Massification in Higher Education: A Systematic Review of its Boundaries, Drivers, and the Role of Critical Pedagogy

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Abstract

Massification has transformed higher education worldwide, yet the accumulated empirical research on this phenomenon has not been systematically reviewed. This study conducts a systematic review of 28 peer-reviewed empirical articles published between 2011 and 2024, following the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020 guidelines, and using the Mixed Methods Appraisal Tool (MMAT) 2018 framework. The synthesis reveals that: (1) traditional definitions based on Trow's enrolment thresholds are increasingly inadequate for explaining contemporary dynamics, particularly in contexts of hypermassification; (2) economic, political, social, and cultural drivers interact to expand participation while simultaneously reinforcing inequalities and credential inflation; and (3) critical pedagogy—rooted in Freire and Giroux—offers a transformative framework that democratizes learning, fosters student agency, and promotes equity within massified systems. These findings contribute to a deeper understanding of the complex nature of higher education massification and offer practical implications for achieving equitable massification through critical pedagogy.

Keywords: higher education massification, conceptual boundaries, multiple drivers, critical pedagogy, systematic review

1. Introduction

Higher education massification is one of the most profound global transformations of the past half-century, shifting access to higher education from elite privilege to widespread participation. Trow's (1972; 2007) influential framework distinguishes three types of higher education: elite, with enrolment below 15 %; mass, between 15 % and 50 %; and universal, above 50 %. This typology provides a widely used lens for comparative analysis (Marginson, 2017; Lamprianou & S ünker, 2014). However, recent studies argue that rigid enrolment thresholds obscure the dynamic and uneven realities of higher education expansion (Tight, 2019; Mohamedbhai, 2014). In many regions, demographic pressures and policy reforms have pushed higher education systems into hypermassification, challenging the applicability of traditional models. For example, in parts of Sub-Saharan Africa, thresholds of up to 60% are employed to reflect youth demographics, underscoring the need for contextualized definitions (Mohamedbhai, 2014; Kimathi & Henry, 2014).

While higher education massification has expanded enrolment opportunities, its outcomes are highly uneven. Enrolment growth often favor urban and affluent groups, reinforcing existing inequalities (Tavares et al., 2022; McCowan, 2015). Retention and completion rates continue to reflect disparities by income and social status, resulting in what Balán (2020) terms an "equity paradox,": more enrolment opportunities coexist with persistent structural disadvantages. Moreover, educational quality and graduate employability are compromised when the growth rate of resources cannot keep up with the growth of enrolment. Overcrowded classrooms, declining faculty-student ratios, and graduate underemployment illustrate the tension between access, quality, and labor market relevance (Mve, 2021; Mok & Jiang, 2018). In countries such as China and Algeria, the difficulty of employment for university graduates highlights the risk of expansion without corresponding economic development (Rabah, 2020; Blanden & Machin, 2004). These patterns suggest that higher education massification cannot be understood only as quantitative growth but must also be examined in terms of systemic capacity, equity, and social justice.

The rapid higher education massification and its profound impact has prompted extensive scholarly inquiry, resulting in a vast and growing literature. However, increasing literature has not been synthesized through a systematic lens,

leaving related studies fragmented. Moreover, these studies have paid insufficient attention to how pedagogical approaches mediate the consequences of expansion (Altbach et al., 2009; Mohamedbhai, 2014). In particular, the transformative potential of critical pedagogy, rooted in the work of Freire (2020) and Giroux (2010), to foster democratic, inclusive, and transformative learning has been underexplored. To address these gaps, this review synthesizes findings from recent related empirical studies to examine three interrelated research questions:

(1) How are conceptual boundaries of higher education massification shifting?

(2) What economic and sociocultural drivers shape its differentiated outcomes?

(3) Under what conditions can critical pedagogy transform expanded access into genuinely equitable higher education?

Answers to these questions will deepen our understanding of the complexity of higher education massification, and will offer insights for equitable massification through the role of critical pedagogy.

2. Methods

To address the fragmented nature of existing research, this review adopts a systematic approach to synthesize research on higher education massification. Twenty-eight peer-reviewed studies between 2011 and 2024 were identified, appraised with the 2018 framework of the MMAT, and analyzed following the PRISMA 2020 guidelines.

2.1 Screening Process

A thorough search was performed through seven different databases, namely, ERIC, Scopus, ScienceDirect, JSTOR, Taylor & Francis Online, SAGE Journals, and Wiley Online Library, between March 1, 2025, and April 30, 2025. The search strategy used to retrieve articles from different databases is advanced searching, in which essential functions such as Boolean operators (AND, OR) are applied. The search strings included four conceptual categories: expansion, democratization / massification, participation / enrolment, and governance / quality (see Table 1). The search yielded 760 records. Following the elimination of 160 duplicates and 40 automated techniques, 560 records were examined. Of these, 400 were dismissed based on title or abstract. Full texts were acquired for 160 articles, of which 60 could not be retrieved. Of the 100 studies assessed, 72 were excluded due to irrelevance, date range limitations, lack of peer-review, or secondary focus, resulting in 28 for inclusion. The PRISMA 2020 flow diagram is shown in Figure 2 below (Page et al., 2021), which illustrates the screening process. Given that systematic reviews inherently risk omitting pertinent literature and since some eligible studies may be absent from the initial databases, the addition of CNKI, AJOL, and SciELO was implemented to improve geographic and linguistic coverage and to strengthen the global representativeness of the findings.

Table 1. Final Boolean search syntax and term formulation for higher education massification

Categories	Search terms
Expansion	"higher education expansion" OR "expansion of higher education" OR "tertiary education development"
Democratization/ Massification	"democratization of higher education" OR "massification of higher education" OR "universal access"
Participation / Enrolment	"gross enrolment ratio" OR "student enrolment" OR "participation rate"
Governance / Quality	"academic quality" OR "quality assurance" OR "governance" OR "institutional capacity"
Combined Logic	(Expansion) AND (Democratization / Massification) AND (Participation / Enrolment) AND (Governance / Quality)

2.2 Inclusion and Exclusion Criteria

To ensure linguistic accessibility and quality of interpretation, eligible studies were limited to those published in English or French, the two academic languages in which the review team had full proficiency. The study includes empirical, peer-reviewed studies published between 2011 and 2024 to capture the post-2011 expansion of global discourse and research on massification. The year 2011 was selected as the starting point due to the renewed global commitments to equity, quality, and access in tertiary education following UNESCO's World Conference on Higher Education, which emphasized the democratization of higher education systems (UNESCO, 2009). The end point, 2024, was chosen to ensure that the review integrates the most recent peer-reviewed research reflecting ongoing policy, economic, and demographic changes influencing tertiary expansion (see Figure 1). Eligible studies were

required to employ an empirical design, including quantitative, qualitative, or mixed-methods methodologies, and to provide primary or systematically synthesized data. Moreover, included studies had to explicitly address the expansion or massification of higher education, whether through analysis of student enrolment patterns, policy reforms, institutional capacity, academic, quality, or graduate employability. To broaden the scope, grey literature such as conference proceeding and UNESCO reports were also considered.
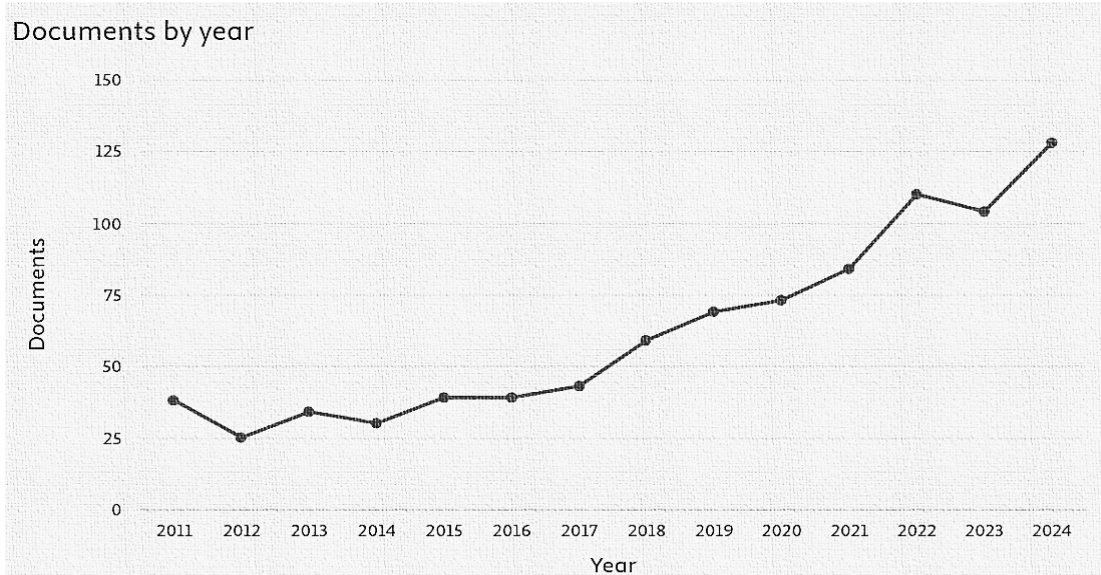

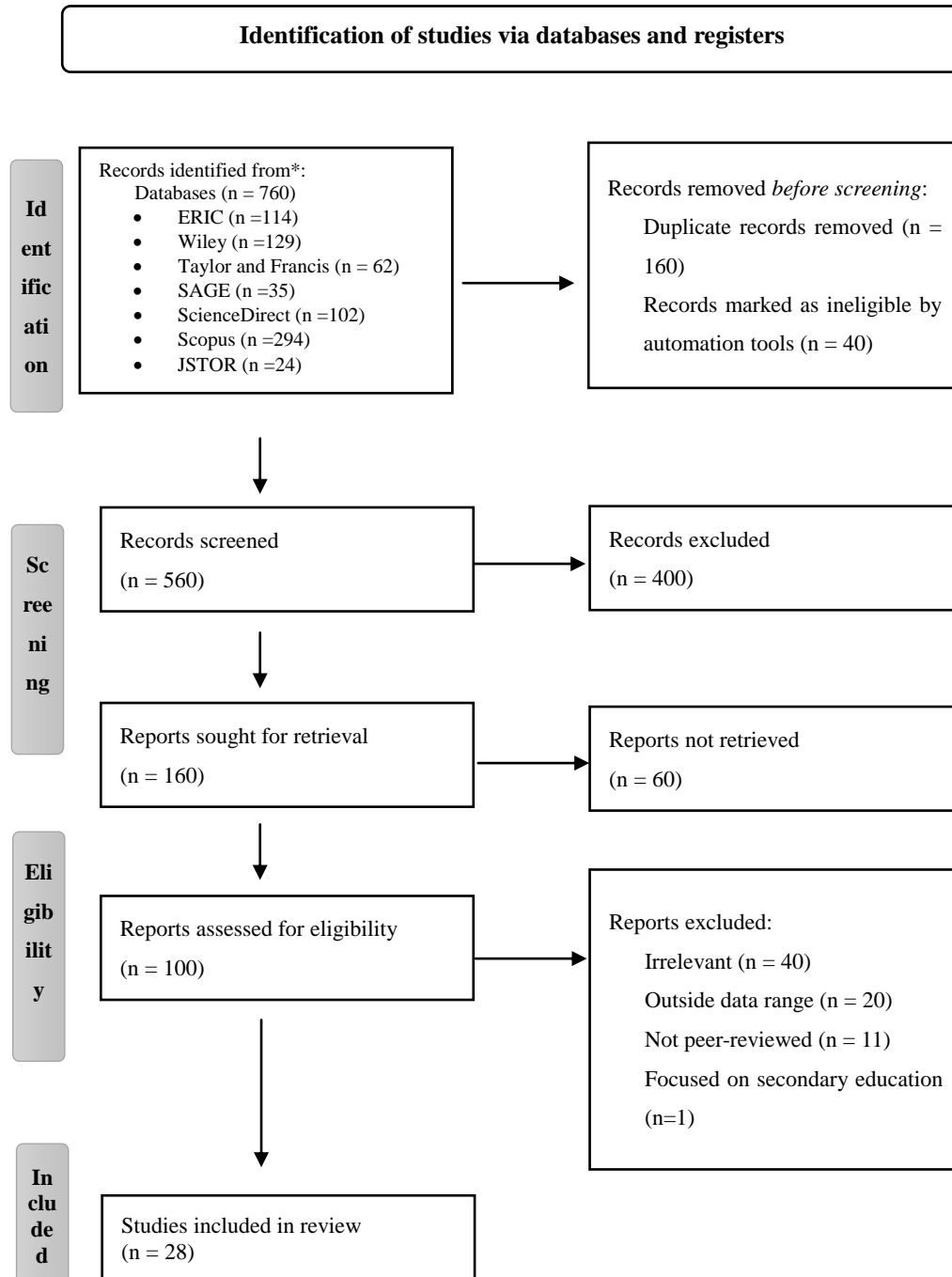Figure 1. Temporal distribution of included studies (2011-2024)

Identification of studies via databases and registers

Identification

Records identified from*:
Databases (n = 760)
- ERIC (n =114)
- Wiley (n =129)
- Taylor and Francis (n = 62)
- SAGE (n =35)
- ScienceDirect (n =102)
- Scopus (n =294)
- JSTOR (n =24)

Records removed *before screening*:

Duplicate records removed (n = 160)

Records marked as ineligible by automation tools (n = 40)

Screening

Records screened
(n = 560)

Records excluded
(n = 400)

Reports sought for retrieval
(n = 160)

Reports not retrieved
(n = 60)

Eligibility

Reports assessed for eligibility
(n = 100)

Reports excluded:

Irrelevant (n = 40)

Outside data range (n = 20)

Not peer-reviewed (n = 11)

Focused on secondary education (n=1)

Included

Studies included in review
(n = 28)

Figure 2. PRISMA 2020 flow diagram of study identification, screening,

eligibility assessment, and inclusion (Page et al., 2021)

2.3 Quality Assessment

Quality assessment used the MMAT (2018) framework, a unique tool that can be employed to evaluate the quality of various scholarly designs. The framework enables the evaluation of five types of studies: qualitative studies, randomized controlled trials, mixed-methods studies, quantitative descriptive studies, and non-randomized studies (Hong et al, 2018). Table 2 summarizes the results: all the studies articulate clear questions and appropriate designs; the qualitative studies show consistency between data and interpretation; the quantitative studies utilize accurate sampling and statistical techniques, and the mixed-methods studies integrate data well.

Table 2. MMAT 2018 appraisal of the included studies. (Note: Y = Yes, N=No and CT = Can't Tell)

Categories of study designs	Methodological quality criteria	Y	N	CT	Comments (Exemplars)
Screening (All studies)	S1. Are there clear research questions?	✓			Most studies (e.g., Ayeni & Olowe, 2016; Bar Haim & Shavit, 2013; Akalu 2017) state explicit objectives concerning drivers or consequences of massification.
	S2. Do the collected data allow addressing the research questions?	✓			Survey, cohort, and case-study data (e.g., Cin et al., 2021; Noui 2020; Mallik, 2023) align with stated questions on enrolment effects, quality, or employability.
Qualitative Studies	1.1 Is the qualitative approach appropriate to answer the research question?	✓			Case study and ethnographic approaches are well aligned with research aims. For example, Girmaw (2017) used a case study of Ethiopian higher education reforms, Tlali et al. (2019) analyzed classroom practices in Lesotho, and Mve (2021) applied qualitative inquiry to institutional responses in Cameroon.
	1.2 Are the qualitative data collection methods adequate?	✓			In-depth interviews with professors (Akalu, 2017) and combined-survey interviews were conducted.
	1.3 Are the findings adequately derived from the data?	✓			Interpretations in Girmaw (2017) and Mve (2021) closely follow thematic coding of transcripts.
	1.4 Is the interpretation of results sufficiently substantiated by data?	✓			Triangulation with institutional documents strengthens validity (e.g., Lesotho study by Tlali et al. 2019).
	1.5 Is there coherence between qualitative data sources, collection, analysis, and interpretation?	✓			All qualitative studies maintain alignment; for example, Ethiopia's case study clearly links interview guide to thematic analysis and discussion Girmaw (2017).
Quantitative (Descriptive)	2.1 Is the sampling strategy relevant to address the research question?	✓			Nigeria's large lecturer/student survey (Ayeni & Olowe, 2016) and Chinese census-based econometric study (Ou & Zhao 2022) use appropriate population samples.
	2.2 Is the sample representative of the target population?	✓			Studies using European Social Survey (Bar Haim & Shavit 2013) and UK cohort data reflect population-level representation
	2.3 Are the measurements appropriate?	✓			Likert-scale instruments in student surveys (Ayeni & Olowe 2016; Noui 2020) and enrolment metrics (Mohamedbhai 2014) are valid for studying the effects of massification.
	2.4 Is the risk of nonresponse bias low?		✓		Some surveys fail to report response rates (e.g., Noui 2020; Boliver 2011), limiting bias assessment.

	2.5 Is the statistical analysis appropriate to answer the research question?	✓	Ou & Zhao (2022) appropriately apply difference-in-differences econometric model, providing a strong statistical analysis aligned with the research question
Quantitative (Non-randomized)	3.1 Are participants representative of the population targeted by the research?	✓	Large panel samples in China (Mok & Jiang, 2018) and labor force surveys in Turkey (Cin et al., 2021) reflect targeted graduate or workforce cohorts.
	3.2 Are measurements appropriate regarding both the outcome and the intervention/exposure?	✓	Employment outcomes and GER measures are reliably operationalized in studies like Mok & Jiang (2016) and Mve (2021). Student surveys over a five-year period and staff questionnaires and interviews demonstrate representativeness and strong design (Giannakis & Bullivant, 2016).
	3.3 Are there complete outcome data?	✓	Longitudinal analyses of expansion (e.g., Ou & Zhao, 2022; Mohamedbhai, 2014), provide comprehensive datasets with minimal missing data
	3.4 Are confounders accounted for in the design and analysis?	✓	Only some econometric studies (Ou & Zhao 2022) control for regional covariates; cross-national comparisons often omit contextual confounders.
	3.5 During the study period, is the intervention/exposure administered as intended?	✓	Policy reform dates (e.g., China's 1999 expansion; India's Institutes Act) are clearly defined in longitudinal analyses (Mok, 2016 and Zha, 2011)
Mixed-Methods Studies	4.1 Is there an adequate rationale for using a mixed methods design?	✓	Bangladesh's study (Mallik, 2023) justifies integration survey and interview to capture multidimensional perspectives.
	4.2 Are the different components effectively integrated to answer the research question?	✓	Mallik (2023) and Girmaw (2017) triangulate quantitative facility data with qualitative interviews to enrich insights.
	4.3 Are the outputs of the qualitative and quantitative components adequately interpreted?	✓	Interpretations in mixed studies clearly interweave statistical trends with narrative themes, as in Kenya's institutional data analysis paired with faculty interviews (Kimathi & Henry, 2014).
	4.4 Are divergences between quantitative and qualitative results adequately addressed?	✓	Some studies note inconsistencies but do not fully reconcile these contrasts.

Table 2 applies the MMAT 2018 criteria to 28 primary studies, covering screening questions and study designs. All the studies met the basic standards of clear research questions and appropriate methods (Ayeni & Olowe, 2016; Ou & Zhao, 2022). The qualitative studies (Mve, 2021; Girmaw A. Akalu, 2017) have demonstrated methodological rigor, whereas the quantitative studies show strong sampling (Palinkas et al., 2015; Rabah, 2020). Although the mixed-methods studies integrate data well, the integration of findings is sometimes uneven (Mallik, 2023).

2.4 Data Extraction and Data Synthesis

To minimize bias and ensure consistency, we implemented a rigorous, three-phase data extraction protocol adapted from Zawacki-Richter et al. (2019), incorporating a blind review for interrater reliability (Temple, 2006). Three reviewers independently extracted bibliographic details (author, year, journal), study context (country, institutional type) in phase 1. Phase 2 involved coding thematic variables, drivers (economic, social, political, and cultural) and consequences (access, equality, quality, and employability), and the use of critical pedagogy frameworks-again by three independent coders. In phase 3, a consensus meeting reconciled disagreements and supplemented missing metadata (e.g. regional GDP, exact GER values) from original publications or authoritative databases. To validate consistency, three evaluators (Researcher A, the primary author; Researcher B, PhD candidate in Educational Psychology; and Researcher C, senior professor in the field of Education) conducted a blind review of a 20 per cent random sample of full-text articles. Their individual agreement rates were 94 per cent, 91 per cent, and 93 per cent, respectively, yielding an average interrater reliability of 92.7% ($92 + 91 + 93$) $\div 3 = 92.7$ per cent). Zotero facilitated reference management and cross checking, ensuring that all extracted data were complete, traceable, and reproducible.

A rigorous narrative synthesis was conducted following the framework outlined by Petticrew and Roberts (2006). First, an analytical matrix organized each study's characteristics, research design, regional context, sample demographics, and key findings included enabling systematic comparison across diverse settings. Second, thematic analysis identified recurring patterns and gaps within the four driver categories and four consequence domains. Third, cross-tabulations and frequency charts in Excel highlighted the geographic distribution of studies and the relative emphasis on each driver and outcome. To maintain methodological purity, secondary reviews and meta-analyses were explicitly excluded from synthesis (Moher et al., 2009). Finally, synthesized findings were contextualized through critical pedagogy lenses, mapping where transformative educational practices were investigated or recommended. This synthesis approach ensures transparency, depth of engagement with primary data, and actionable insights for policymakers and scholars.

3. Results

The synthesis of the 28 selected studies is organized into three interrelated dimensions that reflect both structural and pedagogical concerns. Accordingly, the related findings are presented in three sections: the conceptual boundaries of massification, its drivers and consequences, and the role of critical pedagogy in promoting equitable outcomes.

3.1 Conceptual Boundaries of Higher Education Massification and the Influence of Hypermassification

The shift in higher education from elite privilege to widespread public access is traditionally called massification. Trow's typology (1972; 2007) remains foundational, defining mass systems as those with participation exceeding 15% and universal systems at approximately 50%. However, this model has faced increasing criticism. Tight (2019) argued that massification represents not only a numerical shift but also a structural and cultural transformation. According to Guri-Rosenblit and colleagues (2007), massification reshapes both internal and external boundaries, which determine institutional inclusion, and external boundaries that structure international stratification among institutions, such as research universities and technical colleges. This evolving structure fosters diversification, including the rise of private and vocational institutions (Altbach et al., 2009).

In many low- and middle-income countries, massification has evolved into "hypermassification", where demands exceed institutional capacity. Molebatsi and McCowan (2022) describe African systems facing surge demand that outpaces support and quality assurance. For instance, in Togolese universities, overcrowded classes sometimes exceeding 3,000 students have severely deteriorated instructional quality (Tepe et al., 2025). Such rapid growth complicates coherent quality assurance. Enrolment numbers alone are thus not suffice for defining massification; a broader definition must also consider institutional capacity, student-faculty ratios, learning outcomes, and equitable access (Wit, H., & Reisberg, L, 2017).

China's rapid expansion highlights regional and urban–rural disparities in access and benefits (Zhao, 2023; Zha, 2011), suggesting that massification should be understood as a process that necessitates reforms to achieve social justice and sustainability. Contemporary discussions stress that the future of massification relies on both quantitative increases and inclusive quality (Tight, 2019; Molebatsi & McCowan, 2022). In the evolving landscape of higher education, hypermassification acts as a critical warning: without concomitant structural reforms, the massification project risks failing to achieve its core democratic objectives. The subsequent table (Table 3) encapsulates these insights by outlining the conceptual boundaries of massification and illustrating how the shift to hypermassification alters both opportunities and constraints within diverse higher education contexts.

Table 3. Conceptual boundaries of higher education massification and the influence of hypermassification

Themes	Conceptual boundaries and influence of hypermassification	Key evidence
Enrolment metrics	Massification defined by enrolment thresholds (15% mass; 50% universal). Hypermassification pushes systems beyond manageable capacity	Trow (1972; 2007); Tight (2019)
Systemic transformation	Expansion reshapes institutional roles and societal expectations beyond numbers.	Tight (2019); Molebatsi & McCowan (2022)
Institutional scope	Institutional hierarchy shift with growth. Reshapes both internal and external boundaries	Guri-Rosenblit et al. (2007); Altbach et al. (2009)
Diversity of providers	Diversification of institutions (public, private, vocational) and system differentiation	Altbach et al. (2009)
Resource Alignment	Sustainable expansion requires aligned investment in staff, infrastructure, and governance. Hypermassification exposes shortages, reducing quality.	Wit, H., & Reisberg, L. (2017); Molebatsi & McCowan (2022)
Equity	Aims for inclusivity and democratization of opportunity, often reproduces or exacerbates disparities in access, experience, and outcomes for disadvantaged groups.	Zha (2011); Zhao (2023)

Table 3 synthesizes the conceptual boundaries of higher education massification and underscores the ramification of hypermassification. The bounds are defined not only by enrolment thresholds, as originally proposed by Trow (1972; 2007), but also by institutional capacity, quality assurance, and equitable access. The examined studies highlight that although massification enhances participation and diversifies systems, hypermassification presents more severe issues, such as overcrowding, resource shortages, and regional disparities (Molebatsi & McCowan, 2022; Zhao, 2023; Tepe et al., 2025). The table functions as a conceptual framework delineating the intersection of quantitative expansion with structural, cultural, and social elements, highlighting both transformative potential and systemic pressure of higher education massification.

3.2 Drivers and Consequences of Higher Education Massification

Rooted in human capital theory, economic imperatives are a significant driver of higher education massification, leading governments to promote tertiary expansion as a means to stimulate economic growth and innovation (Carnoy, 2011; Brown & James, 2020). The transition to knowledge-based economies has driven states investment in universities to develop a skilled workforce (Carnoy, 2011). However, while massification aims to reduce poverty and promote social mobility, it can lead to credential inflation and declining wage premiums if labor market capacity is inadequate (Brown & James, 2020). This is evident in China, where the enrolment boom from 1999 to 2003 coincided with declining graduate salaries and an increase in informal employment (Ou & Zhao, 2022; Mok & Jiang, 2018). Despite demographic pressures and higher aspirations fuelling growth (Liu et al., 2016), access remains limited, with an underrepresentation of students from disadvantaged socioeconomic backgrounds in elite institutions (Boliver, 2011).

Meanwhile, political factors have significantly influenced massification through policy reforms and market liberalization. In Kenya, deregulation has expanded institutional capacity but has compromised quality and equity, especially in rural areas (Kimathi & Henry, 2014). Germany's post-2010 entitlement policy increased access while pressed academic standards (Mitterle, A., & and Stock, M., 2021). A comparable pattern is evident in Saudi Arabia, where Vision 2030 led to rapid enrolment growth; however, infrastructure and teaching quality lagged behind expansion (Owidah, 2023). The expansion of participation in higher education, as systems shift from elite to mass provision, raise concerns that quantity may compromises academic excellence and lower standard- a tension exemplified in Brazil, where growth has broadened access for women, older, and lower-income groups but has also introduced quality issues such as the dominance of for- profit providers and uneven student outcomes (Mello et al., 2023). Furthermore, Ramolobe and colleagues (2024) warn that space and venue constraints now impede teaching quality and campus infrastructure.

Cultural drivers, such as the growing symbolic value of university degrees, are also influencing factors, particularly in emerging economies. In China, middle-class aspirations are bolstering higher education demand that turns higher education into a key indicator of social prestige (Zha, 2011). However, rapid institutional growth can worsen

educational inequality in the absence of adequate resources (Bar Haim & Shavit, 2013). In Turkey, Cin and colleagues (2021) indicate that higher education increasing enrolment has paradoxically maintained gender-based labor market inequalities, highlighting cultural limits to the human-capital narrative. Despite massification, gender disparities persist, demonstrating that massification alone cannot shift entrenched socio-cultural hierarchies- a point underscored by UNESCO (2020), warning that expansion in the absence of targeted equity measures often reinforces social stratification. The interplay of these political and cultural factors is further exemplified in Table 4, which consolidates the principal drivers and their associated consequences across various national contexts.

Table 4. Drivers and consequences of higher education massification

Key drivers	Consequences	Key evidence
Economic imperatives	Credential inflation, wage premiums decline, and graduate underemployment.	Carnoy (2011); Brown & James (2020); Xu (2021); Mok & Jiang (2018)
Globalization & labor market	Increased job competition and inequities in access, favoring urban/wealthier students.	Mok (2016); Mok & Jiang (2018)
Political policies & marketisation	Expanded access with uneven quality and higher dropout rates.	Kimathi & Henry (2014); Mitterle, A., & Stock, M. (2021); Mok & Marginson (2021); Zhao (2023)
Social equity & stratification	Persistent stratification, with rural/low-income students underrepresented at elite schools.	Boliver (2011); Mohamedbhai (2014)
Cultural capital & competition	Intensified competition, credential devaluation, and reinforced social hierarchies.	Zha (2011); Mok (2016); Cin et al. (2021)
Employment & skill mismatch	Graduate outpace labor market demands, and mismatches between skills and employers' needs.	Mok (2016); Bar Haim & Shavit (2013)

The drivers of massification are complex and interconnected, resulting in diverse and often inconsistent outcomes. As presented in Table 4, economic imperatives, rooted in human capital and governmental investment in knowledge economies, fuel expansion. However, these forces interact with socio-cultural factors, including the growing symbolic value of higher education degrees. The consequences of massification are often paradoxical: while access to education increases, concerns such as credential inflation, skill mismatches, and the persistence of social stratification also emerge (Mok & Jiang, 2018; Brown & James, 2020; Boliver, 2011).

Collectively, these interdependent forces demonstrate that quantitative expansion, in the absence of proportional investment in quality, equity, and labor market relevance, risks transforming the potential of massification from a pathway of inclusion into a source of inequality and perceived quality decline (Giannakis & Bullivant, 2016; Salmi & Bassett, 2014). In response, critical pedagogy (Freire, 2020; Giroux, 2010) offers a fundamental reorientation, shifting the focus from mere numeric expansion to the quality and equity of educational process.

3.3 Critical Pedagogy as a Pathway to Empower Massification

Critical pedagogy offers an alternative to technocratic massification by emphasizing student agency, social context, and dialogic learning (Freire, 2020). Freire's "problem-posing" education challenges the "banking model," fostering collaborative inquiry that develops critical consciousness and empowerment. This approach redefines expansion not only as enrolment growth but also as an opportunity to create justice-oriented, democratic learning environments. This perspective is supported by evidence from many studies. For instance, Mallik (2023) reported that strong teacher-student relationships in large classes improved engagement and performance in Bangladesh. In Lesotho, Tlali et al. (2019) noted that massification has strained traditional assessments, advocating for meaningful, coconstructed assessments that align with student participation. Freirean mentorship structures were applied in the University of the Free State's Gateway first-year programme in South Africa, in classes exceeding 300 students. Using dialogic circles, scaffolded inquiry tasks, and structured reflection sessions, the approach improved retention and academic confidence, illustrating the role of dialogic pedagogy in resourced-constrained systems (Jacobs et al., 2024).

Moreover, critical approaches address cultural and social inequalities (Giroux, 2010). In Turkey, Cin and colleagues

(2021) report that expansion has not resolved gender disparities, highlighting the need for intersectional curricula to empower marginalized students. Similarly, in Nigeria, severe overcrowding in lecture halls physically limit interaction and diminish learning opportunities, a challenge compounded by inadequate infrastructure (Fabiyi & Uzoka, 2012). This congestion often excludes students from classrooms and impedes effective instruction. In response to such resource constraints, scholars advocate for prefigurative pedagogies. Bolin (2017) calls for coteaching and discussion forums as a means to foster student agency despite resource constraints. In Germany, Mitterle and Stock (2021) argue that massification has led to bureaucratization, weakening academic freedom; they call for faculty–student collaboration in curriculum design to restore democratic participation.

Politically, critical pedagogy aligns with equity-focused reform (Freire, 2020). According to Rabah (2020), peer mentoring and community-based learning hubs support underprepared students, echoing Salmi and Bassett's (2014) call for inclusive policies. Ultimately, critical pedagogy reframes massification as an ethical project, fostering dialogic teaching and culturally responsive curricula to ensure that access leads to justice, transformation, and empowerment. Table 5 synthesizes key themes of critical pedagogy from the reviewed literature, demonstrating how dialogic, participatory, and justice-oriented pedagogies can foster empowering and socially responsive models of mass higher education.

Table 5. Critical pedagogy themes for a just and empowering massification of higher education

Themes	Main results	Authors & Year
Dialogic, problem-posing	Promotes collaborative inquiry into societal issues	Freire (2020); Giroux (2010)
Participatory, community-centered institutions	Fosters student agency and coconstruction of knowledge and governance	Montoya-Peláez et al. (2021)
Liberatory and resistant	Challenges neoliberal, market-driven models of education, prioritize equity as a public good.	Henry Giroux (2010)
Prefigurative democratic education	Encourages student involvement in shaping educational systems, promotes inclusivity and accountability.	Bolin (2017)
Opposition to the "banking model"	Replaces passive learning with interactive methods	Henry Giroux (2010)
Critical pedagogy	Links learning to students' lived experiences, culture, and local environment	Ou & Zhao, 2022

The thematic analysis of critical pedagogy within massified higher education reveals interconnected dimensions, such as dialogic, participatory, liberatory, democratic, resistant, and place-based approaches, that collectively reframe massification as transformative rather than merely administrative phenomenon. The synthesis indicates that these pedagogical strategies foster critical consciousness and student empowerment (Freire, 2020; Giroux, 2010). A notable pattern is the transformative role of dialogic, student-centered learning in restoring agency in overcrowded classrooms (Mallik, 2023; Tlali et al., 2019).

Participatory and community-centered institutions integrate local knowledge to improve inclusion and retention (Montoya-Peláez et al., 2021); but exceptions occur when rigid bureaucratic or neoliberal governance models limit curricular flexibility and undermine academic autonomy, as seen in Germany (Mitterle, A., & Stock, M., 2021) or Saudi Arabia (Owidah, 2023). Liberatory frameworks (Giroux, 2010) challenges neoliberal paradigms by prioritizing equity and social justice. Moreover, democratic and prefigurative education (Bolin, 2017) fosters cogovernance and accountability, whereas opposing to the "banking model" (Freire, 2020) reinstates learner agency within congested systems. Place-based critical pedagogy (Ogawa, 2024; Mve, 2021) connects learning to cultural and environmental settings, thereby ensuring relevance and fostering community empowerment. In summary, the above thematic synthesis indicates that integrating critical pedagogy into hypermassified systems can mitigate the alienating effects of massification, reinforce academic freedom, and promote context-responsive, socially equitable, and empowering outcomes in higher education.

4. Discussion

The above results collectively reimagine massification as a political, structural, and pedagogical process rather than a purely quantitative one. While earlier related literatures often emphasized enrolment growth or system capacity, this review shows that massification must also be understood as a political and cultural project with implications for equity and justice. The following section discusses the three themes: reinterpreting Trow's typology, examining the interplay of drivers and its consequences, and considering critical pedagogy as a transformative lens for equitable massification.

4.1 Beyond Trow's Typology

Our review reaffirms Trow's (1972; 2007) typology as the foundational heuristic for understanding massification but emphasizes the fluidity between elite, mass, and universal stages. Nonlinear, cyclical patterns characterize the evolution of massification. In Togo, Tepe et al. (2025) document the phenomenon of: "hypermassification", an accelerated expansion followed by retrenchment, which challenges static models and suggests the need for dynamic frameworks to account for real-time shifts in participation and policy responsiveness. In Sub-Saharan Africa, a 60 % threshold is often used to define massification, reflecting demographic pressures such as a youth surge and postponed industrialization (Mohamedbhai, 2014; Kimathi & Henry, 2014). As Mve (2020) observes, massification manifests through enrolment growth that frequently exceeds the availability of material, human, and infrastructural resources, thereby raising critical questions about institutional capacity and educational quality. These variations indicate that massification is influenced by regional development and political priorities. Tight (2019) critiques the rigidity of 15 % and 50 % cut-offs, showing that elite universities coexist with their massified counterparts, while "postmass" systems blend elite, vocational, and universal aims, blurring Trow's original boundaries.

4.2 Drivers, Consequences, and Policy Dynamics

Massification is driven by political and economic imperatives linked to human capital theory, as governments aim to align tertiary education with job market demands and national development goals (Brown & James, 2020; Carnoy, 2011). Political design significantly mediates these efforts. For instance, Australia's demand-driven model improved access but increased dropout rates, whereas Colombia's targeted scholarships increased rural participation but accelerated privatization, disadvantaging the poorest (Mok & Marginson, 2021; Blanden & Machin, 2004; Mackenzie, 2022).

Social and cultural factors, such as increased female participation and secondary school completion, increase tertiary demand, although outcomes continue to reflect gender and geographic disparities (Cin et al., 2021; Liu et al., 2016). Similarly, Mohamedbhai (2014) notes that disparities continue, especially in underfunded African contexts, where increased access surpasses quality delivery, resulting in an "equity paradox": increased access alongside poorer outcomes. Our review highlights that rapid growth has intensified credential inflation and underemployment, with Mok and Jiang (2018) demonstrating a decline in wage premiums in China. Expansion reduces the share of highly skilled employment among tertiary-educated population, but also negatively affects employment among the non-tertiary education population through crowding-out effects (Xuezhi, 2019). Encouragingly, Zhao (2023) indicates that targeted scholarships in China narrowed disparities in rural and urban enrolment, which highlights that combining cultural drivers with economic policies can enhance access and outcomes.

4.3 Critical Pedagogy as a Transformative Lens

Freirean and Girouxian critical pedagogy conceptualizes massification as a transformative project aimed at democratizing access, participation, and knowledge production. Freire (2020) advocates dialogic, problem-posing education that challenges oppression and enhances critical consciousness. Giroux (2010) considers education a site of democratic struggle, urging curricula and governance to resist neoliberal reductionism. Giroux expands these arguments by emphasizing that freedom from neoliberal paradigms requires reclaiming pedagogy as a social benefit rather than a market commodity. In massified systems, critical pedagogy reframes expansion not as quantitative growth but as an ethical and dialogic enterprise that seeks justice, participation, and empowerment. Therefore, empirical studies underscore the necessity of this approach.

Our synthesis shows that when these principles are adopted—as in Lesotho, Cameroon, and Bangladesh—marginalized students exhibit higher engagement and retention, even in overcrowded settings (Tlali et al., 2019; Mve, 2021; Mallik, 2023). They merge its core principles such as dialogic learning, conscientization, and praxis with indigenous educational models centered on territory, language, and community autonomy. This integration enables these institutions to offer massified, relevant higher education that forms community leaders and reinforces social movements, showing how the use of critical pedagogy serves to include traditionally excluded

within expanded systems. Further evidence comes from Columbia and Mexico intercultural universities where rural higher education institutions implemented 'dialogic extension classrooms' that 'communalized' educational models centered on territory, language and community autonomy. These initiatives enhanced relevance, strengthened university-community ties, and improved retention among indigenous and Afro-descendant students (Montoya-Peláez et al., 2021).

Critical pedagogy also highlights the social and cultural dimensions of higher education expansion. For instance, Cin, Gümüş, and Weiss (2021) examine how Turkey's rapid growth in higher education has paradoxically reproduced gender inequalities in the labor market, despite increased female participation. Curricular reforms engaged students in analyzing how social structures, such as patriarchy, shape educational experiences and employment outcomes. In resource-constrained contexts, critical pedagogy provides pathways for resistance and transformation. In overcrowded South African lecture halls, prefigurative pedagogies, such as coteaching and collaborative discussion forums, promoted student agency even amid resource limitations (Ramolobe et al., 2024). A further example is provided by Duhaylongsod et al. (2015), who designed a history lesson centered on a formal debate. Students were tasked with evaluating Egyptian pharaohs as either "wise investors or wasteful spenders," requiring them to analyze the primary sources, weigh evidence, and engage in reasoned dialogue. This approach transformed a conventional lesson into a Freirean problem-posing exercise, fostering critical thinking as students connected historical analysis to broader questions of resource allocation and power. The outcome was a classroom in which learners actively constructed knowledge through debate, moving beyond passive reception to active critical engagement.

At a systemic level, the effectiveness of massification depends on whether institutional structures allow such democratic practices to flourish. Institutions that embed critical pedagogy—such as those in parts of Latin America—achieve more equitable outcomes by prioritizing empowerment over credentialism (Montoya-Peláez et al., 2021). Conversely, systems constrained by rigid accountability regimes, like Germany's bureaucratic structures, tend to hinder dialogic and participatory learning (Mitterle & Stock, 2021). This contrast illustrates that pedagogical reform must accompany structural change to avoid massification reproducing inequalities. Place-based pedagogies in Kenya and rural China further demonstrate how Freirean principles can promote equity by grounding learning in students' lived experiences and local contexts (Ogawa, 2024; Zha, 2011). Thus, critical pedagogy aligns the quantitative goals of massification with qualitative transformations in curriculum, governance, and learner agency.

Ultimately, the transformative potential of critical pedagogy lies in its insistence that access must lead to liberation and collective empowerment. By linking democratic participation with culturally responsive teaching, it ensures that massification becomes a means of social justice rather than stratification (Freire, 2020; Giroux, 2010). Equitable massification therefore relies not only on expanding enrolment but also on cultivating educational spaces where students and faculty coconstruct knowledge and reclaim higher education as a public good.

Critical pedagogy provides a vital pedagogical framework for equitable massification; however, its efficacy can be significantly enhanced through complementary structural, technological, and policy reforms. Empirical studies reveal that digital platforms hold significant potential for scaling participatory practices within massified classrooms (Dhawan, 2020). Specifically, blended and flipped learning models (Aznar-Díaz et al., 2020), online collaboration platforms, digital storytelling (Schrum, 2023), and mobile technology (m-learning) (Okai-Ugbaje et al., 2022) can transcend the limitations of overcrowded physical spaces by fostering expanded learning communities. Policy reforms must address teacher training in innovative pedagogies, invest in equitable digital access, and redesign evaluation systems that prioritize autonomy, collaboration, and engagement over rote memorization. Further essential reforms involve system differentiation and funding. Diversified higher education system with clear, distinct missions (research, vocational, teaching-intensive) can alleviate homogenization pressures, while equitable funding models allocating resources according to the enrolment and success of underrepresented groups can create the necessary conditions for critical pedagogies to flourish. These strategies serve not as substitutes but complementary levers that help establish the institutional and systemic environments for realizing critical pedagogy's transformative potential. Consequently, future policy and research should thus explore the intersection of critical pedagogy, purposeful technology integration, and equitable resource allocation.

4.4 Implications for Policy and Practice

This review yields several implications for higher education policymakers, practitioners, and institutions seeking to address the challenges associated with the massification of higher education. First, policymakers should reconceptualize massification as a complex process that balances access, quality, and equity. Investment strategies should shift solely focusing on enrolment targets to enhancing overall institutional capacity, including increasing faculty numbers, enhancing student-faculty ratios, and upgrading infrastructure (Tepe et al., 2025; Molebatsi &

McCowan, 2022). Funding models must be equity-focused, directing more resources to institutions with high proportions of disadvantaged students and linking funding to retention and success rates to these groups (Zhao, 2023; Salmi & Bassett, 2014). Policy frameworks should also incentivize innovative, student-centered pedagogies by integrating teaching excellence and critical pedagogies into quality assurance and performance-based funding (Tlali et al., 2019). Differentiation policies that promote a diverse higher education system with distinct missions- research, teaching, and vocational- can reduce homogenization and align education with diverse labor market needs (Altbach et al., 2009; Tight, 2019). Second, institutions must integrate critical pedagogy into teaching and assessment practices to enhance engagement and learning in large cohorts. This can be achieved through teaching innovation grants and by recognizing pedagogical contributions in promotion criteria. Collaborative governance actively involving students, faculty, and local communities can strengthen accountability and align educational provision with social needs (Mitterle & Stock, 2021), ensuring institutional legitimacy and responsiveness to diverse stakeholders (Mallik, 2023; Mve, 2021). Furthermore, institutions need to establish comprehensive academic and holistic support systems, such as peer-mentoring networks and community engaged learning centers, to support students from diverse backgrounds and address the equity paradox.

These collaborations can improve the relevance and outcomes of higher education, particularly in settings where rapid expansion has outpaced economic growth. Overall, an effective response to the challenges of massification requires the integration of structural investment, pedagogical reform, and labor-market alignment, thereby transforming quantitative expansion into equitable, high-quality, and socially responsive higher education.

4.5 Limitations of the Study

This study has several limitations that should be acknowledged. First, the database search was restricted to seven major sources and to articles published in English or French between 2011 and 2024. As a result, potentially relevant studies in other languages, such as Chinese, Spanish, or Portuguese, as well as works published outside this timeframe may have been omitted. While this ensured methodological consistency, it may limit the global representativeness of the findings. Second, only peer-reviewed journal articles were included. Excluding grey literature, and policy reports may have narrowed insights into the practical and institutional dimensions of massification, especially in regions where empirical publication is limited. Third, although the MMAT 2018 framework provided a robust tool for assessing study quality, the appraisal was dependent on the reporting standards of the included articles, which sometimes lacked details. Despite these constraints, the review offers a comprehensive synthesis of diverse empirical evidences and integrates conceptual, structural, and pedagogical perspectives in a way that previous studies have not. Future research should adopt dynamic, longitudinal frameworks to capture the non-linear trajectories of massification, including oscillations between growth and retrenchment (Liu, Green, & Pensiero, 2016). Research should expand to include underrepresented regions-often documented in local languages and grey literature (e.g., policy reports and institutional evaluations), to develop a global and diverse understanding of massification (Mohamedbhai, 2014; Zha, 2011). Studies should also explore how technology can support dialogic and participatory learning while addressing the digital divide (Giroux, 2010). Additionally, research is needed on effective models of institutional governance and financing to balance pedagogical innovation, quality maintenance, and equity in diverse political and economic contexts (Brown & James, 2020; Carnoy, 2011).

5. Conclusion

This review demonstrates that higher education massification can no longer be adequately captured by static enrolment thresholds. Rather, it represents a complex process shaped by demographic pressures, policy reforms, and socioeconomic transformations, and it also raises pressing concerns about quality, equity, and labor market relevance. The analysis underscores that, without careful alignment of participation, resources, and pedagogy, massification may inadvertently reinforce existing inequalities instead of mitigating them. By foregrounding critical pedagogy, this review identifies potential pathways for transforming massification into a more democratic, participatory, and socially just process. Future research should continue to advance this agenda through longitudinal, comparative, and mixed-methods studies that capture the evolving realities of global massification.

6. Funding Information

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