Review Article

Mapping e-learning policy in higher education: Global perspectives and emerging trends

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ARTICLE INFO	ABSTRACT
	This paper explores worldwide researchers' perspectives on e-learning policy in higher education, focusing on an approach that examines English-language and Chinese-language literature, which elucidates the intricate nature of e-learning policy. Despite a number of studies on e-learning policy in higher education context, few have considered using two linguistic databases (English and Chinese) for evaluating global perspectives on e-learning policy. To make sure that the review was composed systematically, the preferred reporting items for systematic reviews and meta-analysis was utilized, four English (Scopus, ERIC, Google Scholar, & SAGE) and three Chinese databases—China National Knowledge Infrastructure, the Chinese University of Hong Kong Library, and Airiti Library—were used to screen pertinent studies for analyzing. Authors reached a consensus on coding 60 studies into six categories, which encompass perceptual, portraying, theory, literature reviews, comparative study, and discourse analysis. The review reveals a clear focus on theoretical articles in both English- and Chinese-language literature, with these articles being the most common across six segments. To further explore emerging trends on e-learning policy research, three primary themes and 19 sub-themes are identified from 60 studies. Implications for advancing future research are outlined. **Keywords:** e-learning policy, global perspectives, higher education, systematic literature review

INTRODUCTION

E-learning policy is much more than a simple set of instructions (Suddaby & Milne, 2008); it serves as a foundational element for the successful adoption and integration of e-learning in educational systems (Czerniewicz & Brown, 2009; Hu & Raman, 2024; O'Connor, 2014; Roumell & Salajan, 2014, 2016). These policies establish an organized framework that significantly impacts the acceptance and effective implementation of e-learning initiatives (Czerniewicz & Brown, 2009; Pittard, 2004). In the absence of clear and strong e-learning policies, the integration of technology in education can be delayed and ineffective. In contrast, detailed and well-defined policies can greatly improve the implementation process, serving as a guide for weaving e-learning into educational activities (Roumell & Salajan, 2016). The relevance of e-learning policies goes beyond basic implementation; they are continually reshaped by the results and insights derived from actual e-learning applications (Roumell & Salajan, 2014). As Passey et al. (2006) note, incremental improvements in e-learning policies, driven by practical implementation experiences, generate feedback loop

that consistently supports and boosts the effectiveness of e-learning initiatives. Further highlighting this dynamic, Roumell and Salajan (2016) place e-learning policy in the context of global competition and the development of human capabilities. They argue that e-learning policy is crucial in encouraging the adoption and integration of new e-learning approaches throughout higher education institutions. This is vital for institutions striving to remain relevant and competitive in the international knowledge economy. Additionally, at the institutional level, e-learning policy is critical in shaping the operational frameworks and resource allocation essential for creating an environment supportive of e-learning (Czerniewicz & Brown, 2009; de Freitas & Oliver, 2005). These policies not only steer strategic planning but also ensure that resources are appropriately allocated to back e-learning projects. The interplay between e-learning policy and its implementation is critical to transforming educational settings (Liu-Schuppener, 2023). It influences not only the strategic and structural aspects of education but also the methods used to achieve educational goals in the modern digital era. The dual function of e-learning policy – as both a motivator and an outcome of educational innovation – emphasizes its importance in the ongoing evolution of educational models in higher education.

The conceptualization of e-learning policy and strategies for its integration into higher education encompasses diverse perspectives. Some scholars advocate for redefining e-learning policy through the lens of "digital transformation," emphasizing the enhancement of educational outcomes and operational efficiencies via the deployment of cutting-edge technologies within the higher education milieu (Mohamed Hashim et al., 2022). For example, higher education institutions in China refer to digital transformation as education informatization. However, delineating e-learning policy and strategy within the confines of a specific nation's terminology or a set of practices proves problematic. Such definitions are prone to becoming outdated as educational practices, contexts, cultures, and circumstances evolve, quickly making previously established characteristics irrelevant or obsolete (Hu & Raman, 2024; McNaught & Vogel, 2006; Mee, 2007; Rosenberg, 2007).

Considering complexity of its nature, scholars such as Pittard (2004) conceptualize e-learning policy into seven strategic actions:

(a) leading sustainable e-learning implementation,

(b) supporting innovation in teaching and learning,

(c) promotes equity and pedagogical innovation,

(d) developing the education workforce,

(e) unifying learner support,

(f) aligning assessment and

(g) building a better e-learning market and assuring technical and quality standards.

Apart from these conceptions of e-learning policy, Brown et al. (2007) identify the key factors of institutional-level e-learning policy:

(a) sets directions and standards for e-learning,

(b) drives institutional change,

(c) promotes equity and pedagogical innovation, and

(d) guides research and development of digital education.

Also considering the fact that the theoretical and research foundations for studying e-learning policy are rooted in its widespread exploration and adoption globally. Many countries demonstrate a shared commitment to utilizing e-learning as a tool for economic growth and educational advancement. Central to e-learning policy worldwide is the alignment of objectives with institutional strategies, emphasizing the enhancement of educational access, the promotion of continuous learning environments, and the pursuit of global academic excellence (Daniel, 2012). Overall, e-learning policy is an integrated part of educational governance in the digital age. It sets the direction and standards for e-learning, promotes equity and pedagogical innovation, guides research and development in digital education, and fosters institutional change toward a digitally enriched learning environment (Anderson, 2008; Bates, 2000; Blin & Munro, 2008; Garrison & Vaughan, 2008). Other researchers stressed the importance of strategic alliances (Kenney et al.,

2004), partnerships among stakeholders (Czerniewicz & Brown, 2009), objective alignment (Owston, 2013), staff development and the establishment of effective organizational structures (Rosenberg, 2007), shared expertise and access to research related to specific educational landscapes (Suddaby & Milne, 2008) while interpreting e-learning policy.

Among various perspectives on e-learning policy, the integration of information and communication technologies (ICT) in university teaching and learning processes, in response to the dynamic transformations induced by the intricate nature of e-learning—shaped by the advancing technological milieu, diverse educational frameworks, and the interplay between macro-level and micro-level policy—has emerged as a global paradigm over the past twenty years. Pivotal contributions to this mainstream discourse encompass Bates (2000)'s "Managing technological change: Strategies for college and university leaders," de Freitas and Oliver's (2005) "Does e-learning policy drive change in higher education?", McNaught and Vogel (2006)'s "The fit between e-learning policy and institutional culture," Garrison and Vaughan (2008)'s "Blended learning in higher education: Framework, principles, and guidelines," Roumell and Salajan (2014)'s "A comparative analysis of e-learning policy formulation in the European Union (EU) and the United States: Discursive convergence and divergence," Picciano (2016)'s "Online education policy and practice: The past, present, and future of the digital university," and Salajan (2019)'s "Building a policy space via mainstreaming ICT in European education."

Although e-learning policies have been meticulously scrutinized from various perspectives—primarily emphasizing on the strategic focus of e-learning policy, variables interplay with e-learning policy (VIEP), and outcomes of e-learning policy implementation (OEPI)—merely identifying the facilitators or barriers to policy implementation, as well as the interaction between policy frameworks and their enforcement, does not inherently enhance the efficacy of policy execution. Nor do these efforts ensure the clarity and effectiveness of the strategic directions adopted by higher education institutions. Beyond grasping these dynamics and well-substantiated theories and policy frameworks, analyzing trends in professional literature offers an alternative approach to evaluating the evolution and effectiveness of e-learning policy. Although it is challenging to comprehensively ascertain how well professional literature mirrors actual theory or practice, trends and patterns within the literature can provide invaluable insights into the field's advancements. Such trends can be discerned through systematic literature reviews, as exemplified by this study.

The pervasive globalization of e-learning technologies in pedagogical practices, including its subdomains such as synchronous e-learning, asynchronous e-learning, and hybrid learning, has been manifest for years. The development of e-learning policy reveals that the United States aims to reestablish its global leadership by securing increased federal support, while the EU focuses on skill upgrading and expanding higher education access (Roumell & Salajan, 2014). Countries like the United Kingdom, Canada, Australia, and New Zealand align their e-learning policies with fostering a knowledge-driven economy (Brown et al., 2007), and China emphasizes digital literacy and educational modernization. Despite these strategic variations, all regions share a commitment to leveraging e-learning for economic growth and educational advancement. The global embrace of e-learning reflects a universal goal of creating a more skilled, knowledgeable, and accessible educational landscape, driven by technological integration and the need for increased support and resources. Over the past two decades, there has been a significant proliferation of international research in the realm of ICT employed in various higher education contexts across the globe. Researchers from diverse nations commence their inquiries by cultivating an in-depth insight about the intricacies of e-learning policy and subsequently delineating research objectives that contribute to understanding the political priorities of various higher education context. The ensuing knowledge exchange engendered by such global perspectives accrues numerous advantages to learners, instructors, and educators, fostering an enriched educational milieu.

For this systematic literature review, our multinational consortium comprised researchers from China and Malaysia. We espoused a unified perspective on the paramount importance of e-learning policy within higher education institutions, both in academic research and praxis. Our principal objective was to scrutinize English-language and Chinese-language literature that elucidates the intricate nature of e-learning policy, thereby leveraging the dynamics among institutional forces, the propelling forces of innovative ICT technologies, and the symbiotic relationship between higher education institutions and policy environment. This article endeavors to present the findings and indicate future trends from a systematic literature review of high

quality publications in English-language and Chinese-language literature over the last two decades (2004–2024). The research questions guiding our review are:

1. What trends have emerged in the number of publications within each article category in the English-language and Chinese-language literature?

2. What categories of articles (perception, portraying, theory, literature reviews, comparative study, and discourse analysis) are the most common in the English-language and Chinese-language literature?

3. What are the key findings from previous studies in English-language and Chinese-language literature?

4. What are the research gaps in the existing English-language and Chinese-language literature?

RESEARCH METHODOLOGY

Search strategy

To address the above research questions, the authors have reached a consensus, which is demonstrated in the following:

(1) Two distinct searches will be executed concurrently: one targeting English-language literature and the other focusing on Chinese-language literature. The Malaysian team, each member proficient in English, undertook the exploration of English-language publications, whereas the Chinese team, all native Chinese speakers, embarked on the examination of Chinese-language sources.

(2) The search terms were meticulously formulated with an acute awareness of both English-speaking and Chinese-speaking contexts, eschewing direct translation in favor of capturing the intended meaning within each linguistic and cultural framework. Consequently, a deliberate effort was made to reflect the semantic nuances and structural distinctions inherent in both languages. For instance, in China and other Chinese-speaking regions, the terms 'e-learning policy' or 'online learning policy' lack precise and consistent usage. Instead, the term 'Jiàoyù xìnxī huà gǎigé [education informatization]' is the predominant terminology employed to address e-learning policy research within an educational milieu. This term encompasses the regulations and reforms, the construction of smart campuses, and the consolidation of resources for an integrated e-learning system that includes instruction, administration, and public education services (China Ministry of Education [MOE], 2022).

(3) The databases and search terms were collaboratively delineated. For the English-language literature, prominent online databases such as Scopus, ERIC, Google Scholar, and SAGE—four of the most comprehensive repositories for English-language education literature—were meticulously searched for articles published between January 2004 and June 2024. The search terms employed were:

(a) e-learning policy AND higher education,

(b) online learning policy AND tertiary education,

(c) digital transformation AND higher education and

(d) digital learning policy AND universities.

Similarly, for the Chinese-language literature, major databases including China National Knowledge Infrastructure (CNKI), the Chinese University of Hong Kong Library (CUHKL), and Airiti Library (AL) were consulted within the same time frame, utilizing the following search terms:

(a) gāoděng jiàoyù xìnxī huà zhèngcè,

(b) gāoděng jiàoyù shùzìhuà zhèngcè,

(c) gāoxiào shùzìhuà zhèngcè,

(d) gāoděng jiàoyù xìnxī huà cèlüè, and

(e) gāoděng jiàoyù shùwèi xuéxí zhèngcè.

The English-language searches yielded 152 potential articles from the google database, 55 from the Scopus database, 23 from the SAGE database and 911 from the ERIC database. From the total of 1,141 English-written articles collected, 78 articles satisfied all the inclusion criteria after excluding duplicate search results (refer to the inclusion/exclusion criteria below). Similarly, the Chinese-language literature search produced 37 articles

Table 1. Criteria of inclusion & exclusion

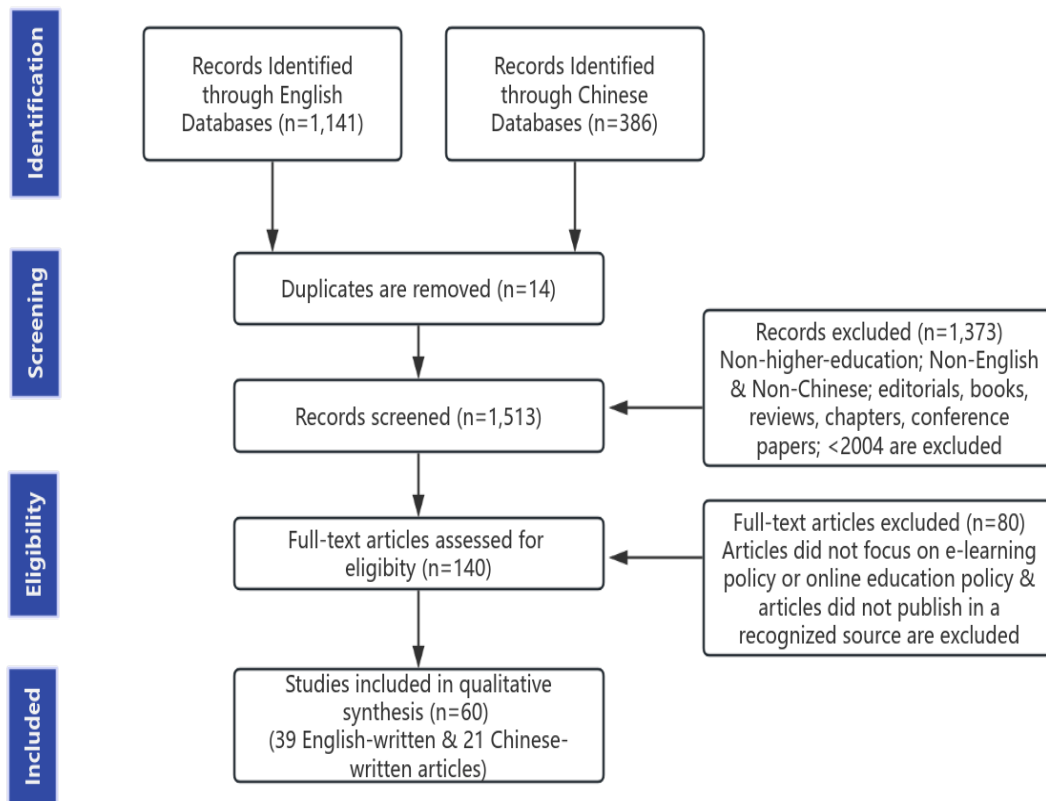| Criterion	Inclusion	Exclusion
Language	English & Chinese	Non-English & non-Chinese
Publication type	Articles, chapters, & books	Editorial, report, & conference paper
Educational level	Higher education	Non-higher-education
Publication date	2004–2024	Before 2004
Subject area	Education & social science	Other than education & social science

Figure 1. Screening model for the study (adapted from Moher et al., 2009)

from CNKI, 345 from the CUHKL, and 4 from AL. Of the 386 results obtained from the Chinese-language search, 62 articles remained after eliminating duplicates and applying the inclusion criteria.

Inclusion and Exclusion Criteria

During the intricate process of article screening and selection, the Rayyan platform was instrumental in augmenting collaboration among the researchers and adeptly managing the extensive corpus of articles. Following an initial screening to excise duplicates, which culminated in the exclusion of 14 articles, a meticulous evaluation was undertaken on 1,527 articles. The inclusion criteria prioritized journal articles as the principal sources of empirical data, specifically those published in English and Chinese within the temporal bounds of 2004 to 2024. Consequently, articles from other categories, such as editorials, book reviews, and conference proceedings, were excluded. The review further concentrated on articles within the domains of social science and education. Adhering to these stringent criteria, as delineated in **Table 1**, a substantial number, precisely 140 articles, were subsequently excluded from the review.

The researchers meticulously examined the titles, abstracts, and main contents of all the articles to ensure that they met the inclusion criteria and were appropriate for use in the current study. Following the thorough examination, a total of 80 articles did not meet the inclusion criteria and were excluded. As a result, only 60 articles were available for further analysis (**Figure 1**).

Table 2. Description of segments of articles

Segment	Description
Perceptual	Articles focused on understanding the attitudes and/or perceptions of different stakeholders in regarding learning policy. Typically, these articles report findings from quantitative and/or qualitative data collection.
Portraying	Articles that describe, based on quantitative and/or qualitative data, the development of e-learning policy in universities or countries. The goal of the analysis can be to describe facilitators or barriers for success. Studies examining the status of e-learning policy were categorized into this category.
Theory	Articles providing rationale for e-learning policy based on structured or unstructured evidence of policy. This could be applied at the level of country-wide policy development or institutional-level policy, as well as by theoretically driven frameworks for developing professional knowledge related to e-learning policy.
Literature reviews	Articles describing findings from a literature review or meta-analysis about e-learning policy in higher education. The specific focus was on synthesizing existing research related to policy aspects of integrating e-learning into teaching and learning.
Comparative study	Articles that employ a comparative study center on e-learning policy. The goal of the analysis can be to understand differences and similarities in policy frameworks, implementation processes, and outcomes across different contexts, such as universities, regions, or countries. This approach helps to identify best practices, contextual influences, common challenges, and innovative solutions. Studies examining the development and impact of e-learning policies were categorized into this category.
Discourse analysis	Articles that utilize discourse analysis to examine the development of e-learning policy in universities or countries systematically investigate written, spoken, or visual texts to understand how language constructs and communicates educational policies related to digital learning or e-learning.

Segmentation of Articles

The review process commenced with articles between the most recent years (2023–2024) and proceeded retrogressively. Both the English-language and Chinese-language teams autonomously formulated thematic categories predicated on their examination of articles from 2023–2024. Subsequently, the teams convened to juxtapose and deliberate on the emergent thematic classifications. Through numerous iterations—wherein two coders independently categorized the same corpus of articles and then engaged in a comparative and discursive analysis of their coding judgments—the teams renegotiated the nomenclature and criteria of the categories. This iterative process culminated in the establishment of definitive categories employed to systematize all articles retrieved from the Chinese and English-language databases. The final thematic categories, delineated in **Table 2**, encompass perceptual, portraying, theory, literature reviews, comparative study, and discourse analysis. Furthermore, the research teams meticulously documented the provenance of each manuscript, coding articles based on the institutional affiliation of the first author in cases involving multiple authors from diverse institutions.

For the Chinese-language search, the principal author meticulously coded all articles in accordance with the predetermined inclusion and exclusion criteria, subsequently categorizing the included articles into six thematic groups. Concurrently, the second author replicated this rigorous process for the English-language search. To ensure inter-rater reliability, an additional reviewer evaluated a subset of articles from the search, applying the inclusion/exclusion criteria, and also categorized a sample of the included articles into the six thematic groups. Given the substantial disparity in the volume of articles between the English and Chinese samples, each included Chinese article (n = 21) was independently coded by the third author. Conversely, for the English articles, only one out of every six (n = 39) was independently coded by the second author to assess intercoder agreement. The percentage of agreement was calculated separately for the English and Chinese articles. In instances of disagreement, the coders convened to reconcile the final coding. The initial agreement percentages were 95% for the English articles and 98% for the Chinese articles, respectively.

The researchers began the coding process by familiarizing themselves with thematic categories, key concepts, and definitions to minimize bias and discrepancies. Coders were trained on both the English and Chinese datasets, ensuring they understood the specific challenges presented by differences in terminology, cultural references, and educational contexts. This pre-coding training was essential for ensuring a shared understanding among coders, preparing them for the intricacies involved in analyzing literature from two distinct linguistic and cultural perspectives.

The coding process itself was conducted in two stages: independent coding followed by collaborative review. Coders first worked individually to code articles from their respective language corpora (English and

Table 3. Consensus-building discussions in reconciling differences

Original theme	English context	Chinese context	Resolution	Reconciled theme
Institutional support for students	Highlights student autonomy and flexible learning paths, with educators as facilitators.	Emphasizes hierarchical teacher-student relationships, structured learning, and compliance with national standards.	Unifying learner support by creating cohesive systems that cater to autonomy (English) or structure (Chinese).	Unifying learner support
Roles of stakeholders in e-learning policy	Stakeholders collaborate, including institutions, government bodies, and the market.	Centralized role of government leading policy, with institutions executing national directives.	Recognizes multiple stakeholders but varies in government involvement. Collaboration is key to shaping educational outcomes with differing degrees of influence.	Collaboration among stakeholders
Instructors training and development	Emphasizes continuous professional development (CPD), encouraging instructors to adopt emerging technologies and pedagogies.	State- and university-mandated training to ensure adherence to national policies and standards.	Focuses on professional development of digital literacy and pedagogical skills, with flexible CPD (English) and policy-aligned training (Chinese).	Instructors' professional development in digital literacy and pedagogical skills
Institutional learning atmosphere	Promotes flexibility, individual autonomy, and a student-centered approach.	Emphasizes hierarchy, discipline, teacher authority, and structured educational delivery.	Recognizes the role of institutional culture in fostering conducive learning, reflecting cultural norms (flexibility vs. structure).	Institutional culture
Financial sustainability	Emphasizes cost-effectiveness, ROI, and sustainable allocation of resources for e-learning technology.	Focuses on government budget allocations, ensuring resource distribution aligns with national priorities and compliance with state guidelines.	Both focus on financial sustainability, with differences in resource evaluation and distribution. Financial assessment supports better e-learning initiatives.	Financial assessment

Chinese) according to the predefined categories. Afterwards, any discrepancies between coders' thematic categorizations were discussed and reconciled. This allowed the researchers to address potential misinterpretations, particularly those related to nuances and varying interpretations of policy implications in different contexts, such as the roles of stakeholders in e-learning policy.

To address the linguistic and cultural differences between the datasets, the researchers refined the coding scheme iteratively. This process involved adjusting the codebook to better capture the subtleties of both English- and Chinese-language literature, such as variations in the meanings of e-learning terms and policy connotations. Consensus-building discussions played a critical role in reconciling differences, as coders presented their rationales for categorizing certain themes and worked together to resolve ambiguities. Peer reviews by independent coders further ensured the accuracy and cultural relevance of the categorizations. Finally, the research team conducted cross-language comparisons to identify common themes and address discrepancies, ensuring a nuanced understanding of the global e-learning policy landscape across both linguistic contexts (see **Table 3**).

RESULTS

Segments of Articles

Figure 2 and **Figure 3** delineate the segmentation of articles within the Chinese- and English-language literature. In each context, theoretical articles predominated consistently over time. The subsequent sections elucidate the segmentation of articles in greater detail.

Research question one: What trends have emerged in the number of publications within each article category in the English-language and Chinese-language literature?
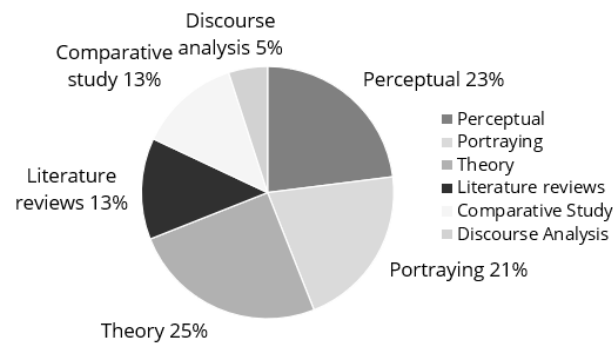
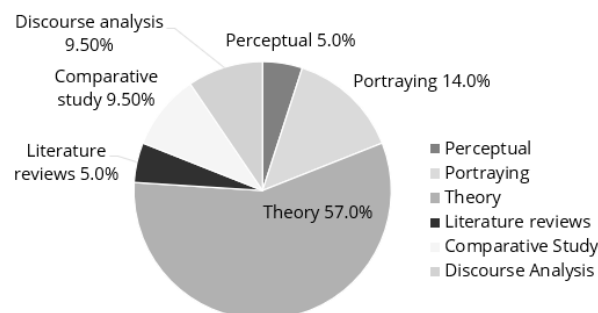**Figure 2.** Segments of articles in English-written literature, 2004–2024 (Source: The authors' own creation)

Figure 3. Segments of articles in Chinese-written literature, 2004–2024 (Source: The authors' own creation)

Perceptual

In the English-language literature, 25% of the articles (n = 10) were identified as perceptual studies, compared to just 5% (n = 1) in the Chinese-language literature. The highest publication rate for perceptual studies in the English-language corpus occurred in 2007, with five articles released that year. In contrast, the only perceptual article in the Chinese-language literature appeared in 2011. These English-language perceptual studies primarily focused on instructors' interpretations of e-learning policy mandates and their strategies for integrating e-learning into their teaching practices (Boezerooij et al., 2007; Holt & Challis, 2007; Mansvelt et al., 2009). They also explored administrators' views on the role of ICT in education and their decision-making processes regarding e-learning and program planning (Chikuni, 2017; Knowles, 2007). Additionally, some studies gathered students' feedback on acquiring new skills through e-learning, providing insights for institutional policy-making (Rajabalee & Santally, 2021), while others examined experts' opinions on various policy aspects including regulation, financing, and social implications (Harley & Lawrence, 2007). Another significant study explored the relationship between e-learning policy and its application from both students' and instructors' perspectives (Czerniewicz & Brown, 2009). The sole Chinese-language perceptual study, however, focused on the process of policy implementation at a Chinese higher education institution, examining the perceptions of students, instructors, and administrators related to e-learning (Sun, 2011).

Portraying

In the analysis of literature, 21% of English-language articles (n = 8) were categorized as portraying the impact of e-learning policy, while only 14% of Chinese-language articles (n = 3) were similarly categorized. A significant portion of these English-language articles employed case studies to demonstrate how e-learning policies drive change in higher education institutions (e.g., de Freitas & Oliver, 2005; McNaught & Vogel, 2006; Roushan, 2016; Wallace & Young, 2010). Additionally, there were detailed observational studies exploring the role of e-learning policy as an agent of change in higher education (e.g., Mee, 2007; O'Connor, 2014). Other studies provided insights into the development of e-learning policies within higher education settings (e.g., Ellahi & Zaka, 2015; Wang, 2018). In contrast, the Chinese-language articles focused more on qualitative and quantitative analyses to assess the effectiveness of implementing e-learning policies in higher education (e.g., Liang et al., 2024; Zhang & Liang, 2024).
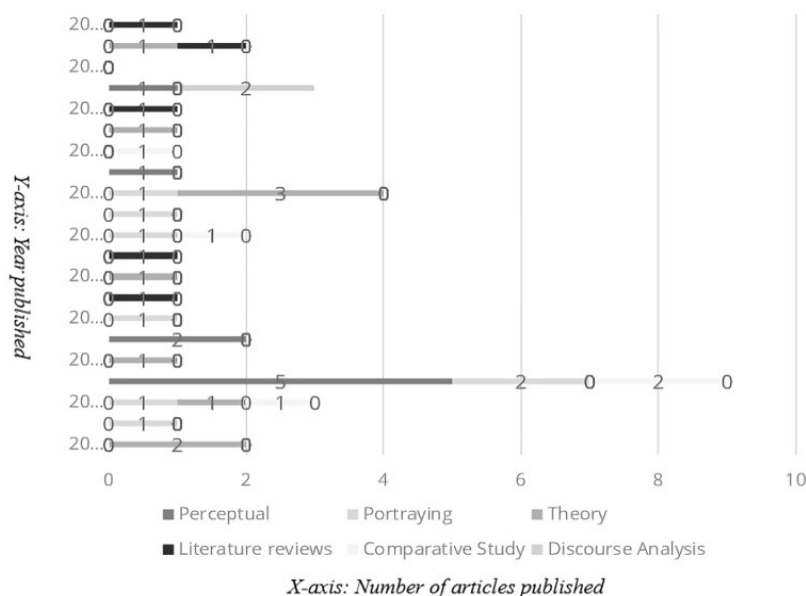
Figure 4. Segmentation of articles by year for English-language literature (Source: The authors' own creation)

Theory

In the review of literature, theory articles comprised 25% (n = 10) of English-language publications and a higher proportion, 57% (n = 12), in Chinese-language publications. These theory articles predominantly engaged in content analysis of macro-level policies aimed at enhancing e-learning in tertiary education (e.g., Czerniewicz & Rother, 2018; Jiang et al., 2023; Picciano, 2016; Roumell & Salajan, 2016; Salajan, 2019; Salajan & Roumell, 2016; Zhang et al., 2012). Several of these articles also discussed the need for policy restructuring to better integrate e-learning into teaching and learning environments while evaluating existing macro-level e-learning policies (e.g., Guo, 2023; Liu & Guo, 2020; Wu & Wu, 2018; Zhang, 2016). Additionally, other theoretical pieces explored practical, strategic, and technology-driven approaches to effectively incorporate e-learning into higher education settings (e.g., Zhu, 2022). The notable difference in the proportion of theory articles between English and Chinese literature suggests that Chinese researchers might place a greater emphasis on theoretical grounding and policy analysis within the context of e-learning.

Literature review

Literature reviews appeared in only 5% (n = 1) of the 21 Chinese-language articles reviewed, compared to 13% (n = 5) in English-language literature. Typically, these reviews in both languages aimed to provide comprehensive overviews of the evolution of e-learning policy, highlighting political priorities and changes over time (Borokhovski et al., 2011; Liang et al., 2019; Liu-Schuppener, 2023). Additionally, one English-language article offered a detailed analysis of the distinctive characteristics of digital transformation processes (Benavides et al., 2020), and another integrated e-learning policy with other critical aspects such as technical, financial, and human factors (Hu & Raman, 2024).

Comparative study

In the literature written in English, five studies, which account for 13% of the total, engaged in comparative analysis. These studies analyzed macro-level policy across different countries and regions, enhancing our understanding of how policies intersect and differ. They specifically explored themes such as the varied responses to e-learning and the discernible patterns in policy development (Brown et al., 2007; Du & Gu, 2020; Roumell & Salajan, 2014; Wang & Chen, 2022). Furthermore, one study examined the challenges of aligning macro-level policy with institutional-level policy across different countries (Rosenberg, 2007), while another investigated the relationships within and between broader e-learning policies and governmental strategies (Goeman, 2006). The distribution of these English-language studies includes individual articles published in 2006 and 2014, with a peak of two articles in 2007 (see **Figure 4**).

Conversely, Chinese-language research seems less focused on comparative studies, with only two articles, or 9.5% of the total, published in 2020 and 2022, respectively. This distribution suggests that while comparative policy analysis is a recognized area of research in both English and Chinese scholarly environments, it has been more consistently pursued in English-language studies.

Discourse analysis

In the review of English-language literature, discourse analysis was applied in only 5% of the articles (n = 2), while in Chinese-language literature, this methodology was used in a higher percentage of articles, comprising 9.5% (n = 2). The year 2021 marked the peak of discourse analysis in English-language research with two articles, while in Chinese, one article was published in each of the years 2019 and 2020. Typically, these articles employed discourse analysis to systematically examine the development of e-learning policies, analyzing written, spoken, or visual texts to explore how language shapes and conveys educational policies, particularly in the context of digital or e-learning. For example, one study used this method to create maps for navigating e-learning policy through keyword analysis (Han & Li, 2019), and another investigated the characteristics of e-learning policy in higher education (Liang & Zhang, 2020). Additionally, two studies framed their analysis of university e-learning policies using discourse analysis (Chikuni et al., 2021; Magunje & Chigona, 2021).

In brief, the English-language literature shows a diverse range of studies with notable peaks in certain years, particularly for perceptual and comparative studies, demonstrating a balanced distribution across different study types. In contrast, the Chinese-language literature strongly emphasizes theoretical articles, indicating a focus on policy analysis and theoretical grounding, with less representation in perceptual and literature review categories but a relatively higher percentage of discourse analysis articles compared to English-language literature.

Research question two: What categories of articles (perception, portraying, theory, literature reviews, comparative study, and discourse analysis) are the most common in the English- and Chinese-language literature?

Common Trends in the English- and Chinese-Language Literature

As shown in **Figure 2** and **Figure 3**, theoretical articles were the most prevalent type in both English-language and Chinese-language literature, though it was slightly more common in the Chinese-language literature. Perceptual articles, however, were significantly more frequent in the English-language literature (23%) compared to the Chinese-language literature (5%). Literature reviews, comparative studies, and discourse analysis made up a relatively small portion of the literature in both contexts.

From 2004 to 2024, the English-language literature published an average of two articles per year, whereas the Chinese-language literature published an average of just one article per year. In the Chinese context, the highest number of articles was published in 2020 and 2021 (n = 4). In the English context, the peak publication year was 2007 (n = 7), followed by 2016 (n = 3). The fewest articles were published between 2004 and 2015, with merely one article, in Chinese context (see **Figure 5**). Between 2016 and 2024, there has been an increase in publications compared to 2004 to 2015. The overall trends indicate a steady presence of theoretical articles, a broader range of perceptual articles in English-language literature, and significant growth in Chinese-language publications in recent years.

Higher Education Contexts Represented in English and Chinese Literature

The corpus of literature, encompassing both English and Chinese languages, comprises 60 articles that reflect global research efforts. Due to the prevalent use of English, even in non-Anglophone nations, this body of work represents a diverse array of higher education contexts worldwide. Within the English-language literature, the most frequently examined higher education systems were those of the United Kingdom (n = 7), the EU (n = 5), South Africa (n = 4), New Zealand (n = 4), and Canada (n = 4). This distribution indicates a significant scholarly focus and progress in these regions. The diffusion of English-language publications from researchers across various countries contributed to a rich diversity of perspectives, underscoring a globally dispersed interest and heterogeneous approaches to e-learning policy. This included contributions from
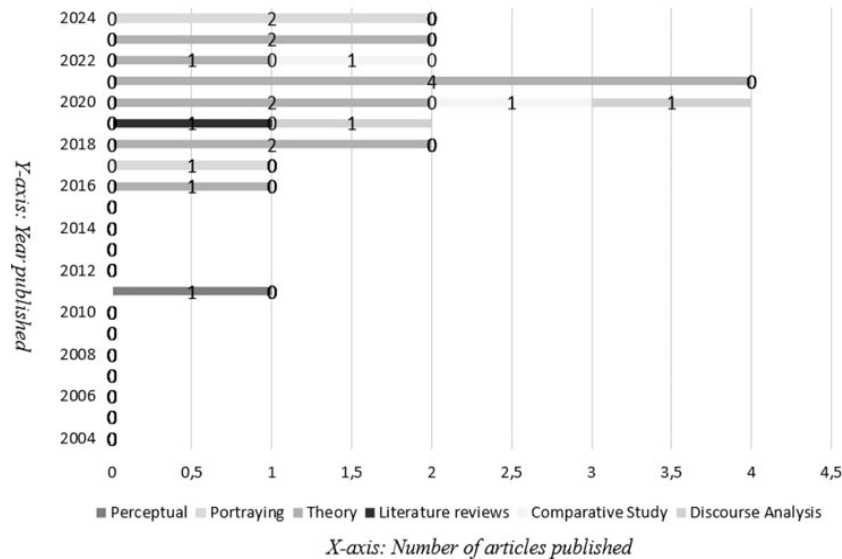
Figure 5. Segmentation of articles by year for Chinese-language literature (Source: The authors' own creation)

scholars analyzing e-learning policies in higher education sectors of the United States, Australia, Belgium, South Korea, China, Hong Kong, Pakistan, Colombia, and Mauritius.

Among the 21 Chinese-language articles, 18 primarily investigated the e-learning policy of Mainland China. This concentration highlights substantial national developments and challenges in implementing e-learning within Chinese higher education. Two studies focused specifically on e-learning policies within the higher education contexts of the EU (Guo, 2023) and the United States (Wang & Jiang, 2021), providing valuable insights for Chinese scholars. The remaining article conducted a comparative analysis of e-learning policy in the higher education contexts of the United States, the United Kingdom, and Japan (Wang & Cheng, 2022). This interest in diverse and advanced higher education systems indicates a desire to understand and benchmark e-learning policy against these standards in Chinese higher education. Despite the broad international scope of English-language research, certain regions, such as Africa (excluding South Africa), the Middle East, and parts of Asia (excluding China and South Korea), remain under-explored. The distribution of research by language reflects differing focal points and priorities: English-language research offers a broad international perspective, while Chinese-language research predominantly concentrates on domestic issues with some comparative insights. Understanding these trends can aid policymakers and practitioners in developing a more targeted and context-sensitive e-learning policy.

Research question three: What are the key findings from previous studies in English-language and Chinese-language literature?

An exhaustive review of 39 English-language and 21 Chinese-language literature was conducted to elucidate their principal focus. The overarching aim of these studies converges on a mutual goal: advancing the comprehension, formulation, and execution of e-learning policy. Through a scrupulous examination of their core tenets, discernible patterns surfaced. It became apparent that these studies either concentrated on a singular category or straddled multiple categories, emanating from a set of constructs. These recurrent patterns, highlighting variables that influence the comprehension, formulation, and execution of e-learning policy, unveil the domains frequently explored by researchers. Consequently, three primary thematic categories were delineated: OEPI, VIEP, and strategic components of e-learning policy (SCEP).

Each primary theme encompasses a breadth of studies. For instance, the OEPI theme includes investigations into unpredictable outcomes, the interaction between policy-making and actual e-learning practices, and the alignment between policy directives and the realities of higher education environments. VIEP covers the interaction between macro-level and micro-level policy, institutional culture, policy environment, financial assessment, and objective alignment. The SCEP theme involves studies that harmonize diverse strategic goals embedded in e-learning policy. Within this category, examples include various objectives aimed at enhancing the quality, accessibility, and efficiency of educational delivery (see **Table 4**).

Table 4. Categories of primary themes and its sub-themes

Primary themes	Sub-themes	The description of sub-themes
Outcomes of e-learning policy implementation	RSE: Reciprocal shaping effect	RSE denotes the phenomenon whereby the implementation of e-learning policies and pedagogical practices exert mutual and unanticipated influences upon one another, culminating in unpredictable outcomes.
	UVP: Unanticipated variations in practice	UVP denotes the unforeseen divergences in the interpretation and implementation of teaching and learning policies, emanating from heterogeneous developmental models. These discrepancies are shaped by cultural and political milieus, leading to disparate enactments of policies beyond their original prescriptive objectives.
Variables interplay with e-learning policy	IMM: Interplay between macro- and micro-level policy	IMM involves macro-level policy setting broad goals for a system, which are translated into actionable steps by micro-level policy at the localized level. This coordination ensures that strategic objectives align with practical implementations, maximizing the impact and equity of initiatives.
	IC: Institutional culture	IC in educational settings is defined by the shared values, beliefs, and norms that shape the identity and operational practices of an institution. This culture influences decision-making, resource allocation, and the implementation of e-learning policy, playing a critical role in the success of organizational change in higher education.
	PE: Policy environment	PE for e-learning is shaped by a blend of political support, cultural acceptance, economic incentives, and social inclusivity. These factors collectively determine the adoption and success of e-learning, necessitating comprehensive policy that bolster infrastructure, digital literacy, and equitable access.
	FA: Financial assessment	FA shapes e-learning policy by evaluating the costs, benefits, and economic impacts of digital education. This ensures that investments are cost-effective, strategically targeted, and aligned with long-term educational and workforce objectives.
	OA: Objective alignment	OA involves synchronizing goals across all organizational levels to effectively implement and scale e-learning initiatives. It necessitates ongoing dialogue and robust support systems to ensure all stakeholders work towards a unified vision.
SAEP: Strategic components of e-learning policy	QA: Quality assurance	QA refers to the systematic process of ensuring that the design, development, and implementation of e-learning environments meet established standards of quality.
	IS: Institutional support for instructors	IS encompasses various resources, training, and frameworks provided by educational institutions to assist instructors in effectively delivering.
	ULS: Unifying learner support	ULS refers to creating a cohesive and comprehensive system of support services that cater to the diverse needs of students in e-learning environments.
	PEPI: Promotes equity and pedagogical innovation	PEPI involves ensuring that all students have equal access to educational opportunities regardless of their backgrounds, while simultaneously encouraging the adoption of new and effective teaching strategies that enhance learning outcomes.
	IPD: Instructors' professional development of digital literacy & pedagogical skills	IPD involves establishing guidelines and resources to enhance educators' abilities to effectively use digital tools and apply contemporary teaching methods
	DIC: Drives institutional change	DIC involves developing strategies that use e-learning to foster broad transformations within educational institutions. It focuses on adapting organizational structures, cultural norms, and educational practices to better support and integrate digital learning environments.
	SDS: Sets directions and standards for e-learning	SDS involves creating clear guidelines and benchmarks to govern the quality and implementation of e-learning programs. This ensures that educational technologies and online environments are used effectively and sustainably
	LSE: Leading sustainable e-learning implementation	LSE involves developing and executing e-learning initiatives that are maintainable, resource-efficient, and adaptable over time, integrating them into the institution's long-term strategic goals and operational practices.
	GRD: Guides research and development of digital education	GRD involves strategically incorporating research initiatives and innovations into digital education to continually enhance and evolve educational offerings, fostering a culture of inquiry and technological advancement.
	CS: Collaboration among stakeholders	CS involves actively engaging and partnering with various parties affected by or influencing e-learning initiatives. This collaborative approach ensures that policies are comprehensive, inclusive, and aligned with the needs and insights of all stakeholders.
	EES: Encouraging expertise sharing	EES involves the systematic exchange of knowledge, skills, and best practices among those involved in digital learning. This practice leverages collective wisdom and experience to enhance the quality and effectiveness of e-learning initiatives.
	RA: Resource allocation	RA involves the strategic distribution of financial, human, and technological resources to support and enhance digital learning initiatives within an institution.

Table 5. Summary of findings in English-written literature

Reference	Country/regions	Segment	OEPI			VIEP					SCEP										
			RSE	UVP	IMM	IC	PE	FA	OA	QA	IS	ULS	PEPI	IPD	DIC	SDS	LSE	GRD	CS	EES	RA
Pittard (2004)	UK	Theory																√			
de Freitas and Oliver (2005)	UK	Portraying											√								
Mee (2007)	UK	Portraying			√	√	√														
Harley and Lawrence (2007)	UK	Perceptual				√			√												
Boezerooij et al. (2007)	UK	Perceptual				√				√			√		√						
Roushan et al. (2016)	UK	Portraying				√										√			√		
Picciano (2016)	US	Theory					√		√	√				√					√		
Roumell and Salajan (2016)	US	Theory								√	√		√			√			√		
Salajan and Roumell (2016)	EU	Theory								√	√		√			√			√		
Salajan (2007)	EU	Portraying			√					√						√	√	√			
Salajan (2019)	EU	Theory																		√	√
Roumell and Salajan (2014)	EU & US	CIS			√																
Goeman (2006)	EU & Belgium	CIS			√																
Czerniewicz and Brown (2009)	SA	Perceptual				√															
Chikuni (2017)	SA	Perceptual						√	√				√								
Chikuni et al. (2021)	SA	DA				√	√								√						
Czerniewicz and Rother (2018)	SA & UK	CIS			√						√	√									√
Knowles (2007)	Canada	Perceptual			√		√						√								
Parchoma (2006)	Canada	Theory				√	√		√						√				√		
Wallace and Young (2010)	Canada	Portraying								√	√		√			√					
Owston (2013)	Canada	LR							√												
Brown et al. (2007)	NZ & Other	CIS			√		√												√		
Rosenberg (2007)	NZ & Other	CIS								√			√								
Suddaby and Milne (2008)	NZ	Theory								√						√					
Mansvelt et al. (2009)	NZ	Perceptual							√				√								
Kenney et al. (2004)	Australia	Theory						√								√	√		√		
Holt and Challis (2007)	Australia	Perceptual	√	√			√														
O'Connor (2014)	Australia	Portraying													√						
Zhang et al. (2012)	China	Theory			√		√		√		√	√				√					√
Jiang et al. (2023)	China	Theory							√			√	√								
Liu-Schuppener (2023)	China	LR			√		√														√
McNaught and Vogel (2006)	Hong Kong	Portraying				√															
Leem and Lim (2007)	South Korea	Perceptual				√			√	√						√		√	√	√	
Magunje and Chigona (2021)	Zimbabwe	DA			√	√	√						√								
Ellahi and Zaka (2015)	Pakistan	Portraying							√	√			√	√							
Rajabalee and Santally (2021)	Mauritius	Perceptual										√	√								
Borokhovski (2011)		LR			√											√		√	√		
Benavides et al. (2020)		LR									√	√	√	√							√
Hu and Raman (2024)		LR			√		√	√		√				√	√						

Notes: CIS: Comparative study; DA: Discourse analysis; LR: Literature review; UK: United Kingdom; US: United States; EU: European Union; SA: South Africa; NZ: New Zealand; Other: Other countries (more than three countries).

For instance, Roumell and Salajan's (2016) study exemplifies five strategic objectives: quality assurance, institutional support for instructors, instructors' professional development in digital literacy and pedagogical skills, setting directions and standards for e-learning, and collaboration among stakeholders, assessed through content analysis. This study integrates five sub-themes, each derived from policy documents spanning 1983 to 2011.

Upon the establishment of these primary themes, a further, detailed exploration of each was conducted. This in-depth investigation allowed for a clearer understanding of the nuances and specific focal points nested within each primary theme. These nuances or sub-themes capture distinct research domains or dependent variables nested within the overarching theme. The selection criterion for a sub-theme was its pertinence to the primary theme and its recurring mention across the studies. A specific subject merited the status of a sub-theme if it was referenced in at least two out of the 60 studies (39 English-language and 21 Chinese-language literature). Care was taken to ensure minimal overlap among these sub-themes. Furthermore, synonymous academic terminologies for each sub-theme were identified to enhance clarity and comprehension.

Table 5 and **Table 6** show that 39 English-language and 21 Chinese-language literature were categorized into three primary themes (together 60 studies centered on either one or a combination of these three primary themes), and subsequently, identified sub-themes associated with each theme, resulting in a total of 19 sub-themes. The three primary themes are OEPI (consisting of 2 sub-themes), VIEP (consisting of 5 sub-themes), and SCEP (consisting of 12 sub-themes) (see **Table 4**). This analytical approach ensures the findings

Table 6. Summary of findings in Chinese-written literature

Reference	Country/ regions	Segment	OEPI			VIEP						SCEP									
			RSE	UVP	IMM	IC	PE	FA	OA	QA	IS	ULS	PEPI	IPD	DIC	SDS	LSE	GRD	CS	EES	RA
Sun (2011)	China	Perceptual	√	√	√			√	√			√	√	√		√					
Wang (2018)	China	Portraying					√									√					
Zhang and Liang (2024)	China	Portraying					√												√		√
Liang et al. (2024)	China	Portraying					√												√		
Zhang (2016)	China	Theory				√								√					√		
Wu and Wu (2018)	China	Theory					√														
Hu and Zhang (2018)	China	Theory					√						√								
Liu and Guo (2020)	China	Theory																			√
Yu et al. (2020)	China	Theory				√			√							√					
Wang and Jiang (2021)	US	Theory					√		√										√		
Liu and Cheng (2021)	China	Theory					√														
Hu (2021)	China	Theory				√															√
Zhu et al. (2021)	China	Theory				√				√						√	√				√
Zhu (2022)	China	Theory								√					√						
Guo (2023)	EU	Theory				√					√								√		
Liu et al. (2023)	China	Theory														√					
Liang et al. (2019)	China	LR					√														
Wang and Cheng (2022)	US, UK, & Japan	CIS										√	√	√	√						
Du et al. (2020)	China & Other	CIS								√			√	√	√				√		
Han and Li (2019)	China	DA														v					
Liang and Zhang (2020)	China	DA										√	√	√		√					

Notes: CIS: Comparative study; DA: Discourse analysis; LR: Literature review; UK: United Kingdom; US: United States; EU: European Union; Other: Other countries (more than three countries).

are not only thorough but also applicable across diverse university settings, thus enhancing their relevance and applicability.

The analysis of 39 English-language studies detailed in **Table 5** provides a comprehensive overview of e-learning policy in higher education, identifying 19 distinct sub-themes. The primary areas of focus include the 'policy environment' with 12 studies, emphasizing scholarly interest in regulatory frameworks and external driving forces shaping e-learning policy and its implementation. This is followed by 11 studies on 'institutional support for students,' highlighting how higher education institutions aid student learning within an e-learning framework, and 10 studies on 'setting directions and standards for e-learning,' which address the maintenance of educational quality and strategic direction. Additionally, the research examines sub-themes like the interplay between macro and micro-level policy, quality assurance, and stakeholder collaboration, albeit in a segmented fashion with nine studies each, indicating a diverse yet fragmented approach to these topics.

The orientation of the research predominantly leans towards theoretical explorations rather than practical applications. Notably, 17 of the studies focus solely on the strategic objectives of e-learning policy, demonstrating a prevalent theoretical inclination within the field. Conversely, only seven studies have delved into the interaction of various variables with e-learning policy, and only a single study has evaluated the OEPI. This distribution underscores a significant emphasis on conceptual and strategic issues with less consideration for the tangible outcomes and effectiveness of e-learning policies.

Furthermore, the integration of themes within the studies reveals interesting patterns; 17 studies combine analyses of strategic objectives and variable interplay, yet only one study extends this analysis to include policy outcomes. This gap in research, especially the absence of studies that encompass all three themes–strategic objectives, variable interplay, and outcomes–highlights a crucial area for future investigation. The need for more holistic research that links theoretical frameworks with practical evaluations is evident, pointing to potential advancements in understanding the efficacy of e-learning policies in higher education. This suggests key directions for future research that could provide deeper insights into the complexities of e-learning environments and their impact on educational practices.

Among the 19 sub-themes identified, the interplay between macro-level and micro-level policy and the policy environment are two research focuses that have been extensively studied. These sub-themes have been explored through six different research designs, including perception studies, portrayal, theoretical

analysis, comparative analysis, literature reviews, and discourse analysis. This variety and volume of research indicate that these areas are well-covered.

In contrast, the sub-themes of reciprocal shaping effect and unanticipated variations in practice have received minimal attention, both being the subject of only one perceptual study (Holt & Challis, 2007). Similarly, the sub-themes of leading sustainable e-learning implementation and encouraging expertise sharing have been somewhat explored, with each being covered in two articles utilizing designs focused on portraying, theory, and perception. This suggests a need for further exploration in these less-studied areas to achieve a more comprehensive understanding.

Considering the necessity of providing well-reasoned and meticulously detailed analyses to deepen the understanding of specific sub-themes, some studies in the realm of e-learning policy concentrate intensely on a distinct sub-theme. This focused approach yields a thorough examination of crucial elements essential for the effective implementation and success of e-learning initiatives. For example, the sub-theme of institutional change is exclusively explored in seminal studies by de Freitas and Oliver (2005) and O'Connor (2014). These works offer profound insights into the adaptation of institutional structures and pedagogical methods to support digital learning, pinpointing key facilitators and obstacles that influence the successful integration of e-learning within educational settings.

Similarly, the sub-theme concerning the guidance of research and development in digital education is uniquely addressed by Pittard (2004) in a theoretical study. This investigation is pivotal in shaping and refining theoretical frameworks that underpin the adoption of digital learning modalities, ensuring these frameworks are substantiated by solid academic evidence. This singular focus permits a comprehensive exploration of the theoretical bases necessary for effective digital education.

Moreover, the interplay between macro-level and micro-level e-learning policy is scrutinized in comparative studies by Goeman (2006) and Roumell and Salajan (2014). These analyses reveal how different countries or regions interpret and implement overarching e-learning goals into specific, localized strategies, uncovering both diversity and commonalities that affect the practical application of these policies. Other inquiries, such as those by Czerniewicz and Brown (2009) and McNaught and Vogel (2006), are dedicated to the sub-theme of institutional culture, investigating how e-learning policies are perceived and enacted within varying cultural and institutional frameworks.

Lastly, the sub-theme of aligning objectives is comprehensively reviewed by Owston (2013) in a literature review that integrates data across multiple organizational levels. This review delivers strategic insights into how the alignment of objectives among institutions, instructors, and learners can enhance the coherence and efficacy of e-learning initiatives among various stakeholders.

The methodological specialization in these studies provides a deep and nuanced understanding of individual sub-themes within e-learning policy. By focusing exclusively on one aspect at a time, researchers are able to offer more precise and targeted recommendations that are essential for refining e-learning strategies and policies. This specialized approach not only enriches the scholarly discourse but also significantly enhances the practical implementation and ongoing refinement of e-learning systems, ensuring they remain adaptable and responsive to the dynamic educational landscape.

The implications for policymakers and practitioners from the findings of English-written literature analysis of e-learning policies (see **Table 5**) highlight the need for adaptive, holistic approaches that consider various factors such as institutional support, political context, economic conditions, and the interplay between macro and micro-level policies. Policymakers should prioritize creating policies that align with institutional capabilities and environmental factors while supporting the professional development of instructors through continuous training and robust institutional support. Additionally, fostering a supportive institutional culture and driving institutional change is essential for sustainable e-learning practices, with a focus on setting clear directions and standards for long-term success. Policymakers should also encourage cross-country collaboration to share best practices and strengthen global e-learning frameworks. For practitioners, understanding how macro policies impact daily teaching practices and ensuring alignment with broader institutional goals is crucial for success. Practitioners should actively engage with institutional support mechanisms, contribute to institutional change, and collaborate with stakeholders to enhance the effectiveness of e-learning. Both policymakers and practitioners must be proactive in adapting to evolving

circumstances, emphasizing ongoing professional development, and ensuring that their efforts align with the overarching goals of e-learning initiatives.

In an analysis of 21 Chinese-language literature on e-learning policy in higher education (refer to **Table 6**), the most common focus areas include the policy environment (8 studies), setting directions and standards for e-learning (7 studies), and equally, instructors' professional development in digital literacy and pedagogical skills, and collaboration among stakeholders (6 studies each). Within these studies, 7 address the strategic objectives of e-learning policy directly, 3 explore the interplay of various variables with e-learning policy, and only 1 assesses the OEPI. When considering studies that combine primary themes, 10 integrate the strategic objectives with VIEP, and a single study examines all three primary themes, but none combine the outcomes of policy implementation with variables that interplay e-learning policy.

Among 19 sub-themes, none are extensively explored through all six research designs, which include perception studies, portrayal, theoretical analysis, comparative analysis, literature reviews, and discourse analysis. Three sub-themes—driving institutional change, guiding research and development, and encouraging expertise sharing—are not addressed at all. Additionally, five sub-themes—reciprocal shaping effect, unanticipated variations in practice, institutional culture, financial Assessment, and leading sustainable e-learning implementation—are each explored in only one study.

The focused approach of each study on a particular sub-theme suggests a trend toward deep, narrowly focused research rather than broad, comprehensive studies. For example, the policy environment is thoroughly examined in two theoretical studies (Liu & Cheng, 2021; Wu & Wu, 2018) and one literature review (Liang et al., 2019), while the sub-theme of setting directions and standards is analyzed in one discourse analysis (Han & Li, 2019) and one theoretical study (Liu et al., 2023). Similarly, resource allocation is the sole focus of a theoretical study by Liu and Guo (2020). This pattern indicates a strong preference in Chinese-language literature for theoretical and analytical approaches to individual aspects of e-learning policy, which may signify a foundational phase in the academic exploration of these topics. This trend implies that future research may continue to delve into these themes more deeply, potentially expanding the range of methodologies applied as the field matures.

The findings from the Chinese-written literature on e-learning policy (see **Table 6**) highlight several key implications for policymakers and practitioners. Policymakers should design flexible, adaptive policies that account for the reciprocal shaping effect and unanticipated variations in practice, ensuring that national strategies can evolve in response to local dynamics and shifting practices. Prioritizing institutional support for instructors and instructors' professional development is essential for equipping educators with the skills needed for effective e-learning. Policies must also emphasize quality assurance and objective alignment to maintain high standards and ensure that institutional practices align with broader policy goals. Additionally, fostering institutional change and sustainable e-learning implementation through clear directions and standards is crucial for creating lasting transformations. Collaborative approaches, including collaboration among stakeholders and encouraging expertise sharing, are necessary to strengthen policy effectiveness and foster a shared learning ecosystem. Economic considerations, such as financial assessment and resource allocation, must ensure equitable access to resources, particularly in under-served areas. For practitioners, staying attuned to macro-level policy changes and understanding how institutional culture impacts e-learning adoption are vital for navigating policy shifts and contributing to institutional change. Continuous professional development is crucial for keeping pace with evolving technologies and pedagogical practices, while ensuring that teaching strategies align with institutional and policy goals. Practitioners should also actively engage in quality assurance processes and provide comprehensive unifying learner support to enhance students' learning outcomes. Policymakers and practitioners must collaborate closely, adapting their practices to the dynamic e-learning landscape to improve educational outcomes and create sustainable, inclusive e-learning environments.

DISCUSSION

Both English-language and Chinese-language literature on e-learning policy in higher education focus on the strategic objectives of e-learning policy and the significance of the policy environment. Specifically, one concrete case in each literature can be used to strengthen the connection between macro-level policies and

institutional practices. For example, Pittard (2004) indicated that national strategies, particularly the 2003 DfES e-learning strategy, have shaped institutional priorities by driving the development of ICT policies that align with national objectives and influence educational delivery. These strategies have also encouraged institutions to adopt innovative teaching methods and technologies, empowering learners and creating flexible learning environments. Additionally, national policies have impacted resource allocation, with institutions prioritizing ICT, staffing, and training to optimize e-learning and support diverse learner needs. Similarly, education informatization in China has significantly influenced institutional priorities in higher education (Wu & Wu, 2018). In this context, it has shaped institutional priorities by emphasizing the development of students' analytical and interactive skills, as well as enhancing both teachers' and students' digital competence and media and information literacy.

Each body of literature delves deeply into specific sub-themes, providing thorough analyses of crucial elements that influence the effectiveness of e-learning policy. This common approach underscores a universal recognition of key factors essential to e-learning policy-making and implementation across different linguistic and educational contexts. This review also identifies a significant gap between English- and Chinese-language literature in the domain of e-learning policy research, which is characterized by differences in scope and methodological diversity. English-language literature offers a more expansive examination of various sub-themes and utilizes a diverse array of research methodologies. These include perception studies, portrayals, theoretical analyses, comparative studies, literature reviews, and discourse analysis. Such methodologies provide rich and in-depth insights into specific aspects of e-learning policy. In contrast, Chinese-language literature primarily focuses on theoretical articles that interpret e-learning policy through either structured or unstructured evidence specific to Chinese higher education. With the exception of Sun's (2011) study, which investigates e-learning policy prior to the implementation of Education Informatization 1.0 by the central government, the research from 2016 to 2024 tends to cover a narrower range of sub-themes. This suggests a different stage of policy development or differing educational priorities during the transition from Education Informatization 1.0 to 2.0 in China.

Liu-Schuppener's (2023) systematic review of e-learning policy frameworks in Chinese higher education corroborates this trend. The study reveals a progressive change in educational priorities, especially noticeable as the emphasis transitions from Education Informatization 1.0 to 2.0. It observes a move from supply-focused policies, traditionally preferred by the government, to a greater concentration on participatory activities and a stronger focus on policy tools. This evolution primarily arises from a departure from a scientific and technical approach towards a more structured legal and regulatory framework. This change not only marks a significant realignment in policy priorities but also aligns with a prominent finding of this review: the policy environment, fortified by a more robust legal and regulatory framework, emerges as a frequently emphasized sub-theme in Chinese-language literature.

A notable sub-theme evident in both Chinese and English-language literature, yet significantly under-explored, is the concept of the "reciprocal shaping effect." This phenomenon highlights the dynamic and bidirectional relationship between policy and practice, wherein each exerts a continuous influence over the other. Prescriptive policies often serve as the initial framework for guiding teaching methodologies; however, their implementation generates real-time feedback that necessitates iterative adjustments to policy frameworks (Sun, 2011). Such interaction underscores the critical need for adaptive policies that align with the evolving realities of educational practices. Simultaneously, organizational learning—particularly through the adoption of innovative approaches such as online learning—emerges as a significant driver of policy reform. Moreover, transformative learning experiences, which foster deeper disciplinary understanding, frequently act as a catalyst for policy evolution, integrating practice-driven insights into the development of more informed frameworks (Holt & Challis, 2007). To thoroughly investigate this dynamic interplay, advanced methodologies such as longitudinal studies and mixed-methods approaches are particularly well-suited, offering a robust lens for examining how policies shape practices, how practices reciprocally inform policy reformulation, and how these elements coalesce into a mutually reinforcing cycle of continuous improvement.

Furthermore, interpreting the results of this study requires considering two critical aspects: the intricacies of e-learning policy and global perspectives. Firstly, as discussed in the introduction, the diverse conceptualization of e-learning policy led the authors to adopt thematic coding to comprehend various

conceptualizations of e-learning policy focused on implementing e-learning in higher education (Anderson, 2008; Bates, 2000; Blin & Munro, 2008; Brown & Murray, 2007; Czerniewicz & Brown, 2009; Garrison & Vaughan, 2008; Kenney et al., 2004; Owston, 2013; Pittard, 2004; Rosenberg, 2007; Suddaby & Milne, 2008). Secondly, international viewpoints on e-learning policy are anchored in a collective commitment to cultivating a more proficient, informed, and accessible educational environment, propelled by technological integration and the demand for augmented support and resources. In this context, the purpose of this review is to enhance our comprehension of research trends in e-learning policy across English- and Chinese-language domains. These factors influenced our initial approach and the methodologies utilized, thereby shaping the final aggregation of data examined and synthesized in this study.

Implications of Adopting Global Perspectives on E-Learning Policy

The intricacies of e-learning policy in higher education encompass a labyrinthine interplay of multifarious perspectives, fluid definitions, and complexities of avant-garde e-learning technologies. Policymakers must deliberate on a myriad of factors, including technological innovations, pedagogical requirements, institutional capacities, and sociocultural milieus, to architect comprehensive and adaptive e-learning strategies. These strategies necessitate the input of educators, technologists, students, and administrators to ensure they are holistic and efficacious. Furthermore, defining e-learning policy is arduous due to the rapidly evolving nature of educational paradigms, contexts, cultures, and circumstances. E-learning policy must be malleable and responsive to keep abreast of continual advancements in educational technology and methodologies. Drawing on global perspectives is essential for creating a well-rounded, adaptable, and effective e-learning policy. This approach includes a structured implementation strategy, an interactive policy-making process, active faculty involvement, and balancing national directives with institutional policy.

A structured implementation strategy is crucial, involving three key stages: selecting pertinent guidelines, identifying gaps, and making necessary changes. This approach ensures a robust foundation for quality assurance while launching e-learning initiatives, as highlighted by Hosie et al. (2005). Given the complexity of e-learning implementation—shaped by diverse higher educational contexts and evolving technologies—a comprehensive framework is essential to manage these multifaceted challenges effectively. Such a framework must address both macro-level and institutional policy to ensure alignment and coherence (Hu & Raman, 2024). Additionally, examining EU e-learning policy demonstrates how leveraging ICT infrastructure can significantly shift policy focus and improve educational outcomes, further supporting the need for a well-structured implementation strategy (Salajan & Roumell, 2016).

Interactive policy-making emphasizes dynamic interactions among stakeholders, revealing the power dynamics inherent in e-learning policy development. This approach ensures that diverse representation and continuous evaluation foster inclusive and relevant policy, as noted by Chikuni (2017). Moreover, the success of the policy is significantly influenced by institutional factors and proactive, collegial approaches. Coordinated implementation plans are essential in minimizing administrative burdens, thereby creating a conducive environment for policy efficacy (Chikuni, 2017). Furthermore, the transition to a middle-out management strategy highlights the importance of stakeholder partnerships, fostering agility and synergy in implementing technology-enhanced learning (TEL) (Roushan et al., 2016).

Faculty involvement is crucial in e-learning policy formulation, recognizing their dual roles as educators and instructional support staff. To ensure cohesive and effective implementation of e-learning initiatives, comprehensive organizational commitment is necessary (Picciano, 2016). This commitment is supported by the significance of expertise sharing and professional networking, as demonstrated by initiatives like the European Digital Education Action Plan. This plan promotes the development of best practices and sustainable professional connections in digital education (Salajan, 2019). Additionally, prioritizing digital learning and technology-enabled pedagogy enhances student engagement and competency development. This learner-centered approach improves educational experiences and outcomes, making e-learning more effective and impactful (Rajabalee & Santally, 2021).

Balancing national directives with institutional flexibility plays a crucial role in the successful implementation of e-learning. China's informatization education policy exemplifies this balance by transitioning from infrastructure building to transforming teaching and learning through information technology. This transformation is supported by cooperative governance involving multiple stakeholders (Liu-

Schuppener, 2023). Additionally, successful e-learning adoption requires bottom-up changes driven by champions and innovators. These grassroots efforts need to be supported by institutional policies that reflect senior leadership commitment, providing strategic direction and facilitating the uptake and diffusion of e-learning (Boezerooij et al., 2007). Flexible and non-restrictive institutional policies are essential as they foster staff innovation and support diverse pedagogical practices, creating an environment conducive to effective e-learning adoption (Czerniewicz & Brown, 2009).

Adopting global perspectives on e-learning policy brings numerous benefits, ensuring that e-learning policy is inclusive, innovative, and effective. The structured implementation strategies, interactive policy-making processes, active faculty involvement, and balanced national and institutional policy drawn from global insights provide a comprehensive and adaptable approach to robust e-learning policy framework. Adopting global perspectives not only enhances the quality of e-learning but also fosters sustainable development and innovation, meeting the diverse needs of educational institutions and learners worldwide.

CONCLUSION

This study conducts a systematic review of e-learning policy research in higher education, employing article coding and thematic analysis to scrutinize both English- and Chinese-language literature, thereby elucidating global insights into its current status, principal findings, and research lacunae. The investigation reveals a predominance of theoretical articles across both language corpora, with Chinese-language literature exhibiting a higher proportion (57%) compared to its English counterpart (25%). English-language literature, characterized by a more diverse range of studies and notable peaks in perceptual and comparative studies, demonstrates a balanced distribution across various segments of articles. Conversely, Chinese-language literature shows a marked emphasis on theoretical studies, reflecting a focus on policy analysis and theoretical underpinnings, with less representation in perceptual and review categories but a higher incidence of discourse analysis articles. Analyzing publication trends from 2004 to 2024, the study finds that English-language publications averaged two articles annually with a peak in 2007, while Chinese-language publications averaged one per year, peaking in 2020 and 2021, indicating a recent surge. The corpus, comprising 60 articles, underscores a global research endeavor, with English-language studies spanning diverse higher education systems and Chinese-language research concentrating on domestic e-learning policy, thus highlighting differing focal points and priorities. Furthermore, the comprehensive analysis of 39 English-language and 21 Chinese-language studies reveals a predominant focus on the policy environment, institutional support for students, and setting directions and standards for e-learning. Both literatures display a strong theoretical inclination, extensively researching strategic objectives and variable interplay but exhibiting a notable gap in evaluating policy outcomes. The fragmented attention to sub-themes such as the reciprocal shaping effect and unanticipated practice variations, indicates areas necessitating further exploration. The prevailing theoretical and analytical approaches suggest that the field remains in its foundational phase, with future research poised to adopt broader methodologies, thereby offering deeper insights and more practical applications to enhance e-learning policy implementation. These findings underscore the intricacies of e-learning policy, shaped by a complex interplay of perspectives, fluid definitions, and advanced e-learning technologies, highlighting the advantages of adopting global perspectives to enhance the understanding, formation, and robustness of e-learning policy. Finally, the study identifies several areas warranting further research, which will be elaborated on in the subsequent section.

Recommendations

Research question four: What are the research gaps in the existing English-language and Chinese-language literature?

The review reveals a clear focus on theoretical articles in both English- and Chinese-language literature, with these articles being the most common across six segments. The English-language literature shows a diverse range of studies, peaking in certain years, particularly in perceptual and comparative studies, indicating a balanced distribution. In contrast, the Chinese-language literature emphasizes theoretical articles, focusing on policy analysis and theoretical grounding. It has less representation in perceptual and literature review categories but a higher percentage of discourse analysis articles. This suggests a continued emphasis

on providing theoretical justification and describing the current status of e-learning policy in Chinese higher education.

The relative scarcity of empirical studies, particularly perceptual and portraying research, in Chinese-language literature focused on establishing research-based practices in higher education is concerning. The findings indicate that over the past two decades, research on e-learning policy in China has remained predominantly theoretical, and this trend continues to persist. As the field continues to evolve, it is essential to progress from merely describing problems and potential solutions to actively testing these solutions and documenting their implementation and impact on large-scale applications. To further enhance e-learning policy research, future directions should integrate more empirical methods into Chinese-language studies to balance the strong theoretical focus, incorporating perceptual studies, surveys, and case studies for practical data on policy implementation and outcomes.

A segment of the literature concentrated on perceptual investigations, predominantly in English-language settings. While research on the viewpoints of various stakeholders regarding the integration of e-learning into higher education is essential, it remains inadequate by itself. Shifting focus from merely identifying factors influencing attitudes to establish robust e-learning policy frameworks and institutional strategies that yield favorable outcomes should be a primary objective in English-language contexts. To summarize, the progression of theory and the elucidation of practices and attitudes are crucial and necessary steps to advance e-learning. However, further strides in the form of experimental research emphasizing institutional capacity, adaptability, and autonomy are indispensable. Such research is notably underdeveloped in both English- and Chinese-language settings.

As research advances over the next decade, it is recommended to delineate key outcomes that should be the focus of e-learning policy in higher education across the globe. A pivotal component of this endeavor should involve establishing collaborative, international research consortia to implement and evaluate e-learning policy frameworks that advance e-learning initiatives in higher education worldwide. It is essential to transcend mere description and theoretical analysis of e-learning policy to actively measure and demonstrate its impact. Engaging in this work through international collaborations will enable researchers to scrutinize cross-cultural similarities and differences and to adopt global perspectives. Cultivating global cooperation through international research partnerships and cross-cultural analyses will harness diverse perspectives and expertise on e-learning policy, culminating in more comprehensive and globally pertinent findings.

When it comes to the thematic analysis of Chinese-language literature, the concentrated focus on specific sub-themes such as policy environment, setting directions and standards, and resource allocation reveals a trend toward deep, narrowly focused research rather than broad, comprehensive studies. For instance, theoretical and literature review studies by Liu and Cheng (2021), Wu and Wu (2018), and Liang et al. (2019) thoroughly examine the policy environment, while Han and Li (2019) and Liu et al. (2023) analyze setting directions and standards, and Liu and Guo (2020) concentrate solely on resource allocation. This predilection for theoretical and analytical approaches to individual aspects of e-learning policy suggests an embryonic stage in the academic exploration of these topics, indicating that future research may delve deeper into these themes and potentially expand the range of methodologies as the field evolves. Conversely, both English- and Chinese-language literature have scarcely addressed sub-themes such as the reciprocal shaping effect and unanticipated variations in practice, with only one perceptual study in English by Holt and Challis (2007) and one in Chinese by Sun (2011). Additionally, sub-themes like leading sustainable e-learning implementation and encouraging expertise sharing have been somewhat explored through a limited number of articles utilizing portrayal, theory, and perception-focused designs. This suggests a need for further exploration in these less-studied areas to achieve a greater understanding.

Limitations

Although this study yielded significant findings, it is not without limitations. First, this review exclusively analyzed English- and Chinese-written literature. To fully encompass diverse perspectives across the globe, the inclusion of literature from other languages is essential to guide comprehensive efforts in promoting the understanding, formation, and robustness of e-learning policy in various linguistic contexts. Additionally, as highlighted in the description of the countries represented in the review, the United Kingdom and China contributed the majority of the included articles. While this outcome is not surprising, it emphasizes the need

to explore research on e-learning policy in higher education across diverse linguistic and cultural contexts. Future studies within the English- and Chinese-written literature should investigate cross-cultural differences and similarities in research findings.

Furthermore, the primary focus of this review was to examine the types and trends of categorical groupings of articles in the English- and Chinese-language contexts and thematically synthesize the primary themes and sub-themes for further detecting patterns in research on e-learning policy. Future research should explore the content and quality of research within the various thematic categories more deeply and evaluate the implications for advancing e-learning policy worldwide. Lastly, the coding scheme was iteratively developed through collaboration between English- and Chinese-speaking researchers. This iterative process ensured that the scheme was robust and applicable to both English- and Chinese-language literature. High levels of consensus among the coders were achieved, indicating the reliability of the scheme in its current form. However, it is important to acknowledge that alternative coding schemes could also be viable. Therefore, further validation of this coding scheme is essential in future research to confirm its effectiveness and identify any potential improvements. This will enhance the overall reliability and applicability of the scheme across different contexts and languages.

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