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# Case-Based Teaching in Higher Education: A Scoping Review of Chinese and English Literature from 2020–2024

**Xiao Yu Huang**
Corresponding author, Xichang University, China, *Wlyhxy@outlook.com*

**Richard Peter Bailey**
Corresponding author, UCSI University, Malaysia, *RichardBailey@ucsiuniversity.edu.my*

**Xiao Hua Huang**
Xiayi County Senior High School, China, *huangxiao2026@outlook.com*

**Nadia Samsudin**
UCSI University, Malaysia, *Nadia.Samsudin@ucsiuniversity.edu.my*

The case-based teaching method (CBT) has been widely employed in education because it engages students, links theory with practice, improves comprehension of theoretical concepts, and cultivates practical skills. In spite of its significance, discrepancies in vocabulary are apparent in Chinese literature, with these distinctions not clearly delineated, and research on CBT remains constrained. This study examines Chinese and English literature to elucidate the concept of CBT. Using a scoping review approach informed by systematic literature search strategies, 51 articles in English and Chinese from 2020 to 2024 were evaluated. The analysis focuses on the concepts, origins, theoretical underpinnings, case selection criteria, implementation procedures, obstacles, countermeasures, and comparison with other methods across disciplines. However, some inconsistencies in conceptualisation and application remain across studies. Researchers in the medical field often use the term "CBL (case-based learning)", whereas Chinese researchers in Chinese academic papers tend to use "case teaching". Both terms are often used interchangeably in the reviewed literature, although their conceptual distinctions warrant further clarification. Chinese researchers argue that CBT has both Western and Eastern origins: Ancient Greece and the Spring and Autumn and Warring States Periods in China. CBT is a student-centred methodology that facilitates profound learning, integrates theoretical knowledge with practical skills, and promotes student development. This study contributes to the global CBT literature by clarifying fragmented terminology across Chinese and English contexts and providing a cross-cultural conceptual synthesis of CBT, thereby addressing existing inconsistencies in the field.

Keywords: higher education practices, case-based learning, student-centred instruction, active learning, comparative teaching methods, learning opportunities, assessment gap

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## INTRODUCTION

For years, in the cultivation of human resources in schools, there have been issues such as neglect of practical learning, a lack of application of knowledge to problem-solving, and weak links to practical education (Wang, 2018). Case-based teaching (CBT) has been recognised as an effective method for bridging theory and practice by engaging students in real-world scenarios to develop their practical skills (Helms, 2012; Hong et al., 2015; Kaddoura, 2011; Thomas et al., 2001; Xu et al., 2022; Zhou et al., 2021). Furthermore, the Ministry of Education of China has issued a policy emphasising the development of postgraduate students' practical abilities through CBT (Guo et al., 2022; Ministry of Education of China, 2015).

However, existing international research on CBT remains fragmented, particularly due to inconsistent terminology (e.g., CBT, CBL, and case teaching), variation in implementation, and a lack of integrative frameworks across disciplines (McLean, 2016; Thistlethwaite et al., 2012). These terminological inconsistencies reflect deeper conceptual and epistemological ambiguities across studies. Moreover, although several reviews have examined CBT within specific domains such as medical education, there remains a lack of systematic synthesis across the Chinese and English literature, particularly regarding cross-linguistic conceptual alignment, leaving a gap in global conceptual integration. Importantly, no prior review has conducted a cross-linguistic comparison of CBT terminology and its underlying theoretical foundations across Chinese and English literature.

These issues are further reflected in divergent understandings of CBT across studies, with limited theoretical integration and insufficient empirical consolidation in the field (Yang & Zhou, 2021).

CBT is a student-centred approach that integrates theory and practice through case scenarios, guiding students to discover and analyse problems, enabling them to master theories, and improve their abilities (Ministry of Education of China, 2015, May 11). However, challenges include inconsistent terminology, insufficient understanding, and poor outcomes (Li, 2021; Zhang, 2022). This review examines CBT's concept, origins, theoretical foundations, implementation steps, challenges, and strategies for improvement, as well as comparisons with problem-based learning (PBL) and lecture-based learning (LBL). Various terms, such as "case teaching" (Tan & Huang, 2018; Wang et al., 2021), "case method" (Wang & Zhao, 2009; Yao, 2023), "case-based teaching method" (Zhang & Hou, 2020), and "case-based learning" (Du et al., 2024), are used for CBT, the same Chinese term "*anli jiaoxue*". For clarity, this review uses "CBT".

This review aims to synthesise and map CBT's concepts, theoretical foundations, case selection principles, implementation steps, challenges, strategies for improvement, and comparisons to other methodologies. It addresses the following questions:

1. What are CBT's concepts, origins, and theoretical foundations?

2. What are the key implementation steps of CBT?

3. Why have key challenges in CBT persisted across studies in the past five years?

4. Which strategies have been empirically validated to address these challenges?

3. How does CBT compare to methodologies such as problem-based learning (PBL) and lecture-based learning (LBL)?

## METHOD

### Sources and search strategy

Scoping reviews aim to synthesise and map existing evidence to inform educational research and practice (Gao, 2024; Uttley et al., 2023). This scoping review was informed by established methodological guidance (e.g., Arksey & O'Malley, 2005; Levac et al., 2010) and reported with attention to transparency consistent with scoping review practices. This review did not register a formal protocol (e.g., OSF), which is common in exploratory scoping reviews, but all procedures were predefined and documented to ensure transparency. In this study, a transparent and replicable search strategy was adopted to identify relevant literature in both English and Chinese academic databases. The search strategy used Boolean operators (AND/OR), with search terms adapted for each database; representative examples are provided in Tables 1 and 2. Preliminary research in Web of Science and CNKI (China National Knowledge Infrastructure), in both English and Chinese, used terms like "title= ('Case-based Teaching' OR CBT OR CBL OR 'Case-based learning') AND 'Review'". 11 academic journals (9 in English and 2 in Chinese) indexed in SCI, SSCI, or Peking University Core Journals focused on CBT in medicine (n=7), English (n=1), law (n=1), psychology (n=1), and education (n=1) (see Table 1).

Table 1
Search databases, journals & search results on "CBT review"

| Source | Search string | Article | Retrieve |
|---|---|---|---|
| CNKI | Title as ( "Anli jiaoxue"[1] or "Anli jiaoxuefa"[2]) and "Zongshu"[3] | SCI[4], E.I.[5], CSSCI[6], CSCD[7] and core journal | 2 |
| Web of Science | Title as ("case-based teaching" or "case-based learning" or CBL) and review | N/A | 9 |

*Note*. [1] case-based teaching method; [2] case-based teaching method; [3] Review; [4] Science Citation Index; [5] EI Compendex; [6] Chinese Social Sciences Citation Index; [7] Chinese Science Citation Database;

Despite extensive studies (Dimitrios et al., 2021; Dong et al., 2022; Shi, 2021; Yan et al., 2024), CBT's definition remains inconsistent. Expanding the review to include Web of Science, ProQuest, CNKI, CSTJ, and Wanfang addressed these gaps. Search criteria were defined by title, date, and journal source (see Table 2).

Table 1
Search steps and results

| Source | Search string | Date | Articles | Retrieved |
|---|---|---|---|---|
| CNKI | Title= "Anli jiaoxue" OR "Anli jiaoxuefa" OR CBL OR CBT | 2020-2024 | SCI, E.I., CSSCI, CSCD and PKU | 192 |
| CSTJ | Title= "Anli jiaoxue" OR "Anli jiaoxuefa" OR CBL OR CBT | 2020-2024 | PKU[8], E.I., SCI[9], SCIE, CAS[10], CSCD and CSSCI | 245 |
| Wanfang Data | Title= "Anli jiaoxue" OR "Anli jiaoxuefa" OR CBL OR CBT | 01 /01 /2020-30 /09/ 2024 | PKU, CSSCI, CSCD | 157 |
| Web of Science core collection | Title= "case-based teaching" OR Title = "case-based learning" OR Title=CBL OR Title= "case Teaching" OR Title= "case method" | The last five years | SCI and SSCI[11] | 390 |
| ProQuest | Title= "case-based teaching" OR Title = "case-based learning" OR Title= CBL OR Title= "case Teaching" OR Title= "case method" | 01 /01 /2020-30 /09/ 2024 | N/A | 240 |

*Note.* [8] Peking University Core Journal; [9] SCI Expanded; [10] Chinese Academy of Sciences; [11] Social Science Citation Index

**Eligibility criteria**

Inclusion criteria were as follows (see Table 3): (1) focus on CBT; (2) publication after January 2020; (3) written in English or Chinese; (4) Published in high-quality journals (CAS, CSSCI, CSCD, E.I., PKU, SCI, SCIE); (5) academic paper only; (6) No duplicate; (7) full-text articles; (8) at least three pages. This restriction was applied to ensure the academic quality and reliability of the included studies, while acknowledging that it may limit the inclusion of relevant studies outside these indexed sources. Exclusion criteria: (1) not focus on CBT; (2) were published before January 2020; (3) not in English or Chinese; (4) not Published in recognised academic journals (CAS, CSSCI, CSCD, E.I., PKU, SCI, SCIE); (5) not academic paper; (6) duplicate entries; (7) not full-text articles; (8) less than three pages. In addition, no formal quality appraisal was conducted, as the review aimed to map the literature rather than assess study quality.

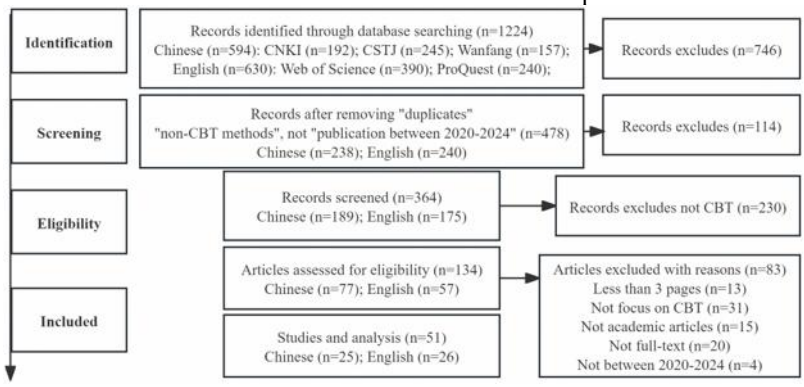
Table 2
Inclusion and exclusion criteria

| Criterion | Inclusion Criteria | Exclusion Criteria |
|---|---|---|
| Title, Keywords, Contents | Including Case-based teaching or Case-based Learning or CBT or CBL | Not including the case-based teaching, Case-based Learning, or CBT or CBL |
| Dates | Published since 2020 | Older than 2020 |
| Language | In English or Chinese | Not in English or Chinese |
| Source | Published in CAS, CSSCI, CSCD, E.I., PKU, SCI, SCIE | Not CAS, CSSCI, CSCD, E.I., PKU, SCI, SCIE |
| Type | Academic Journal | Conference abstracts, editorials, letters to the editor, newspaper articles, reports, book notices |
| Singularity | No duplicate entries | Duplicate entries |
| Integrity | Full-text journal | Not a full-text journal |
| Page | More than or equal to 3 pages | Less than three pages |

**Selection process**

This review extracted and organised data to delineate conceptual boundaries and research gaps. 1224 articles (594 in Chinese and 630 in English) were initially screened by title, date, and journal source, excluding duplicates and unrelated topics (see Appendix). Ultimately, 51 journal articles (25 in Chinese and 26 in English) were included in the analysis following an iterative screening process (see Figure 1). The screening process was conducted independently by two researchers at different time points, with discrepancies resolved through discussion or, when necessary, consultation with a third reviewer. Searches conducted in December 2023, August 2024, and October 2024 ensured the inclusion of the recent findings.

Figure 1
Overview of the literature identification and selection process




**Data items**

Thematic analysis identified key patterns across studies (Bacsa-Károlyi & Fehérvári, 2024; Braun & Clarke, 2006). The analysis involved an iterative process of familiarisation, categorisation, and synthesis to identify and develop themes across the included studies, with themes collaboratively refined through discussion (Table 4).

Table 3
Charted data in the review

| Field | Content |
|---|---|
| General information | Authors, years, title, journal, volume, issue, pages, and DOI reference |
| Location | Country of the author and sampling |
| School level | Elementary, secondary school, higher universities, N/A |
| Subject | Medicine, management, business, education, et al. |
| Definition | CBT, CBL, case teaching, case method |
| Origin | Origin, history, development, et al. |
| Theoretical foundations | Learning theory |
| Implementation steps | Choose cases, share cases, discuss cases, |
| Challenges | Lost time, lack of case source |
| Measures | Improving teachers' quality |
| Compare with other methods. | LBL, PBL methods |

## FINDINGS

The results include research features, the definition of CBT, its origins, theoretical foundation, implementation steps, challenges, and a comparison between CBT and PBL. These dimensions collectively form a structured analytical framework for understanding CBT across contexts.

### Characteristics of the Studies

Between 2020 and 2024, 51 research articles on CBT were analysed, with a slight decline in 2024 (n=6), possibly due to the search ending in September. Most studies (n=46) focused on Higher Education, with 4 discussing CBT theory broadly and only 1 addressing secondary schools. China led in publications (n=39), including 25 in Chinese and 14 in English, followed by Australia (n=3). However, the predominance of studies from China, particularly within medical education, may limit the generalisability of the findings to other disciplines and regions. Future research should extend to more diverse contexts to enhance broader applicability. The subject areas with the most studies are medicine (n=17), education (n=13), and business (n=4). The terms used to describe CBT in the analysed articles are connected through bilingual vocabulary. CBT has gained significant popularity in Chinese universities over the past five years, accounting for 39 of the 51 studies (76%), largely due to policies that support innovative teaching methods and promote CBT among university educators. Chinese researchers (n=14) have employed the term "case teaching method" in their English titles, often abbreviated to "case teaching".

### Definitions

CBT employs cases as an instructional medium to enhance students' comprehensive abilities (Shulman, 1992; Kowalski et al., 1995; Ma & Zhao, 2022; Merseth, 1996). Initially called "post-judgment cases" in jurisprudence, cases were used to analyse judicial decisions (He & Gong, 2020). At Harvard Law School, the faculty uses case materials to guide students in analysing and discussing the complex circumstances of each case, helping students master and apply professional theories (Zhang & Hou, 2020). CBT is a student-centred, active-learning method that uses real or simulated cases to promote participation, critical thinking, and problem-solving skills (Dong et al., 2022; Listiqowati & Ruja, 2022; Lusoli, 2020).

CBT is a method in which teachers use cases as a medium according to the teaching objectives and promote students' active participation in the learning process (Bailey et al., 2023; Maslen & Hayes, 2020) and in-depth learning (Ma & Wei, 2022) by organising students to read, think, analyse, discuss, and communicate with actual or simulated cases (Chen et al., 2022). CBT helps students acquire professional knowledge, apply theoretical knowledge to real-world situations, and develop comprehensive skills (Burgess et al., 2021; Cao & Duan, 2020). CBT emphasises contextualised learning, discussion, and collaboration, guiding students to analyse and solve problems in complex situations while focusing on hands-on practice, thereby effectively facilitating deep learning (Darmuki et al., 2023; Wu et al., 2023).

Firstly, CBT is contextualised. Cases are usually based on real or simulated situations

designed to enhance the authenticity of learning (Maia et al., 2023; Qu, 2024). This contextualised design enables students to apply complex theoretical knowledge (e.g., medicine, pedagogy, and law) to real-life scenarios such as hospitals, schools, and law firms. This not only quickly broadened their understanding of professional skills (Alkahtany, 2020) but also effectively enabled the translation and articulation of theoretical knowledge into practical skills (Purohit et al., 2021; Xu et al., 2024).

Secondly, CBT is interactive. CBT fosters student engagement by encouraging case analysis, discussion, and exploration through group collaboration (Gao & Wu, 2021). This process promotes deeper thinking, which aids in the digestion and absorption of knowledge (Korobova et al., 2019; Wang & Zhao, 2009), and promotes active learning. Using cases, interactive classroom teaching is achieved through in-depth dialogue between teachers and students to optimise teaching effectiveness.

Lastly, CBT is practical. Through cases, students can explore complex situations through discussion and simulation (Xu et al., 2024), thereby enhancing their ability to analyse, make decisions, and apply professional knowledge in real-life situations (Chen et al., 2023). CBT develops and improves students' clinical practice skills, teaching abilities (Duan et al., 2022), and other professional and vocational competencies (Dewi & Rahayu, 2023; Donkin et al., 2023).

The core element of CBT is the case itself, and teachers facilitate learning by designing or selecting cases, guiding students through analysis and discussion, and helping them master the case content (Chen et al., 2022), thereby improving students' comprehensive practical skills (Liu & Yu, 2023; Shrivastava et al., 2024). A minimal definitional framework can be proposed in which the case serves as the core element, while features such as solution openness and contextual complexity vary across contexts.

**The origin**

The origins of CBT in the West are often associated with pedagogical practices in ancient Greece (Guo, 2021), where Socrates employed the "question-and-answer method", or "midwifery method" of teaching (Graham & Cline, 1980; Zheng & Ma, 2021). Socrates believed that when students encounter problems, teachers should engage with them as equals, using examples to guide them towards logical conclusions (Qu, 2024). This logical reasoning and dialectical thinking process is conducive to cultivating students' ability to think independently (Maia et al., 2023). Plato, a disciple of Socrates, documented this 'question-and-answer' method in his writings, using stories to illustrate logical reasoning, which was the forerunner of Western CBT (Zheng & Ma, 2021).

In the East, the use of cases as a vehicle for teaching has been conceptually linked to the Spring and Autumn and Warring States Periods (770 BC-221 BC.) in China (Liu & Yu, 2023). The Hundred Schools of Thought vividly explains esoteric philosophical principles through a large number of easy-to-understand folktales, such as popular folktales like "*The Tortoise and the Hare*", "*Chinese Idiom"*, and "*A Blessing in Disguise*". In addition, many historical texts, such as "*Chunqiu*" and "*Zizhitongjian*", and medical writings such as "*Huangdi Neijing"* and "*An Outline Treatise of Medical*

*Herbs*", also use cases as an entry point to illustrate reasoning and principles (Wang & Zhao, 2009; Zhang, 2004; Zheng & Ma, 2021). These early forms of case-based learning fully demonstrate their unique effectiveness in imparting knowledge and inspiring thinking (Dewi & Rahayu, 2023; Diao, 2020).

Harvard Law School was the first to introduce the CBT method in the 1870s (Careaga et al., 2017; Foster et al., 2010; Kimball, 1995; Lusoli, 2020). In 1870, then-dean Christopher Columbus Langdell applied the CBT method to legal education to address the limitations of the Dwight Method in American legal education at the time, particularly the difficulty of students' ability to cope with complex legal cases (Liu & Yu, 2023; Zheng et al., 2021). Langdell believed that by studying court cases and precedents that illustrate legal principles and reasoning, students can learn to think like lawyers and enhance their ability to recognise and apply legal principles in real-world scenarios (Xiong, 2020).

Between 1890 and 1919, CBT was adopted by other law schools, and from the 1930s to the 1950s, it expanded into medical education, the Harvard Business and Management School, Public Administration, and Education fields (Careaga et al., 2017; Ma et al., 2022; Nae, 2019). In 1984, Bentley College in Massachusetts established the World Association for the Study and Application of CBT, promoting CBT research and application across 50 countries. CBT has been applied across disciplines such as engineering, medicine, management, and education (Zheng & Ma, 2021).

Ancient Chinese fables, "case-based" texts, and Socratic dialogue may be considered early illustrative forms that share certain features with contemporary CBT. These early practices can be understood as historical antecedents of CBT, whereas its formal methodological origins are typically traced to its institutionalisation at Harvard Law School in the late 19th century. At the same time, the implementation at Harvard Law School formalised the characteristics of modern CBT (Zheng & Ma, 2021), recognising that traditional lecture-based teaching methods were insufficient to prepare students for the complexities of clinical practice. Introducing patient cases allowed medical students to apply theoretical knowledge in practical contexts, enhancing their diagnostic and decision-making abilities (Dong et al., 2022; Yan et al., 2024).

Over the decades, particularly in the mid-20th century, CBT has expanded beyond law and medicine to encompass other disciplines. Business schools adopted CBT to teach strategy and management skills by analysing real company cases (Ma & Wei, 2022; Zhu et al., 2024). The field of Engineering and technology addresses design and operational challenges through the CBT method (Chen & Liu, 2023; Purohit et al., 2021). The approach is increasingly being adopted in higher education worldwide for its flexibility and efficiency in developing critical thinking and practical skills (Burgess et al., 2021; Wu et al., 2023). Many institutions have developed case banks and training programmes to support CBT implementation and enhance interdisciplinary educational effectiveness (Donkin et al., 2023; Duan et al., 2022). In addition, CBT has shown its unique benefits in the medical field. (Liu & Li, 2022). By introducing patient cases, medical students can integrate theoretical knowledge into real-life situations, thereby effectively enhancing their diagnostic skills and decision-making (Chen et al., 2022).

**The theory**

Piaget (1969) developed the theory of constructivism, which emphasises that learning is an active process of constructing knowledge. Constructivism highlights the key elements of learning, including "dialogue", "context", "meaning construction", and "collaboration" (Alkahtany, 2020; Maslen & Hayes, 2020), and promotes a student-centred teaching philosophy that encourages students to actively construct knowledge (Cao & Duan, 2020). Students develop new understandings and perceptions during the learning process by combining their prior knowledge with case details (Chen et al., 2022).

CBT is student-centred and focuses on selecting real-life cases, linking theory to practice, encouraging collaborative learning (Chen et al., 2023; Dewi & Rahayu, 2023; Mou et al., 2021; Xu et al., 2024), and developing students' problem-solving skills (Ma & Wei, 2022; Yan et al., 2024).

Piaget's cognitive development theory and Vygotsky's social constructivism theory, which value experiential learning and social interaction (Piaget, 1969; Vygotsky et al., 1979; Wu et al., 2023), underpin the importance of CBT for valuing students' active learning and their ability to link theoretical knowledge to real-world applications (Ma, 2022; Zhang & Liu, 2016). These constructivist principles are reflected in CBT implementation, with scaffolding in teacher guidance, the zone of proximal development in collaborative learning, and meaning construction in reflection and problem-solving.

**Implementation steps**

The implementation of CBT generally follows three phases: pre-course preparation, case analysis and discussion, and reflection and assessment (Wang & Zhao, 2009; Su & Jia, 2020). Case selection should align with learning objectives, using authentic and sufficiently complex cases from textbooks, real-life events, or online resources to challenge students' thinking (Guo, 2022; Liu & Yu, 2023).

The implementation of CBT is divided into pre-course preparation, case analysis and discussion, and reflection and assessment (Wang & Zhao, 2009; Su & Jia, 2020), where the cases are authentic and come from textbooks, real-life events, or online resources (Guo, 2022; Liu & Yu, 2023), and where the teacher presents the cases using documents, videos, or simulations (Su & Jia, 2020; Zhang et al., 2023), and students were divided into groups to analyse and discuss the cases, apply their knowledge to solve problems and share ideas. Teachers facilitate these discussions, offering guidance, feedback, and summaries to achieve learning objectives (Crowther & Baillie, 2016; Li & Gu, 2020; Song, 2024).

Reflection and assessment involve evaluating students' engagement, solutions, and reflections through written reports, presentations, or simulations, promoting deeper understanding and application of knowledge (Duan et al., 2022; Mou et al., 2021; Purohit et al., 2021). This process consolidates critical thinking, problem-solving, and theoretical application skills.

In CBT, teachers act as facilitators, guiding discussions and fostering an environment that supports dialogue and critical thinking. Students actively engage, collaborate, and take responsibility for analysing cases, proposing solutions, and reflecting on their learning (Chen et al., 2023; Ye, 2022).

**Challenges and Addressing Strategy**

According to CBT, employed across disciplines such as medicine, business, and education (Crowther & Baillie, 2016; McLean, 2016; Xu et al., 2024), it faces several challenges, including improper case selection, insufficient analysis, low student engagement, and high time costs (Wu et al., 2023; Zhao & Ma, 2020). Simplistic or overly classical cases fail to stimulate interest or connect theory to practice, while excessive teacher-led analysis limits independent thinking, reducing creativity and engagement (Kimball, 1995; Xu et al., 2024). Inadequate preparation or unbalanced participation during discussions also hinders effectiveness, as dominant students may overshadow others (Burgess et al., 2021). Additionally, the significant time required for case preparation, implementation, and feedback increases teachers' workloads (Donkin et al., 2023; Ma & Wei, 2022).

To address these challenges, teachers should select cases that align with course objectives, provide realistic contexts, and encourage deep critical thinking (Chen & Liu, 2023; Wu et al., 2023; Zhou & Liuzhou, 2020). Promoting student engagement through structured group roles and focusing on analytical processes can ensure balanced participation and deeper learning (Chen et al., 2023; Qu, 2024; Purohit et al., 2021). The education sector should build a strong case base, optimise case resources, train teachers, and support them in the use of CBT to improve students' skill enhancement by linking theory to practice (Burgess et al., 2021; Liu & Li, 2022; Liu & Yu, 2023; Ma & Wei, 2022). These challenges persist largely due to inconsistencies in terminology, insufficient theoretical integration, and variations in implementation across disciplines. A brief thematic synthesis suggests that these challenges operate three aspects: insufficient student participation, implementation pressure on teachers, and limited institutional support. Correspondingly, existing research has proposed improving implementation effectiveness through optimizing classroom organization, strengthening teacher training, and enhancing support mechanisms. These strategies are conducive to enhancing learning participation and teaching processes, further promoting the development of critical thinking and problem-solving abilities, and providing a preliminary logical framework for future empirical research.

**Comparison with CBT, LBL, and PBL**

While CBT, LBL, and PBL share overlapping features, their differences are often a matter of degree rather than kind, particularly in terms of problem structure, teacher role, and assessment approaches (see Table 5). The following two aspects of their similarities and differences are explained.

Table 5
Pedagogical comparison with CBT, LBL, and PBL

| Comparison Dimension | CBT (Case-Based Teaching) | LBL (Lecture-Based Learning) | PBL (Problem-Based Learning) |
|---|---|---|---|
| Teaching Characteristics | Uses real cases and emphasises the integration of theory and practice | Focuses on systematic knowledge delivery | Focuses on open-ended problem exploration |
| Teacher and Student Roles | Teacher-guided with active student participation | Teacher-centred with students mainly listening | Student-centred with teachers acting as facilitators |
| Problem Structure | Moderately structured problems with relatively explicit solutions | Based on predefined knowledge content | Open-ended problems requiring students to define the scope |
| Main Learning Outcomes | Practical skills and critical thinking | Knowledge memorisation and understanding | Self-directed learning and problem-solving skills |
| Assessment Methods | Exams, reports, and classroom participation | Exams and classroom performance | Projects, discussions, and process-based assessment |

*Similarities*

Both CBT and LBL emphasise the role of the teacher, and both have assessment methods that include exams, reports, and classroom participation (Gao, 2024; Maia et al., 2023; Mou et al., 2021; Yan et al., 2024). The similarities between CBT and PBL lie in both being student-centred, emphasising collaborative learning and the application of knowledge, and focusing on developing students' critical thinking and practical skills (Maia et al., 2023; Wu et al., 2023).

*Differences*

The difference between CBT and LBL is that CBT emphasises active student participation and the development of practical skills through cases, whereas LBL focuses on students' memorisation of systematic knowledge (Dimitrios et al., 2021; Dong et al., 2022; Mou et al., 2021). The difference between CBT and PBL is that CBT is based on real cases, and the solution to the problem is usually explicit, whereas in PBL, the problem is open-ended, and students need to define its scope (Maia et al., 2023; Wu et al., 2023; Yan et al., 2024). In general, CBT tends to involve moderately structured problems and guided facilitation, whereas PBL emphasises open-ended problem exploration and student autonomy, and LBL relies more on structured knowledge transmission; however, existing studies provide limited consistent evidence regarding their differential effectiveness across contexts.

## DISCUSSION AND CONCLUSIONS

This review analysed 51 high-quality academic articles in English and Chinese and found that CBT is projected to continue expanding in higher education, particularly in the medicine and education disciplines, between 2020 and 2024. However, there are inconsistencies in terminology: in the English literature, especially in the medical field, researchers mostly use "case-based learning", whereas in the Chinese literature, "case teaching" is more commonly used. The promotion of CBT by the Chinese Ministry of Education in 2020 contributed to Chinese researchers accounting for 14 out of 26 English-language articles, representing the highest number of contributors to CBT

research globally. Building on these findings, this study makes three key theoretical contributions: clarifying fragmented terminology across linguistic contexts, synthesising CBT into a structured analytical framework, and identifying gaps in the evaluation of CBT effectiveness. These persistent challenges may be attributed to fragmented conceptual frameworks, inconsistent terminology, and a lack of systematic empirical validation across contexts. This trend aligns with global developments in higher education that emphasise active learning, competency-based education, and the integration of theory and practice.

Researchers trace the origins of CBT back over 2,000 years to ancient Greece (Zheng & Ma, 2021). Chinese researchers concur and suggest that the origins of CBT in the East can be traced to the Spring and Autumn and Warring States periods in China (Liu & Yu, 2023).

Based on constructivist learning theory, CBT has been successfully applied in several disciplines, effectively bridging the gap between theory and practice and providing students with meaningful learning experiences (Han & Chen, 2021; Li et al., 2022; Wang et al., 2022; West, 2023; Yang, 2021). Educators should carefully select and design high-quality cases aligned with the teaching objectives to maximise CBT's benefits and enhance student learning outcomes. To enhance its pedagogical applicability, a structured CBT framework could be adopted, incorporating staged processes such as case selection, guided discussion, collaborative problem-solving, and reflective evaluation. At the policy level, institutions may consider establishing case repositories, providing targeted teacher training, and integrating CBT into curriculum standards to support its systematic implementation. However, there remains limited empirical evidence identifying which strategies are consistently effective, indicating a need for more rigorous validation in future research. Furthermore, researchers have not adequately addressed the methods for assessing its effectiveness in the 51 studies examined over the past five years.

## LIMITATIONS AND IMPLICATIONS

This study is limited to Chinese and English literature. It does not cover studies in other languages (e.g., French, German, Russian, Spanish, and Korean), limiting the comprehensiveness of the review's scope. A sensitivity analysis comparing indexed and non-indexed sources was not conducted, as this scoping review focused on synthesising high-quality indexed literature rather than evaluating variations across evidence sources. However, methodological research on the assessment of CBT effects was significantly under-researched among the 51 studies in this review. The exploration of its measurement tools and assessment frameworks should be enhanced in the future; this gap is consistent with findings from Western contexts, where the lack of validated measurement frameworks for CBT effectiveness has also been highlighted (Donkin et al., 2023; Wu et al., 2023).

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