*CORRESPONDENCE
Jie Zhou
✉ zhoujie1199@gmail.com

Developing and evaluating a translanguaging-multiliteracies learning design (LDTMP) for student agency in a college English course in China

Jie Zhou[1,2]*, Sze Seau Lee[2,3] and Si Na Kew[4]

[1]College of Modern Science and Technology, China Jiliang University, Hangzhou, China, [2]Faculty of Social Sciences and Humanities, UCSI University, Kuala Lumpur, Malaysia, [3]English Department, Faculty of Modern Languages and Communication, Universiti Putra Malaysia, Serdang, Malaysia, [4]Language Academy, Faculty of Social Sciences and Humanities, Universiti Teknologi Malaysia (UTM), Johor Bahru, Malaysia

Set within the context of a college English course in China, this study introduces an educational approach known as Learning Design based on Translanguaging and Multiliteracies Pedagogy (LDTMP), which aims to foster student agency within higher education. "Translanguaging" refers to the integrated use of multiple languages, and "multiliteracies" pertains to the diverse literacy skills required in today's multimodal world. The significance of student agency is emphasized as it enables students to take control of their learning process, aligning with the goals of lifelong learning and active citizenship advocated by policies in China. The research employs Design-Based Research (DBR), a method that involves three phases: (1) preliminary research to establish a theoretical foundation, (2) iterative prototype development and classroom implementation, and (3) the formalization of research and design principles. This approach is particularly suitable for integrating innovative pedagogies such as translanguaging and multiliteracies, which are central to the LDTMP framework. The study reports partial findings from the first and second phases of the complete DBR research. In the first phase, literature review contributed to the design and development of a prototype of LDTMP. In the second phase, the prototype of LDTMP was implemented in a college English course and evaluated quantitatively and qualitatively through a pilot study. Results indicated significant differences in LDTMP on student agency compared to other instructional models across dimensions such as self-efficacy beliefs, teacher support, opportunities to influence, and opportunities to make choices.

KEYWORDS

EFL, student agency, pedagogy, multiliteracies, design-based research, Translanguaging

1 Introduction

Student agency, a key component of lifelong learning, significantly impacts both individual and societal progress (Lock et al., 2021; Blaschke, 2021; Exter and Ashby, 2022; Reinhardt, 2022; Warnby, 2024). However, there is a notable absence of student agency in higher education in China, particularly within English as a Foreign Language (EFL henceforth) instruction. In the context of EFL in China, student agency has emerged as a prominent and innovative topic in applied linguistics. Despite the growing interest in this field, empirical research on student agency in China remains scarce (Xu and Long, 2020; Qin et al., 2022). Internationally, scholars have extensively studied the agency of children and adolescents in various linguistic contexts,

considering them as proactive and inventive agents (Sears, 2012; Pellerin, 2018; Said and Zhu, 2017). However, research addressing student agency that intersects with information technology, discourse, and higher education —characterized by innovative and interdisciplinary nature—remains limited and necessitates further exploration. Thus, this study aims to develop and implement LDTMP, a pedagogical framework which integrates translanguaging and multiliteracies pedagogies to enhance student agency in the context of college English in China. In this study, this pedagogical framework is named as a learning design, a blueprint for potential learner activities, distinguishable from its specific implementation with a particular group (Dalziel et al., 2016).

1.1 Rationale for developing LDTMP to enhance student agency in China

The China Education Modernisation 2035 report (Ministry of Education of the People's Republic of China, 2019) underscores the imperative to develop a comprehensive lifelong learning system accessible to all citizens. The report states that accelerating the construction of a learning society is an urgent requirement for the modernization of education. It is essential to put the learner at the center, establish a lifelong learning system with more open channels, flexible methods, abundant resources, and convenient learning opportunities. The goal is to form an institutional environment where all people are actively engaged in learning and can do so anytime and anywhere, promoting lifelong learning for all, building a learning nation, and significantly enhancing the quality of the nation.

In the field of applied linguistics, agency in foreign language teaching has emerged as a prominent and innovative topic. In China's EFL context, there is a growing scholarly interest in student agency (Tong, 2014; Qin, 2015; Xu and Long, 2020; Qin et al., 2021, 2022; Zhang, 2023). In terms of research gap in student agency, Xu and Long (2020)'s keyword analysis reveals that student agency research related to dynamism and identity is relatively mature, while research combined with information technology, discourse and higher education, which are more intersectional and innovative, is still relatively scarce and needs to be supplemented (Qin et al., 2021, 2022). As China increasingly integrates information technology with higher education, the study of agency within this context becomes increasingly pertinent for the development of novel teaching and learning paradigms.

Globally, numerous studies have explored the factors influencing student agency in English language learning. For example, Feryok (2012) study revealed that early language learning experiences under an English teacher significantly shaped her sense of agency, influencing her subsequent behaviors as a teacher trainee, English teacher, and teacher trainer. Kang (2017) examination of classroom interactions demonstrated that language games serve as a resource for agency, enabling teachers to assert both pedagogical and collective agency, thereby fostering a more relaxed linguistic environment and increased opportunities for student participation. Additional factors influencing individual agency include teachers' professional wellbeing and responsibility toward students (Phan and Hamid, 2017) and learners' beliefs (Mercer, 2011). Nonetheless, research on the factors affecting student agency in China is limited. For example, Qin et al. (2022)

drawing from mediation theory—a branch of sociocultural theory— investigated changes in learning goals and actions as traditional indicators of student agency. Meanwhile, Qin (2015) investigated the influence of culture, others, and self-regulation on student agency.

Furthermore, there is a dearth of research on the impact of innovative pedagogies on student agency within the Chinese EFL context. To address this gap, we propose a pedagogical framework informed by student-centered theories to enhance student agency. This approach takes advantage of the multimodal, multimedia, and multi-environmental contexts of university foreign language instruction in China, aligning with the demands of the digital age.

1.2 Conceptualizing student agency

This study proposes that student agency, as a critical concept in educational research and practice, can be explored from four distinct yet interconnected aspects: its definition, composition, measurement, and realization (Figure 1).

Firstly, in terms of definition, student agency is conceptualized as the capacity of students to take purposeful action within their educational context. It is recognized as a complex phenomenon that involves the interplay of individual behaviors, social interactions, and contextual factors. As defined by Jääskelä et al. (2016), student agency in higher education involves access to (and use of) resources for purposeful action in study contexts, which includes personal, relational, and context-specific resources that students engage with to enact intentional and meaningful learning.

Secondly, in terms of composition, student agency is multifaceted, comprising personal resources such as self-efficacy, competence beliefs, interest, and utility value (Jääskelä et al., 2016). Relational resources include teacher support, trust, equal treatment, and peer support, which are pivotal for fostering a conducive learning environment. Participatory resources involve opportunities for students to make choices, influence the learning process, and actively participate in their education (Jääskelä et al., 2016).

Thirdly, in terms of measurement, quantitatively, student agency is measured using instruments like the Agency of University Students (AUS) Scale (Jääskelä et al., 2021), which provides a multidimensional assessment of student agency resources. Qualitatively, Van Lier (2008) analytical framework, consisting of six aspects, is employed to evaluate the different manifestations of student agency in educational settings. This mixed-methods approach allows for a comprehensive understanding of student agency.

Lastly, in terms of realization, the realization of student agency is facilitated through pedagogical strategies and learning designs that empower students. Translanguaging Pedagogy (Jones, 2017) and Multiliteracies Pedagogy (Cope and Kalantzis, 2021) are two such approaches that aim to enhance student agency by leveraging their linguistic and semiotic resources. The Learning Design framework (Dalziel et al., 2016) provides a structured approach to designing educational interventions that can foster student agency. In conclusion, student agency is a nuanced educational construct that requires a multifaceted understanding and approach.

By defining student agency comprehensively, considering its various components, measuring it through qualitative and quantitative means, and realizing it through supportive pedagogies and learning designs, educators can foster an environment where students are
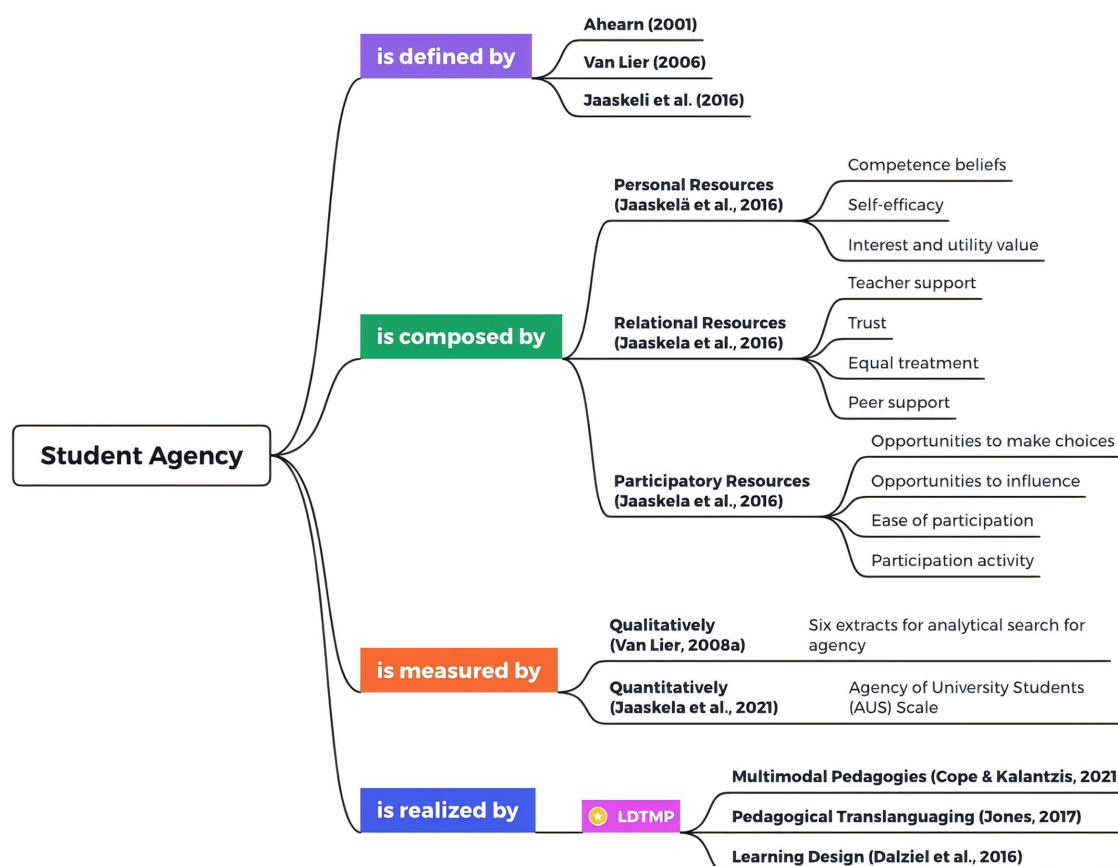
FIGURE 1
Conceptualizing student agency.

active participants in their learning journey. Therefore, the pursuit of lifelong learning is integral to preparing students for the complex challenges of the 21st century. Guided by the vision of lifelong learning, this paper explores how an LDTMP can be designed and implemented in a Chinese College English course to strengthen student agency. The study addresses the need for innovative educational models that not only enhance language proficiency but also encourage students to become active, reflective, and responsible learners.

1.3 Research aim and questions

The primary objective of this research is to develop the learning design for translanguaging and multiliteracies pedagogy (LDTMP), an innovative approach aimed at enhancing student agency within the Chinese educational context. As part of a bigger study which contains three phases, this paper reports on partial findings from the first two phases which focused on developing and implementing a prototype of LDTMP, a pedagogical framework which integrates translanguaging and multiliteracies pedagogies. The key research questions which will be addressed are:

1. What are the current challenges and opportunities in fostering student agency within EFL classrooms in China?

2. How can Learning Design based on Translanguaging and Multiliteracies Pedagogy principles be applied to enhance student agency in this context?

3. What are the effects of implementing LDTMP on student agency in EFL settings?

2 Methods

The research employs a design-based research (DBR) framework, focusing on the iterative development, testing, and refinement of educational interventions within real-world educational settings. The DBR approach is well-suited for addressing the unique challenges of teaching and learning in an EFL context, where cultural and linguistic diversity are key factors. The integration of design science within educational research has been a relatively recent development, with significant contributions emerging since Allan Collins introduced the concept in 1992. Collins (1992) advocated for the establishment of a design science in education to explore the impact of various learning environment designs on educational variables and to advance a theory of contextualization. This approach was further developed by Ann Brown, who connected laboratory learning studies with complex instructional interventions through design experiments, focusing on classroom settings characterized by their richness, complexity, and dynamism.

DBR, which evolved from design experiments, lacks a unified international definition, with experts offering diverse interpretations. The definition proposed by Wang and Hannafin (2005) encapsulates the essence of DBR as a systematic and flexible methodology. It is predicated on the interaction between researchers and practitioners within real-life contexts, involving iterative processes of analysis, design, development, and application. This methodology aims to produce contextualized design principles and theories that enhance educational practice.

The current study employs DBR to evaluate the application of Learning Design in practice, focusing on enhancing student agency through an iterative design-based research process. It seeks to address the need for interventions that not only describe current educational practices or confirm effective strategies but also design more effective strategies, particularly in areas with limited prior research. In comparison with conventional research methods such as experimental research which is typically conducted in controlled settings, DBR is conducted in real-world contexts with an aim to solve practical problems and develop theories. Furthermore, experimental research often employs hypothesis testing and comparative experiments while DBR relies on iterative design improvements based on practical feedback.

This study employs a Design-Based Research (DBR) methodology, a systematic and iterative approach that bridges theory and practice to develop and refine educational interventions. The DBR process consists of three phases, each aligned with specific outcomes, to explore and enhance student agency through the Learning Design for Translanguaging and Multiliteracies Pedagogy (LDTMP) framework. The complete research employed a Design-Based Research (DBR) approach which is structured into three distinct yet interconnected phases (Figure 2).

2.1 Phase 1: Preliminary research

In Phase 1, the preliminary study involved a comprehensive literature review and context analysis to establish a robust theoretical foundation. This phase set the stage for understanding the current state of student agency, including the opportunities and the challenges faced in EFL classrooms, which aligns with the first research question. The key outcomes of this phase included: a detailed understanding of student agency as a multidimensional construct involving personal, relational, and participatory resources and the conceptualization of LDTMP principles drawn from multiliteracies and translanguaging theories to inform the framework.

2.2 Phase 2: Prototype development and implementation

The second phase was dedicated to prototype development, which included the creation of the prototype of LDTMP. The integration of translanguaging and multiliteracies pedagogies in LDTMP was iteratively refined through classroom implementation and mixed-methods analysis. Formative evaluation played a pivotal role in this phase, guiding the iterative refinement of the educational intervention to better meet the learning needs and enhance student agency. Research questions 2 and 3 align with the first iteration of LDTMP in Phase 2. Outcomes of this iteration included: a refined prototype of LDTMP tailored to the needs of Chinese EFL learners or other students at tertiary level, and quantitative and qualitative evidence of the framework's impact on enhancing student agency. Outcome of the other iterations will be reported in the future study.

FIGURE 2
DBR process (SA, student agency).
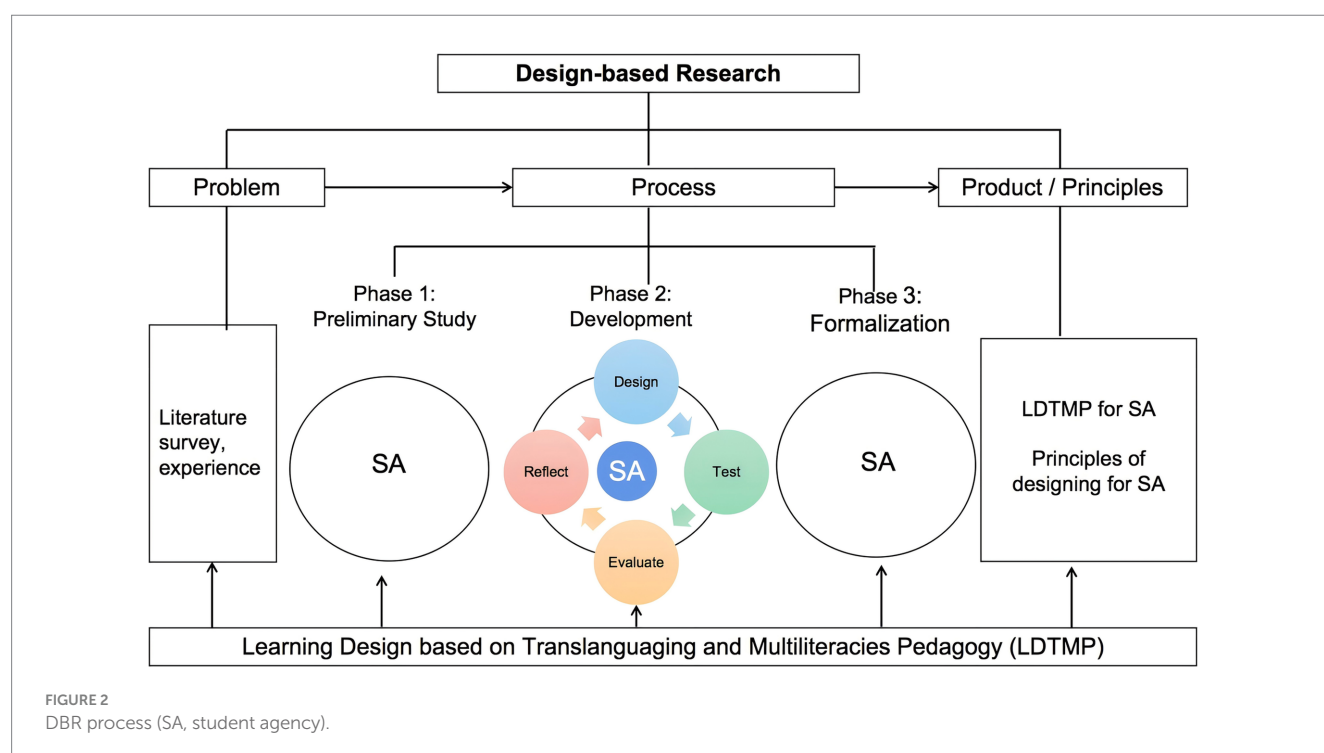
2.3 Phase 3: Formalization of principles

Phase 3 which is the final phase focused on the formalization of research and design principles. This involved a systematic analysis of the data collected from the second phase, leading to the development of a comprehensive thesis that presented the findings and the resulting end product. Phase 3 aimed to contribute to the body of knowledge in educational research by providing a detailed account of the process and outcomes of implementing the LDTMP model. The outcome of this phase will be reported in the future study.

Through this three-phase DBR process, the complete research aimed to address the specific challenges and opportunities in fostering student agency within EFL classrooms in China, and measure the impacts of implementing such a design on student agency in EFL settings. As part of the bigger study, this paper presents the research findings of the first phase and the first iteration of the prototype development in the second phase.

3 Results

This section describes results from two phases of the complete research: Phase 1 (Preliminary Research) and Phase 2 (Prototype Development and Classroom Implementation). Specifically, results from Phase 1 justify a theoretical foundation for LDTMP through literature review while results from one iteration of prototype development and classroom implementation in Phase 2 are used to evaluate LDTMP's effectiveness to inform the modifications needed for future iterations.

3.1 Results of Phase 1: Preliminary study based on literature

The preliminary research phase established a theoretical foundation for student agency as a component of lifelong learning and student agency in EFL contexts, drawing from the works of Van Lier (2008), Jääskelä et al. (2016) and Lim and Nguyen (2022). The study defines student agency as the capacity for students to access and utilize resources for purposeful action in learning contexts. Multiliteracies and translanguaging were also identified as complementary pedagogical approaches which can inform any pedagogical design which address student agency.

3.1.1 Agency in the EFL context

Agency, defined as the capacity for choice, control, and self-regulation in the pursuit of personal goals, is a concept that reflects the potential for self or social transformation (Duff, 2012). Research in the fields of foreign and second language teaching and learning has recognized the positive role of agency (Swain, 2006; Van Lier, 2008; Tao and Gao, 2021). It is considered crucial to an individual's language development, with the ultimate performance in language learning being dependent on the individual's agency (Pavlenko and Lantolf, 2000).

Cheng and Wei (2019)'s study on tertiary-level English language teaching in China noted that the experiences and perspectives of Chinese university students, who represent the largest population of

English learners globally, have been largely overlooked. A similar issue has been identified in the United States, where Schornack and Karlsson (2020) discuss how language development specialists can influence policy and challenge inequitable practices that marginalize English learners.

Within the structured learning environments of higher education, the expression of student agency is contingent upon various elements that are intertwined with the design of learning experiences. Jääskelä et al. (2016) describe student agency as the capacity to access and utilize resources for purposeful action within academic settings. This includes personal, relational (interactional), and context-specific resources that students employ to engage in intentional and meaningful actions and learning processes. The current study adopts Jääskelä et al.'s (2016) definition, framing student agency in EFL classrooms as the ability to leverage resources within EFL contexts to enact intentional and significant learning experiences.

The choice of Jääskelä et al.'s (2016) definition is supported by two primary reasons: first, the multidimensional nature of student agency presented by the authors aligns well with the design activities of the Learning Design for Multiliteracies and Translanguaging Pedagogies (LDTMP); second, the emphasis on resources is essential, as they are the fundamental elements that translanguaging pedagogy and multiliteracies pedagogy contribute to enhancing student agency, encompassing semiotic, conceptual, and technical resources.

3.1.2 Multiliteracies-translanguaging as pedagogical foundation

In the context of globalization, EFL education faces new challenges and opportunities. To adapt to this trend, educators have begun to explore new teaching strategies, among those which are grounded in multiliteracies and translanguaging due to foreseen potential in promoting students' language abilities and cognitive development (Canagarajah and Gao, 2019; García and Kleifgen, 2020).

Multiliteracies pedagogy, as introduced by the New London Group (1996), extends the concept of literacy beyond traditional reading and writing skills to include a variety of literacies that are essential in a multimodal and multicultural world. This pedagogy recognizes the significance of various symbolic systems, such as visual, audio, and digital media, in the learning process. Multimodality is a significant feature of multiliteracies pedagogy which emphasizes the integration of language, images, sound, and other semiotic resources in the teaching process to promote students' comprehensive language ability (Jewitt, 2019). This pedagogy aligns with student agency by scaffolding learning and encouraging active design. Teachers use overt instruction to support students in navigating multimodal texts, enhancing relational resources such as teacher support and trust. Students are positioned as active designers of meaning, with opportunities to create multimodal texts fostering participatory resources (Hepple et al., 2014).

Pedagogical translanguaging, a concept developed by scholars like García and Li (2014), is an instructional strategy that encourages the use of students' full linguistic repertoire in the classroom. This approach values the linguistic diversity of students and facilitates more effective language learning by acknowledging and utilizing the multiple languages that students command. Its theoretical underpinnings include sociocultural and multilingual perspectives, which view language as fluid and transcending traditional boundaries.

Translanguaging contributes to student agency by promoting active participation and empowering identity construction. Students leverage their multilingual resources to engage meaningfully in classroom interactions, expanding their participatory resources. The flexible use of linguistic and semiotic resources helps students assert their identities, making learning a personalized experience (Cenoz and Gorter, 2021).

Both multiliteracies and translanguaging can be justified by earlier theorizations in sociocultural theory and multimodal communication theory. Sociocultural theory emphasizes that learning occurs in social interaction, and language is a tool for learners to interact with others and construct knowledge (Vygotsky, 1978). Multimodal communication theory focuses on how language and other semiotic resources work together in the construction of meaning (Kress, 2010). These theories provide a solid theoretical support for complementing multiliteracies with translanguaging.

Empirical research in recent years has supported the effectiveness of combining multiliteracies with translanguaging in EFL education. For example, a study on Chinese college students found that the use of Multiliteracies-Translanguaging teaching strategies can significantly improve students' oral English expression ability and cross-cultural communication skills (Zhang and Li, 2021). Another study indicated that by integrating multilingual resources in the EFL classroom, students' language awareness and language use ability have been significantly enhanced (Li and Zhang, 2020). The integration of translanguaging and multiliteracies pedagogy within the Learning Design for Translanguaging and Multiliteracies Pedagogy (LDTMP) framework is grounded in their complementary theoretical affordances, as summarized in Zhou et al. (2024). These pedagogies collectively aim to enhance student agency by providing participatory and relational resources, fostering active engagement, and expanding students' linguistic and multimodal capabilities. Table 1 summarizes how multiliteracies and translanguaging offer theoretical foundations for pedagogical strategies aimed at fostering student agency.

The LDTMP framework synthesizes these pedagogical theories, using their strengths to create a comprehensive learning design. By combining translanguaging with multiliteracies, the framework ensures that students can integrate linguistic and multimodal resources to navigate complex learning environments. Teachers are envisioned as designers who tailor learning experiences to facilitate agency through collaborative, multimodal, and multilingual practices. The integration respects and utilizes students' cultural

and linguistic backgrounds, reinforcing inclusivity and equity in education. Through these theoretical underpinnings, LDTMP provides a robust foundation for fostering student agency in diverse educational settings.

This preliminary research in Phase 1 lays the groundwork for the subsequent phases of the study, setting the stage for the development and implementation of LDTMP in a College English course within a Chinese university setting. The preliminary study in Phase 1 identified and defined student agency as a core dimension in language learning processes which requires pedagogical intervention. Literature review also indicated that engaging principles from both multiliteracies and translanguaging have positive potential for student agency. The next section will explain how multiliteracies and translanguaging can be adopted to provide principles for LDTMP.

3.2 Results of Phase 2: Developing, implementing and evaluating LDTMP

3.2.1 Developing LDTMP

Based on insights from Phase 1, a prototype of a Learning Design grounded in Translanguaging and Multiliteracies Pedagogies was developed. This prototype, referred to as LDTMP (Learning Design based on Translanguaging and Multiliteracies Pedagogies; Figure 3), is specifically designed to enhance student agency within the context of EFL (English as a Foreign Language) for Chinese university students. It is conceptualized through three distinct yet interrelated theories: Learning Design, Multiliteracies Pedagogies and Translanguaging. Learning Design functions as a blueprint for potential learner activities, distinguishable from its specific implementation with a particular group (Dalziel et al., 2016). Multiliteracies Pedagogies, as proposed by the New London Group, is a classroom design which encompasses four knowledge processes: experiencing, conceptualizing, analyzing, and applying. Translanguaging, on the other hand, refers to instructional strategies that incorporate the use of two or more languages. LDTMP is not merely an instructional design or a modular unit but a technology-enhanced plan for potential activities with learners, distinct from a learning design that has been actualized with a specific cohort of learners.

The development of LDTMP is underpinned by learning design principles within the SP&M framework (Thomson, 2022). "S" denotes the subject, focusing on the identification of knowledge

TABLE 1 Relating multiliteracies and translanguaging to student agency (Zhou et al., 2024).

Theoretical underpinnings	Affordances of theory	Guidelines for teacher classroom practices	Student agency dimensions (Jaaskela et al., 2017)
Multiliteracies (or multimodal pedagogies)	Multimodal meaning-making	Scaffolding through overt instruction	Relational resources such as teacher support
	Active participation and expanding linguistic repertoire	Developing opportunities for students to analyze and create multimodal texts	Participatory resources
Translanguaging		Providing opportunities to students to exercise or expand their linguistic repertoire	Participatory resources

FIGURE 3
A learning design based on translanguaging and multiliteracies pedagogies (LDTMP).
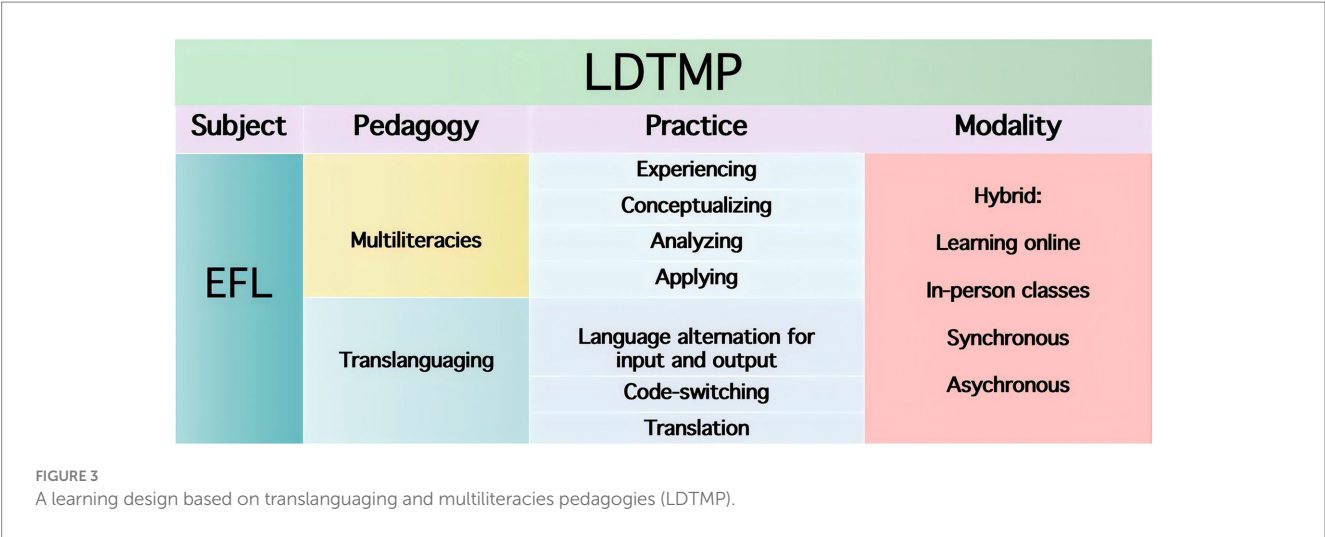
domains for learner acquisition. "M" signifies modality, which involves determining the most appropriate avenues for learner access to knowledge. "P" represents pedagogy, emphasizing the selection of the most effective teaching strategies to facilitate learner engagement and knowledge acquisition. LDTMP integrates the principles of SP&M with the pedagogical insights from classroom translanguaging as proposed by Jones (2017) and multiliteracies pedagogy as articulated by Cope and Kalantzis (2021). The learning design of LDTMP is thus constructed (Table 1), with learning design principles forming a foundation which is supported by the two pedagogical approaches. The selection of SP&M from numerous learning design models is deliberate, as it places a significant emphasis on pedagogy, which is central to the LDTMP framework.

The LDTMP learning design comprises four elements: the subject matter, which is EFL, and the two pedagogical approaches, multiliteracies and translanguaging. Multiliteracies encompasses experiencing, conceptualizing, analyzing, and applying, while translanguaging involves language alteration for input and output, code-switching, and translation. The final element is modality, offering a choice between online learning, in-person classes, synchronous, and asynchronous formats. This learning design contributes to the principles of Learning Design that are based on Translanguaging and Multiliteracies Pedagogy, as sought by Research Question 2.

The next section will discuss the implementation of LDTMP in a College English course and its evaluation through quantitative and qualitative methods.

3.2.2 Implementing of LDTMP in a college English course

LDTMP which integrates translanguaging and multiliteracies pedagogies was implemented in a College English course at a Chinese science and technology university. The participants consisted of university students majoring in science and technology, with English proficiency levels categorized as intermediate and below. The class composition typically ranged from 27 to 35 students, with each session lasting 45 min. A critical observation was that the students generally struggled to comprehend English-medium instruction, thus

underscoring the necessity for the integration of translanguaging to facilitate comprehension and participation.

LDTMP was designed to be technology-enhanced, flexible, and adaptable to various learning modalities, including in-person and asynchronous learning. The implementation involved a series of classroom activities, such as voting, group discussions, presentations, and digital composing tasks, all aimed at promoting student engagement and critical thinking. The use of Chaoxing app facilitated peer interaction and feedback, enhancing the participatory and relational resources available to students.

LDTMP was strategically implemented to foster student agency through a series of structured learning activities which were designed to activate the knowledge processes of multiliteracies and the linguistic flexibility of translanguaging. The activities were carefully planned to align with the cognitive and linguistic capabilities of the students, ensuring a conducive learning environment (Table 2).

The initial learning activity involved a voting exercise, which served as an experiential learning opportunity. Students were invited to express their agreement or disagreement on a specific question, followed by a reflective discussion where they shared their perspectives and experiences. This bilingual activity, conducted primarily during the first 5 min of each class, promoted active participation and resource sharing among students.

The second activity utilized the Chaoxing app to facilitate group discussions, allowing students to engage with the course material in English while expressing their thoughts in either English or Chinese. This translanguaging approach supported students in understanding and contributing to class discussions, enhancing their communicative competence.

Subsequent activities included group presentations, where students read and analyzed paragraphs, and translated them to deepen their understanding of the text. This task not only honed their language skills but also fostered critical thinking and collaborative learning.

The final activity involved asynchronous digital composing, where students created multimodal content with subtitles in both English and Chinese. This task required students to apply their knowledge and linguistic skills in a creative and autonomous manner, promoting the development of multiliteracies.

TABLE 2 Implementing LDTMP in a college English course in China.

Learning activities	What does the teacher do?	Knowledge process of multiliteracies	Classroom translanguaging	Technology used	Modality	Duaration	SA dimensions (Jaaskela et al., 2017)
1.Voting on a question: agree or disgree	The teacher initiates a voting activity and asks why choosing agree or disagree.	Experiencing	Code-switching	Chaoxing App	In-person classes	5 min	Participatory Resources
2.Dicussion in groups on a question	The teacher initiates a discussion activity on Chaoxing App.	Experiencing	Language alternation for input and output	Chaoxing App	In-person classes	5 min	Participatory Resources
3.Presenting in groups: reading the paragraphs	The teacher walks around to offer help.	Experiencing	--	--	In-person classes	10 min	Participatory and Relational Resources
4.Presenting in groups: translating the paragraphs	The teacher initiates a discussion activity on Chaoxing App.	Conceptualizing	Translation	Chaoxing App	In-person classes	10 min	Participatory and Relational Resources
5.Presenting in groups: critical thinking (e.g., facts or opinions)	The teacher gives feedback to the students'work.	Analyzing	Language alternation for input and output	Chaoxing App	In-person classes	10 min	Participatory and Relational Resources
6.Group homework: multimodal digital composing	The teacher assigns a group assignment of digital composing	Applying	Language alternation for input and output	Digital composing tools	Asynchronous	5 min + 2 days	Personal and Relational Resources

## 3.2.3 Evaluating LDTMP: effects on student agency

This section details the effects of implementing one iteration of LDTMP in the context of study (Research question 3). The effects were assessed through quantitative analysis and qualitative analysis.

3.2.3.1 Quantitative analysis

This section presents the results from one iteration of the study conducted during Phase 2 by analyzing the quantitative effects of LDTMP on student agency. A total of 306 university students were involved as participants. Among them, 112 participants received instruction under LDTMP, while the remaining 194 participants received instruction under other approaches. All participants were undergraduate students from medical, humanities, or STEM disciplines in three universities in China, ranging from freshmen to seniors, ensuring the representativeness and diversity of the study results.

To assess students' agency, a questionnaire which was based on the Student Agency Scale, a seven-point scale developed by Jääskelä et al. (2016), was adopted to measure students' agency in their course learning. The scale encompasses 11 dimensions (Figure 4; Table 3) such as personal efficacy beliefs, self-efficacy, equity, teacher support, trust, and engagement, with multiple items under each dimension rated on a Likert scale.

Questionnaires were distributed in paper form to all participants and collected uniformly after the conclusion of the courses. To ensure data authenticity and validity, detailed instructions were provided to participants prior to questionnaire distribution to ensure accurate comprehension and independent

FIGURE 4
The dimensions of the agency of university student (AUS) scale (Jaaskela et al., 2017).
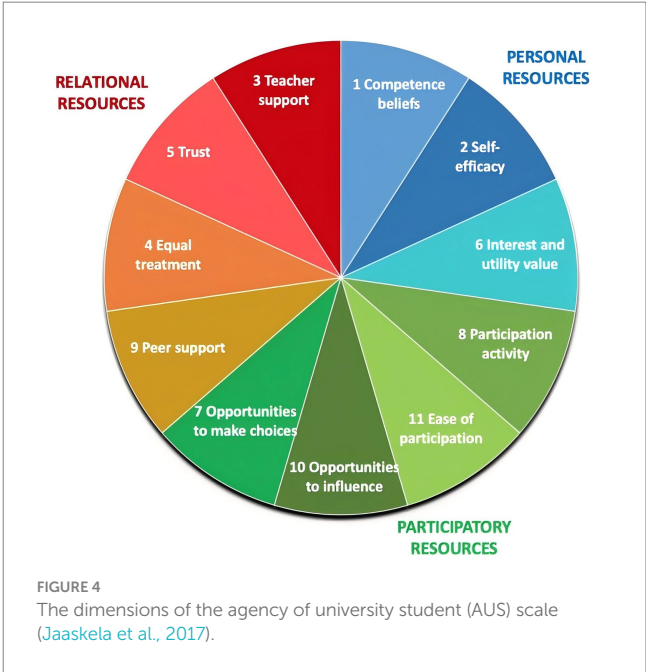
completion of the surveys. Additionally, participant anonymity was guaranteed to minimize ethical issues.

The collected questionnaire data underwent initial cleaning to remove incomplete or logically inconsistent responses. Subsequently, SPSS 22.0 software was used to perform the following analyses:

TABLE 3 Dimension codes of student agency in university English learning.

Code	Dimension	Description
D1	Competence beliefs	Beliefs about personal ability in learning.
D2	Self-efficacy	Confidence in achieving success in learning tasks.
D3	Equal treatment	Perceptions of fairness and equality in the learning environment.
D4	Teacher support	Perceptions of support and attitude of the teacher toward students.
D5	Trust	Sense of trust and safety in the learning environment.
D6	Participation activity	Level of active involvement in course activities.
D7	Ease of participation	Perceived ease or difficulty in participating in discussions and activities.
D8	Opportunities to influence	Ability to influence course goals, methods, and assessments.
D9	Opportunities to make choices	Ability to choose content and methods aligned with learning goals.
D10	Interest and utility value	Perception of the course's relevance, interest, and motivational value.
D11	Peer support	Support received from and given to peers in the learning process.

FIGURE 5
Descriptive analysis.
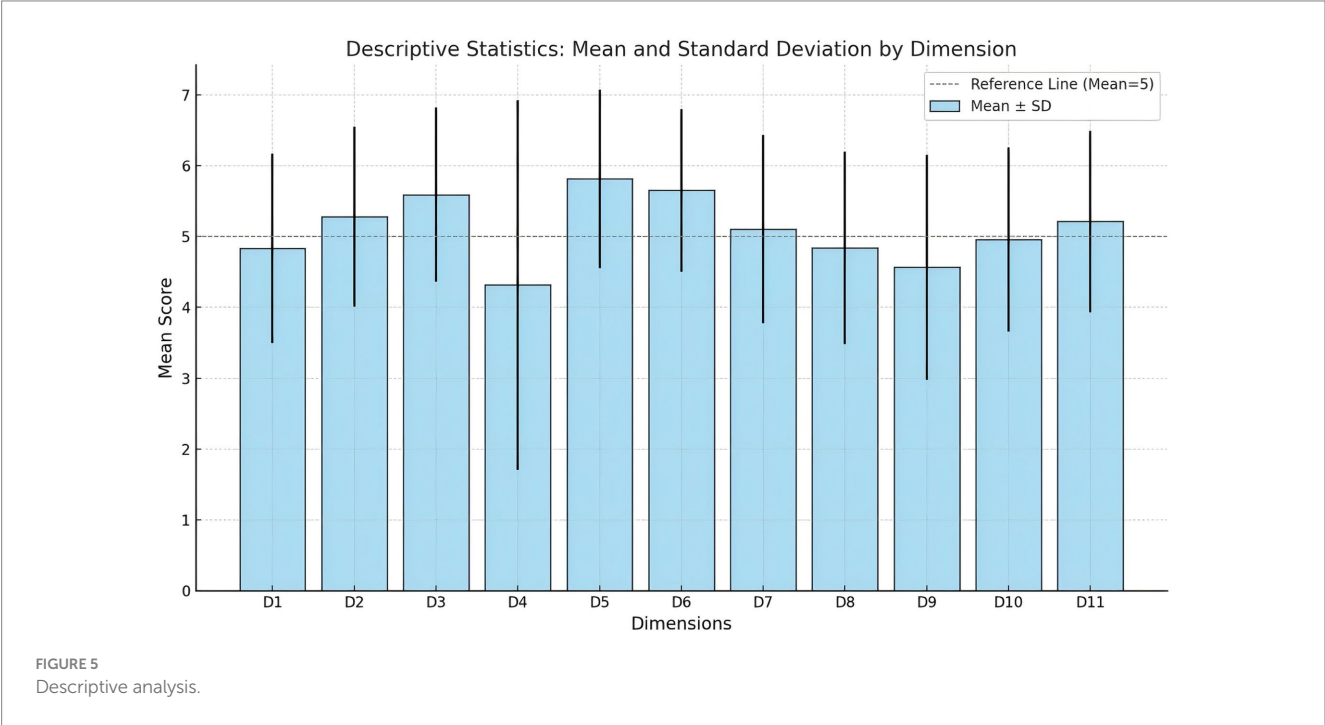
1. Descriptive statistical analysis: Calculation of means, standard deviations, and other descriptive statistics to understand the overall performance and distribution of student agency.
2. Reliability analysis: Assessment of internal consistency reliability using Cronbach's Alpha coefficient. A Cronbach's Alpha value above 0.7 is generally considered indicative of good internal consistency.
3. Validity analysis: Construct validity was evaluated through exploratory factor analysis (EFA) to ensure that scale items accurately reflected the intended construct of student agency.
4. Independent samples t-test: comparison of student agency between LDTMP and other instructional modes.

A significance level of 0.05 was set for all statistical tests to ensure the statistical significance of the research findings. The following paragraphs delve into descriptive statistical analysis, reliability analysis, validity analysis, and independent samples t-test.

The descriptive statistics (mean and standard deviation) were calculated for each of the 11 dimensions of the scale to assess the distribution of scores across dimensions. Figure 5 indicates that the mean scores for the dimensions ranged from 4.568 to 6.199, with Dimension 4 (D4) showing the lowest average score (4.568) and Dimension 5 (D5) showing the highest average score (6.199).Standard deviations ranged from 1.072 to 2.056, indicating varying levels of variability across dimensions. Dimensions with higher standard deviations, such as D10 (SD = 2.056), suggest greater variability in responses. Dimensions with lower means (e.g., D4 and D9) may require further investigation to understand why respondents rate them lower and whether the items in these dimensions need to be revised.

From Figure 6 and Table 4, it is evident that the reliability coefficient is 0.943, exceeding 0.9, indicating high reliability of the research data and its suitability for further analysis.

Validity analysis was conducted to assess the rationality and meaningfulness of research items. Factor analysis was employed for
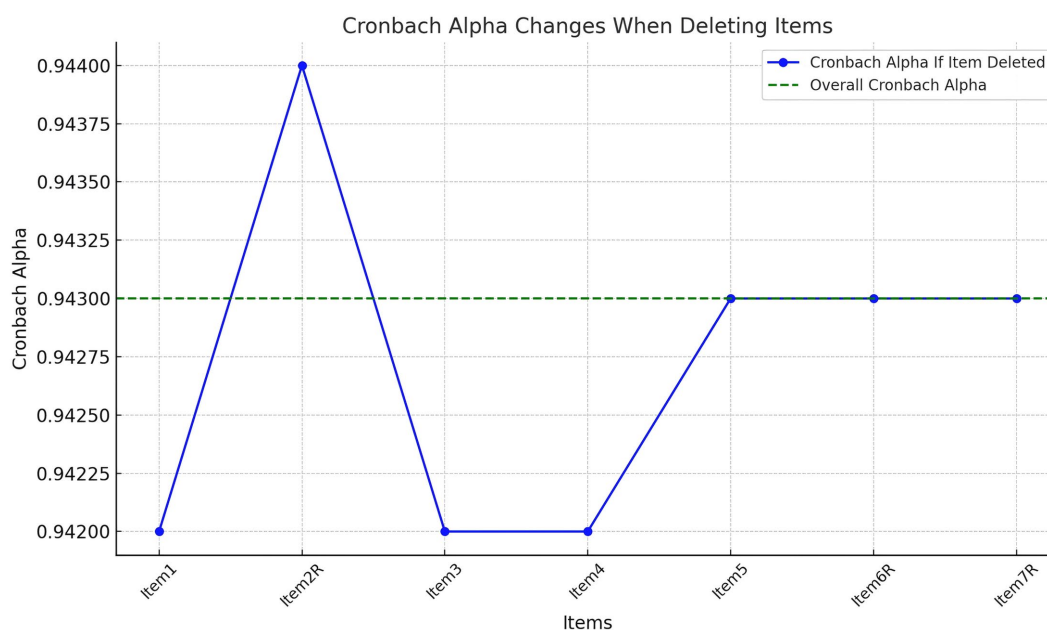
FIGURE 6
Cronbach alpha changes when deleting items.

TABLE 4 Reliability statistics (Cronbach alpha).

N of Items	n	Cronbach α
58	306	0.943

validity analysis, utilizing indicators such as Kaiser-Meyer-Olkin (KMO) measure, communalities, variance explained, and factor loading coefficients to comprehensively analyze the validity level of the data. Table 5 show that all communalities for the research items exceed 0.4, indicating effective information extraction from the research items. Moreover, the KMO value of 0.940, >0.6 (see Table 6), confirms the adequacy of information extraction from the data. Additionally, the variance explained by the 10 factors is 19.926, 12.164, 9.821, 7.768, 7.477, 6.271, 5.599, 4.584, 4.323, and 3.525% respectively, with a cumulative variance of 81.458% after rotation, exceeding the threshold of 50%, indicating effective extraction of information from the research items.

Exploratory factor analysis was employed for validity analysis, where the 58 items of the scale were categorized into 11 dimensions. During the initial analysis, items 2R, 6R, 7R, 15R, 34R, and 57 had factor loading coefficients below 0.4, which should have corresponded to their respective dimensions with coefficients above 0.4, indicating misalignment. These items were subsequently removed, followed by a second analysis where items 37–40, 45, 47R, 48R, and 53 were excluded. A third analysis removed items 31 and 32, resulting in 42 remaining items that aligned well with the dimensions and met professional expectations. Table 6 further demonstrate a KMO value of 0.940 (>0.6), and Bartlett's test of sphericity was significant. The cumulative variance explained was 78.213%, confirming that most of the information from the 11 dimensions could be extracted. Thus, the research data exhibits a good level of structural validity.

Using independent samples t-tests, the study examined differences in student agency in English learning between the LDTMP instructional model and other instructional models. Figure 7 indicates

that compared to other instructional models, the LDTMP instructional mode shows significant differences ($p < 0.05$) in four dimensions: Competence beliefs (D1), Teacher support (D4), Opportunities to influence (D8), and Opportunities to make choices (D9). This suggests that the instructional models differ significantly in terms of Competence beliefs (Personal resources), Teacher support (Relational resources), Opportunities to influence (Participatory resources), and Opportunities to make choices (Participatory resources). However, there were no significant differences ($p > 0.05$) observed in the other seven dimensions, indicating consistency between these instructional models across those dimensions.

3.2.3.2 Qualitative analysis

Qualitative analysis of LDTMP after one iteration in Phase 2 demonstrated its adaptability as a template for designing learning experiences. This is realized by the smart teaching assistant tool, Chaoxing APP. Through the Chaoxing APP, students can receive teaching task links sent by teachers on their mobile phones instantly. At the same time, teachers can also synchronize the links and submissions of students to the multimedia electronic big screen in the classroom in real time (as shown in Figure 8).

For the 112 participants who received instruction under LDTMP, the voting and discussion activities provided empirical evidence of its effectiveness. Voting outcomes were represented using a pie chart, illustrating the distribution of student opinions, while a word cloud was used to visualize the range of ideas contributed by students during discussions.

In the context of classroom teaching, engaging students in voting and discussion activities was an effective pedagogical strategy to encourage participation and foster a sense of inclusion. For instance, in a voting exercise (Figure 9), students were presented with options such as "yes," "no," "it depends," or "I do not know." This approach allowed for a diversity of responses and acknowledges the complexity of certain issues that may not have a straightforward

TABLE 5 Validity analysis.

Items	Factor loadings										Communalities
	F1	F 2	F3	F4	F5	F6	F7	F8	F9	F10	
1						0.64					0.753
3						0.733					0.811
4						0.787					0.879
5						0.577					0.587
8		0.782									0.841
9		0.829									0.879
10		0.818									0.905
11		0.828									0.89
12		0.817									0.866
13							0.737				0.839
14							0.732				0.872
16							0.662				0.778
17R			0.962								0.944
18R			0.956								0.942
19R			0.948								0.928
20R			0.966								0.953
21	0.757										0.722
22	0.701										0.748
23	0.812										0.889
24	0.807										0.86
25	0.762										0.796
26	0.802										0.824
27	0.715										0.779
28										0.42	0.834
29										0.56	0.835
30										0.562	0.776
33	0.49										0.649
35	0.658										0.663
36	0.578										0.737

(Continued)

TABLE 5 (Continued)

Items	Factor loadings										Communalities
	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	
41								0.879			0.851
42								0.871			0.844
43R									0.77		0.712
44R									0.735		0.771
46R									0.734		0.756
49				0.712							0.848
50				0.742							0.872
51				0.739							0.876
52				0.707							0.828
54					0.73						0.813
55					0.785						0.878
56					0.696						0.818
58					0.459						0.564

TABLE 6 KMO and Bartlett's test.

KMO		0.94
Bartlett's test of sphericity	Chi-square	13801.957
	df	861
	p	0

answer. Figure 9 illustrates the distribution of responses among a group of 27 students, with five students voting "yes," 10 voting "no," eight indicating "it depends," and four selecting "I do not know." It is important to note that even students who choose "I do not know" may not necessarily be disinterested; rather, they might be expressing a need for further information or clarification.

To enhance engagement, the instructor invited students from the minority group to articulate their viewpoints. This not only provided an opportunity for those students to express themselves but also promoted a classroom environment where every voice is valued and heard. By asking targeted questions, the instructor could encourage these students to elaborate on their choice, which can lead to a deeper understanding of the topic at hand.
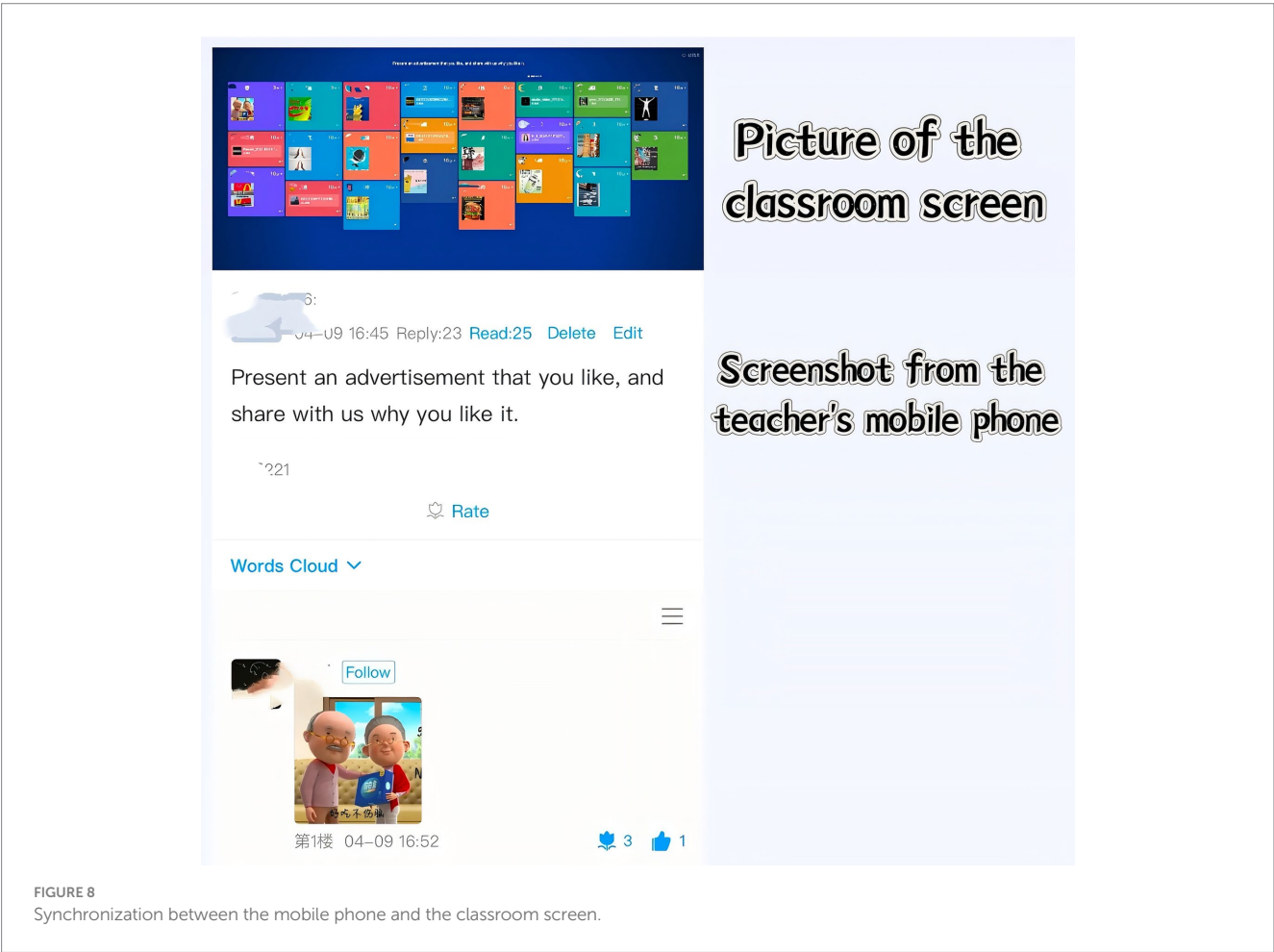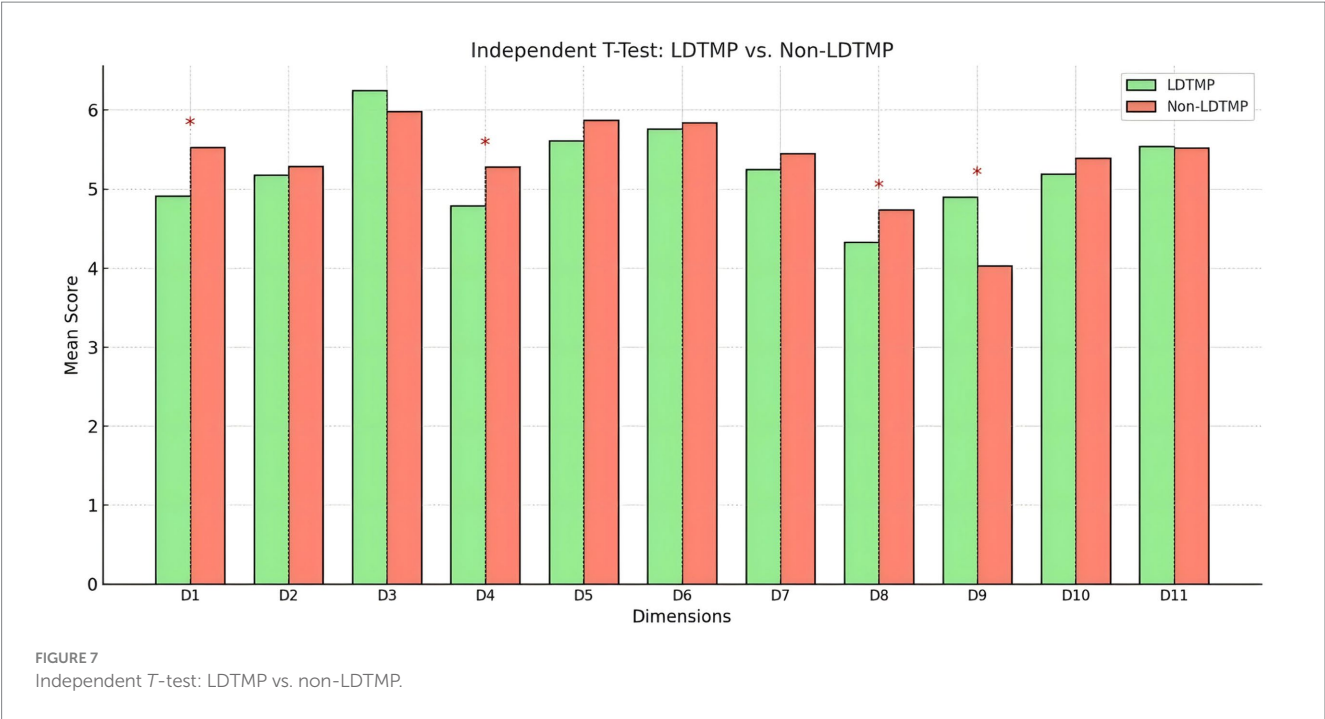
Furthermore, the instructor selected representatives from the majority groups to share their opinions as well, ensuring a balanced and comprehensive discussion. This exchange of ideas was facilitated in various languages, including English, Chinese, or a combination of both, to accommodate the linguistic preferences and abilities of the students.

In addition to voting activities, discussion activities such as brainstorming on "How to make an informative video more interesting" (Figure 10) stimulated creative thinking and collaboration among students. These activities can be particularly beneficial in a multilingual or multicultural classroom setting, as they allow students to draw from diverse perspectives and experiences.

Another example within the LDTMP framework is to ask students to evaluate their favorite advertisements in Chinese, English or any dialect they know (Figure 11). This task requires students to use not only translanguaging skills but also multiliteracies knowledge to analyse and evaluate the multimodal nature of advertisements. For example, students were asked to create a bilingual subtitled video evaluating an all-English advert. The purpose of this task was to enhance the students' linguistic competence as well as their critical thinking and creative expression. Students' performance showed that they were able to analyse the advertisement in depth from multiple perspectives, including visual effects, language use, and emotional appeal, which demonstrated a significant increase in students' competence in cross-cultural understanding, language expression as well as critical thinking.
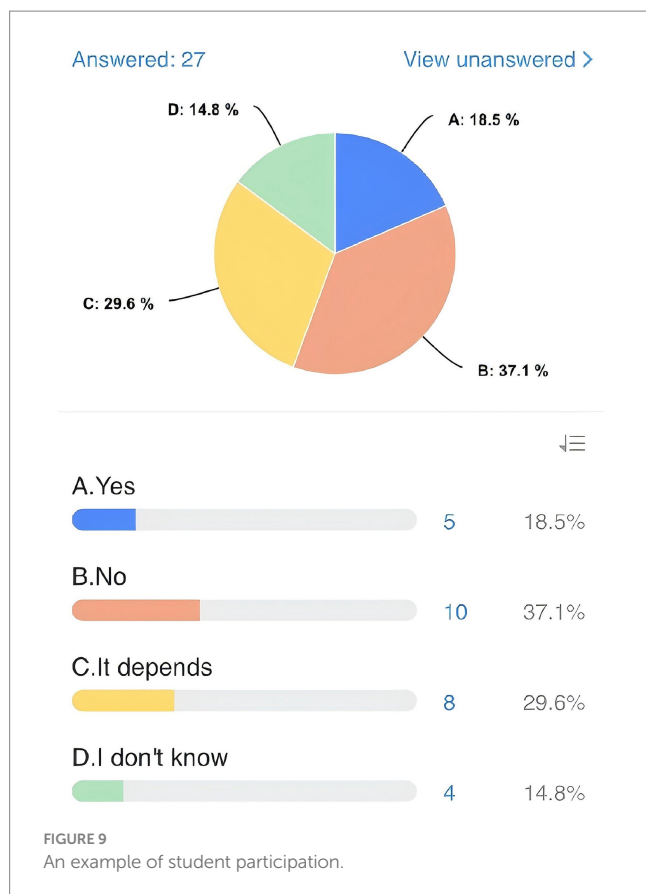
Another discussion activity was multimodal digital composition (Figure 12), in which students were required to combine multimodal resources such as text, images, audio, and video to create a project about a social issue. This task aimed to develop students' information integration skills and creative thinking. Students' work demonstrated their proficiency in using multimodal resources and their deep understanding of social issues. Through this task, students' self-expression and self-presentation skills were strengthened, which directly reflected their progress in enhancing their agency.

Overall, the integration of voting and discussion activities in the classroom enhanced student engagement, promoted critical thinking, and created an inclusive learning environment where every student felt valued and encouraged to contribute.

FIGURE 7
Independent *T*-test: LDTMP vs. non-LDTMP.

FIGURE 8
Synchronization between the mobile phone and the classroom screen.

In summary, a promising approach for creating learning experiences is provided by the LDTMP framework, which integrates translanguaging and multiliteracies while highlighting student agency.
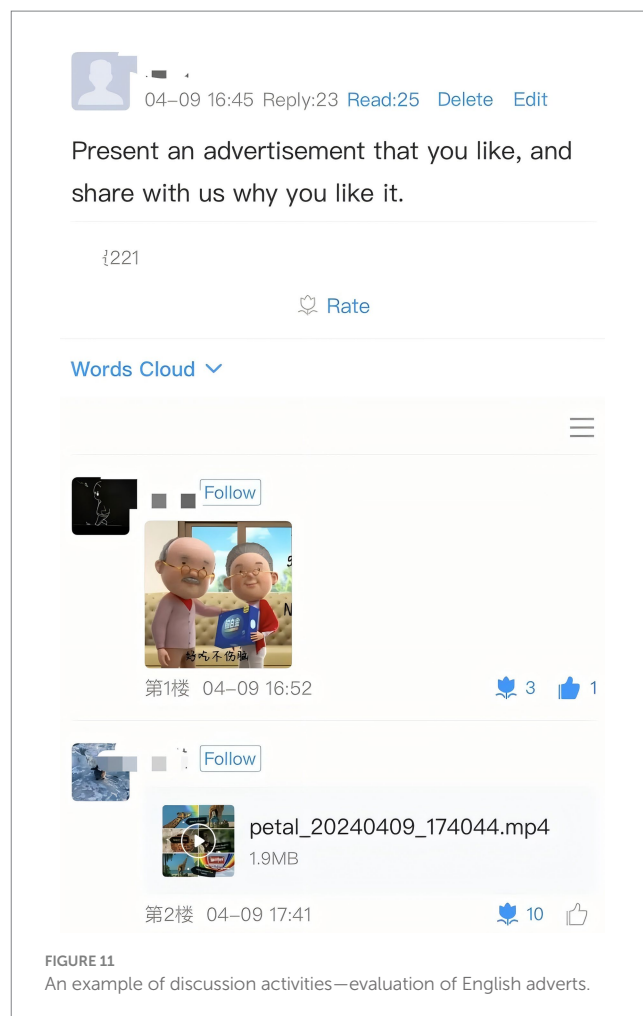
Because of its adaptability and reproducibility, this model can be used in a range of educational contexts. Educators can leverage this framework to create learning environments that are inclusive,

Answered: 27   View unanswered ›

D: 14.8 %   A: 18.5 %

C: 29.6 %

B: 37.1 %

A.Yes
5   18.5%

B.No
10   37.1%

C.It depends
8   29.6%

D.I don't know
4   14.8%

FIGURE 9
An example of student participation.

15:27
主题
讨论   How to make an informative   详情
          video more interesting?

                                          specific
                  preferably   use   rich
          write
                    storyline
          start   add   bgm   picture
                          user
                sound   something
                        strong   plot   sense
              reversal

FIGURE 10
An example of discussion activities.

dynamic, and conducive to the development of lifelong learning skills. The detailed implementation of LDTMP in this study serves as a robust example for educators seeking to enhance student engagement and promote academic success in diverse educational contexts.

4 Discussion and implications

This study showed the development and implementation of LDTMP as a Learning Design based on Translanguaging and Multiliteracies Pedagogy (LDTMP) aiming to enhance student agency within a College

04−09 16:45 Reply:23 Read:25 Delete   Edit

Present an advertisement that you like, and share with us why you like it.

221

♡ Rate

Words Cloud ⌄

Follow

第1楼 04−09 16:52   3   1

Follow

petal_20240409_174044.mp4
1.9MB

第2楼 04−09 17:41   10

FIGURE 11
An example of discussion activities—evaluation of English adverts.

English course in China using DBR as a methodology. The following discusses the implications of LDTMP and compares it with existing EFL instructional models to highlight its unique advantages.

4.1 Overcoming challenges of promoting student agency with LDTMP

The LDTMP framework is the result of the application of learning design ideas, especially those drawn from translanguaging and multiliteracies teaching. In a multilingual or multicultural classroom, this approach is especially helpful since it acknowledges the variety of language practices and expands the linguistic resources accessible to students. The LDTMP fosters a more dynamic and inclusive learning environment by enabling students to benefit from a range of viewpoints and experiences.

A number of opportunities and difficulties pertaining to student agency in the context of EFL were discovered during the preliminary research phase (Section 3.1). The literature review, for example, made clear that agency depends on a number of factors that are entwined with how learning experiences are designed.

The literature review underscores that agency is contingent upon various elements intricately connected to the design of learning experiences. Jääskelä et al. (2016) conceptualized student agency as
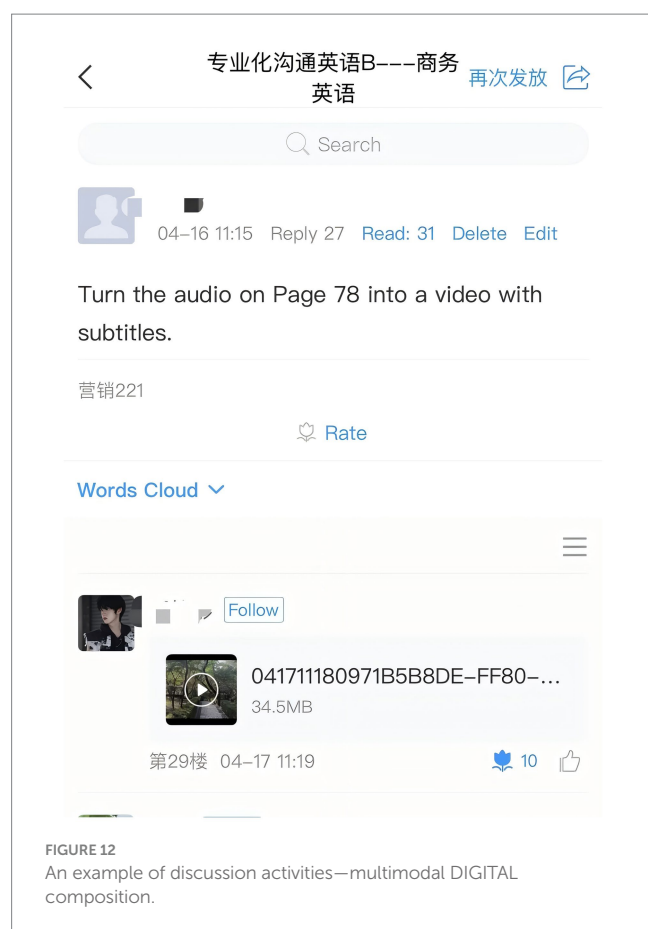
FIGURE 12
An example of discussion activities—multimodal DIGITAL composition.

the capacity to access and utilize personal, relational, and context-specific resources in academic settings. These resources enable students to engage in intentional and meaningful actions and learning processes, highlighting the critical role of well-designed learning environments.

In the context of Chinese university English instruction, Cheng and Wei (2019) emphasized the lack of attention given to student experiences and perspectives, identifying a gap in fostering student agency within educational practices. This aligns with Swain (2006) and van Lier (2008), who recognized agency as a pivotal factor in foreign and second language learning, noting that language development and performance heavily depend on the learner's agency.

Further exploring the dynamic relationship between agency and learning design, Pavlenko and Lantolf (2000) argued that second language learning involves participation and the (re)construction of self, directly linking the process to the development of agency. Kang (2017) demonstrated how classroom interactions, particularly language games, serve as agency resources that empower teachers to foster both pedagogical and collective agency, thereby creating a relaxed learning atmosphere and expanding opportunities for student participation.

Additionally, student agency is greatly influenced by educators' sense of responsibility and professional wellbeing (Phan and Hamid, 2017). Further reinforcing the idea that agency is molded by a combination of internal and external influences, Mercer (2011) emphasized how learners' beliefs affect their capacity to exercise agency. Qin et al. (2022) used mediation theory to examine changes in learning objectives and behaviors

while taking sociocultural viewpoints into account. They found that these changes were conventional markers of student agency. The importance of multilingual resources in improving learners' language awareness and proficiency was reaffirmed by research by Zhang and Li (2021) and Li and Zhang (2020), which also showed how effectively planned learning experiences that make use of these resources can greatly increase agency.

Together, these research show that learning experience design shapes and mediates agency, which does not arise in a vacuum. Teachers may build environments that encourage meaningful engagement and give students the power to take charge of their educational journeys by incorporating contextual, relational, and personal components.

In conclusion, even if encouraging student agency in an EFL setting presents certain difficulties, the knowledge gathered during the preliminary research stage offers a strong basis for the LDTMP framework. LDTMP seeks to establish a more stimulating and encouraging learning environment that enables students to take an active role in their academic journeys by filling in the gaps that have been identified and utilizing the chances offered by cutting-edge pedagogical approaches.

4.2 Comparing LDTMP with other approaches

Comparing the LDTMP approach to other instructional methods, the results highlight its strengths in fostering student autonomy and decision-making flexibility. Students in the LDTMP group reported greater freedom to make choices (D9) in their learning process, suggesting that the approach empowers learners to tailor their educational experiences to better suit their needs. While perceptions of competence (D1), teacher support (D4), and influence over course activities (D8) were lower compared to the Non-LDTMP group, this may indicate a shift toward a more student-centered learning where learners take greater responsibility for their own progress. Unlike traditional, teacher-centered approaches where students might be more passive recipients of knowledge (Taras, 2016), LDTMP encourages active participation and self-direction. This stands in contrast to some other models where the focus may be more on rote memorization and less on critical thinking and application. For example, the grammar-translation method often involves the translation of texts from the target language into the student's native language and vice versa, with a heavy focus on grammatical rules and vocabulary memorization (Richards and Rodgers, 2001), rather than preparing students for real-world language use. In comparison, traditional lecture-based instruction and textbook-centered learning may lead to a focus on end-of-chapter assessments rather than on ongoing, interactive learning experiences that support student agency (Au, 2007). Moreover, LDTMP integration of diverse teaching approaches stands out compared to more homogeneous instructional strategies that may not accommodate the varied needs and preferences of students, potentially leading to a less engaging and less equitable learning experience.

Despite the strengths of LDTMP for student agency, its effectiveness can be undermined by factors such as teacher's acceptance, the school's educational environment and students' individual characteristics. For instance, some studies have shown

that teachers' acceptance and effectiveness of new learning design models vary, which may be related to their educational concepts and levels of professional development (Geitz and de Geus, 2019). Moreover, the implementation of LDTMP also requires schools to provide corresponding support, including teaching resources, technological facilities, and professional training. Students' individual characteristics, such as self-efficacy, learning motivation, and learning styles, also affect the effectiveness of any type of teaching model (Tao and Gao, 2021). Therefore, when implementing LDTMP, it is necessary to consider these factors comprehensively and adopt teaching strategies to meet the needs of different students.

4.3 Practical implications for educators beyond China and in non-EFL disciplines

The Learning Design based on Translanguaging and Multiliteracies Pedagogy (LDTMP) presents a framework that has broad applications beyond the context of China and can be adapted to various educational settings and disciplines. Here are some practical implications for educators considering the adoption of LDTMP:

4.3.1 Enhancing student-centered learning

LDTMP can be used by educators in a variety of settings to shift from teacher-centered education to student-centered learning. Studies by Jaiswal and Al-Hattami (2020) and Khoury (2022) provide thorough insights into the theoretical underpinnings and real-world application of student-centered teaching methodologies. These studies demonstrate how well these strategies work to raise academic achievement, motivation, and student engagement. Teachers can promote a culture of active engagement and self-direction, which is essential for the development of lifelong learning skills, by giving students the freedom to take charge of their own education.

4.3.2 Developing critical thinking and problem-solving skills

Teachers can use LDTMP to develop assignments that ask students to use multimodal resources for analysis, evaluation, and creation. In the complicated world of today, this method develops critical thinking, problem-solving abilities, and the capacity to work with a variety of information sources.

4.3.3 Promoting inclusivity and diversity

LDTMP is an inclusive strategy since it acknowledges the diversity of language practices and encourages linguistic diversity. By valuing and incorporating students' original languages and cultural backgrounds, educators may create a more inclusive and representative learning environment.

4.3.4 Cross-disciplinary application

LDTMP can be used in a variety of fields and is not just for language acquisition. Students can improve their comprehension and communication of complicated concepts by, for example, conducting research in different languages, presenting their findings, and

engaging with multimodal literature in science or social studies classrooms.

4.3.5 Preparing for global citizenship

LDTMP equips students for global citizenship by strengthening their capacity to function in a variety of linguistic and cultural contexts. This method can be used by educators to promote intercultural competency and an international viewpoint, both of which are essential in our globalized society.

4.3.6 Professional development for educators

Teachers may need professional development in order to adopt LDTMP, giving them the skills they need in educational technology, multiliteracies, and translanguaging pedagogy. By funding this kind of training, educators are guaranteed to be able to lead the learning activities created using the LDTMP framework.

5 Conclusion

The findings of this study demonstrate how LDTMP has a great deal of potential to promote a more student-centered learning environment that is in line with upcoming trends in education and the goals of policymaking. A culture of lifelong learning and active citizenship can be fostered by educators by giving students the tools and support they need to take charge of their education. LDTMP offers educators practical strategies to enhance student agency and diversify instructional approaches as a framework that is reproducible and flexible, aligning with global educational trends.

The use of LDTMP in a Chinese college English course highlights how student agency may be transformative in fostering dynamic and inclusive learning environments. In addition to improving students' language skills, the creation and implementation of this educational model through DBR promoted responsible, reflective, and active learning habits. Global educational trends that emphasize self-directed, lifelong learning are directly supported by this method. Furthermore, the LDTMP's relevance to national education reforms and its capacity to influence novel policy orientations are demonstrated by the way its principles coincide with Chinese policies that support a learning society.

The core tenets of LDTMP—translanguaging and multiliteracies pedagogy—offer broad applicability across cultural and disciplinary barriers, despite the fact that the current study is based in the Chinese EFL environment. The LDTMP can be modified to accommodate the needs of various educational environments by utilizing the language and semiotic resources of learners, encouraging multimodal communication, and encouraging student agency. These characteristics make it a useful paradigm for educators and politicians who want to get children ready for a world that is changing and becoming more linked.

In order to meet the increasing demand for inclusive, adaptable, and creative teaching methods, future educational policies ought to take into account including models such as LDTMP. By connecting pedagogical innovation with global educational goals, this study adds to a larger conversation about reinventing education for the 21st century.

6 Limitations and future recommendations

The study's contribution of the LDTMP (Learning Design for Translanguaging and Multiliteracies Pedagogy) model for enhancing student agency within EFL contexts in China is subject to several limitations. Firstly, the generalizability of the findings is constrained by the cultural and educational specificity of the study, as its focus is limited to the Chinese EFL context. This raises questions about the broader applicability of LDTMP in other linguistic, cultural, or disciplinary settings. Secondly, the model's implementation has been primarily examined at the tertiary education level. Its adaptability to lower educational levels, where constraints such as limited digital device usage prevail, remains underexplored. Nevertheless, the underlying principles of LDTMP—flexible design, resource leveraging, and fostering student agency—have the potential to thrive in low-tech environments through alternative practices like Total Physical Response or translation using paper or blackboards.

Another limitation lies in the lack of exploration regarding teacher preparation and professional development necessary for implementing LDTMP effectively. The role of teachers as facilitators in integrating translanguaging and multiliteracies practices is pivotal, and this study provides limited insight into how teachers can be adequately equipped to apply the model. Additionally, the scope of technological tools and platforms used in the study is restricted. Broader applications of LDTMP could benefit from a more diverse and detailed incorporation of technological resources, especially given the increasing integration of digital tools in education.

Future research should address these limitations by exploring the potential of LDTMP in diverse cultural, linguistic, and disciplinary contexts. Investigating its applicability to resource-constrained settings and across different educational levels, including primary and secondary education, is essential. Further studies should also focus on teacher preparation and professional development, examining how training programs can support educators in implementing LDTMP effectively. Expanding the range of technological tools and platforms within the framework will also be critical to enhance its scalability and relevance. Finally, longitudinal studies are recommended to evaluate the sustained impact of LDTMP on academic achievement, cognitive development, and lifelong learning, ensuring a more comprehensive understanding of its efficacy across diverse educational landscapes.

Data availability statement

The datasets presented in this article are not readily available because restricted to student agency research only. Requests to access the datasets should be directed to zhoujie1199@gmail.com.

Ethics statement

The studies involving humans were approved by the China Jiliang Univeristy Institutional Ethics Committee. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

JZ: Writing – original draft. SL: Writing – review & editing. SK: Writing – review & editing.

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

Generative AI statement

The author(s) declare that no Generative AI was used in the creation of this manuscript.

Publisher's note

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