts enable intertextuality between language codes, semiotic systems, and context resources: learners gain metalinguistic awareness, cross-linguistic transfer competence, and multimodal literacy through cross-linguistic comparison, semiotic transformation, and recontextualization. Media is not anymore a neutral channel; its interface structure, interaction rules, and semiotic combination mode control what amount of attention learners pay, which meaning they choose or expressive strategy they use. Shift in cross-linguistic literacy goes from monolingual code decoding to design-based practice of multi-semiotic systems[4].

Media embedding regulates collaborative cognition. Using collaborative documents and forums, bullet comments and video conferencing as well as shared whiteboards, we construct shared attentional space and joint problem representation. Role division, multimodal argumentation in collaborative scripts lead to perspective taking, negotiation of cognitive conflict and advancement of collaborative problem solving for learners. Dynamic balance among linguistic load, visual load and interactive load maintained by media supports comprehension monitoring, meaning questioning and consensus generation in cross-linguistic collaboration. Collaborative cognition becomes a distributed process between learners and media; between texts and communities. Cross-linguistic literacy and collaborative inquiry become a coupling under media regulation.

2.3 The Multi-Layered Construction of Shared Cultural Memory and Integrated Identity in the Guangdong–Hong Kong–Macao Greater Bay Area

Multimodal semiotics such as Lingnan culture, maritime culture, overseas Chinese hometown culture, food, festivals, music, architecture, and urban space are cross-regional, cross-linguistic, and cross-generational cultural references for shared cultural memory in the Guangdong–Hong Kong–Macao Greater Bay Area. Media turns cultural memories into retrievable, editable, and recontextualizable semiotic combinations—multimodal narratives, digital archives, interactive maps, and audio-visual images enable learners to access the interpretation of shared cultural memory through semiotic selection, collage, and reconstruction. The concept of shared cultural memory doesn't mean telling a pre-written text – it's a meaning network which is constantly being created with multi-agents' participation and multimodal expressions[5].

Integrated identity construction is layered through multimodal literacy practices: individual narrative identity comes out of digital stories, multimodal learning portfolio, and reflective writing; learning community identity comes out of mutual recognition in collaborative inquiry, cross-regional projects, and multimodal argumentation; intercultural identity comes out of cross-linguistic comparison, negotiation of boundary objects, and third-space dialogue. Media empowerment and multimodal literacy teaching connects shared cultural memory and integrated identity to an orientation toward collaborative education for building multi-layered identity relationship and a sustainable learning ecology amidst the coexistence of differences, semiotic negotiation, and collaborative problem solving.

3. A Systematic Design Framework for Multimodal Literacy Teaching under the Orientation of Collaborative Education

3.1 A Multimodal Task Sequence and Literacy Scaffold Model for Heterogeneous Learners

Multimodal task sequence: Meaning expression and collaborative inquiry as the main threads for semiotic deconstruction, cross-modal reconstruction, collaborative argumentation, and reflective recontextualization. Semiotic deconstruction reveals meaning potential and intertextual relationships between different signs; Cross-modal reconstruction organizes viewpoints and arguments through modal transformation, synergy and mapping (digital storytelling, visual argumentation, interactive maps, multimodal portfolios are its carriers); Collaborative argumentation fosters perspective taking, conflict negotiation, and consensus generation using shared attentional spaces and joint problem representations; Reflective recontextualization monitors semiotic selection, modal combination, cultural stance, and collaboration and reinterpretations and redesigning works in new contexts.

According to the theory of zone of proximal development, such a literacy scaffold model includes: semiotic scaffolds (multilingual subtitles, image–text translation, semiotic resource bank, modal exemplars), cognitive scaffolds (mind map, argumentation template, question chain, visualization tool) that regulate linguistic load, visual load, and interactive load; cultural scaffolds (boundary object, third-space dialogue, multi-perspective texts); metacognitive scaffolds (reflection prompt, learning portfolio, self-assessment rubric); technological scaffolds (interface prompt, collaborative script, intelligent feedback, learning analytics). A dynamically fading support system is created by these scaffolds which gradually withdraws scaffolds in dynamic adjustment according to learners' multimodal literacy performance, collaborative participation, and depth of reflection from external supports into learners' semiotic design competence and intercultural understanding competence.

3.2 Collaborative Learning Communities and Teacher Professional Collaboration in Media-Connected Environments

Collaborative learning communities in media-connected environments refer to communities of practice and communities of inquiry which are built together with heterogeneous learners, teachers, multimodal texts, semiotic resources, and collaborative tools. Collaborative documents, forums, bullet comments, video conferencing, shared whiteboards, and multimodal learning portfolios create distributed cognitive spaces; learners establish shared goals, shared tools, and shared practices through role division, collaborative scripts, and multimodal argumentation. Joint problem representation, comprehension monitoring, meaning questioning, and consensus generation constitute the collaborative cognition of the community; cross-linguistic comparison, semiotic transformation, and recontextualization govern cross-linguistic literacy. Boundary of a community is open and boundary crossing; inter-school collaboration, cross-regional projects, and peer review of multimodal works extend learning relationship networks outside the classroom, and inclusive education shifts from spatial coexistence toward curriculum co-construction and collaborative inquiry.

Structure of collaborative design, teaching, and reflection for teachers' professional collaboration in media connected environment. Cross-school teaching research, multimodal lesson study, design-based research, and classroom observations constitute a teacher professional learning community: analyzing learners' linguistic and cultural schemata and modal preferences; designing multimodal task sequences, literacy scaffolds, and assessment tools. Collaborative teaching reconfigures multilingual and multitextual resources, multimodal semiotic resources, and disciplinary content through role division and resource co-construction. Collaborative reflection controls task difficulty, scaffold fading, cognitive load, and collaboration quality using multimodal classroom records, learning analytics, and teaching narratives. Design, implementation, observation, reflection, and redesign are cyclically established supporting the inclusive education learning ecology of collaborative education.

3.3 Evaluation Dimensions and Feedback Framework for Multimodal Literacy in Inclusive Education

Evaluation Dimensions for Multimodal Literacy in Inclusive Education include: semiotic design competence (meaning generation through modal selection, modal combination, cross-modal mapping and recontextualization), cross-linguistic literacy (multilingual code-switching, metalinguistic awareness, cross-linguistic transfer and multi-semiotic system design), collaborative cognition (joint problem representation, perspective taking, cognitive conflict negotiation and consensus generation), intercultural understanding (boundary object negotiation, third-space dialogue and sensitivity to differences) and reflective practice (metacognitive monitoring, learning portfolio construction and reinterpretation of multimodal works). The evaluation dimensions are intertextually related with respect to learners' overall performance of multimodal literacy within the context of inclusive education.

Integrating multimodal learning portfolio and learning analytics, peer assessment and teacher feedback, and intelligent feedback in formative assessment and dynamic assessment creates a multi-source, multi-layered, and multimodal feedback loop: Learning portfolios record semiotic selection, modal transformation, collaborative argumentation, and reflection; learning analytics visualize participation pattern, interaction quality, and cognitive load; peer assessment encourages perspective taking and mutual recognition; teacher feedback emphasizes task understanding, scaffold needs, and intercultural negotiation; intelligent feedback offers adaptive prompts according to learning behaviors and work characteristics. Embedded feedback integrates within the task sequence and scaffold model serves as a generative mechanism regulating cognitive adaptation, collaboration quality, and meaning negotiation oriented by collaborative education linking individual expression with a shared learning vision and an inclusive education ecology for continually improving multimodal literacy teaching and promoting sustainable development of collaborative communities.

Conclusion

Focusing on the coupling mechanism between media empowerment and multimodal literacy teaching for collaborative education, we have explained the relationships among the generation of media affordances and interculturality, semiotic mediation and cognitive adaptation as well as curriculum meaning negotiation and reconstruction of the learning ecology, and built up a framework consisting of multimodal task sequences, a literacy scaffold model, a collaborative learning community,

teacher professional collaboration, and the evaluation of and feedback on multimodal literacy. We could conduct longitudinal tracking and design-based research to track the development trajectory of heterogenous learners' semiotic design competence, cross-linguistic literacy, collaborative cognition, and intercultural understanding; expand multilingual learning analytics and intelligent feedback tools; deepen cross-school and cross-regional teacher professional collaboration and multimodal lesson study; develop around the multi-layered construction of shared cultural memory and integrated identity in the Greater Bay Area a multimodal cultural resource bank and boundary object tasks that continuously generates new practical forms amid the coexistence of differences and collaborative inquiry via multimodal literacy teaching.

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References

[1] Mao Mudan. “A Study on the Application of Multimodal Teaching to Action Description in Senior High School English Continuation Writing.” English Teachers 26.6 (2026): 87 ‑92.
[2] Yuan Xin. “Challenges and Pathways in the Construction of China’s Higher Inclusive Education Support System under the Background of New Media.” Education Teaching Forum .2 (2026): 42 ‑45.
[3] Zhang Yanfan, Zeng Lingbo, and Yang Manyun. “A Study on the Application of AI Chatbots in Assisting Higher Education English Learning from the Perspective of Media Affordance Theory.” English Square .30 (2025): 107 ‑110.
[4] Shi Jun, and Wang Jianhua. “An Analysis of the Current Status and Trends of Foreign Multimodal Language Teaching Research: A Visualized Study Based on CiteSpace.” Foreign Language Teaching Theory and Practice .1 (2022): 80 ‑91.
[5] Shi Yudan. “The Value, Dilemmas, and Improvement Strategies of Collaborative Development of Teacher Education in the Guangdong ‑Hong Kong ‑Macao Greater Bay Area.” Journal of South China Normal University (Social Science Edition) .5 (2021): 74 ‑82+206.